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THE SPIRIT OF DEFENCE AND ITS DETERMINANTS

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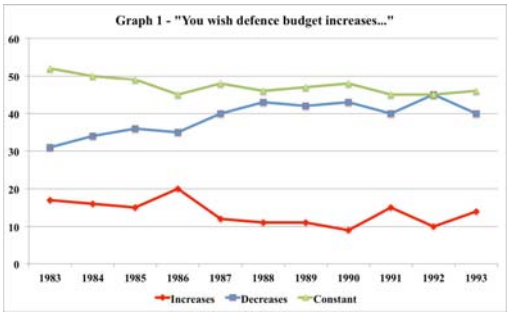
In the 1789 Declaration of the Rights of Man and of the Citizen, one can read: "For the maintenance of the public force (…) a common contribution is essential. All the citizens have a right to record by themselves, or by their representatives, the necessity of the public contribution, to consent to it, to follow its use" [1]. From a patriotic point of view, the necessity of the public contribution for the maintenance of the public force is not disputable, it is an axiom, for the nation's vital, or even fundamental, interests are priceless, so that the defence of their integrity may justify from any citizen a total engagement that is to the death. It is what general Joseph Joffre affirmed, one century ago, in his famous order of the day to an army of mobilized citizens, on the 6th of September 1914, at the beginning of the battle of the Marne: "At the moment when a battle begins of which the country's safety depends, it imports to recall to all that the moment is no longer to look at the rear. All the efforts have to be used to attack and repel the enemy. Any troop that cannot advance has to keep the conquered ground at all costs and be killed rather than draw back. In the present circumstances, no weakness can be tolerated" [2] This conception refers to the idea that the citizen, mentioned in the Declaration is the last wall of the city in the extreme situations and is related to the word: "patriotism". In this case it is better to quote Thucydides: "If we turn to our military policy, we differ also from our antagonists (…) trusting less in system and policy than to the native spirit of our citizens" [3]. The expression "native spirit" is ambiguous and the word "patriotism" has no longer, to day, the favour it had during the years of the Great War, especially because it is naturally associated with the war, because the war reveals the patriotism or because the patriotism causes the war, through the nationalism. In the current French political discourse, one prefers to use the expression "spirit of defence", by which the official language means the community's willingness to use the force, if necessary, to defend their interests. Knowing the violence that seems to haunt the mankind, this spirit of defence may appear natural, if it had not a return: to carry violence against others means to accept suffering their own violence. So the willingness to defend oneself is expressed by the consent to pay in "blood, toil, tears and sweat" [4]. But only the ordeal allows knowing if a spirit of defence animates people or not. It is easy to say a posteriori that in 1914 the French people showed more patriotism than their sons in 1940 [5]. It would have been more difficult a priori, even if the "blue line of the Vosges" ideology prepared better to the

sacrifices of the Marne, and the "war to end all wars" ideology to the "shame" [6] of Munich and to the debacle. But there are prices that are paid without any such ordeal: for preparing oneself to face up a potential ordeal or for organizing its deterrence [7]. In this case, "sweat" means "money" through the military expenditures or the defence effort. The first expression simply designates the funds allocated to the maintenance of the military services. It is useless as soon as one is interested in a comparison through time or space. The defence effort, which refers to the ratio of military expenditures to state's budget, or national income or gross domestic product, has no such weakness. And by its connotation of sacrifice, it is well adapted to the concept of spirit of defence [8]. Anyway, defence economists have tried for a long time to explain statistically the defence expenditures or effort accepted by one or several states. Among explanatory variables one finds: the gross national product; the population; the enemy's military expenditures; the allies' military expenditures; political ideologies; border length; communication lines length [9]… Economists have tried a lot of statistical relations between the defence effort or expenditures and different explanatory variables [10], ending up in contradictory conclusions because applied to different countries, in different periods and with different statistical methods. This disappointing statement shows perhaps that there is a missing link in the explanatory line. And this link could be the nation's spirit of defence. It would explain why, in front of a given threat, a given vulnerability, and with given resources, they may as well increase their effort as cut it or do nothing. But at a condition: this intermediary variable has to be constant or follow a known law of variation. The present paper will be dedicated to the study of this intermediation. The first part will present the "consent to pay" concept and give its measure in the French case. The second part will try to make a list of its potential determinants and to test them as explanatory variables.

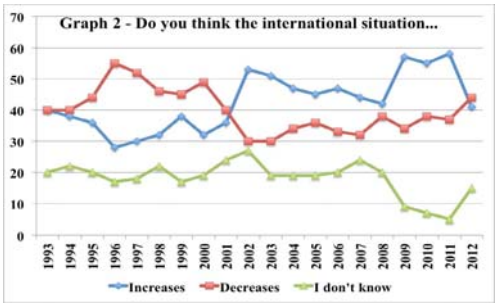
1 IN SEARCH OF THE FRENCH PEOPLE CONSENT TO PAY FOR DEFENCE

The word consent is rather absent of the economic language that prefers to use "propensity": "We will therefore define what we shall call the propensity to consume as the functional relationship χ between Yw a given level of income in terms of wage-units, and Cw the expenditure on consumption out of that level of income" [11]. So the reasoning shows a dependent variable, consumption, and an explanatory one, income, linked together by a proportionality coefficient. But the same reasoning adds that this coefficient could well be variable so that the consumption could vary non-proportionally to the income. So studying the propensity determinants becomes very useful when trying to forecast the effects of income variations on consumption, even if one decides that because of the length of the chosen period, these determinants have no effect, so that one can reason as if the propensity was constant: "For whilst the other factors are capable of varying (and this must not be forgotten), the aggregate income measured in terms of the wage-unit is, as a rule, the principal variable upon which the consumption-constituent of the aggregate demand function will depend" [12]. The propensity, because of the precedent definition, belongs to the macroeconomics world. On the contrary the expenditure for defence, introducing the idea of choice with other public expenditures, belongs rather to the microeconomics field. This idea of choice is one of the reasons having induced the professionals to adopt the word "willingness". So according to Paul Krugman and Robin Wells, "A consumer's willingness to pay is the maximum price at which he or she would buy that good" [13]. This definition seems perfectly suitable for the present question, because the willingness to pay for defence would be a good indicator of the people's spirit of defence. And from "willingness to pay" to "consent to pay" there is only one small step. If the propensity to consume was measured ex post because of its postulated stability, the willingness – or consent -to pay is only useful if measured ex ante, so that the

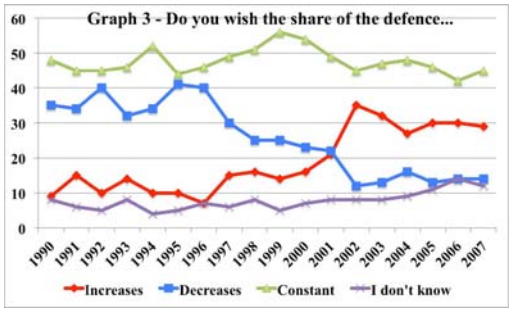
producer is able to build a production and marketing strategy. Consequently the question is to identify the applicable measurement methods. According to the specialists [14], there are two families of methods: "stated preferences" or "revealed preferences". "Preferences" because for a given purchasing power, the consumer has to choose among all the products offered by the market for satisfying their needs, and this choice is depending upon the relative prices and their preferences. The preferences are "stated" simply when the question is directly asked to a sample of consumers. If it appears impossible to ask the question for fear of insincerity principally, one has to rely upon what is "revealed" by the behaviour of consumers on a similar market or on a simulated one (experimental economics). Because the present case concerns a "public" [15] good rather than a "private" one and citizens rather than consumers, it seems logical to presume their sincerity and to ask directly the question of a preference for defence with or without mentioning the public goods to sacrifice consequently. This is apparently the conclusion drawn by the French ministry of defence through their communication policy followed for 30 years. Every year the ministry organizes a large opinion poll for knowing the perception of threats, the willingness to use the armed forces, the appreciation of their quality and the acceptability of the defence effort. The first question about the defence budget was administered during the period 1983-1993 and was very simple: "Do you wish the military budget to increase, decrease, remain constant?" But it is well known that it is not a good way to approach the idea of effort, or even of sacrifice: as it was said upper, there is only a meaning for the consent to pay if the decision is taken with a clear knowledge of what is to be renounced in consequence. To ignore the resources financing the defence budget is to ignore also that a decision to increase the budget may go hand in hand with a decrease as well as with an increase of the effort, according with the independent evolution of those resources.



Of course, there exists a majority of French people satisfied with the present level of expenditures, but it is a relative one, in front of the strong minority of those preferring a decrease. Not only these ones are 2 to 2.5 times more numerous than those wanting an increase, but also the gap is increasing along the decade. Anyway, when examining these data it appears that the consent of French people to pay for defence has not ceased to crumble. Maybe it is the effect of a growing perception of the economic crisis, making the defence budget less and less bearable in a context of declining threats due to Cold War end. This first question was replaced in 1993 by a new one, a bit more explicit: "Do you think that the international situation justifies a progressive reduction of our military expenditures or that it makes an additional effort of France necessary?"



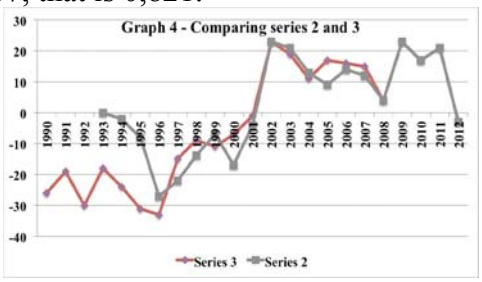
The substitution of "military expenditures" to "military budget" has surely no consequence, because, for the sample, these two words are certainly synonymous. But a confusion becomes possible because two different words, not synonymous, are used for treating on one part a "reduction of military expenditures" and on the other one "an additional effort". The comparison with the precedent graph is surprising by the difference appearing on the year 1993: a gap of 25 points between plus and minus in the first case, nil in the second one. The appearance of "the international situation" in the question is certainly unimportant for the result, so that the principal difference between the two questions is in the possibility to answer: "remains constant" in the first one, and only "I don't know" in the second one. And there are only 15% of answers "I don't know" against 45% "constant", the answer "additional" catching the difference. Does this mean that the answer "constant" had a positive connotation for the persons asked? And if it is the case, what is the consequence for the rest of the study? The precedent criticism upon the ambiguity of a question with absolute terms was certainly understood also by the persons in charge of the poll, because since 1990 and until 2007, a new question is asked: "Do you wish that the share of the military budget in the state budget increases, decreases or remain grossly the same as today?" This means that the persons polled are supposed to have in mind a preference scale of the different functions of the state before answering the questions: they are supposed to know what they would accept to renounce for increasing the share given to defence and reciprocally.



The impression given by this new graph breaks with what was mentioned above. From 1996, the tendency of the consent to decrease is reversed, so that after 2001 the opinions for the increase outclass those for the decrease, thanks also to a reduction of the share of the opinions for the stability. Unhappily in 2007 this question disappeared of the polls without any explanation. At this moment, the presented material has two weaknesses. First there are 4 series of data though only one expression of the consent is necessary. The second weakness is that none of the statistical series studied reaches the threshold of 30 observations, necessary for using mighty statistical tools. Therefore it is desirable to see how it is possible to synthetize all the information given by the polls in a unique indicator carried without bias by the same series all along the period 1983-2007. A number of researchers have already encountered this problem and solutions exist like the one suggested by Higgs and Kilduff [16]: "*Many of those who express a preference for the existing level of spending surely do so because they have little information or interest in the matter; hence in reality they do not differ from those who explicitly respond with "no opinion." In any event, whether a respondent actively prefers the existing level of spending or has no opinion, the effect on policy decisions (if any) is the same -preservation of the status quo"*.

This proposition allows mingling two series in one and reducing the total number of series from four to three. Even, it is possible to descend to one by drawing all the consequences of the precedent reflection: the only opinions able to influence the defence policy – if any – are those demanding a change. Consequently, by calculating a balance or a ratio between the respective numbers of opinions for the increase and the decrease allows to get a unique indicator of the consent to pay. This method is quite common

in the literature upon the political opinions: it is interesting by giving the relative value of an opinion. For instance, knowing that 40% of the persons polled think desirable to increase the defence budget is certainly interesting per se, but it takes its full meaning only by comparison – while by difference or by ratio – to the percentage of persons polled who think that a decrease is necessary. This being given, the building of this type of indicator leaves a new indetermination, because without a reference to raw data, one doesn't know why the difference or the ratio grows or diminishes. It could be tempting to weight the result with the number of answers "I don't know" and "constant" but this would be meaningful only by giving this data an "increase" or "decrease" connotation, which is not the case. When it comes to the building of a unique series 1983-2007, the simplest is to tempt joining the three observed series, maybe after adaptation. It appears that the more ancient series overlaps the second one during one year and the third during three years. It is therefore necessary to see what happens during the overlapping periods. First it appears that in 1993, there is only one common point between series 1 and 2, concerning the answers "decrease". On the contrary, between the series 1 and 3 the coincidences are simultaneously important and surprising. On one part, there is a perfect similarity about the answers "increase" and "constant", on the period 1990-1993, and the answer "decrease" of the third series is the perfect sum of the answers "decrease" and "I don't know" of the third series. Such a statement is evidently troubling, giving the impression that an error was committed on the series 1 in the document published by the ministry of defence in 1993. At the same time, the perfect similarity of the numbers after correction gives to think that it is possible to link both series. This imposes to correct the data of series 1, following what the ministry did – without telling – for the years 1990-1993, by extracting from the answers "decrease" an estimation of the answers "I don't know". There does not exist a perfectly correct method to do that, because it is impossible with the existing data, to know if the rate of non-answer is determined and how, by the explicit answers of the poll. So one will have to satisfy oneself with taking the average of the percentages observed on the period 1990-1993 and deducting it from the percentages of answers "decrease" on the period 1983-1989 [17]. It remains the question to know if it is possible to prolong the series 1+3 so constituted, from 2007 to 2012, by using the series 2 as a guide. One answer to this question may be found by comparing the balance curves of both series. As it is shown on the graph below, both curves are clearly coherent, especially since 1993, at the exception of 2000. This impression is strongly supported by the value of the correlation coefficient during the common period 1993-2007, that is 0,821.



2 LIST AND TEST OF THE CONSENT TO PAY FOR DEFENCE DETERMINANTS

In a famous study, the meteorologist Lewis F. Richardson [18] puts that the armaments race is linked to three explanatory variables. The "grievance" is in some sort the degree of

hatred for the "other one", it is a structural determinant inciting to get armaments in any circumstance; "defence" is a positive cause linking the armament expenditures of the country to those of the adversary country, by a proportionality coefficient; on the contrary, "fatigue" is a negative determinant linking the armament expenditures to the armament stock already built, that is to the expenditures already made. If one dismisses the "grievance", which would oblige to designate particular states, the two other ones give good criteria to list all the determinants of the consent to pay, even if the consent itself does not determine the actual expenditures. So, in what follows the variables able to be classified as "defence" or "fatigue" will be listed and for each of them the existence of a relation of cause and effect with the consent to pay will be tested. There are two ways for considering this question, by using either opinions or objective indicators referring to risks, threats and aggressions.

21 – VARIABLES
A – "DEFENCE" VARIABLES

The threat perception seems to be the first positive determinant to be considered. Indeed in the definition of defence by the official texts, it is a mean for "*assuring the territory integrity and the people protection against the armed aggressions*" [19]. So it was logical that such a question was asked. In fact the question asked is not "*do you feel more or less safe*" but "*what sort of attack do you fear most: terrorist, nuclear, classical, chemical*?" Simply, the results exist only between 1991 and 2006, that is only 15 data, against 30 for the consent. If one goes back to Richardson and the relation between his two "playing" [20] states, it appears that the world military expenditures can be a good threat indicator. And it happens that the data about world military expenditures are regularly advertised so that they can influence the people perception of threats. The best-known data in this field are those published by the Stockholm Peace Research Institute (SIPRI) especially on their web site [21]. The only weakness is that the long series of world expenditures is only published since 1988, that is 5 years after the series of consent. But that means 25

More interesting on the ground of availability is the Upsala Conflict Data Progam (UCDP) base [22]. It lists all the conflicts during the period 1946-2013 [23]. It is unlikely that the people know this database and even its content, because of the slight coverage offered by the media to this enormous collection and classification work. But what is said by these data about global safety cannot differ much of what is said by the sources commonly used by the people. There exists a third possibility, through the US military expenditures. They are very sensitive to the strategic context because of the role of international gendarme assumed by the USA. For example, during the Cold War times, the United States expended a lot of energy to have a trustable measure of Soviet military expenditures for adapting their own military policy [24]. And these expenditures, at least as a tendency, are very probably known by a significant part of the people. Besides they are available for the whole period covered by the polls. From another point of view, it is possible to think that the French people are well informed about the number of French losses in operation. It is not guaranteed that they remember this number when they answer the questions of the poll, but it is possible. These data are accessible but less easily that those of SIPRI or UCDP, because they have to be asked with a responsibility engagement to the Veterans ministry [25]. This variable is also statistically interesting because it largely covers the period under examination, then because it is as reliable as possible. Indeed it is almost impossible that a French soldier is lost without their disappearance is immediately known by their hierarchy and consequently by their family. The result is that this database gives the possibility to rebuild the totals, name-by-name, date-by-date and place-by-place, that is with a tiny risk of inaccuracy. All these indicators of global security give only one part of the consent to pay causal chain. The risk, threat and aggressions perception ought only to run into a demand of military expenditures and a consent to pay, if moreover the people trusted the military capabilities. And this is exactly one of the first questions that have been asked by the ministry: "*have you a very good, rather good, rather bad, very*

bad opinion on the armed services?". The answers have been almost immediately very positive but have remained at this high level without varying. So they cannot statistically explain the significant variations of the consent to pay. It is the same thing with the question "For each of the following missions, do you think that the use of the French armed forces is priority?" The score of the less quoted mission, "to destroy a terrorism centre [26]", increases from 74% in 1991 to 86% in 2006, without variations not exceeding 5 points.

B – "FATIGUE" VARIABLES

For Richardson, the "fatigue" is the result of a preceding accumulation of armaments: the more there are, the less the state is induced to buy new ones. Said otherwise, the more the state possesses "guns", the more it wants to buy "butter". Of course the people do not know the value of the armament stock, and the calculus has not been made. Nevertheless, there exists a mean to reason in terms of stock. It must be postulated that there exists a relation between the armament stock and the public debt, by a dared syllogism: borrowing traditionally finances equipment, armament is equipment, and therefore borrowing finances armament. Perhaps it is dared, but it is not incredible that the people set spontaneously a link between the stock of armament and the public debt. In that case, the well-known Debt-GDP could be the searched for "fatigue" indicator. Nevertheless, from another point of view, the consent is not only about the equipment expenditures but also about the day-to-day expenditures of the military forces. In these conditions, the good indicator has to be the military expenditures without pensions. Without pensions, because they are quite independent of the military policy and it is unthinkable that the people refuse to honour their debt to the retired soldiers. And in this case a first observation seems to confirm the hypothesis about the "fatigue" variable, because if the nonmilitary expenditures tend to grow on the same path as the debt, the military expenditures, for their part, stagnate. But if the military expenditures are truly a "burden" for the nation, it is in comparison with the available resources, so that they have to be considered through a relative measure.

Traditionally, the references concurring for that are the total expenditures of the state budget or the GDP. The first one was used in the French political discourse grossly until the end of the 70s, before being replaced by the GDP, as in the other countries [27]. In both cases the objective is to show that, within a given budget any variation of the military expenditures has for counterpart a reverse variation of the non-military expenditures of the state. So Josselin Droff and Julien Malizard [28] have shown that during the last 30 years the state budget has been under constraint and that consequently the ministry of defence paid the greater price. The equipment budget being more malleable, it has been the principal one to suffer from this constraint. On the contrary, both references could be used alone alternatively, because the people know them alone: the GDP as the measure of the possible and the state expenditures as the result of a sacrifice. When this is admitted, it is logical to consider that all the economic variables, because they influence the people's mood, are likely to determine more or less their disposition to pay for a kingly expenditure. So the inflation rate, factor of euphoria, could play positively, the unemployment rate negatively, the GDP growth rate positively and the ratio of the public debt to GDP negatively.

And finally, if the mood, the state of mind of the French people has to be considered as a determinant of their consent to pay, it is better to consider directly their opinion on this subject. In fact, this will not be the whole French people, but only this part of it who is asked by the Institut national de la statistique et des études économiques (INSEE) when preparing the forecasts for the French economy, that is the company directors of the main production sectors. The result is the series "business climate" [29], available since 1977.

After this survey, it remains to test the existence of cause and effect between each of those variables and the French people consent to pay for defence. In these conditions, the evolution of the consent of French people to pay for defence may be represented by the graph below. Three periods appear clearly: a slow decline from 1983 to 1996; strong recovery between 1996 and 2002; and new but hesitating erosion period. The events copied out on the curve allow having an idea of the strategic environment of the French people, when they answered the questions. Apparently the dissolution of the ancient Yugoslavia is not for nothing in their first change of mind, maybe because these conflicts happened "two hours away from Paris", because it was at the same place the Great War began eighty years before and because the European union was threatened by an explosion, during the Maastricht negotiations, by the differing sympathies of their members. Anyway, this graph is a good transition towards the second part of this paper, where it will be question of making a list and a statistical test of the determinants of French people's consent to pay for defence.

22 – TEST
A – CONSTRUCTION OF THE VARIABLES

The objective is to define a method for designing the variables that, among all those presented above, statistically explain the variations of the French people consent to pay for defence. Certainly, an effort was made for getting the longest possible series of the dependent variable "consent", for being able to use powerful statistical methods. The graph number 4 above presents the result. Nevertheless because of the empirical character of this work, it is desirable to have some control references. For that, both originals and longest series: 1993-2012 and 1990-2007 have known the same tests as the synthetic series; the series corresponding to the question "Do you think that the international situation implies an increase, a decrease or a maintain of the defence effort" (1993-2012) is named "opinion 1" and that constructed with the question "Do you think desirable that the part of the budget devoted to military expenditures increases or decreases" (1990-2007) takes the label "opinion 2". For increasing the control efficiency, both series have been constructed by using ratios, while the "consent" synthetic one has been constructed with differences.

The explanatory variables studied above are classified as "defence" and "fatigue", logically indicating a tendency to increase and respectfully decrease the consent to pay for defence subject to the form of the variable: a ratio is easily reversed. So the statistical tests have to verify these hypotheses.

As already seen above, "defence" will be represented first by the evolution of the SIPRI world and United States military expenditures. In fact SIPRI does not account the expenditures themselves but content with compiling the data given by the different states, even if a control exists upon the most questionable cases. But there is no real risk of a significant falsification introducing a bias. In fact if that sort of falsification happened, it could affect the level but not the tendency of the variable, which is acceptable in the present case. There are other explanatory variables belonging to the "defence" class: the number of conflicts on one part and the number of French soldiers killed in operation on the other part.

As for the "fatigue" it will be represented on one side by the unemployment rate and the business climate which can produce an economic policy competing with the military expenditures; on the other side there is the public debt, limited by the European Pact of stability, able to justify budget restrictions to the detriment of defence budget.

The different explanatory variables are calculated as growth rates. There are two reasons to that. First, in terms of theory, it is intuitively sensible to set that the public opinion knows the indicator variations better than their level. Second, in terms of econometrics, the data suffer from their non-stationarity [30], that is their structure is time depending. On the contrary, the data calculated as first differences are stationary so they have the "good" statistic properties. Since the Granger and Newbold [31] pioneer works, one knows that the use of non-stationary variable lead to "spurious regressions" with erroneous conclusions in relation with the real nature of the variables.

B – RESULTS AND COMMENTARIES

The reasoning has two steps. First the relation between each explanatory variable and each independent variable is tested individually. The objective is to verify the robustness of a result on the three "consent to pay" indicators; the fact that the longest series is obtained by bringing together several sources imposes such a strategy. In a second time, the identification of the best explanatory variables of the opinions gives a "demand of military expenditures" function associating a "defence" variable and a "fatigue" one. Because of the small number of observations for the series that cannot be reconstructed, it is not possible to go beyond two variables, otherwise the degrees of freedom number associated to each estimated model would be too small and would reduce the statistic significance of the exercise. The following table presents the results of the empirical analysis first step. The estimated models include a constant, which is not indicated here. The NS initials mean "statistically non significant". For practical reasons, the signification threshold is set at 10% and the coefficient signs alone are presented.

		Independent variable		
		Opinion 1	Opinion 2	Consent
Explanatory variable	Deaths in operation	NS	NS	NS
	SIPRI world exp.	Positive	Positive	Positive
	UCDP	NS	NS	NS
	SIPRI USA exp.	Positive	Positive	Positive
	Debt	NS	Negative	NS
	Unemployment	NS	NS	Negative
	Business climate	NS	NS	NS

Table: econometric results

The table shows the pre-eminence of the "defence" variables on those of "fatigue": the military expenditures, either world or American, determine significantly the opinion evolution. In this case, the coefficient is always positive: so there is really a positive connection between the perceived threats, as conveyed by expenditures, and the consent to pay for defence, what is consonant with logic. The fact that the results are good for both series has not to be overestimated, because they are correlated together, as it is logical also. On the contrary the deaths in operation and the conflicts frequency have no significant influence upon the opinions. The conclusion has to be that, contrary to the intuition, the public opinion does not precisely know those figures. In fact this is not surprising when one knows how it is difficult to get them.

As for the fatigue variables, there is only two statistically significant coefficients: between the public debt and "opinion 2" on one part, between the unemployment rate and "consent" on the other one. In both cases the sign is minus, as logic commands. It is

certainly not fortuitous that the public opinion associates public debt and unemployment as cause and consequence of the crisis suffered by the French economy, because it is the substance of the prevailing discourse. A knowing the role of adjustment variable given to the military expenditures, it is not surprising to find this negative relation between them and the crisis indicators. For confirming these it would be useful to know what would be the consent to pay for other public expenditures during the same period.

This first results being given, it is possible to proceed to the test of a consent function with two variables: one of "defence" and one of "fatigue", so that the robustness of the preceding estimations is verified when the opinions are analysed within the logic of the Richardson model. The preceding table identifies clearly the military expenditures as "defence" variables. On the other hand the "fatigue" variable choice depends on the "consent" indicator choice. The latter has to be dictated by the search of the greatest number of freedom degrees, so that it will fall upon the series "consent", despite the doubts generated by its "fabrication". The desired function has to be of the type:

consent = f(SIPRI, unemployment rate).

As it is estimated upon the available data, it becomes:

$$\underset{(2.44)}{-5.63}\,constant + \underset{(0.49)}{2.95}\,SIPRI - \underset{(0.41)}{0.96}\,unemployment$$

In parenthesis are the coefficients standard deviations. They all are significant at a threshold of 5%. The model is of a rather good quality because the correlation coefficient is superior to 0,807 ($R^2 > 0,65$); applying a generalized least squares method solves the residual autocorrelation problems. A posteriori, the pertinence of choosing the "consent" series, that is the explanatory variable "unemployment", is verified because the alternative choice "opinion 2"-"debt" would give a non significant coefficient. Perhaps it is the result of the precedence of the unemployment problem on the debt problem, the debt being understood for a long time as a consequence of a Keynesian treatment of unemployment. The results are consonant with the preceding conclusions: the threats reinforce the consent to pay, while the economic constraints weaken it. What is right with the coefficients signs can be extended to their value for studying the consent variable sensitivity to the different parameters? In absolute value the coefficient of military expenditures is significantly superior to the one associated with the unemployment rate, what is consistent with the lessons drawn from the table above. Moreover, this result would be robust in case of a possible period partition around the Cold War end, suggested by some authors 32] who consider that it is a structural break.

As a conclusion, all the preceding results show that the French people consent to pay is firstly sensitive to the threats, as they can be perceived through largely spread indicators. In a second time this consent may suffer reluctance when the economic constraints become heavy. And it is not because a result confirms the intuition that it is not interesting.

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CONNECTIONS OF AIR POWER

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Abstract: *The concept of power, in general, and of air power, in particular, may be dealt with from various perspectives. Accordingly, there is no definition of the Air Power in a universally accepted vision, nor does it hold a clear-cut characterization. The rationale consists of the fact that Air Power unites/includes a multitude of complex processes with a variable dynamics, reaching diverse areas of society. Most of the authorized authors make reference to the military aspects of the Air Power only. Nevertheless, a more comprehensive approach, in accordance with changes that occur in society, is demanded.*

Keywords: *power, air space, air power, air force*

1. INTRODUCTION

The leitmotif of the beginning of the 21st century consists of an alert pace of the multiple changes taking place at a global, regional and local scale. The humankind, in its entirety, finds itself in a perpetual becoming and we all witness an acceleration of the fundamental processes of the social whole.

The combination of continuity and change reflects the complexity of the human society. The reasons for such transformations are of various nature and they to be found in any of the components of the contemporary world.

Humanity today faces serious problems related to economic, political, geo-strategic etc. issues, all of which are in a tight relation of interdependence. The acute dynamics of the specific phenomena is dispersed toward other areas – financial, demographic, military – reciprocally influencing one another. Consequently, we are yet far from speaking of stability at the world level… Rather, we witness multiple turbulences, fact which proves that the process of change is excruciating, and that we are confronted with a permanent struggle between conservatory mentalities and globalization and integrating tendencies.

In a dynamic and unforeseeable world it is hard to establish for sure which is the probability of involvement in a conflict, and, moreover, its moment and intensity, both for the present and for the future. Being subjected to a constant pressure of the media and the information technology, with all sorts of contradictory and often false pieces of news, we are at a loss in decrypting reality once the perception of it is subjective.

By the current paper, I intend to present several aspects with regard to Air Power – its role, place, relevance – in the actual context.

2. GENERAL CONSIDERATIONS CONCERNING POWER

Geo-political and geo-strategic analyses highlight the fact that the transition process from past to future, via present time, is a continuous one. There are major mutations at various levels (economic, political, military etc.), the world physiognomy is re-shaped, hierarchies are re-established, and the power poles are being redefined.

In the broadest sense, power is the capacity to produce a certain outcome and, if we refer to human action (the conscious one) the outcome is anticipated, thus becoming a goal. Therefore, power is the capacity/ability to set a goal, to pursue and obtain specific outcomes in specific conditions, with specific resources, making use of specific tools, in a specific period of time. It presupposes the correct assessment of the momentary state of facts and the decryption of the tendencies of evolution to set the directions for action as well as the assessment, creation and development of the necessary resources for action. It is very difficult to define the concept of power, as it is a too vast topic. Nevertheless, I would like to add that power, with the meaning of the ability to do something, the capacity to act physically and morally, must be manifest: on the one hand, to be proved and on the other hand to be perceived as such. Power does not mean a state at a given moment (or not only this), but it is also action, the transformation of state towards a determined, desired direction.

There are numerous specialized institutions that monitor the states' evolution by certain standards, and, ultimately, they establish classifications or ranges. Specialized publications or the ones of general interest and information show diverse statistics, in one filed or another, based on which classifications of countries, institutions, scrutinized actors are established: "China has become the greatest economy of the world…", we learn from some journals; "preoccupied by the growth of China's military power, Japan has decided to increase its military expenditure", the Stockholm International Peace Research Institute's (SIPRI) report of 2014 informs us [11]. The examples provided used as criteria of evaluation for the macroeconomic indicator (GDP – Growth Domestic Product), in case of the economic power, and the expenditure for the military (all government expenditure with regard to troops and current military actions, including expenditure for the personnel, research and development, administration). Thus, there is a comparative analysis, and, when the power of a state is invoked, there is focus on its ranking in relation with the other states, its potential status and its operationalization potential within a competition. The competition may be of a contest type (the characteristics of the economic background), or conflicting (specific to military action).

Certainly, it is desired, at least in declarations, that any competition should be maintained within the boundaries of a productive rivalry; yet, reality has proved that most often such oppositions turn into tough enmity leading to conflicts.

In reference to a state's power, there were numerous works written, but in essence, it is considered that a state is powerful if it holds the capacity to influence events, which implies different aspects – economic and scientific, demographic, military etc. In this respect, most of the analysts preserve a multidimensional approach to power, the power of a state being conferred by the efficient and balanced connection of its components; "there is no political power if it is not based on a robust economy, and every economy needs the intervention of the political factor in order for it to develop naturally" [6]. Power is the capacity of establishing objectives or making decisions, followed by the force of applying them. Implementation is the element that highlights real power [7]. Some authors are of the opinion that when analyzing the rapport between power and conflict one needs to start from the hypothesis according to which "A country's power materializes, first of all, in its military force and capacity of defending itself against one or more other states"[5].

In the context of this paper, approaching power as "a generalized social relationship that characterizes any human

structure and community, irrespective of their dimensions and the historical intervals that humanity and society have gone through" [5], it is essential that we should clarify some aspects. First of all, since a "relationship" is mentioned, we need to identify (at least) two subjects of the relation: one to detain and apply power, and another one to have power applied on. Secondly, the materialization of power implies that it should be realizing by the parties of the relation. The degree to which power is highlighted represents, after all, the manner in which power is perceived by the entities involved and by the background where it occurs, and which it may, as well, influence.

As we have shown so far, power may emerge under various aspects. Thus, a state's power displays several components or subsystems. Analysts and researchers have largely debated on defining and ranking forms of power, respectively, the components of power manifesting in society. In most of the cases, it is considered that power, in its entirety, is made up of a union of disjunctive components. In reality, those components are not strictly delimited; there are numerous common zones, areas of interference, which leads to a multitude of rankings of power. We observe that a state's power presupposes the presence of the human factor and it is given by both natural settings – size, geographical position, climate, resources (material, energy, food)- and elements related to human activity – dimension and economic production, educational system, scientific research, governing, diplomacy, the army's degree of preparedness and capability etc.

With regard to the geographical characteristics, the expansion of the human activity to the air space has determined the redefinition of the national territory, which now includes the air space [10], as well, and a reconsideration of the state's sovereignty over this newly included spatial element. In this context, taking the natural dominant setting of manifestation as a criterion of the analysis, we can identify, among the component elements of a state's power, the air power next to land power and sea power.

2. AIRSPACE - ENVIRONMENT MANIFESTATION OF AIRPOWER

Indeed, it is very important to speak about airspace – the place where and in connection with which air power is manifest.

The term airspace generally represents the air blanket above the ground and water surface, without being very exactly delimited upright, because of the physical properties of the gas that it is made out of. I mention the fact that, at the beginning, in specialized literature, the thesis according to which airspace stretches up to the infinite was dominant. Subsequent to the development of aeronautics and aero-navigation, the issue of its juridical regulation is raised. Thus, today, it is identified: the airspace belonging to states, a component of the state territory and the air space with international regime, that is not subjected to any state sovereignty (for example that above the free sea). The Paris Convention, on October 13, 1919 consecrates and regulates the subjacent states sovereignty on the national airspace.[10] Although the airspace superior delimitation is no longer discussed about, it has been advanced the idea according to which this frontier should be established following certain criteria, more or less conventional. Some of them refer to the air physical properties – density, composition etc. –, while others refer to the aircrafts capacity to attain a certain height. We notice that it is very

difficult to exactly establish this border, as the mentioned criteria vary in time. Juridical literature offers an ambiguous, tautological answer: "the superior limit of airspace is where airspace begins". Today, through bi- or multilateral conventions, although not unanimous, the superior limit of airspace is considered to be somewhere at 100 or 150 km above the earth surface.

The most important thing is for a country to be able to exercise its sovereignty in own space. Based on a state sovereignty over its own airspace, the state regulates the juridical regime of the respective space, carries out different activities within it, and may give foreign aircrafts the right of freedom of transit and traffic through its airspace, too. It may also limit the liberty to fly in its airspace or to ban certain foreign aircrafts from entering this space, may execute jurisdiction on foreign aircrafts when they are in its airspace, if there is no other special regulation and it has the right of indemnification for damages caused by foreign aircrafts.

Besides the regulations included in the airspace juridical status, states have ratified a series of documents regarding the international air navigation. We mention, in this context, the five "air liberties", which refer to the right of flying over a particular territory, as well as to some liberties regarding landing and transportation by air.

The effects of air power surpass though the physical limits of airspace. Subsequently, the application of air power has effects not only in airspace but also in physical spaces – terrestrial and maritime – and in economic, diplomatic and informational "spaces". In consequence, air power is, indeed, strictly connected to its environment – airspace, while its effects are manifest far beyond it and I consider, from this point of view, that an analysis of the air power effects is much more important than – strictly – the environment in which it manifests.

3. AIRSPACE - ENVIRONMENT MANIFESTATION OF AIRPOWER

The state power is given, among others, by: size, geographical location, climate, resources (human, materiel, energy, cultural), the armed forces level of training and procurement, system of government etc. Perceived a part of a state's power, air power holds a distinct role and it refers to the totality of the capabilities of both civil and military aviation. At the same time, here may be included the specific infrastructure, systems destined to air navigation protection and air space management, companies of aeronautical profile etc. [1]. We could say that air power refers to the capabilities that allow for the state to manifest its sovereignty in the national air space, all the factors that ensure the progress of the activities in the air, in appropriate conditions.

The air space and its premises (on the ground, at sea and in the outer space) destined to the aeronautical activity became an integrating part of the human activities at the same pace with the aviation's development and it had a huge impact on society as a whole.

At the same time, the airspace has become the arena of some terrible and subtle confrontations during armed conflicts, to resolve military and other disputes (economical, political etc.).

With reference to the military component, some air power essential elements become evident: airspace and aircrafts, air capabilities and the specific characteristics of air actions. Air power is determined by many factors and I would like to mention the economic and political ones, which provide the resources and will. I leave a special place for aeronautical awareness, as it is a source of air power that can be found at the level of all its components, which it empowers. Science and research in the field, education in the field, specific infrastructure, air operators and the systems meant for the safety of air navigation are some other directions in which air power is manifest.

The affiliation to the international bodies meant to control aeronautical activities (ICAO, EUROCONTROL, NATINEADS) represents, another source of air power.

Starting from the fact that military aviation, air forces, in general, are more and more present in limited actions in different areas in the world. Therefore, some aspects

that do not belong to the military sphere, but to the political one emerge, depending on the way and the moment air power is used to influence the opponent.

Air power, as well as the aircraft as such, is like a child of scientific progress: it cannot exist without advanced technology and borrows from it the fascination and mystery of a special, unknown and … desired thing. As a result, both producers of specific technology and supporters of air power (defined as the "capacity to use air platforms for military purposes") want more and more funds that are everywhere and always bigger than the allotted budgets.

Air forces represent a way to interact with the opponent without having a physical contact with him, to strike him powerfully, rapidly and from distance, which determines us to give the notion "contact line" a second interpretation. The classical "front line" has disappeared, the enemy being now deeply struck, tens or hundreds kilometres far. Confrontations take place in airspace and in the electromagnetic environment, so that the entire area of military actions becomes an area of physical contact, aviation being the protagonist of this actional model (launching a destructive force against the opponent, without having a direct contact). "The air power objective in wide-spread conflicts, and not only, is to destroy the opponent will or/and his capability to resist" [1].

In modern warfare, what is more and more important is the way to act, the way to win the confrontation and their impact on the public, which tends to be primordial in the stage of conflict outcomes. This aspect, relatively new in the history of warfare, has become significantly important after the First World War, once the law of war was stated and military actions extended spatially due to the fact their air component was confirmed.

Synthesising, we could say that the air forces is an instrument for the political factor of power, being placed at the confluence of the military power and the air power.

Air power is the manifestation of state power in the air environment and includes the mentioned factors of influence and, I feel bound to emphasise, the majority of them has a "non-military" nature.

Consequently, the air power and the military power have both common and specific elements, the problem of their interdependencies being the result of their study. To simplify, the connection between the military and the air power is represented by air forces and their action.

As it results from the things mentioned above, air power, in its military component, is the capacity of the owner to ensure the use of air space according to his will and to limit or ban the others from using it. The multitude of opportunities regarding its use allows for the military command to adapt the air actions (operations) dimensions and intensity to the concrete political and military requirements.

We have to notice once more the existent complex relationships and the created interdependencies between different aspects of power. Thus, a civil air fleet, even if it is not an element of military power, can contribute, through the force projection, to its enhancing potential in a theatre of actions. On the other hand, a military aircraft can be a vital element of the air navigation protection system, for civil aircrafts included.

Future world will be characterized by more and more subtle confrontations, at different levels, the military one included. Globalization has changed the nature of war, as well as the context in which the state

utilizes military force in its conduct in the geopolitical environment.

Without doubt, the "red thread" in the field of military actions is their joint character, which is known to be a complex phenomenon as far as theory, organization and action are concerned. The air component, more and more refined and sophisticated, is omnipresent in the armed conflict at the end of the century, becoming the defining element of modern warfare. Moreover, the accentuation and extension of confrontation in airspace is forecast, fact that is confirmed by states' security policies programmatic/normative documents: air forces are included in modern armies quasi-totality.

Relatively new within the armed forces categories of forces, existing for less than a century, air forces have rapidly become important, due to their modernity and capacity to extend in space, which have led to a new way of conceiving military actions. Let us not forget that it is 109 years since Traian Vuia managed to "fly" a distance of (only) 12 meters, using a machine that was heavier than air, which could take off by its own on board-means. Although, in short time after the Air Force and began to be used for military purposes. If the First World War started being an air one, the Second World War was also an air war, the wars that followed them, no matter they had a local or limited character, highlighted the tendency of amplifying their air component, and the contemporary war cannot be conceived without it, at least in the predictable future. Aeronautic technology is developing very quickly. As a result of technological advancements in the field of aviation, in order to obtain similar effects, during the WW II, there were 9000 bombs used (1944) in 4500 sorties (B-17 aircraft), whereas during the Vietnam war there were only 190 bombs used in 95 sorties (different types of aircraft) and during the Gulf war only 2 bombs were launched from a B-117 plane.[r]

Air power evolution will be strictly connected to human evolution, in general, and, for a long period, it will be the front platoon of human knowledge development, being confronted with the general problems of this globalization era. The important accomplishments in the field of air power will not belong to one single man or one single country, therefore scientific and technologic cooperation will be more and more evident and even compulsory, as one of globalization manifestations is borders "permeability" up to their becoming merely symbolic. Confrontation bellicose significance will be diminished and it will more and more become competition.

Subsequent to modern technologies development and our access to them (automation and miniaturization), the specific techniques and activities dual character (air and cosmic) will be emphasised and we could more and more speak about an aero-cosmic power. Air power (aero-cosmic) will be very attractive as far as the decision-makers are concerned, as they will develop and utilize it according to its specific properties: possibility of opportune, accurate, desired intensity action, exactly where it is necessary and with minimum effects on the environment.

It will also be preferred under military aspect, due to its coercive as well as its preventive role.

New ways of airspace "exploiting" will certainly appear and, of course, airspace will be more accessible to everybody, so more crowded, which requires appropriate regulations, air transport security being of great concern.

3. CONCLUSIONS

Although most of the specialized literature focuses on the military operational component of air power, we consider that, at a large scale, air power includes many other non-military areas, such as the aviation industry, air traffic operators, institutions for research and education, air space management systems etc.

Concerning the platforms used for the application of air power, we notice that, next to the fixed-wing or mobile-wing airships, in a larger vision, we should include the ballistic missiles, cruise missiles and satellites. The projection of an airspace platform is made in

the light of its destination and future missions, another decisive factor for the development and modernization of the technological component of air power.

There is still need for an analysis and clarification of concepts regarding the air power, so that, subsequently, states may act with awareness for making the air power efficient. It is obvious that in the absence of a clear understanding of the principles of the air power, without a scientific approach to it, we may witness an erroneous management of both material and human resources. Therefore, a sequenced/limited and conjunctural approach will result in ineffective measures, or non-viable solutions. Whereas, the area of air power is similar with foreknowledge, long-term measures opposing the very alert pace of changes of the background. That is why, it is important to decrypt the defining elements and tendencies, to create the normative framework necessary for a rapid adjustment, to eliminate resistance to innovation.

The use of the air power in the military area is preferred by the political decision-making actors due to several of its essential features: freedom of movement both in horizontal and vertical plans permits the control of a vast space, in very short time; characteristics of the technology used permit a greater effectiveness of actions. Meanwhile, the manifestation of the air power in other areas contributes to the increase of the state's power tremendously.

This means, among others: sustainable/stable economic relationships under all circumstances; autonomy, as much as possible, from the viewpoint of resources; a net of alliances capable to facilitate the accomplishment and maintenance of security.

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EUROPEAN ANTIMISSILE DEFENSE SYSTEM – POST SECOND PHASE IMPLEMENTATION PERSPECTIVE IN THE CONTEXT OF NATO-RUSSIA RELOCATION

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Abstract: *2014 was a year when the world finally taken out of its auto-imposed self-confidence and serenity. Ukraine triggered the unavoidable confrontation between Russian Federation and both USA and EU. The European economical problems became impossible to be ignored anymore and the anti-system groups win a bigger influence power with each political election. After eight years since the invasion against Georgia, Russian Federation showed that it has a rapid action capability able to trigger an attack to reconquer the lost territories after the Russian collapse. While the Americans are installing the anti-ballistic shield in Europe, the Russians are installing their missile system in Ukraine in order to establish their own readiness system. Two antiballistic capabilities are foreseen for 2016 - American and Russian, facing each other within a range of 800 kilometer distance, which means an overreaction on both sides.*

Keywords: *anti-missile shield, destruction zones, shield, military cooperation, reaction capacity*

1. GENERAL INFORMATION

The warfare of the future will require decisive changes for the military body, whereas the emphasis will be put on the number, but the quality of the forces reaching a maximum strenght using the optimal combination of knowledge, operating rhythm, precision and lethal capability, all applied in a joint context.

Recent developments in contemporary world confirm that today's security environment goes across a period marked by complex challenges and financial difficulties.

At the moment, Romania is caught in the middle between the Russian interests and Western interests: the transatlantic relationship is vital for Romania and it does not exist without the European Union. In this context, Romania must remain a pillar of stability in the area and a trusted partner for NATO and EU.

The representatives of the Russian Federation stated that they do not intend to limit NATO in creating a missile shield against missile threats from the Middle East, but do not want it to be done at the expense of the security of their own State. The main concern of Russia, according to the statements made, is that a relationship based on mutual trust cannot be built as long as instruments of deterrence of one party (e.g. the Russian Federation nuclear force) will be the target of NATO missile defense tools. In this regard, Chief of the General Staff Gerasimov of Russia, expressed, during a meeting within the

framework of Russia-NATO Council held in May 2012, his hope that NATO will undertake the necessary actions to remove Russia's concerns about the missile shield elements deployment and argued that Russia has offered solutions which could help restore the confidence in NATO [1].

If NATO decided to reinforce the eastern flank, in turn, at present, Russia strengthens its military capability to activate and sustain more similar conflicts to the one in Ukraine, in various European countries. According to the American Lieutenant-General Ben Hodges, Moscow's actions do not represent an immediate threat at present, but in the future the risk will be higher. Continuous improvement of the Russian army will provide the possibility of Vladimir Putin to start up to three operations simultaneously, without the need for a general mobilization of the military, declared the American Lieutenant-General Ben Hodges.

The new configuration of the Russian antiballistic missile defence is based on the automatic control system of the Air Force and Aerospace Defence, conceived by Almaz Antey Company. Interceptor anti-air missiles, as well as mobile antiballistic missile defense systems and radars will be connected to the common control center. Thereafter, all new anti-missile systems, such as S-500 missiles and new radars will be integrated into this system [2].

The automated control system shall process the the information obtained from all the terrestrial radar systems, from all the AWACS planes and from the space detection systems. Connection and exchange of information will be provided by mobile systems of wireless high-speed transmission made by Mikran Company, in Tomsk [3].

Russian expert said that for a global system of missile defense to be installed throughout the Russian territory, is required at least the production of advanced anti-air missiles. "*At present Russia have already such missiles, which exhibit, however, numerous deficiencies. There is, especially, no common radar coverage throughout the country*", Konovalov explained.

2. HYBRID WARFARE IN UKRAINE - INFLECTION POINT OF NATO AND RUSSIAN FEDERATION RELATIONSHIP

The Russian Federation desideratum to control Ukraine was based on perceptions such as ethnic and historical, (the Russians consider Ukrainians as their "prodigal" brothers and the Crimean as a peninsular Russia), blooming economic policy (the need to extend the Eurasian Union), and strategic military calculations (need permanent military allies and/or buffer states). Although the fraternity feelings of Russians towards Ukrainians are logical, the urge to make Kiev a subordinate to Moscow, in military terms, is not logical [4].

Not just territory, culture, history and the Russian minority are common reasons why Russia wants to keep Ukraine within its sphere of influence. In Ukraine are at stake the economic interests of Russia. The territory of Ukraine providesthe Russian gas transit to Europe (approximately 80% of Russian gas is transported through the Ukrainean pipelines). Also, the Russian military and industrial system has significant interests in Ukraine, given the fact that a large number of spare parts and engines are imported from here.

Russian oligarchs would like to obtain, the Ukrainian economy "pearls". Should be mentioned here and the rich croplands of the country. In addition, Ukraine has huge economic potential and is a great outlet, taking into account that its population goes far outnumbered than the population of other Member States of Commonwealth of Independent States – CIS. Ukraine also has a geostrategic importance for Russia. If Ukraine withdraws from the orbit of interest of Russia, this could mean a change of Moscow security parameters.

Vladimir Putin's dezideratum on the modernization of the Russian State to be a superpower has a sphere of influence within the post-Soviet space. A Ukrainian State, opting for an association agreement with the EU, facet supported by all leaders of significance of the opposition, will create a huge gap in the Russian President's objective.

The revolution in Ukraine and the removal in February 2014 of former President Viktor Yanukovych was "a coup d'Etat" as Vladimir Putin estimated. The annexation, a month later, of Crimea – which was part of Ukraine only since the 1950s – was inevitable after the change in the data of Kiev problem. "For Russia, Crimea makes a civilizational and sacred sense, just as it is the Temple Mount in Jerusalem for Jews or Muslims", said the Kremlin leader [5].

After the annexation of Crimea, Russian foreign policy has been placed on previously unknown directions. At stake are not only Crimea, Ukraine or other country in Eastern Europe, but also the role and place of Russia in the international system. Russia has not only attacked Ukraine, but also the whole European system of rules and laws and European agenda itself. Moscow wants not just to restore its scope of geopolitics influence, but also to religitimeze it as a basic principle of the international system [6].

The creation of a global anti-missile defense system is "a threat to everyone", that "gives the illusion of invincibility", Russian President Vladimir Putin declared in December 2, 2014, in his speech argued in front of reunited chambers of Parliament during the annually meeting on the State of the nation. According to Russian President, the most sensitive issue in terms of international security was the United States' decision "to abandon in 2002 the Treaty on ballistic missile defense". Putin added that although he does not want to engage in a new arms race, Russia will provide its defence even under "current (global) conditions". The President has also stated that Russia does not want to abandon its relations with the United States and Europe, but also trying to develop ties with Latin America and East Asia [7].

The takeover of the control over the Crimea by Russian Federation allowed Crimea to strengthen its force projection capabilities at the Black Sea by positioning antinaval missiles, air defence systems and strong naval aviation capabilities in the recently annexed peninsula. De exemplu, în plus față de avioanele de atac de tipul „Su-24", ruşii au început să disloce avioane multirol relativ avansate de tipul „Su-30" în Crimeea. For example, in addition to attack aircraft as "Su-24" type, the Russians have started to deploy relatively advanced aircraft as the multirole "Su-30" in Crimea. Moscow will also build a base in Novorossiysk, which will serve as a Center for its naval presence in the Black Sea.

In the aftermath of the past year arisen events in Ukrainian zone there are prefigured two disjoint ideological blocks:

a. The NATO and EU, according to which Russia annexed illegally Crimea from the standpoint of international law; Russia acts subversively to destabilize Ukraine; Russia supports separatists in Eastern Ukraine; Russia tries to maintain Ukraine under its own sphere of influence in order to stop NATO's expansion; Russia wants to maintain a buffer zone between Russian and NATO borders; Russia seeks an extension for completion a counteroffer to U.S. missile shield.

b. Russia, according to which Russia is not involved in Ukraine, Russia condemns the interference of the West in the Ukrainian crisis, Russia condemns military intervention as such Ukrainian authorities against separatists; Russia does not want an overt war with NATO but is bound to defend itself; Russia is trying to create its own safety umbrella as a reaction to NATO'S refusal to stop the anti-missile shield program; Russia does not want a NATO surround by its western flank.

3. STAGES OF IMPLEMENTATION OF THE ANTI-MISSILE SHIELD IN EUROPE

Romania has been and will remain a constant promoter – in NATO framework, of the missile-defence project, acting with consistency for its materialization In this respect, the decisions taken at the NATO Summit in Bucharest (April 2008), reiterated at the Strasbourg-Kehl (April 2009), Lisbon (November 2010) and Chicago (May 2012) referred to the development of a comprehensive system, able to "*cover the entire Ally territory, in accordance with the Alliance's security indivizibility and collective solidarity principles. Romania supported the Chicago statement regarding the Interim Capability of NATO ballistic missile defense system*". The decision of the Supreme Council of National Defence – SCND (Romania) concerning the participation of the American Missile Defense System is in full agreement with what has been established at NATO level, being recorded so far in the bilateral cooperation register [8].

According to the *Report on the review of the Ballistic Missile Defense Review Report***,** published by the American Departament of Defence at the 1st of February 2010, four phases of implementation were envisaged:

Phase 1: protect some parts of South-Eastern Europe, through the deployment of an advanced radar system (intended for detecting missiles launched from the ascending phase of their trajectory) and mounted on ships SM3-TAKES interceptors. Phase 1 started on 7 March 2011, by sending the *USS Monterey* ship in the Mediterranean Sea, equipped with Aegis system, namely making operational radar in Turkey, at Kurecik.

Phase 2 (2015 time horizon): expand NATO Allies protection through the implementation of a new generation of SM3-IB interceptors (able to be launched from the ground), placed in a land base, amplasați într-o bază terestră, namely at Deveselu. The system which is to be placet at Deveselu is foreseen to reach the operational capability by the fouth trimestre of 2015.

Phase 3 (2018 time horizon): system extension to cover all NATO Member States in Europe, through the introduction into service of a new version of SM3 interceptor, which is to be set in a land base, in Northern Europe (Redzikowo, Poland).

Phase 4 (2020 time horizon) – *According to the timetable made in 2010 by the U.S. Department of Defence* the phase entailed**:** the extension of protection to any possible intercontinental missile attacks, including through the further development of SM3 missiles and radar systems, and by placing in Poland a new class of interceptors [9].

Studies made at the beginning of the second decade of the 21st century, indicated that the Southeast Europe would be increasingly vulnerable to threats with short and medium range missiles. It was appreciated that attaining as quickly as possible the operational readiness of the missile defense system could strengthen national security both directly through the covering protection provided for the entire national territory, and indirectly, because of the the significant and deterrent role of the system, able to reduce the risks associated with possible missile attacks. The role of deterrence will remove the risk of attack against any other Allied territory.

The destruction area of a ballistic missile shield of a defense system is defined in the first place by the interceptor parameters, namelly by the maximum speed achieved when the last Rocket Motor separates from the privious stage on the condition that the elements of detection, tracking, and command and control could ensure the interceptor use to its maximum capabilities.

Considering that at the end of running of all the three-stage rocket motor of the SM3 interceptor (the first rocket motor – MK72, the second rocket motor - MK 104 Dual Thrust Rocket Motor, and the third stage rocket motor – MK 136), the interceptor is at about 100 km height and that from moment it follows a ballistic trajectory to the area, where the target becomes detectable by the strike vehicle's sensor capabilities, then the impact area could be considered acceptable as being a hemisphere with the center placed at the lounching point of the interceptor and with a

radius equal to the maximum height reached by the interceptor.

By some not very complicated mathematical relationships, ranging from Kepler's laws, you can get the value of the maximum flight height. This is a function of (It depends on the) speed (at the end of the acceleration portion) and (on) the angle of the vector with the horizontal speed at that point. Considering that it is desirable for ballistic rocket interception to be made at a higher possible height, allowing for a possible re-engagement with endoatmosferice systems, it can be concluded that the angle of the vector with the horizontal velocity at the end of the acceleration portion should be greater than 60o. With regard to the upper limit of this angle, it can be considered a highest conditioning speed at its peak speed of the impact vehicle. Thus, in order to ensure the destruction of ballistic rocket by direct strike, the impact vehicle should have at the meeting point a minimum of 1 km/s speed. For the SM3 block I type interceptor, which reaches a maximum speed at the end of the acceleration portion of 3 km/s, the maximum angle ensuring its peak speed of more than 1 km/s is 69o. Between these two angular values, the height at its peak varies between 490 km and 580 km, so it can be concluded that the average destruction area for a SM3 block I interceptor is a hemisphere with a radius of about 535 km.

Under the same conditions of calculation regarding the SM3 block IIA type interceptor (that, more than likely will not be installed in Roania, according to President Obama statement) which is expected to reach a speed at the end of the acceleration of about 5 km/s, it can be concluded that the optimal destruction would be a hemisphere with a radius of about 1535 km.

According to these estimates, the areas of destruction for a launch from the Deveselu of a SM3 block IB interceptor, namely a block IIA, would look like in figure 1 [10].

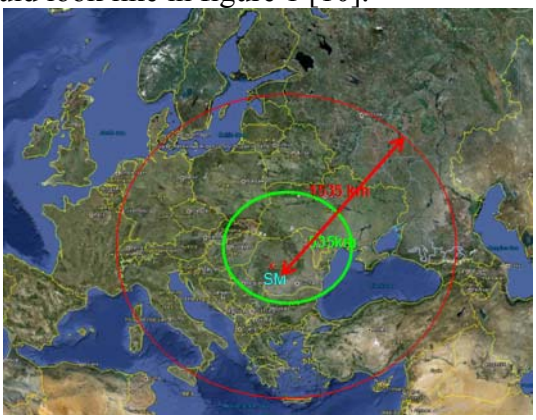

Fig. 1 Deveselu maximum launching range for the two kind of interceptors: the SM3 block I and block II

4. PERSPECTIVES AND POSSIBLE SCENARIOS OF DEVELOPMENT OF THE MISSILE DEFENSE

Of the lessons identified and lessons learned so far, and in pursuit of the scenarios on which the events developed, it is clear that, in relation to the with NATO, Russia has an advantage in terms of life cycle of planning and decision-making, as well as the ability to deploy rapidly and concentrate forces and means of to achieve superiority in the event of conflict escalation.

After the war ended in Georgia, Russia has carefully analyzed the lessons learned and proceed to modernise step by step, its military system: it started by launching of structural reforms in the field of defence, in 2009 has developed a new National Security Strategy; in 2010 a new Military Doctrine has been elaborated, and in 2012 the Foreign Policy Concept of the Russian Federation has been issued.

At the same time, Russia has adapted its 2009 doctrine and is able to plan, organize, execute, and manage assignments specific to hybrid conflict under the circumstances the new doctrine has a horizon of applicability up to 2020.

Ukraine's decision made on 23 December 2014, to renounce to its status of unaligned country to approach NATO, in the aftermarth of the annexation of the Crimean Peninsula by Russia and in progress conflict with prorussians rebels in the East of the country, change although not radically the policy and the approach of the Russian Federation regarding the conflict. As a result, in December 26, 2014, President Vladimir Putin has referred to the defensive character of the Russian military doctrine, which will be maintained, and focused on a military engagement of Russia only if all non-violent solutions will be used up. “The probability of a large-scale warfare against Russia fell down”, but in some areas there are a number of intensified threats, such as territorial claims, “interference in the internal affairs” of other countries and sending strategic weapons in space.

The revised military doctrine of the Russian Federation was published on 26 December 2014 and points to the changes in terms of the threats and global security affairs perception starting with 2010, taking into account the lessons identified and lessons learned by the Russian Federation from recent crises and presents a foresight of the threat environment addressed to Russian Federation and its defence. The revised military doctrine reaffirms the the Russian Federation peremptory policy to defend its strategic interests, as the revision of the doctrine being triggered by the change in security environment, and, as a consequence the modernization of the armed forces, and the development of Moscow political and military leadership thinking.

In November 2014, the Russian Defence Minister has obtained a fifth missile complex type “Iskander-M” brigade-level effective, generating the speculation that it could be transported in Crimea. In any circumstance, the General Staff of the Russian Air Force has not excluded the deployment of type “Iskander-M” missile complex in Peninsula before the year 2016. Accordingly, the members of the Armed Services Committee of the U.S. Senate have expressed their concern that the deployment of “Iskander” system in Crimea violates the Treaty on intermediate-range nuclear forces (INF), also represents a threat to Europe. System designers claim that the “Iskander” system can be stocked with up to ten different types of warheads. This makes the system an optimal one for destroying rocket systems, long-range artillery systems, air defense and missile defense systems, and C4 ISR infrastructure as well (command, control, communications, computers, intelligence, surveillance and reconnaissance). Brigade-level complex includes 51 vehicles of which: 12 grenade launchers, 12 transport-loading systems, 11 command and contorl systems, 14 support vehicles, one maintenance vehicle and one preparation of information vehicle, a number of complex high-precision guided missiles, and armoured vehicles and training facilities.

To prove the superiority of nuclear forces and strategic transactions, coincidentally with the release of the new military doctrine of the Russian Federation, on 26 December 2014, 11.02, Moscow time (10.02, Romania's time) the Russians have made a test with the intercontinental ballistic rocket RS-24 Yars, with solid fuel and detachable warhead, on a terrestrial base of Pleseţk Space complex, in order to reaffirm President Putin's statement regarding the fact that the new doctrine remains defensive, but Russia has at its disposal powerful tools, including credible deterrent capabilities [11]. The warheads used in test program “were programed to strike targets at the Kura range, Kamchatka Peninsula”. The RS-24 Yars missile was introduced into service in July 2010 and it is an improved version of Topol-M ballistic missile. The ballistic missile is able to carry multiple nuclear warheads that can reach independent targets and has the ability to avoid the anti-missile defence systems within a radius of up to 12,000 kilometers.

It is possible that future actions of the Russian Federation to be sequences array and

be carried out in three phases. During the first phase, Russia will be concerned about the recovery of influence and effective control of the former Soviet Union, re-establishing the buffer zone that Soviet Union offered. During the second phase, Russia will aim to create a second level of buffer areas beyond the borders of the former Soviet Union. Russia will try to do the herein above mentioned without creating a solid wall of opposition, as the one which undermined it during the Cold War. In the third phase, a process that takes place from the very beginning, the Russian Federation will try to prevent the formation of coalitions against itself [12].

Possible scenarios:

A. Military

I. Maintaining of relatively cold war in Ukraine. *Hypothezis*: the Russian Federation will continue to sustain the separatists' actions, while escalating the arms race and rediployments of technique and troops in sensitive areas. *Implications*: maintaining tension in the area, concomitant with arms race escalation. *Viability of anti-missile shield consequences*: the completion of the IV-th quarter 2015 phase related to missile shield elements in Deveselu will be achieved under normal circumstances, screened by the implementation of NATO Readiness Action Plan – RAP.

II. The conflict escalation and conquest by Russian Federation of Ukrainean territories, with the intention of reaching even to the mouths of the Danube. *Hypothesis*: in the first phase, the Russian Federation could pursue to capture Mariupol port at Azov Sea, or even to develop a land bridge to Crimea along the Western coast of the sea, and then to extend this corridor up to the mouths of the Danube. *Implications*: It requires that Russian Federation deploy significant forces and assume a large number of casualties, approach that would likely be lacking of domestical popularity. Renewed military actions would lead to tougher sanctions from the West side. They would further undermine the deteriorating economy of the Russian Federation, and for now, on the peak of the economic crisis, they could lead to the impossibility to support such campaign, which President Vladimir Putin knows very well. *Consequences of anti-missile shield f viability*: the situation would gain new connotations because the border between the Russian Federation and Deveselu elements will remain just an area of roughly 500-800 km. The Russian fleet will control even better the actions within the contiguous zone and Romanian territorial waters, accompanied by a tighter supervision of the actions of the American and Turkish vessels in this area. There will be a possibility that Russian antibalistic defense systems to relocate right on the border with Romania, and the Russian early warning systems will be able to inform almost in real time on a possible launch of a missile from Deveselu being able to fight against it in the first phase, destroying it above Romanian territory or at its border.

B. Economic

The fact that many States depend on natural reserves of Russia, especially on Russian gas, ensure Russia with a series of actions targeting a transboundary economic domination.

The main objectives of the Russian strategy on the Middle East are not necessarily the development of more favourable bilateral relations with individual countries as Iran, Egypt or Syria, but rather to diverge US focus from other areas important for Russians, as Ukraine. The crises in the East and recent aggressiveness of Russia have made of energy

security an essential theme to the European Union. Romania is aware that only a real European solidarity can ensure a reduction in the dependence on Russia [13]. If other European countries will not “cheat” and accept preferential agreements with Russia, then the South Streamva case rests at the level of intent/project.

C. Political and diplomatical

Russian Federation knows that it dominated half of Europe once and that the former communist bloc of states, as well as those with Slavic ancestry should not fully exit from its sphere of influence.

Moscow is turning more and more towards the Western Balkans, because it does not want doesn't want this region to become part of the West. And even in the larger States that are EU members, such as Bulgaria, Moscow continues to try to exert its influence through the energy sector.

For a long time, the Russian Federation has focused its attention on Belgrade which has had always strong relations with Moscow. During 2014, the Serbian President, Tomislav Nikolić, has developed a close relationship with Vladimir Putin, trying to position the Republic of Serbia closer to EU. In 2013, during a visit to the summer residence of Vladimir Putin in Sochi, Tomislav Nikolić has signed a Declaration on strategic partnership between Belgrade and Moscow. At the end of 2013, Serbia signed an agreement on military cooperation with Russia, and in October 2014, to Berlin's displeasure, Serbia received the visit of Vladimir Putin, context in which Tomislav Nikolić offerd him the highest badge of honor of the State. These are just a few steps taken at the public level [14].

The Hungarian, Czech and Slovakian Governments positions in relation with Kremlin differs in terms of the degree of energy dependency and trade relations with Russia

Budapest depends on NATO regarding the security, on EU in terms of investment and financing, and on the Russian Federation in the field of energy. Accordingly, Hungary promotes a multilateral strategy for its foreign policy, maintaining the relations with the EU and NATO as a member of both organizations, and at the same time, aiming to establish stronger economic and political relationships with Russia.

Geographically, the Czech Republic is more remoted from Russian Fedration and less dependent on the economic side than Hungary, which allows a greater space of maneuvering in terms of policy approach on Moscow. However, the Prague authorities make a special effort to balance the foreign relationships and maintain the political and commercial relations with Russia. The Czech Government has promoted a joint policy toward Russia.

Slovakia makes significant efforts to maintain close political and trade relations with all the neighbouring States and regional powers. Slovakia is to a large extent integrated into the European market and is the only member of the Visegrad Group, which is part of the Euro area. The Slovak leadership strives to maintain those relationships in business and to avoid any disruption of trade with Russia. Undoubtedly, as the primary transit country for Russian energy resources flow to European markets, Slovakia holds a certain level of influence in its relations with Russia [15].

5. CONCLUSIONS & ACKNOWLEDGMENT

The antiballistic missile brings together under one umbrella very different technologies, all having a common one characteristic: they are the most advanced technologies at this time.

The question that arises is the following: Is missile shield impenetrable?

Given the fact that throughout the history of military technics and technologies it has been a race between weapons and antiarms we can be sure that the antiballistic missile shield has its own antidote.

In this context, the antiballistic missile shield can be countered through a series of actions, of which I recall the following:

a. The easiest but most expensive solution: launching towards the opponent a much larger number of missiles than he could ever intercept.

b. A cheaper and accessible solution: increase in number of false targets, so that a

good part of the counterattack could be lost on the air.

c. Other way of missile shield penetration: total elimination of one of its components. For example, the annihilation of satellites that guide and transmit continuously data to opponent's missile shield before launching their own attack.

d. The smartest solution for the anti-missile shield penetration: producing hipersonici vehicles/interceptors highly manoeuvrable able to penetrate with relative ease any anti-missile shield existing at this time.

NATO insists on implementing two separate missile defense systems, but coordinated, one Russian and one of the Alliance. On the other side, Moscow proposes the creation of an indivisible system integrating the devices of the two parts.

Russia has taken a series of actions described as countermeasures to NATO Defense ballistics program. Some of these measures are proactive, such as launching new research programs and strategic development programs. For example, the Russian Government is developing new ballistic missiles, of which tactical and technical characteristics are adapted to the new technologies and can circumvent in most effective way the missile defense systems.

As a corollary, a few conclusions are outlined in the following:

a. at the 25th anniversary of the fall of the Communist bloc, after the uprisings in the autumn and winter of 1989, the world had entered a new stage, likely a reiterative one conditioned by the recalibration of the power balance;

b. war without limits, non-linear war or hybrid war as conducted in Ukraine is only the peak of the iceberg of what the world calls the start of World War III;

c. the collapse, on July 19, in Eastern Ukraine of the MH17 flight belonging to Malaysia Airlines, which had left Amsterdam and was heading to Kuala Lumpur, carrying 208 people of whom 189 were Dutch nationals, was not due to the interception of the aircraft by an anti-aircraft missile launched from a BUK anti-aircraft defense system, but represented an intempestive threat because the pilot had changed the flight path, hadn't responded to radio calls, was heading towards an island where it was assumed that there were "extremely delicate" elements, and in this context it was shot down by the ones who "had to do it, and were feeling threatened";

d. attacks in Paris on 8 January 2015, followed by other attempts in Germany and Belgium a week later, are part of a default scnario, which will lead to an exacerbation of nationalism and a conviction in unison of Islam. In this way, arms race and international security restructure could be justifyed; there is now a given pretext for future interventions in the Middle East but also in any other parts of the globe;

e. by the annexation of Crimea, Russia took a step forward and opened a possible, new arms race; the elements of the American Ballistic Missile Shield placed in Poland, Romania and Turkey, as well as at the Black Sea could be countered, in the case of missile launching within the missile acceleration area, i.e. much easier, by Russian elements of missile shield located in Crimea and mounted on Russian ships, which are increasinly more numerous at the Black Sea and in the frozen North, which also is dominated by Russia.

f. during the next 10 or15 years we are going to witness a massive force relocation, rapid deployment and re-deployment of forces, scenarios and defined local and regional challenges, realignment of alliances and new

types of ordnance experiments, all made by the great military and economic powers, at the expense of peoples and populations; the recent changes in the climate, the record of 2014 as the warmest year in the history of climatic measurements, the multide of surface earthquakes in Vrancea area, which not characteristic for that zone, the crowd of meteors entering the Earth's atmosphere, and many other aspects show that psychotronic and geoclimatic war know an incessant progress.

g. starting with 2015, NATO must be capable to act quickly and to show that, if the Russian Federation is going to attack an allied country of the eastern flank, the capability required for a prompt, efficient and viable intervention is available.

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HUMAN ERROR – COCKPIT VULNERABILITIES

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Abstract: *The present paper aims to underline the importance of the crew in the aeronautical activity. Apart from personal talent, the aptitudes of each member of the crew and, not at least, the level of knowledge of the flying crew, the knowledge and training for the purpose of communicating, tasks distribution, decision making and hierarchy within the aircrew represent some key elements for success regarding flight safety.*

Key words: *flight safety*, *Crew Resources Management, leader, communication, flight deck, training.*

1. INTRODUCTION

"To learn out of experience is reasonable, yet, to the same lesson twice is unacceptable!" [2].

There are hardly any human activities that do not imply certain risks. We can only distinguish between hazardous activities and activities that are less risky.

We can say that the main objectives of safety in the field of aeronautics is to reduce to minimum losses of resources, especially human resources, which are difficult to replace if one takes into account the investment of time and training involved.

In order to accomplish this objective it is necessary for the management to focus on several directions [1]:

- identification and elimination of hazard conditions that may generate difficulties;
- establishment of a framework for limiting risks to as lower a level as possible;
- awareness raising, training and checking of the crew in the light of obeying operational safety measures;
- reports drawing with regard to latent hazard situations identified;
- effectiveness improvement of safety management system based on periodical activity analyses at all hierarchical levels.

2. NECESSITY OF ADHERING TO CRM CONCEPT

Starting from the main resource of any organization, the HUMAN being, researches done for increasing service safety (in each particular area of human activity) concentrated on reducing human errors with secondary effects on productivity, effectiveness and especially on the human resources lives and health. The first step in identification and reduction of latent deficiencies in the chain of hazards causality was achieved in the field of aviation.

Thus, two years after the air disaster of 1977 that occurred in Tenerife, when two Boeing 747 aircraft crashed on the runway, causing the death of 582 people aboard, the National Aeronautics and Space Administration (NASA) organized a workshop on the topic of "Resources Management on the Flight Deck". As a result of debates, human error or the pilot's error was no longer considered the main cause of air crashes. Thus, the conclusion was that flights safety does not rely only on the pilots' possibilities, skillfulness or capacity of flying their aircraft or on the good functioning of the technique, but also on existent interpersonal relationships within the crew, relationships that may alter the reaction capacity or the attention of any crew member holding responsibilities in the flight deck. Consequently, NASA introduced the CRM term (Cockpit Resource Management), a concept based on warning crews against deficiencies in information management, decision making and communication among the air crew members and of leadership from the flight deck.

The term and also concept of CRM was intensely spread world wide and it was developed so that it was implemented in each and every sector of human activities, not only related to aviation organization, although initially it was met with reticence. Once the CRM had developed, it was replaced by Crew Resource Management or Company Resource Management, in accordance with various necessities.

The foundation for the development of the actual CRM concept was represented by unbeatable realities of the human nature:

- the human being is subjected to error;
- the human being is unique, people have various personalities, specific cultures, each individual holding special talents and aptitudes.

3. WHAT IS CRM?

CRM stands for the correct use of all existent resources (crew, aircraft, flight controls, information) for the purpose of obtaining maximum performance regarding the operational effectiveness [4].

- It is a training method meant to optimize human performance in adequate interrelating through the reduction of human factor error reduction and through the use of all available resources, in the process of problem solving;
- A system that takes into account defining elements such as:

1. The manner in which safety is affected by the behavior and attitude of a crew's members;
2. The crew is an indivisible whole, an individual;
3. The training is performed more practically than theoretically;
4. A clear description of each member's responsibilities;
5. The preservation of the subordination relation and equally, the formation of an effective crew;
6. The possibility for the members of the crew to re-analyze and improve their performance.

One of the settings for the crew resources management is represented by Threat and Error Management - TEM, a concept that implies the recognition and avoidance of errors that are part of the operational activity. The mere observation of errors, without identifying the factors contributing to the error, makes it hard to understand what is to happen. Threats and the manner in which the crew are aware of them and manage them were included as observations so that to allow for the description of a specific event and of the entire instance that may lead from the phase of threat to catastrophe.

The three concepts of TEM are as follows [5]: *threats, errors and the undesired aircraft state (unwanted position of the aircraft).*

The term *threat* refers to external conditions that endanger the flight safety during the aircraft operation. Threats may be defined in terms of events and errors that:

- Occur without being initiated by the crew;
- Increase the piloting and the flight complexity;
- Require increased attention on behalf of the crew for maintaining the safety condition of the flight.

One threat that was not identified and annulled in due time is correlated with the crew error (piloting error). In other words, a threat that is incorrectly managed represents an *error*. Accordingly, *error* is defined as being an action or the crew's lack of action that:

- Leads to a deviation from the course of intentions or expectations of the crew;
- Decreases the flight safety due its surpassing safety measures;
- Increases the probability of an unwanted event to occur.

The undesired (difficult to control) position of the aircraft may be defined as the aircraft trim for which altitude, speed or configuration:
- Emerge from the crew's piloting errors (inadequate actions or lack of action);
- Endanger obviously safety measures.

4. WHY CRM?

Examples or theories regarding the importance of CRM are numerous. But why is the training for CRM necessary, or, why does the crew have to act as a unitary whole? Further, we will focus on a case study related to crew teamwork during flight; we will attempt to highlight threats, errors as well the undesired position of the aircraft at a certain moment, the crew ineffectiveness due to external pressures and vulnerabilities that may lead to catastrophe.

4.1. Case Study. It was a dull day, with low temperature and fog. It happened somewhere in the Russian Federation airspace. The sky was overcast with Stratus clouds, the flight level was around 3800 meters, and the ground was not visible. On approach, at approximately 1000 meters away from the threshold the aircraft hits some tree tops than crashes against the ground. As a result of the impact, all people aboard died.

For landing, the crew established radio contact with the "Severny" military aerodrome by means of the ATC call sign "Korsaj". It was a military passenger transport aircraft, of Russian production, but which did not belong to the Russian Federation. Aboard it there were 8 crew members and some other 88 passengers, each of whom occupied high positions in state and in the military. The flight was international, of the VIP type, considered to be "A" class.

As a result of the radio contact with the "Korsaj" ATC, communication was in Russian, not in English, so as international standards required. The crew's level of knowledge of Russian was not known. Nevertheless, it was proved by the CVR (Cockpit Voice Recorder) that the PIC's (Pilot in Command) level of knowledge of phraseology in Russian was SATISFACTORY.

The beginning of the series of events that were about to lead to catastrophe is represented by the first pieces of information given by the Korsaj ATC, regarding meteorological conditions: *fog, visibility 400 meters, improper landing conditions.* The crew gives the read back and acknowledges the received information. The same information regarding visibility conditions are given out in an evident emotional manner by the pilot of a different aircraft, of the same nationality, who had landed previously on Severny aerodrome, suggestion that he *might* attempt to land.

In this moment, the only wise decision of the military passenger transport aircraft would have been to divert its route to an alternate aerodrome. However, the PIC requested from the ATC approval of approaching in the intention of an *attempt* to land.

The aircraft crew intercepted the slide path. The approach in these conditions was a classical one (2 NDB – Non Directional Beacon and radar approach) due to the lack of ground advanced operating system (ILS – Instrument Landing System). ATC announced the crew that the minimum descent altitude - MDA using this procedure was 100 meters (should the crew not have visual contact with the ground upon reaching the altitude of 100 meters, either in terms of runway markings or

beacons, the crew has to initiate missed approach). Along the slide path:
- PIC descended below 100 meters without interacting with the crew;
- the navigator was reading the altitude using a radio altimeter and not a barometric altimeter;
- one of the altitude gauges was set on standard pressure (1013 hPa), which led to the display of three different values of the altitude;
- the crew did not react at any of the ”TERRAIN AHEAD” cautions, nor against the ”PULL UP” warning;
- PIC ignored the CP indications of missed approach at an altitude of 65 meters on the radio altimeter;
- the vertical descent speed was very high (8m/s represents almost the double of recommended speed);
- the cruise speed was 300 Km/h instead of 265 km/h.

The last minute decision to initiate a missed approach at an altitude of approximately 10 meters high (on the radio altimeter) represented an instinctive, rapid and uncontrolled thought that probably appeared at the moment when the PIC noticed the height based on ground markings.

4.2. Crew errors. Following the quick analysis of the sequence of events, here are some of the errors made by the crew at the moment of clear evidence of threats:
- The crew did not make the decision of using a different aerodrome, despite the unfavorable meteorological conditions and without taking into account the pilots flying experience;
- The interception of the slide path at a higher altitude, which led to the increase of speed and the maintaining of the vertical speed at a rate much higher than the recommended one and even below the MDH (Minimum Descending Height) of 100 meters;
- PIC did not execute the missed approach at the altitude of 100 meters high;
- Neither of the pilots initiated final descent when they heard the TWAS (Terrain Awareness and Warning System) warnings;
- The ineffective use of the CRM under heavy weatherl conditions;
- The inexistence of any cautions on behalf of the previously landed crews against cancelling their landing intention, although some relationships between pilots were informal, fact that was revealed by the names they used to call one another.

All these factors, each taken separately, may have negative effects for the activity and behavior of the PIC. When combined, these factors may result in an air catastrophe.

5. CONCLUSIONS & ACKNOWLEDGMENT

The decision made by the PIC to attempt an approach is based on the psychical pressure put on him (and on his crew) to come to approach by all means. This pressure is put mainly by the attendance aboard of the state President and by the presence aboard the flight deck of the Chief of Air Force Staff, who did not react in any way at the sight of unfavorable meteorological conditions from the final phase of approach. Mentioned should be made that, two years before this incident of the aircraft under scrutiny, the PIC of the aircraft had been the copilot – CP – of another VIP transport flight in which, due to security reasons, the PIC of that flight made the decision of landing on a different aerodrome. The steps taken against him affected his profession negatively [3]. Throughout the last twenty five minutes of the flight the PIC was highly charged emotionally, which was reflected by a conflict of interests: *should he land at all costs* or *should he choose a second aerodrome?!*

The lack of leadership abilities of the PIC, as well as evidence with regard to crew’s responsibilities, finally resulted in a tragic air crash. The fact that upon MDH, the PIC did not inform about his excessive descent speed, the crew’s behavior lacking decision making and communication effectiveness, as well as the erroneous reading of the altimeter, by the navigator, represented grievous consequences of the absence of CRM training.

The case study under debate was based on data collection and official investigation resulting from the air catastrophe of the 19 of April 2010, from Smolensk, the Russian Federation, in which the Tu-154 aircraft belonging to the Polish Air Force was involved, killing all passengers aboard, among whom the president of the State.

The current paper is intended to be one in search for evidence of existent vulnerabilities on the flight deck, during flight, and not a

conclusion for the events that led to the tragic event occurrence.

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HUMAN FACTORS CONTRIBUTION TO AVIATION SAFETY

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Abstract: *In approximately 75-80% cases of aviation mishaps the main cause were human performance deficiencies. Human error is rather the starting point than the end in the investigation and prevention of aviation mishaps. One of the most popular models for analyzing the human factor and its role in aeronautical activity is the SHELL model. The components of this model are: software, hardware, environment, liveware. The system need for human factors is determined by their impact in two major areas: system efficiency and the health of operational staff. The most important applications of human factors are in the field of preventing and managing human errors through education in the human factors.*

Keywords: *aviation safety, human factors, human error*

1. INTRODUCTION: WHAT ARE HUMAN FACTORS?

The human element is the most flexible, adaptable and valuable part of the aeronautical environment, while being the most vulnerable. Because most aviation incidents and accidents are the result of decreased human performance, there is a tendency to attribute the causes of these mishaps to human error. However the term "human error" does not help in the prevention and investigation of aviation events; although it shows us where the system failed it does not tell us anything about the causes that led to the failure. Also the term "human error" hides the latent factors that should be revealed in order to prevent aviation accidents. For example, errors attributed to individuals may actually be caused by design flaws, poor training, incorrect procedures or operating manuals. In the modern approach to aviation safety, human error is not the end but rather the starting point in investigating and preventing aviation events.

Early concerns in the field of human factors were centered on flight crews and demonstrated the danger of ignoring the human element as a part of the socio-technical system (the aircraft). System-induced errors such as those related to misreading the flight instruments or the wrong selection of cabin contacts were reduced through a better design of the pilot-cabin interface. Understanding the predictable dimensions of human capabilities and limitations and applying this knowledge in operational environments is the main concerns of human factors. Other early concerns in human factors were related to the effects on

the human body of factors such as noise, cold, heat, vibrations and accelerations [1, 4, 5].

In time, the study of the human factor has expanded and developed to include aviation maintenance activities. In approximately 75-80% of aviation mishaps the main cause was a decrease in human performance. Aviation engineers and mechanics are subject to the influence of a unique set of human factors that can lead to errors in aircraft maintenance working at heights, in difficult weather conditions, in an environment where the noise level is very high or under time pressure. A scientific paper presented at a conference of the Royal Aeronautical Society shows the growing trend of maintenance occurence of errors per million flights. The number of errors has almost doubled in a period of 10 years (see Figure 1) [3].

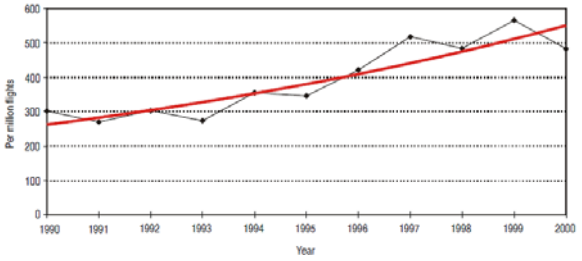

Fig 1. Maintenance occurence of errors per million flights

Research has shown that training in human factors can save money and can reduce the number of incidents and accidents, thus minimizing human casualties and property damage. A civil aviation company reported that following a two-day training program on human factors had a 68% reduction in incidents on the ground, a 12% reduction in work related injuries and a 10% reduction of working overtime. Also, the same company reported savings of about $ 60,000 for that year.

2. SHELL MODEL

For a better understanding of human factors, a gradual approach needs to be taken with the help of the "SHELL" theoretical model. The figure below illustrates this model using squares representing different elements of human factors. The model name comes from the initials of the components: Software (procedures, symbols), Hardware (machines, aircraft), Environment (environment, the context in which L-H-S system works) and Liveware (the human). This model has only a didactic value and aims to facilitate a better understanding of human factors.

Fig 2. Hawkins model

A. Liveware. The center of this model is the human, the most sensitive and flexible system component. People, however, are subject to considerable variation in performance and its limitations, most of which are predictable in general terms. Liveware is the core component of the model; all the other components should be adapted to "fit" with it [3].

B. Liveware-Hardware. This interface is most often considered when talking about man - machine system: designing seats depending on human body characteristics, designing displays depending on the characteristics of sensory information processing, or the cockpit controls with proper control.

C. Liveware-software. This interface is about man and procedures, manuals and checklists, symbology and computer software.

D. Liveware-environment. This interface was among the first addressed. Initially, the first steps were to adapt human to the environment (helmets, flight suits, oxygen masks). After that the trend reversed to adapt the environment to humans by introducing pressurization and air conditioning, soundproofing. This includes also perceptual illusions generated by environment, but also aspects of political and economic constraints.

E. Liveware-Liveware. This interface is about interpersonal relationships. Traditionally, education, training and

performance evaluation was done individually for each person. In this interface we are concerned with leadership, cooperation between team members, teamwork and interpersonal interactions. Also the scope of this interface is staff/ management relationships, work climate, organizational climate and the pressures of the organization that may affect human performance.

3. THE IMPORTANCE OF HUMAN FACTORS

About three in four accidents result from human error made by individuals apparently healthy and with the necessary qualifications. The source of these errors can result from improper design of equipment / procedures, from inadequate operating instructions or deficient training. The human and financial costs of low performance have become so big that an unprofessional approach to human factors is no longer possible [3, 4].

The system need for human factors is determined by their impact in two major areas which interact so closely together that factors influencing one implicitly affect the other area. These areas are:

- System efficiency;
- The health of operational personnel.

System efficiency

Safety. To demonstrate the impact of human factors on aviation safety we will present some examples of aviation accidents in which they played a decisive role:

1. In 1974, a B-707 crashed during approach at Pago-Pago in Samoa, with a loss of 96 lives. A visual illusion related to the black-hole phenomenon was a cause factor (NTSB/AAR 74-15);
2. In 1974, a B-727 approaching Dulles Airport in Washington crashed into Mount Weather, with a loss of 92 lives. Lack of clarity and inadequacies in air traffic control procedures and regulations led to the accident. The absence of timely action of the regulatory body to resolve a known problem in air traffic terminology was also listed as a factor (NTSB/AAR 75-16);
3. In 1977, two B-747s collided while on the runway at Tenerife, with a loss of 583 lives. A breakdown in normal communication procedures and misinterpretation of verbal messages were considered factors (ICAO Circular 153-AN/98).;
4. In 1982, a B-737 crashed after take-off in icing conditions in Washington. Erroneous engine thrust readings (higher than actual), and the co-pilot's lack of assertiveness in communicating his concern and comments about aircraft performance during the take-off run were among the factors cited (NTSB/AAR 82- 08) [1].

Efficiency. The need for human factors is not reduced only to aviation safety. Work efficiency is also affected by not applying or lack of knowledge about human factors. Proper placement of displays and controls in the cabin also improves performance. If crew members are well trained and evaluated they will have better performance.

The health of opperational personnel

Among the factors that affect the health of operational personnel we encounter fatigue, circadian rhythm disturbation and sleep deprivation. Other factors affecting the physical or mental health are: temperature, noise, humidity, light, vibration, workplace design and space.

Fatigue. It is considered a condition resulting from insufficient rest, but also a range of symptoms associated with circadian rhythm alterations. Acute, chronic or emotional fatigue can lead to dangerous situations and loss of efficiency. Hypoxia and noise are also contributing factors [1, 2].

Health and performance. Certain pathological medical conditions -

gastrointestinal, heart attacks, etc. - led to pilot incapacitation, and sometimes they result in an aviation mishap.

Stress. Stress is associated with life events, but can occur in situations where mental workload is high, such as taking off, landing or in-flight emergencies.

4. HUMAN FACTORS APPLICATIONS

Human error management. To limit and control human error, we must first understand how it occurs. Error causes are different, as are the consequences of the same type of errors in different situations. Some errors may occur due to lack of attention, negligence, others occur due to faulty design of equipment or may be the result of normal reactions of a person in a given situation. The latter can be repeated, but its occurrence can be anticipated.

Erros at the models interfaces. Each of the components of the SHELL model can be a source of error. Liveware-Hardware interface is responsible for errors due to improper placement of displays and control devices. Liveware-Software interface can generate delays and confusion due to inadequate maps and documents. Errors associated with the Liveware-Environment interface are caused by environmental factors (noise, temperature, vibration, etc.). In the Liveware-Liveware interface the main concern is the interaction between people, since it directly affects crew performance.

Information processing. Perceptual process is a fertile ground for the error. Expectations, personal experience, attitudes, motivation and the level of excitation of the sense organs have a direct influence on perception and can be sources of errors.

Control of human error. Control of human error is performed in two directions. First there is a need to reduce the frequency of errors. This is achieved by ensuring a high level of competence for the operational personnel, designing controls to meet the required anthropometric characteristics, checklists, manuals, adequate maps, noise reduction, vibration and other stress generating conditions.

The second direction in controlling error is to reduce the consequences of persistent human error using cross-monitoring through cooperation between crew members and designing equipment to allow reversibility.

Training and evaluation. Education and training are seen here as two separate elements of the training process. Education encompasses a broad set of knowledge, values, attitudes and skills required to build a psychological skill foundation on which later the professional skills will be acquired. Training is a process focused on the development of skills, knowledge and attitudes specific to a particular job or to the execution of a particular task. Adequate and effective training can not be achieved if through education was not created an appropriate foundation of knowledge, attitudes and skills [1].

5. CONCLUSIONS & ACKNOWLEDGMENT

Knowing how people function is very important in aircraft accident and incident investigation. The main goal of human factors application is to understand why people and organizations involved in design, manufacture maintenance and management of aircraft operations make errors that may have the potential to lead to aircraft accidents.

The purpose of understanding why people make errors is to produce safety reports and recommendations that will help prevent aircraft accidents.

The study of human-machine interaction transposed in theoretical models, like SHELL, helps us to achieve a systematic and thorough understanding of why humans make errors.

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UNMANNED AIR VEHICLES IN ROMANIA. STEPS TO THE FUTURE

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1. THE EUROPEAN CONTEXT FOR USING UNMANNED AIR VEHICLES

Lately, unmanned air vehicles became a presence of growing importance in military, civilian, scientific and economic activities, developed by different states of the world.

Unmanned air vehicles are aircrafts without human crew on board, which can be operated from a distance or perform flights autonomously, having dedicated sensors on board for various military and civilian applications. According to the principles of air safety, unmanned air vehicles are considered to be projected, built, operated and maintained in activity for air traffic activities, and their equipments are also qualified, according to the relevant provisions in the field of aeronautics.

The use of unmanned air vehicles was set up for the first time by the provisions of the Chicago Convention, on December, 7th, 1944, Article 8 stating that: *"Any aircraft able to fly without a pilot aboard cannot overfly without a pilot the territory of a contracting State without a special authorization of the respective state and in accordance with the provisions of this authorization. Each contracting State commits to take the necessary measures so that the pilotless flight of such an aircraft in the open regions of the civilian aircrafts be controlled, so that it can be avoided any danger for civilian aircrafts.*

Starting 1960, the unmanned air vehicles were most commonly used in the military field, performing mostly surveillance and recognition activities. Subsequently, to the end of the XXth and beginning of XXIst century, the interest in the research and development of such means have led to the emergence of a real industry, within which new technologies were adopted, allowing for a large variation of products in the field and a permanent increase of their performances.

Thus, there has emerged unmanned air vehicles specialized in collecting relevant information, at tactical, operational and strategic level, in order to discover and mark the targets, and, more recently, for hitting various objects.

A significant number of European states use unmanned aircrafts, especially beginning with the second half of the eighth decade of XXth century. At an initial stage, they imported these means from the main manufacturers - USA and ISRAEL. Lately, it is recorded an increase of the European States' interest for developing their own industries in this field, focused on manufacturing small and medium size unmanned aircrafts, command-control systems, components and various sensors. The achievements in this field are mostly

based on the results of the researches conducted according to each state's own contributions.

Also, there are programs developed based on the collaboration between the large manufacturers in the field, especially for manufacturing unmanned aircrafts of high altitude, height and endurance, such as those used for fight, extent to which it is remarkable the French-Israeli collaboration for achieving the HARFANG unmanned aircraft, the one between firms in France, Sweden, Greece, Switzerland and Italy for developing the nEUROn system. In addition to these, there are the actions conducted in Great Britain, by BAE Systems company, in order to manufacture the drone TARANIS, to mention just a few of the actions conducted currently in Europe.

2. THE ROMANIAN EXPERIENCE IN USING UNMANNED AIR VEHICLES

In 1987, the Romanian Military Aviation was endowed with the VR-3 unmanned research aircraft system of Soviet production, which equipped an unmanned research squadron.

The squadron was provided with 12 unmanned, reactive, VR-3 aircrafts, of 950km/h of speed, the maximum flight ceiling of 5000m and the action ray of 200km. Among these, eight aircrafts could perform photogrammetry missions, and four aircrafts were specialized in video research, for which the transmission of information was done via a radio connection to a ground station.

VR-3 unmanned aircraft system was completely autonomous and dislocable, the staff having the entire technological support needed available for the preparation of control systems and equipments, maintenance on ground, preparation for launching, launching, recovery, transportation and aircraft maintenance, as well as for the reception, processing, interpretation and transfer of information to the upper echelon, the beneficiary of research missions.

At the beginning of the 2000s, the unmanned research squadron was dissolved and the aircrafts were stocked and subsequently destroyed, except one, which is currently in the Museum of Romanian Aviation.

The introduction, **in 1999**, in the endowment of the Air Forces and the equipment with unmanned aircrafts of American production of the **SHADOW 600** type represented an important step forward on the direction of using the unmanned air vehicles in the Romanian Army. The squadron operated, until 2003, as part of the Romanian Air Forces, and afterwards was transferred under the subordination of the Military Information Direction.

The SHADOW squadron was used in many actions in the operation areas outside borders, with important results in ensuring relevant information of forces during the development of military actions.

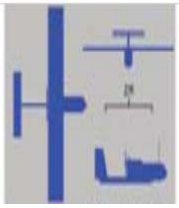
Besides the surveillance, recognition and intelligence systems, presented above, for training and performing machine gun shootings, artillery and surface-to air missiles, in time, there were used about 800 unmanned aircrafts produced in Romania, from the **A-TM** series, manufactured in a department of 80 workers, especially set up in the Furniture Factory in Târgu-Mure□,

ATM 1M ATM-001 ATM-3

the unmanned aircraft **ATT-01**, manufactured by Electromecanica Crângu lui Bot Company,

and **FOX TF -1** unmanned aircraft system produced in France.

From those presented above, one can conclude that the Romanian Army was endowed not only with important unmanned air vehicles, the only indigenous systems being those provided for training and performing shootings by the subunits, units and great defense units of the air space with the ground station.



3. ROMANIAN ACHIEVEMENTS IN THE FIELD OF UNMANNED AIR VEHICLES

In Romania, there was interest in building a certain type of unmanned aircrafts, but these, most of the time, remained at the project stage, or various prototypes or demonstrators were manufactured.

Usually, the research-development activities were conducted in research institutes and universities in the filed, and recently, by private companies, on projects financed from institutional funds.

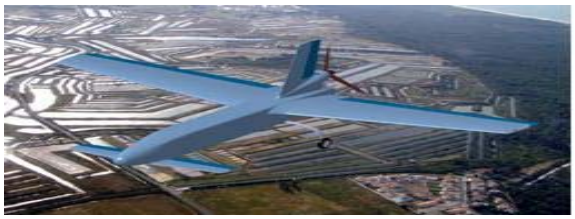
Up to now, the Romanian governmental authorities refrained to manifest interest in developing projects with unmanned aircraft systems, although the events taking place lately at global level show the need and importance of using these means to collect information for various fields of military and civilian activity.

In this context, **The National Institute of Aerospace Research (INCAS)** produced the prototype IAR-T, a mini pilotless aircraft of a weight of 20kg, being equipped with a video system in real time, with the maximum speed of 180km/h, an endurance of 30 minutes and a maximum ray of action of 10 km. It was designed to be used especially in the field of scientific research, but due to the lack of orders, it was no longer developed.

At its turn, **The National Aviation Institute S.A**. produced the prototypes of two pilotless aircrafts, ARGUS S and ARGUS XL, both of them being left out in the research-development stage.

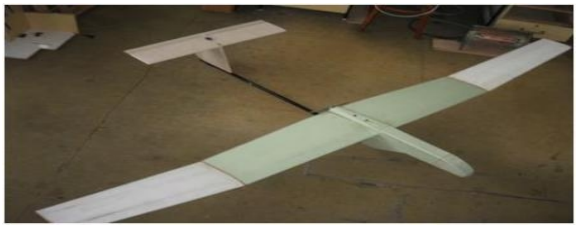
The pilotless aircraft **ARGUS S** was designed to perform surveillance missions, being projected for a maximum weight of 140 kg and a maximum speed of 240 km/h, with a ray of action of 200 km in autonomous flight. The take-off and landing are radio-controlled from the ground, by an operator, while the cruise flight is based entirely on the systems on board.

The **ARGUS XL** system is a pilotless aircraft in Canard configuration, built entirely out of composite materials. The wings and tail surfaces are detachable, and the main landing gear is an elastic blade, equipped with mechanical brakes and is not retractable. The nose gear is fixed, with direction and oleo-pneumatic piston.



Within the **Environmental Engineering Science Faculty of "Dunărea de Jos"** University there is set up a Center of Excellency on Environmental Issues, where an unmanned air vehicle was manufactured, with a flight autonomy of 150km, which can be used for surveillance, reconnaissance, drafting cadastral maps, environmental and biodiversity observations.

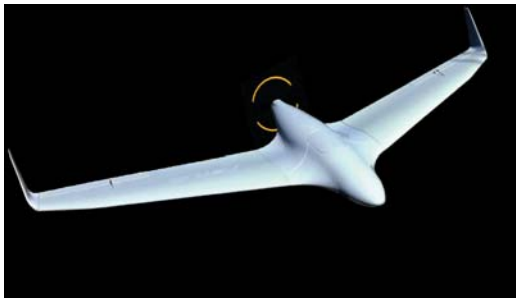
The Military Equipment and Technologies Research Agency within the Ministry of National Defense is currently developing the microsystem of unmanned aircrafts **SACT5-BOREAL**.



Developing a research-development project, financed from their own funds, **S.C. TEAMNET INTERNATIONAL S.A**. has until now achieved two types of drones, **OIM-I and OIM-II, HIRRUS** mini - system, with ISR (intelligence, surveillance, reconnaissance) capacities and currently handles the development of the **SIGNUS** tactical unmanned air vehicles.

OIM-I and OIM-II aircrafts reach speeds between 50m/sec. and 80m/sec., reach ceilings of 3000 m, with action rays of 30 km and 100 km, have an autonomy of one hour and six hours respectively, being able to satisfy any requirement for training and performing shootings with machine guns, artillery and ground-based rockets, in specialized shooting ranges.

The **HIRRUS** system is designed to fulfill missions in the military and civilian field, being destined for surveillance and recognition, for real-time data collection, needed by military or civilian decision-makers in order to take the necessary measures. It can be equipped with a gyrostabilized camera for daytime filming, gyrostabilized monochromatic sensor for night time or color photo module for daytime.



The Romanian recent achievements, especially those in the private sector, prove the Romanian experts' capacity to design and produce unmanned air vehicles at a technological level comparable with the one reached by large manufacturers worldwide, thus being created the premises for developing a new secondary branch of the aerospace industry in Romania. However, the possibilities for manufacturing them depend, on one hand, on the limited financial resources of producers, and on the other hand, on the low interest of the Romanian authorities to purchase such systems of internal production.

4. THE FUTURE OF UNMANNED AIRCRAFT SYSTEMS IN ROMANIA

In the military field, considering the importance given to information, surveillance and recognition in real time for squads, as a consequence of them being continuously improved the unmanned aircraft systems will clearly emerge as extremely important means for the preparation and performance of military actions, with important influences on the results.

Under these conditions, the management of the Romanian Army will have to take an extremely important decision, regarding the introduction of the unmanned aircraft systems

in the army endowment, especially in the fields of data collection, surveillance and reconnaissance (ISR - intelligence, surveillance, and reconnaissance) as well as the preparation of defense squads in the air space while using the target-drones.

Also, the participation of the Romanian Army to military actions in the theaters of operations outside national borders, under the aegis of UNO, within NATO or comprised in military alliances, shall have as a basic requirement the use of UAVs, in the tactical field as well as at operational or strategic level. Nevertheless, one of the lessons learned revealed the role of increased importance of the information structures in collecting, processing and making available of information needed to commanders at all levels, in real time, while using, at large scale, the unmanned aircraft systems.

At the same time, the special forces units, part of the actions to be undertaken, will depend on the real-time information about the objective or forces they are to act upon, situation in which the information provided by the unmanned aircraft systems shall prove to be extremely useful.

An increased importance will gain the use of unmanned aircraft systems by the military units of battalion-type, as the basic elements in collecting relevant data for the preparation and development of actions against the enemies, their surveillance and monitoring, as well as for assessing the effect of strikes on the forces and objectives of the enemy.

In the civil field, the use of the unmanned aircraft systems in Romania is at a starting point. There were various actions in this field, but most of the time, they were performed sporadically, or consisted of demonstrative flights.

The experience gained worldwide with such systems, shifted the focus on applications which can be practically achieved in all areas of social, economic and scientific activities. To this extent, we are making apparent the preoccupation of the aeronautics authorities to find practical ways to extend the use of air space by the unmanned aircraft systems.

However, it is noticeable that actions are taken towards cancelling all restrictions related to the use of air space by unmanned air vehicles and integrating them in the controlled air space, which will allow the extension of the fields in which it could have applicability.

Currently in the USA, FAA (Federal Aviation Administration) has authorized for the first time that two unmanned air vehicles - PUMA and SCAN EAGLE - act in the civilian field, in the controlled air space. This process will also continue, as it is in an advanced stage in other states, as well.

It should also be mentioned the fact that the diversification in the civil field is determined by the high number of sensors which can equip the unmanned aircraft systems. These can be day and night cameras, photogrammetry, cartography and cadaster modules, communication means or various devices for the analysis of the atmosphere and the ground.

Considering these, it is expected that the use of the unmanned aircraft systems, in the daily activity or in emergency situations, **in the field of internal affairs**, aims at the supervision and monitoring of borders, road traffic and the areas where natural disasters and catastrophes were produced, for assessing the effects of disasters and natural calamities, search-rescue of survivors, as well as for supervising and monitoring critical structures.

In the field of agriculture, the unmanned aircraft systems, provided with specialized sensors, will be used to supervise and monitor crops, determine their growth degree, the emergence and spreading of pests, supervision

and monitoring of animal herds in the pasture areas or irrigation systems, raising necessary data for performing cadaster works of agricultural and non-agricultural lands, forests and localities, as well as for achieving the protection of agricultural property.

A field where the unmanned aircraft systems will be used at a large-scale is **the protection of the environment**, a field where the applications will focus mostly on environmental and climate change monitoring, surveillance and research of forests, census of wild animals, establishing the pollution level of the atmosphere, soil and waters where disasters and natural calamities were produced, surveillance and monitoring of watercourses and the Danube Delta, the inspection of dams and protection works against floods, collecting data for designing maps for hydrographic basins, as well as photogram for the areas of interests belonging to them, research and monitoring of pollution sources and polluted areas, surveillance of environmental incidents, especially in nuclear plants and companies with a high risk of pollution of the atmosphere, soil and waters.

The important applications which can be achieved in **the field of transport** for the transport surveillance and monitoring on the Danube River and the main transport means, the surveillance and monitoring of harbor activities and large railway hubs.

A programme of extreme importance which Romania is part of is the programme **ALLIANCE GROUND SURVEILLANCE (AGS).** It was to be achieve according to a NATO initiative, adopted at the Summit in Chicago, in May 2012, which until now, 14 states adhered to. It is intended to purchase **five unmanned aircrafts GLOBAL, HAWK** and the command and control systems needed. The system will be operational starting 2017 and will be operated by a NATO structure, following that the information obtained be made available to all 28 member states of NATO. The **AGS** system will be able to handle the surveillance of an extended ground surface, with platforms which will perform from big heights, on long periods of time, under any conditions of time and weather. The main operation basis will be set in the Air Base SIGONNELA, in Italy.

A new probable direction of action in Romania in the future was open by the European Council Summit, in December 2013, in which there were analyzed the problems of the EU member states in participating to the achievement of four programs meant to develop the capacity of the European states to act in crisis situations - **fuel supply while in air, satellite communications, information security and unmanned aircraft systems.**

Regarding the need to develop an **European unmanned aircraft system,** there was agreed to create a work group for elaborating the requirements and technical description for a system of medium altitude and great endurance (MALE), to which member states should confirm their intention to participate in. Meanwhile, France and England started the operations for the achievement of a UCAV, program to which Italy will also join.

To this extent, Romania will have to analyze the possibility to achieve such a system, either by initiating their program, or by adhering to the European program.

The development of a national program for the production of the unmanned aircraft systems could be Romania's answer to the challenges at the beginning of this millennium, among which the relevant and timely information, especially that it becomes more and more important the role played by real-time information, in the management of all areas of activity. Having at the basis the experience already gained while using various unmanned aircraft systems, as well as manufacturing such systems, it is necessary to develop an autonomous program of unmanned air vehicles, in order to cover the needs in the military as well as civilian field. A first step would be to manufacture an unmanned air vehicle with dual use - civilian and military - of a small weight of 150 kg, based on certain operational requirements elaborated by the main users of such systems.

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NATO BOMBING IN THE FORMER REPUBLIC OF YUGOSLAVIA

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Abstract: *Within this work, we approached the bombing operation in Yugoslavia, named „Allied Force", that was a part of the War which led to the establishment of Kosovo's status. The development period of this operation, including bombardment operations, was 78 days, between 24th of March and 10th of June, 1999. In the conducted study, we chose to use the scientifique observation as method of scientifique research as well as we used the comparative-historical method and in terms of the techniques used, we focused mainly on documentary analysis, available with an extensive bibliography. In the conducted study, we have highlighted some dealt less aspects of the subject, and also, items related to the strategy used by combatants during the conflict emphasizing the pros and cons of strategic air power. From these elements can be formulated numerous lessons learned useful in future conflicts, and also, possible research directions.*

Keywords: *Yugoslavia, NATO forces, bombing actions, aircraft.*

1. INTRODUCTION

The bombing operation in Yugoslavia was called „Allied Force" and was a part of the War led to the establishment of Kosovo's status. The development period of this operation, including bombardments operations, was 78 days, between 24th of March and 10th of June, 1999.

The official code name of this NATO operation was „Operation Allied Force". The United States called it „Operation Noble Anvil", while Yugoslavia called it, incorrectly and ironic, „Merciful Angel".

The result of this operation is provided in the Kumanovo Treaty: the Yugoslav troop's withdrawal from Kosovo and the establishment of a NATO force in the area, known as KFOR (Kosovo Force).

The regulations, including the territorial ones, which took place during and after the actions of all kinds from this conflict area, were framed within the provisions of United Nations Security Council Resolution no. 1244. In fact, the separation of the Kosovo province (region) from Yugoslavia was performed under the temporary and interim administration of the United Nations and this is, including nowadays, strictly monitored by NATO troops that are camped in several areas of the province.

2. THE BELLIGERENT PARTIES

The belligerent parties were represented by the NATO coalition on the one hand, and the Federal Republic of Yugoslavia on the other hand.

The NATO coalition led by the US General Wesley Clark (SACEUR-Supreme Allied Commander of Forces in Europe) consisted of military forces of the following countries: Belgium, Canada, Czech Republic, Denmark, France, Germany, Hungary, Italy, Netherlands, Norway, Poland, Portugal, Spain, Turkey, United Kingdom, United States and other air, sea and land NATO forces. The military technique used by NATO troops totalized 1,031 aircrafts, 30 attack ships and submarines and the specific Force called „Hawk".

The Yugoslav President, Slobodan Milošević conducted military operations of his own troops, and, at the end of the conflict, he was still in power. Thus, we couls say that he survived the entire battle and he declared the outcome of the conflict represented a major victory for Yugoslavia. Many political figures stated this was an oppinion shared by few people. At the end of the hostilities, he and other Yugoslav political seniors and military figures were indicted for war crimes by the International Criminal Tribunal for the Former Yugoslavia. A very important aspect was the arrest of Milošević in case in which he would have left Yugoslavia. His orders and directives generated violent actions and made from Yugoslavia a country treated as a pariah by a lot of states belonging to the international community. The conflict badly affected the economy of the country, and a year later, the Yugoslav popular disillusionment with the Milošević regime led to his overthrow in October 2000.

After the ending of combat operations, in December 2002, the Queen Elizabeth II approved the awarding of the Battle Honour „Kosovo" to squadrons of the Royal Air Force that participated and conducted military actions in the conflict. The awarded military units were: Nos 1, 7, 8, 9, 14, 23, 31, 51, 101, and 216 squadrons. Also, this well-deserved reward was extended to the Canadian squadrons deployed to the operation, 425 and 441.

2.1. NATO Aviation. A major and very important element of the operation was represented by NATO air force elements, relying heavily on the United States Air Force and Navy.

The French Navy operated the Super Etendard, while the French Air Force operated the Mirage 2000 aircrafts.

The Italian Air Force integrated in this operation 34 Tornado aircrafts, 12 F-104 aircrafts, 12 AMX aircrafts, 2 B-707 aircrafts, while the Italian Navy designated and operated Harrier II aircrafts.

The British Royal Air Force provided and operated Harrier GR7 aircrafts, Tornado ground attack jets as well as some support aircrafts.

Other states as Belgium, Denmark, Germany and Turkey provided and operated F-16 aircrafts belonging to their Air Force structures.

The Spanish Air Force was designated to deploy a definite number of F-18s and KC-130 aircrafts.

The Canadian Air Force deployed a number of 18 CF-18 aircrafts, and i tis believed that these aircrafts were responsible for 10% of all bombs dropped during the attack operations. These aircrafts were armed with both guided and unguided „dumb" ammunitions, including the Paveway series of laser-guided bombs.

This operation, respectively the bombing campaign marked the first time when Germany, through its Air Force structure actively participated in combat operations since the end of World War II.

However, NATO forces relied mostly upon the Americans and the proven effectiveness of its air power and air superiority by using the F-16, F-15, F-117, F-14, F-18, EA-6B, B-52, KC-135, KC-10, AWACS, and JSTARS aircrafts. These aircrafts operated from bases situated throughout Europe and from aircraft carriers in the region. Also, the American B-2 Spirit stealth bomber obtained its first successful combat role in „Operation Allied Force", all while striking from its home base in the continental United States.

2.2. Yugoslav Forces. The Yugoslav armed forces were composed of military units from Air Force and Navy and were led by Yugoslav president at the time, Slobodan Milošević (who was also the Supreme Commander of the Yugoslav Army), by Dragoljub Ojdanić (the Chief of Yugoslav

Military Staff), by Svetozar Marjanović (the Deputy Chief of Yugoslav Military Staff) and by Nebojša Pavković (the 3rd Army Commander). Thus, Serbia engaged in this conflict about 114,000 soldiers, 20,000 policemen, 15,000 volunteers, 14 MiG-29 aircrafts, 46 MiG-21 fighter planes, 34 fighter jets Soko J-22 Oraos, 1,400 artillery pieces, 1,270 battle tanks and 825 armoured fighting vehicles.

During the military actions, in terms of military technology, NATO lost 2 AH-64 Apache helicopters, one F-117A Nighthawk aircraft was shot down, a second F-117A Nighthawk aircraft was damaged, and two A-10 Thunderbolt II aircrafts were also damaged. However, an F-16C aircraft was shot down, an AV-8B Harrier aircraft was destroyed and 21 UAV-s were reported lost. In terms of human lives, NATO officials stated that three soldiers were captured and two soldiers died in the crash of one of the two shot down AH-64 Apache helicopters. This second AH-64 Apache helicopter crashed 40 miles from Tirana. The two crewmen, Army Chief Warrant Officers David Gibbs and Kevin Reichert died after the impact.

On the other hand, Serbia's balance sheet is much higher, respectively 1,031 killed soldiers and police officers and 299 wounded soldiers. According to NATO estimates, there were between 5,000 and 10,000 killed Serb soldiers and in terms of military equipment and technique, there were shot down or destroyed 6 MiG-29, 4 other planes were destroyed at the ground, one J-22 Orao aircraft was also destroyed and 22 armoured vehicles and artillery pieces were destroyed during military operations from Kosovo, including 14 tanks.

The bombardment on Yugoslavia conducted by NATO was a military operation that has not been authorized by the UN and aimed the discouraging or the ending of the conflict that was triggered for determining the status of Kosovo province.

The operation was, itself, the first time when NATO used military forces without the approval of the United Nations Security Council against a sovereign nation that has not brought a threat to a NATO member.

The bombings carried out by NATO during this operation is the second major operation in the history of this organization, after the campaign of 1995 - the bombing campaign carried out by NATO troops in Bosnia-Herzegovina, also against the Yugoslav troops.

The bombings from 1999 led to the withdrawal of Yugoslav forces from Kosovo province, to the establishment of an UNMIK mission (an interim UNO mission in Kosovo) and ended the Yugoslav wars of the 1990s.

3. THE STRATEGY

The „Allied Force" Operation consisted, mainly, of aerial missions carried out at high altitudes had the aim to destroy the Yugoslav military infrastructure. The ground forces were not used because NATO wanted to minimize the risk of losing their soldiers and, also, the avoiding of the media and the public eye criticism on the possibility of inefficiencies that could be proven during the conduct of actions carried aut by these forces.

NATO aviation bombed strategic, economic and social objectives, such as bridges, military facilities, government buildings and official institutions buildings, strategic facilities, instalations in Belgrade and Pristina and, also, some factories. To hit the well camouflaged and heavily defended targets, NATO used long range cruise missiles.

After the third day of bombing, NATO destroyed almost all strategic military targets in Yugoslavia.

Long time after these events, it was discussed whether not the capitulation of

Yugoslavia in the Kosovo War from 1999 was the result of the air power established by NATO forces.

Despite of all actions of NATO forces, the Yugoslav Army troops continued to attack the fighters of the KLA (Kosovo Liberation Army).

A big minus sign for NATO during this stage of the campaign was the controversial bombing from the People's Republic of China embassy in Belgrade. Most notably was the fact that three Chinese reporters were killed and twenty others were injured, and NATO claimed that this incident was a mistake.

3.1. Arguments for strategic air power. As stated by John Keegan, the capitulation of Yugoslavia in the Kosovo War marked a turning point, a milestone in the history of the conduct of a war. This conflict „demonstrated that a war can be won only because of the power and air supremacy". By comparison, the diplomatic efforts failed even before the war started itself, while NATO oficials decision to develop a big land force represent the moment when the Yugoslav president, Slobodan Milošević, accepted a peace agreement.

In order to be conducted in an uniform manner and without the support of other combat elements, it is necessary that the air power to meet several factors. These factors can be met all together very rarely, but they were met all together during the conduct of the military operations in Kosovo. These factors refer to:

a) the bombardment must be able to cause significant damages, but it is necessary to minimize the generation of human victims. At the same time, it aims to create a certain pressure among the population and must determine the fighting parties to end hostilities, not to extend them. It is said that the way how the air power was exercised in the Kosovo war was able to create this kind of pressure.

b) the regime must be resistant reported to the pressure among the population. As it was demonstrated, by the overthrow of Milošević's regime a year later, the Serbian government has shown a low authority and it depended very much by the income support within the country.

c) there must be a difference in military capabilities so that the opponent (the enemy) to be unable to fight or even to inhibit the exercise of air superiority over its territory. Serbia, a relatively small and poor Balkan state, faced a much stronger opponent, respectively NATO coalition, which included both the UK and USA, extremely strong nations in terms of military capabilities and, implicitly of air forces capabilities.

d) Carl von Clausewitz once defined „the essential force of the enemy" as the „the gravity center" of this. Thus, if the gravity center of the Yugoslav fighting force had been destroyed, the will to resist of the Yugoslav state would also be removed. In Milošević's case, the gravity center was the holding, respectively the maintaining of a total control in his hands. He had the ability to manipulate the inflation (causing a hyperinflation), he also imposed sanctions and restrictions on the demand and supply and he granted various facilities to the strong business owners from Serbia to the idea of support him during his mandate. But the deteriorating of economic power of the Serbian state, which reached a point of minimum profit, determinated the major players to threaten Milošević with their unsupport in the case in which the air campaign will continue and will cause major and costly damages that will affect the infrastructure so necessary for the proper performance of their business.

3.2. Arguments against strategic air power.

1. In terms of diplomatic:

1.1. According to British Lieutenant-General, Mike Jackson's declarations, Russia's decision from 3rd of June, 1999, to support the West cause and to determine Milošević to surrend was a turning point that took „the greatest contribution to the completion of hostilities". Thus, the capitulation of Yugoslavia took place the same day.

1.2. Milošević's condemnation by the United Nations as a war criminal (on 24th of May, 1999) gave Russia the possibility to diplomatic support the United Nations, which seemed unlikely at the beginning of hostilities.

1.3. The Rambouillet Pact from 18th of March, 1999 (agreed also by Yugoslavia) would have

been accorded NATO forces the rights for transit, bivouac, maneuver, camping and access on the entire territory of Serbia. But once Milošević capitulated, NATO forces were granted access only in Kosovo region.

1.4. The International civil presence in Kosovo was held under UN control, which allowed the Russian veto and prevented the emergence of some threats to the interests of the Serbian nation.

2. The competing land operations - KLA itself undertook operations in Kosovo and achieved some success against Serb forces. The Yugoslav army abandoned a border point in Morinë area, situated next to his outpost at Kosare, in the north-west part of this area. But, the outpost from Kosare remained under the command of Yugoslav forces during entire period of the conflict, which led to the establishment in the province of a power line, a point of supply and subsequently led to the domination of the territory from Junik area. Also KLA broke and entered few kilometers area in the south-west part of Pastrik Mount region. Notwithstanding, the biggest part of this area remained under Serb control.

3. The potential land attack - the American General Wesley Clark was „convinced" that the planning and the preparations of a land interventions would be determined Milošević to concede. The Yugoslav troops capitulation occurred on the same day that USA President, Bill Clinton, held a conference, highly mediated and publicized, with the four chiefs of American Services in order to discuss the options for the deployment of a land force in case in which the conduct of air operations woul have been failed.

4. With all these stated, France and Germany vigorously opposed to a ground offensive and continuously supported this position for several weeks, as of April 1999. French estimates suggested that an invasion would require an army of about 500,000 people in order to reach the proposed target. These estimates clarified the position of NATO leaders, especially those from USA, that a land operation would not have had any support and maybe no plausible success. In the light of these analyzes and comparisons, American leaders strongly reaffirmed their faith that an air campaign is much more indicated. NATO leader's refractoriness to use ground forces created serious doubts about the idea that Milošević would have been capitulated by facing or by fearing of a land invasion.

4. THE OPERATION

On 20th of March, 1999, the OSCE monitors of Kosovo Verification Mission withdrew from the province, stating „the deteriorating security situation" and on 23rd of March, 1999, Richard Holbrooke returned to Brussels announcing the failure of peace talks and negotiations. A few hours before this statement, Yugoslavia announced on national television post the emergency situation, respectively an „imminent threat of war ... against Yugoslavia by NATO forces" and started a massive mobilization action and began of troops and resources. On 23rd of March, 1999, at 10:17 p.m. UTC, NATO Secretary General, Javier Solana, made the announcement that he ordered General Wesley Clark the „initiation of an air operation in the air space of Federal Republic of Yugoslavia". On 24th of March, 1999, at 19:00 UTC, NATO troops started the bombing campaign against Yugoslavia.

4.1. NATO Operations. The bombing campaign conducted by NATO in Serbia involved 1,000 aircrafts which operated from air bases from Italy and Germany, and the USS Theodore Roosevelt transport ship that was stationed in the Adriatic Sea.

At the dusk of 24th of March, 1999, F/A-18 Hornets aircrafts of Spanish Air Force were

the first NATO aircrafts planned to bomb Belgrade and perform operations such as SEAD (Suppression of Enemy Air Defence). In the same time, from the ship and submarines, there were also launched BGM-109 Tomahawk cruise missiles.

During the ten weeks of the conflict, NATO aircrafts performed over 38,000 combat missions. The air power was reinforced by an Apache helicopters battalion belonging to US Army.

Originally, the campaign was intended to destroy the Yugoslav air defense, the military objectives of strategic importance and units of the Yugoslav ground troops. Among other targets, there were also took in the viewfinder objectives as: the bridges across the Danube, factories, power stations, telecommunications facilities, buildings belonging to the Yugoslav party „Leftists" (political party led by Milošević's wife), and Avala Television Tower, too.

On 14th of April, NATO planes bombed areas near Koriša, regions populated by Albanians ethnics, who were used by Yugoslav forces as human shields.

4.2. Yugoslav Operations. The Serbian Television declared in several times that more refugees columns fled the Kosovo region because of the bombings carried out by NATO aviation and not due to military operations undertaken by Yugoslav troops.

The Yugoslav part and the Western supporters stated that the big refugees' exodus was caused by a massive panic among the Kosovo-Albanian ethnicity population, panic that was generated, mainly, by the fear of bombings carried out by NATO aviation.

4.3. Air combat. An important part of the war was represented by the struggle between the Yugoslav Air Force and Allied Air Forces. F-15s and F-16s aircrafts of the US Air Force (USAF), flying mainly from the air bases from Italy attacked the defense of Yugoslav forces, as well as the Yugoslav combat aviation but, mainly, sought to incapacitate, as soon as possible, the yugoslav MiG-29 aircrafts, which was known they were in a pretty bad shape due to the lack of spare parts and due to the lack of a proper maintenance of these.

4.4. Incidents that took place due to air combats. During the night of 24th to 25th of March, 1999, Yugoslav Air Force arised the first five MiG-29 aircrafts in order to combat the first attacks of the Allied troops.

Two of them took off from the airport in Niš were vectored to intercept targets situated in southern Serbia and southern Kosovo region, but, on their flight path, they were intercepted by NATO fight aircrafts.

One of those two MiG-29s, piloted by Major Dragan Ilić, was forced to an emergency landing due to the failure of one engine, and later on, during the conflict, this aircraft was used as bait. The second MiG-29 aircraft, piloted by Major Ilijo Arizanov, was overthrown by a USAF F-15C, piloted by Lieutenant-Colonel Cesar Rodriguez.

The second pair of MiG-29 aircrafts took off from the Batajnica Air Base, being piloted by Major Nebojša Nikolic and Major Ljubisa Kulačin. They were engaged by a USAF aircraft, piloted by Captain Mike Shower who managed to strike and to knock down the aircraft piloted by Nikolić, while Kulačin missed the firing with the rockets. During this air combat, a part of MiG-29 flight systems broke and determined him to make great efforts to return to base. Finally, arriving at the Batajnica Air Base, he realized that he could not land because the air base was under the fire of Allied forces and he decided to change the flight path to „Nikola Tesla" Airport from Belgrade, where, otherwise, he managed to land safely. There, he hid this MiG-29 under the tail of a nonfunctional airliner plane that was parked on the airport.

The fifth and the last MiG-29 aircraft rose by Serbs that night in order to combat Allied aerial targets was piloted by Major Predrag Milutinović. Immediately after the takeoff, the aircraft's radar and the electric generator failed. Shortly after these incidents, he was warned that he was spotted by one fire control radar, but he managed to escape the enemy due to several evasive maneuvers. In his attempt to avoid other unwanted meetings, he approached to the airport from Niš with the intention to land, but the plane was hit by a 2K12 Kub missile fired by Yugoslav troops and he was forced to catapult.

So, in that night, Yugoslav Air Force raised five MiG-29 aircrafts, three of them were shot down, one of them was badly damaged, and the fifth returned to base in a poor condition and it was no longer used for waging warfare. No pilot was killed; only one of the five pilots was injured and needed a few days to recover.

A closer examination of the available data indicates the fact that Major Arizanov was hit and shot down by Colonel Rodriguez while Major Nikolic and Major Kulacin were engaged by Captain Showers, who, at least, hit and shot down Nikolic.

On the morning of 25th of March, Major Slobodan Tešanović, due to some technical malfunctions, damaged the MiG-29 aircraft which he piloted it, near the landing area of the Ponikve Air Base, after a previous landing attempt, being also forced to catapult.

During the war from Yugoslavia, the J-22 Orao and G-4 Super Galebs attack aircrafts conducted approximately 20-30 combat missions against KLA, on Kosovo territory. The attacks were carried out from low altitudes and caused many human casualties. In one of these missions, deployed on 25th of March, 1999, Lieutenant-colonel Života Duric died when the plane he piloted it, a J-22 Orao plane, hit a hill in the Kosovo region. There has never been established, in a firmly way, which was the cause of this aeronautic event: a malfunction during the aircraft flight, a pilot error or an enemy attack carried out by KLA forces. The certain aspect of this fact is that NATO representatives stated they had no implication in shooting down of this aircraft.

In the afternoon of 25th of March, 1999, two Yugoslav MiG-29 aircrafts took off from the Batajnica air base with the mission to combat a NATO aircraft that flew towards Bosnia. During this mission, the two pilots crossed the border line. Thus, they were engaged by two F-15 aircrafts of USAF. Both MiG-29s were hit and shot down by Captain Jeff Hwang. One of the MiG-29 pilots, Major Slobodan Perić launched at least one rocket before being hit, then he managed to catapult. Later, he was found and brought back to Yugoslavia by the Republika Srpska Police. The other pilot, Captain Zoran Radosavljevic did not eject (there are not known the reasons why he did not proceed at catapultation) and died due to the violent impact.

On 27th of March, 1999, the 3rd Battalion belonging to the 250 Missile Brigade, commanded by Colonel Zoltán Dani, equipped with Isayev S-125 „Neva-M" missiles (called by NATO as SA-3 Goa missiles) shot down a F-117 Nighthawk american plane. The Yugoslavs operators from the observation and identification equipment in the composition of air defense system found out that they are able to detect F-117 planes with Soviet radar stations considered „obsoleted" due to the fact that these operated on long wavelengths. The hit pilot managed to catapult, being recovered by search and rescue forces, somewhere near Belgrade. This was the first and the last time, so far, when an invisible plane was hit and shot down.

On 5th, 6th and 7th of April, Yugoslav MiG-29 aircrafts were tasked to intercept NATO aircrafts, but each time, the Yugoslav pilots were out of combat due to malfunctions or different damages of the aviation systems from the aircrafts board.

On 30th of April, 1999, some American sources confirmed that a second F-117A aircraft was damaged. Although the aircraft returned to the base, it is believed that it has never flown again.

On 2nd of May, 1999, a USAF F-16 aircraft was shot down near Šabac, by a SA-3 missile, launched by the 3rd Battalion of the 250 Missiles Brigade. The pilot was ejected and he was rescued. In the same day, an A-10 Thunderbolt II aircraft that deployed an aerial mission in the airspace over Kosovo region

was heavily damaged by a Strela 2 surface-air missile launched from a portable shoulder device. The pilot was forced to make an emergency landing in Skopje. Also, a Harrier jet piloted by an American pilot crashed while returning from a training mission towards on its way to USS Kearsarge, the amphibious ship designed for assault and transportation. The pilot ejected and he was also saved.

On 4th of May, 1999, a Yugoslav MiG-29 aircraft piloted by Lieutenant-Colonel Milenko Pavlović was shot down at a low altitude, just above his native town of Valjevo, after a air fight with two F-16s of USAF. It is possible that the airplane to have been hit by a Strela 2 rocket fired by Yugoslav troops. Following this event, the Yugoslav pilot lost his life.

On 11th of May, an A-10 aircraft was slightly damaged during the execution of a task carried out in the airspace over Kosovo.

Also, NATO forces lost two attack helicopters AH-64 Apache (one on 26th of April and the second on 4th of May, in Albania, near the border with Yugoslavia, during a training mission. That event resulted in the death of the two members of the crew, as it is written in the beginning of this article).

NATO officials reported they lost 21 UAVs (Unmanned Aerial Vehicles), due to technical problems or malfunctions or due to enemy actions. A part of these UAVs, at least seven, were from German troops and five of these UAVs belonging to the French troops. While the Third Yugoslav Army Commander stated that 21 UAVs belonging to NATO forces were shot down by Yugoslav forces, another Yugoslav general affirmed that the Yugoslav air defense, along with units of the land forces shot down 30 UAVs.

5. CONCLUSIONS & ACKNOWLEDGMENT

Attitudes towards the campaign - In favor of the campaign. NATO leaders were convinced that all their decisions, regarding the airstrikes, were deeply justified. Also, their decisions were directed for the keeping of calm situations. We found out that official sources from Clinton's Secretary of Defense alleged that the appalling accounts of mass killing in Kosovo and the pictures of refugees fleeing Serb oppression for their lives makes it clear that this is a fight for justice over genocide. Also, it was clear that approximately 100,000 military-aged men missed, and most probably these may have been murdered.

Another important aspect of our study is the position of NATO leaders and their Allies, due to the fact that, before the beggining of the operations, they were not decided whether they support or not the leadership of Yugoslav President, Slobodan Milošević. Following this study, we are able to state that NATO forces operations prevented the ethnic cleansing; the genocide in Kosovo region, and, in this way, NATO leaders undertook a lot of efforts. All the actions conducted by Serb forces determined many civilian casualties and duet o this fact, we could make a comparison between the events from Kosovo and the events occured during the Holocaust, but at a smaller scale. We can affirm that Serbian forces committed genocide or that there are many evidences of the genocide created by Serbian forces. Through their violent, criminal and inhuman actions, Yugoslav forces determined abhorrent actions on a large scale. Nevertheless, after few months there were presented the conclusions of NATO bombing. Between these conclusions, it is interesting to remark the number of dead found bodies that was approximatively 2,200, with a total estimate not exceeding eleven thousand.

On 11th of March, 1999, the American officials voted a plan committing 4000 troops to the NATO peacekeeping mission.

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FOUNDATION OF THE EARLY PILOTING SCHOOLS IN ROMANIA

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Abstract: *The current paper focuses on the topic of the early schools of piloting due to the fact that, on the one side, on the 1st of April, 2015, we celebrate the 20th anniversary of "Henri Coanda" Air Force Academy of Brasov – the successor of the Romanian military aeronautical education, and on the other side, in our opinion, knowledge of traditions of the military piloting school stands for a necessity when forming and professionally training military pilots. The history of the Romanian piloting school represents the foundation of the local military aeronautical education, both at present and for the future.*

Keywords: *aeronautical education, school of aviation, pilots*

1. INTRODUCTION

We can state that Romania's contribution to the founding of aviation, through its national pioneers, was sound and the Romanian aeronautics left its imprint on the early world aeronautics. Among the Romanian inventors who contributed to the flight development by means of apparatuses heavier than the air, a distinct role was played by Traian Vuia, Aurel Vlaicu and Henri Coanda. In this context, the emergence of a school or schools of piloting in our country was inevitable; consequently, in the following sections of this paper, we are going to detail on these aspects.

At the beginning of the past century, in Bucharest, there were established the earliest schools of piloting. In this respect, airships from other countries were purchased; specially designed workshops were set for the maintenance and repairing of the technique, and, at the same time, there started the training of the first Romanian pilots, all of which assuring the optimum conditions for the foundation of the Romanian military aviation.

2. THE PILOTING SCHOOL FROM CHITILA

The Romanian lawyer Mihail Cerchez, born at Bârlad, Galati County, is the initiator of the first school of piloting in our country. While in Paris, Mihail Cerchez got fascinated by the flights performed by the aviation pioneers, such as Traian Vuia, Alberto Santos-Dumont or Louis Blériot. Animated by the frenzy of flight and motivated by the appearance of the schools of piloting in France, Cerchez returned to his own country in the summer of 1909 and decided to establish a school of piloting.

Being in possession of a reduced financial support, Mihail Cerchez found himself in the position of asking for help from friends and acquaintances, so as to accomplish his dream,

and on the 20th of November he managed to record a constitutive document entitled "Company Contract". Cerchez, together with other twenty-nine people, on the one side, and the Romanian state, on the other, makes legal the birth certificate of the company meant "*to exploit the air locomotion under all its aspects"* [3], at the Ilfov Court of Justice.

The company starts its activity in the summer of 1910, on the field near Chitila, where the first aerodrome of the Romanian aviation was settled. The Romanian lawyer managed to have five hangars built over there, some workshops necessary for the construction and repairs of the airships, stands for the lookers-on and some administrative buildings for the employees. Once the infrastructure had been completed, Mihail Cerchez purchased four aircraft fro France: two biplane aircraft of Farman type that were destined to carrying out the training flights of the future pilots, one Demoiselle aircraft and a Wright aircraft for the ground instruction. Later on, Cerchez managed to have the Farman aircraft constructed in his school's workshops, under a French patent.

Nicolae Filipescu, the Minister of War at that time, foreseeing that aviation might be used during military operations, at Mihail Cerchez' recommendation, approved of the future military pilots to be trained at the School of Piloting from Chitila.

Starting with the 1st of April 1911, the School of Piloting from Chitila received *"six officers: Major Ioan Macri, Captain Fotache Ionescu, First Lieutenant Stelian Boiangiu and Second Lieutenants Ştefan Protopopescu, Gheorghe Negrescu and Ştefan Druţu"*[5] to be trained as military pilots. Meanwhile, the Ministry approved the funding for the construction of four Farman aircraft, at the school's workshops, so as the first military pilots should be trained on them. Thus, we can state that the first school of piloting began its activity in Romania, having the six officers for its trainees, to whom Polihroniade Vacas, a volunteering adolescent adhered later on.

The first pilots-trainees put enormous efforts in their flight training on the aircraft found in the school's logistics because all the aircraft of the early time were fragile apparatuses, lacking good aerodynamic performances and holding poor feasibility. The biggest disadvantage of the time was the fact that the flight instructor could not participate in flight together with his trainee, since aircraft were not double-seaters and the pilot under training had to learn all the flight maneuvers on the ground.

Throughout the month of July of the year 1911, the School of Piloting from Chitila scored its first successes. Out of its trainees, two officers that proved to be more advanced in their training, managed to start their flight training sessions requested for the obtaining of their pilot Licenses. Accordingly, on the 9th of July, the Second Lieutenant □tefan Protopopescu obtained the first License issued in our country, followed by the Second Lieutenant Gheorghe Negrescu, with his third License issued on the 17th of July.

Another achievement of the school established by Mihail Cerchez is represented by its participation, with two Farman aircraft, in the army's maneuvers from Moldova, in the fall of the year 1911. The School of Piloting from Chitila supported the 3rd Armed Corps of our army and obtained pretty satisfactory results for that time.

Unfortunately, due to the wreckage of the airships and upon the commander of the pilots-trainees' recommendations, major Macri, toward the end of that year, the state ceased the financial support of the School of Piloting from Chitila and decided to settle a new school at Cotroceni, which was this time subordinated to the armed forces. Mihail Cerchez tried to recover the logistics of the school from Chitila, but, in the absence of airships and specialized flying personnel, and most importantly, in the absence of financial resources, Lawyer Cerchez was forced to close both the school and its premises.

Mihail Cerchez will be considered, by the history of the Romanian aviation, the initiator of the very first training school for pilots, of the first airdrome and of the first premises for fixing and building airships, just the same as his school of piloting, even if its existence was rather short, will be remembered by the history of the local aviation as the place where our

first aviators-pioneers of the Romanian army were trained and specialized.

3. THE PILOTING SCHOOL FROM COTROCENI

Returned from France, Prince George Bibescu "*brought with him one Voisin Canard aircraft and one Blériot aircraft (the airship that managed to cross its constructor across the English Channel), having the intention to establish a piloting school. For the same purpose, later on, he ordered three more Blériot aircraft. The school began its activity on the field nearby Cotroceni, in the summer of 1911, less than one month after the Piloting school from Chitila had begun its activity."* [3] The Ministry of War, upon the recommendation of Prince Bibescu, in his capacity as the school Principal, ordered the deployement of three officers to this school – "*Lieutenant Mircea Zorileanu and Nicolae Capşa of the Cavalry, and Lieutenant Constantin Istrate of the Navy"* [5], for the purpose of their obtaining the pilot Licenses. After being granted the army's support, Bibescu brought three more Blériot aircraft to his school.

Found in a real competition with the School of Piloting from Chitila, George Bibescu's school was to gain notable results at the time when Lieutenant Mircea Zorileanu obtained the second pilot's License conferred in our country, on the 15th of July 1911, and Second Lieutenant Nicolae Capşa obtained the pilot's License no. 4, on the 18th of July.

Similarly with the school managed by Mihail Cerchez, another achievement of the school of Cotroceni was the participation, with three Blériot aircraft, at the maneuvers executed by the army troops that had taken place in Moldova, in the fall of 1911. The School of Piloting from Cotroceni was active within the "*Army Group North, the 4th Army Corps"* [2] and executed reconnaissance and intelligence missions in favor of the troops deployed between Roman and Pascani.

4. THE MILITARY SCHOOL OF PILOTING FROM COTROCENI

"Based on the High Decree of 27 of March 1912" [2], on the 1st of April, 1912, the Military School of Piloting was established, and it replaced Price Bibescu's school, under the management of Major Ion Macri. The latter had completed some courses in Paris, and, upon his return to Romania, brought to the country the project necessary for the construction of a new Farman aircraft, model of 1912.

In the month of April, 1912, the Minister of War ordered that 20 officer belonging to all army branches should be deployed to this newly founded school to learn how to fly an aircraft. The flight training of the first promotion of trainees-officers of the School of Piloting from Cotroceni took place in two stages: the former one comprised flying two-seaters Farman aircraft, under the supervision of the flight instructors – the Second Lieutenant Ştefan Protopopescu and Gheorghe Negrescu, whereas the latter implied the continuous training on Blériot airships, under the supervision of the flight instructors, the Lieutenants Mircea Zorileanu and Nicolae Capşa. the School of Piloting from Cotroceni was under the command of the Engineers and it displayed a very good organization for that time. During the first year of the school, only Lieutenant Simion Chi□căneanu managed to graduate and he was conferred the pilot's License no. 5, on the 16th of June. This fact was due to a reduction in the flight activity, after the month of June of the year 1912. The reduction in the flight intensity was partly caused by the accident of the 20th of June, when Lieutenant Simion Chişcăneanu died,

and on the other side, due to the lack of airships that broke so often that the maintenance workshops could not keep up with the repairs. The next year the school managed to have 15 pilots licensed, among whom was Sergeant Polihroniade Vacas, who had participated at the military maneuvers from the fall of the year 1911, but because of some misunderstandings he only gained his license so late.

The military school of piloting from Cotroceni trained numerous pilots. Until Romania's participation in the First World War, many of them had proved their value during the battles of the years 196 and 1917.

5. THE FLYING SCHOOL OF THE NATIONAL AERONAUTIC LEAGUE

The fourth school of piloting mentioned by the annals of aeronautics was established in the year of 1912, from the initiative of the same enthusiast, George Valentin Bibescu, who had not given up his desire of promoting the aeronautics. Through his and other contemporary people's effort, on the 5th of May 1912 the National Air League was founded. It was meant to "*equip the Romanian Army with airplanes"* [1]*,* fact mentioned by article 1 of the league's Charter. As a result, the collection of funds was possible in a relatively short interval of time, which allowed for a new aerodrome to be constructed at Baneasa and also for the National Aeronautic League School of Piloting to be established.

In order to equip the school, Bibescu purchased six aircraft, out of which four were Blériot monoplanes and two were Farman biplanes, afterward, he proposed to the Minister of War to agree with his training of military pilots. "*The Minister approved of his proposal…, at the same time the Minister ordered the deployment of the two flight instructors, Mircea Zorileanu and Nicolae Capşa- who had worked for the second stage at Cotroceni, and their two Blériot monoplanes to the school from Baneasa, together with the trainees that had been selected for the school from Cotroceni".*[2]

6. CONCLUSIONS & ACKNOWLEDGMENT

The existence of the piloting schools, the training of the officers-pilots at these schools, as well as the successful use of airships- during the military maneuvers from 1911 and 1912-, constituted the reasons that made the Romanian authorities to approve of the law for the foundation of the Romanian military aviation. Thus, on the 1st of April, 1913, the law was voted and it granted the establishment and functioning of the MILITARY AERONAUTICS as a distinct branch of the Romanian armed forces. This law was published in the Official Record no. 15 of 20th of April, 1913 as the "*LAW FOR THE ORGANIZATION OF THE MILITARY AERONAUTICS"* [2]*,* whereas, for the history of the Romanian military aviation, the day of the 10th of August, 1913, when the Permanent Corps of Aeronauts was established through the High Decree no. 305, remained the most important.

In conclusion, we can state that the understanding and awareness of the component phases of the forming process of military pilots start from the identification of the historical landmarks of the Romanian school of aviation, necessary for its integration within a continuum.

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ECONOMIC COOPERATION AND REVITALIZING THE NATIONAL DEFENSE INDUSTRY, DETERMINANT FACTORS IN STRENGTHNING THE FUNDAMENTAL NATIONAL INTERESTS IN THE EUROPEAN COMMUNITY AND NATO

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***Abstract**: The national interest focused on the development of the state's economy also includes national defense industry that can create dual-use products, civilian and military, into a European framework coordinated through European policies and strategies. Perhaps, the increase in budgetary allocations for the military (2% of GDP) can provide the context of retooling this industry and also rip up orders required for specific production. During this process, the cooperation inside EDA and NATO as well as adjusting the production to the actual requirements of the weaponry common market will play an important role.*

***Keywords:** national interest, national economy, national defense industry, European and national economic policies, business/companies, industrial-technology parks, technology, retooling.*

1. INTRODUCTION

Romania, member state of the most powerful political and military organizations, is geographically located in an area where stability is always questionable and neighbors from the east are now in a state of conflict generated by the policy pursued by Russia, a strong country from the military point of view, with democratic demands, but which has unsolved issues with many former partners from the former USSR. Romania owes to a policy of good neighborhood, stability and cooperation regarding the implementation of NATO's and EU's similar policies, being interested in having democratic, stable and flourishing states in its proximity.Given the current regional security, national interest is focused on ensuring the national security in the ally context, but also on the developing the national economy, increasing internal stability, providing jobs for the population, well-being and economic growth, protection and social inclusion applying the National Strategy of Sustainable Development, EU 2020 Strategy and common European policies. These desiderates can be achieved through existence and continuously manifestation of fundamental national interests related to good governance and efficiency of public administration at all levels and the effectiveness of the fight against corruption of specialized state bodies which took over most of the politicians, magistrates or other social categories, people who should represent us and be the society's role model.

Sustainable economic development and healthy is a priority at national level and at the same time in all government programs. Romania should make an effort to reassemble existing gaps towards Western European countries, by implementing all the principles of market economy and free competition within the internal/common European market. In these circumstances it can attract foreign investments that can generate jobs, people can build their future in the country, it can stop the massive emigrations and poverty and it can create welfare by increasing the number of persons belonging to the middle class, this way achieving a social balance. Investments in education, health and research in the European framework created by Horizon 2020 program may bring hope of revival to Romanian economy.

Within national economy, a very important element is the national defense industry that can create dual-use products, civilian and military, in a coordinated European framework of European Defense Agency (EDA), thus overcoming the uncertainty and provisional state which this country is currently in. Perhaps, once budgetary allocations for the military increased (2% of GDP), the conditions of modernizing this industry and also the necessary commands for particular production will be provided. During this process, cooperation within EDA and NATO as well as production adjustment to the actual common weapons market requirements will play an important role.

2. FEATURES OF THE RELATIONSHIP BETWEEN POLICIES AND COMMUNITY ECONOMIC STRATEGIES WITH NATIONAL ECONOMIC POLICY

Through “Orizont” 2030 project, Romania will allocate a considerable amount from its budget for development assistance, taking into account the implementation of Community cooperation policies for development, regarding the support of all EU initiatives.

The European Union is interested in the propper running of the economic system created, and on a long-term, prosperity of the Member States depends on the quality of the industrial base. Strengthening the real economy involves maintaining and developing the services and goods providing companies necessary for the progress of the society and the wellbeing of the European citizens. Furthermore, overall EU industrial policy aims to stimulate economic growth and bring at the same level the industry performances of the member states, relying on his advanced technology available in most sectors.

According with the Europe 2020 strategy "for a smart, sustainable and favorable for inclusion growth" EU consider creating a new industrial revolution that aims to implement innovative technologies, create jobs and improve competitiveness, in the context of some realities that could affect the process, namely to reduce energy sources and raw materials, aging European population or climate changes that affects the environment and people in general.

An important feature between European and national economic relations is that the EU, through European Commission, represents the international interests of the member states, including the economic field, ensuring participation on global trade, in favorable terms, as a result of the opening of global markets. EU Commission also seeks the competitiveness level of European industry by developing a biennial report on structure and industry productivity analysis. Coordination at European level, of the environment in which companies develop their business activities, maintain opportunities for economic growth, employment and wellbeing in the context that most European companies tend to integrate into global value system.

The European forums manifest increased attention for development and access financing IMMs and entrepreneurship because they provide more than 65% of total employment, participating substantially to GDP.

European industrial policy provides measures to support the internationalization of companies, innovation and the single market.

A major importance in facilitating exports have technical regulations for manufacturing of products being exported, promoting

harmonization and compatibility of technical regulations for the mutual recognition of assessments and conformity tests. These things see their usefulness when it comes in question the clusters, which are based on materials of the same class of use, and aimed complementarity in the use of final products, which is very important in the weapon industry and military equipment at European and Euro-Atlantic level.

In order to consult trade partnership between stakeholders (various enterprises or national clusters of EU State Members'), the European Commission launched international contacts throughout specially established structures such as the Transatlantic Consumer Dialogue and Transatlantic Business Dialogue, and various structures between the EU and third parties in the world. This has a major positive effect for both civil and military industrial cooperation among States Member, alleviating their work.

Rules set by the Single Market are the same for all companies of State Members, increase transparency and create a propper framework for fair competition. Common economic policies, applicable throughout the Union, come to reinforce the need for cooperation in various fields within the European Economic Area. The single market represents that area without frontiers of the 28 state members, in which people, capital and businesses have freedom of movement and becomes an open space where competitiveness and innovation are encouraged and legislative harmonization becomes mandatory.

Union legislation, which confirms the existence and propper functioning of the internal market, stipulates some rules on customs union and goods trade-in between Member States, things that come to facilitate economic cooperation in union's internal matters. Such rules are valid to all types of military and civilian industrial, agricultural or fishery products, but which have a major influence on economic, monetary and currency policy.

The efficient functioning of the single market, precise coordination of economic policies and functioning of the banking system following an uniform set of rules, without doubt leads to economic recovery and resolving the economic crisis in which EU and humanity find themselves, in a faster and controlled way.

European Commission looks at how the national authorities implement EU rules by "Internal Market Scoreboard". Members States are required to implement EU legislation correctly and timely, and otherwise Commission has regulatory instruments by downgrading infringement procedure. In these cases, investigations made by the Commission may result in the intervention of the European Court of Justice, which finally may establish coercive measures on the offending State Member.

The level of tax rates and citizens' taxes is the attribute of Members State. The value of the tax is set by the state but the union role is to check whether the fees comply with its objectives with regard to employment, if facilitates the implementation of freedom of movement and respect the laws of fair competition at the enterprise level and citizens non discrimination.

For proper operation of the single market, European standardization organizations develop voluntary quality standards (quality and technical criteria for technological processes, services and products) that replace national standards in order to assist consumers, consolidation of European technological leadership as well as with the objective of promoting competitiveness and sustainability. With their help, is encouraged companies cooperation at national and European level? An important role in economic and technological development is played by the

key enabling technologies (advanced materials, micro and nanoelectronics, photonics and biotechnology, nanotechnology, semiconductors etc.) which are used in order to increase industrial production and reliability of industrial products with civil or military use, being also in attention of European policy makers aimed at reviving the European economic growth and ensuring the competitiveness of products internationally.

The assistance of European industrial sectors, mostly the State Members' industries, involve among other, an increased attention to ensure not only a good quality of raw materials that help increase the competitiveness of finished products, but also the support of those industries in which Europe remains the world leader such as automotive industry, chemicals and rubber, the European tourism industry and various branches of the defense industry.

The online environment gains increasingly larger importance, so more and more transactions take place on the internet bank payments, information sharing, online education etc. Benefits of Digital Agenda for Europe materialize also in current problems of day-by-day life, such public health, road safety by **eCall** system (car's automatic call to 112 emergency number in case of an accident), intelligent transport etc. Union supports citizens and companies to resolve problems arising in their country or between them, through cooperation and information system network, like the Consumer Protection Cooperation Network and SOLVIT network, the Enterprise Europe Network or information points of single contact.

The European Commission aims to streamline the single European market throughout the economic recovery which had serious briefs after the economic crisis. The measures in this respect concerns economic growth, jobs, equally access to finance for newly established enterprises, improving people working conditions and daily life, mutual recognition of professional qualifications of the European citizens between State Members. In order to implement the measures listed, the European Commission established in 2012 further action by the SINGLE MARKET ACT II project, grouped into four areas as following: *integrated networks, cross-border mobility for citizens and companies, digital economy and actions to strengthen cohesion and increase the benefits enjoyed by consumers*.

The basic elements that characterize the single market, trade policy and the Commercial Relations of European State Members are: representation of State Members in international trade relations of the European Commission; free trade agreements; customs union; protection of intellectual property rights; foreign direct investment; raw material supply chains; loyal competition.

At European and national level, have emerged a number of associations and agencies to promote and support the development of national and regional industries. These include APITSIAR (Association of Industrial, Technological, Scientific and Business Incubators Parks in Romania) and EURADA (The European Association of Development Agencies). APITSIAR Association was founded in 2005 in Brasov, currently having a number of 34 members organized in individual industrial parks or group of parks in order *„to promote and protect the interests of its members, to promote sustainable development of industrial parks, technological, scientific and business incubators, attracting domestic and foreign investment and specialized providing assistance to its members and potential investors and their representation in dealing with national and international bodies and authorities*"[13]. Since 2006 is a member of EURADA, European regional association with members in all EU countries, which aims to inform and debate EU policies in an organized concurrently with the development of industry and European partnerships based on activity of industrial parks. At the same time supports the effort of member associations for the timely implementation of measures to finance business opportunities. Through an active attitude EURADA members can generate bills of the European Commission to support their practical work.

Through the European association of industrial parks are increasing international economic contacts, from USA to China and Japan and from Europe to Australia. In the

same context must be assessed APITSIAR activity as an associate member in the International Network of Associations of Science Parks and Innovation (IASP) that concern strengthening the links between industrial, technology and science parks, for economic and employment global growth

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3. REVITALIZING OF NATIONAL DEFENSE INDUSTRY, DETERMINANT FACTOR IN STRENGTHNING NATIONAL INTERESTS IN THE EU AND NATO

Government and diplomacy must change the outlooks to the existing situation and must bring the country to an external confidence level, which can be a real *pivot area* with economic, trade and good neighborly relations with all states in South-Eastern Europe and the wider Black Sea area. Reputation, as basic actor of European security environment, cannot be achieved only throughout achieving the security objectives, socially and economically, related to compliance values and national interest. The relationship between achievement of the concrete objectives of sustainable development in the EU and external credibility should lead to improvement of the country's reputation, which will have an effect on safety and increase the standard of living of the population. If, from the security's point of view, Romania enjoys the confidence of his allies and partners considering us a stable and powerful element in economic terms, our country is not at the level that can and wants to have. However, compared to other zonal actors, Romania demonstrates economic stability and good governance.

After the `89 revolution, characteristics of the national economic situation are related to the economic downturn and the deficit that occurred across the country, that spent more than produced and that exports were lower than imports. After 25 years of democracy, Romania became an outlet country, where consumption, moonlighting, tax evasion and the number of pensioners is increasing, declining production and declining employment. Instead, at the beginning of 2015, there is a tendency to return to normality, considering receipts gathered into the budget. Lately, national exports have been increasing in the context of the auto industry progress and export of raw materials or semi-finished.

To understand the present, we need to see what happened in the economy after 1990. The transition to a market economy in which the state no longer invests in underperforming enterprises and factories and lack of competitiveness of products and businesses on the open market under conditions of increased competition internationally, is the leading cause for many factories to close, but some performing companies maintained and expanded their area of influence after infusion of capital and retooling. Therein are also added foreign direct investment cases, especially at the level of IMMs and development of numerous shopping centers.

In the product taxation context, some companies, on the initiative of entrepreneurs eager to earn big profits in short time, were redeployed in other countries in Eastern Europe or Asia, where production costs are lower and employers and entrepreneurs see their objectives achieved, but without taking into account the social costs that occur as a result of such maneuvers and economic capital.

Free movement of people, goods and capital, are the requirements of the European single market and companies' migration phenomenon occurs in all democratic states that have implemented rules of market economy. The question is how to keep companies in their country, to increase the level of foreign direct investment and ensure job growth, respectively

higher living standards for the population, at the same time stopping young people leaving the country and people skilled in various trades. Some problems can be resolved along with full EU integration while adapting full European economic policies and strategies at national level, including standardization activities that involve accessing European investment funds. On the other hand, the relevant national legislation should be reviewed, regulating the ratio of budgetary revenues and private companies, establishing incentive measures for entrepreneurs concurrently with eliminating corruption which nowadays is revealed each day.

Defense industry could not have a different path, than the one manifested in the national economy. Therefore, the defense industry after 1990 went into a decline due to fewer orders from the Romanian Army (which had entered into a reorganizational process / resizing and reform) and structures from the Ministry of Interior in conjunction with decreased foreign orders. Companies with special activity profile had been restructured, many specialists were fired, being provided for a short time social protection throughout financial compensation and the fact that not all factories were closed in the defense industry till now, is due to the interest of national defense and state intervention which cannot afford to give up military/ special production capacity, necessary for structures involved in the process of national security/ national defense capabilities, in the context of an unstable security environment.

Nowadays, companies that are part of the weapon industry have losses and employees and utilities are paid with money from the national budget support through subsidies and reduction / debt cancellations that were recorded. Government support is provided for periods in which companies have not orders and firm agreements and these companies can afford to keep employees needed for the production of SNAOPSN materials and weapons necessary for peace, in the event of crisis or war. Administrative activities, repairs, protection, conservation or maintenance are carried-out in this period by employees.

The main company with the production designed for the Romanian national defense is ROMARM. This military technology company has a specific production oriented towards following areas: Explosives, ammunition and infantry weapons, armored vehicles, artillery systems, missiles and missile systems. In addition to production for military purposes, the company has a civil purpose production, sales and marketing activities, import-export so within the law to ensure the development and basic activities in the area. ROMARM national company coordinates and controls the operation of subsidiaries in the country, develops their budget income and expenditure and verifies its execution, supports the work of subordinate branches in order to improve the products, their marketing and the tasks for which it was founded.

At the end of 2014, the Ministry of Economy has drafted a bill on improving the defense sector in order *"to protect essential security interests and national security of Romania by:*

- *increasing the competitiveness of economic operators to satisfy the defense interests of Romania;*
- *meeting the needs of procurement in the institutions within national defense system, public order and national security, in peacetime, to the imposition of states of siege, emergency, mobilization or war, taking into account national interests and government commitments undertaken in relation to NATO and the EU;*
- *support endowment effort of the institutions within SNAOPSN (National Defence System, Public Order and National Security to include Ministry of Defense, Ministry of Interior, Romanian Intelligence Service, External Intelligence Service, Security and Protection Service, specialized structures of the Ministry of Justice; Special Telecommunication System) to respect the obligations assumed by Romania through treaties and international agreements;*
- *stimulating investments in national defense industry, scientific research, technological development and innovation;*
- *connecting the national defense industry to the European defense industry*

activities, developing cooperation in the field, maintaining and increasing internal and external sales markets, respecting NATO standards and access to technology and know-how high performance;

- *protection of economic operators in the national defense industry in order to satisfy procurement requirements of the institutions of the SNAOPSN"* [6].

According to this project, the defense industry is wanted to be coordinated by the Ministry of Economy and organized into seven areas of strategic importance as follows: command and control systems; ammunition and infantry weapons; explosives; research-development and innovation; technical maintenance for defense and security; aerospace and missile; armored and artillery systems. Activity in the field of defense security and preservation industry will be adjusted according to the training plan for the defense of the national economy and finance will be achieved through ANRSPS (National Administration of State Reserves and Special Issues), based on the same plan. If allocated funds aren't provided, an analysis procedure is initiated in order to take a decommissioning decision over the capacities, in the case they induce losses and may not be maintained from the financing sources of the economic operator.

This law provides specialists' training and their remuneration arrangements for the propper functioning of the defense industry. Also, the funding sources for investments are specified. Therefore we can conclude a funding sufficiency and the possibility that the defense industry to benefit from necessary recovery funds, based on viable plans and closely related to European partners in the EU. Being classified, we do not have access to Romania's industry National Security Master-plan content, but we can infer the importance of profile industry in the context of uncertain contemporary operational and security environment. It is also understood the importance they attach to and how the government tries to ensure the functioning of the industry of such interest for the Romanian state.

Investments in defense industry aim among other amenities, renewing manufacturing technology, infrastructure, energy consumption and last but not least, human resources. For ensuring these and acquisitions[1] in the profile policy, the government appeals to the essential interests[2] of security and cooperation programs in the EU [7] who are based on research, development and innovation, while ensuring employment growth. At national level, research is encouraged, development-innovation for and within the national defense industry through partnerships, excellence centers - production units and specialized research, technology parks, active participation in the EDA programs.

SNAOPSN needs are beyond the means of national defense industry production, in cases of so-called special products of some PSA and their maintenance system. Therefore, in this regard, these items can be ensured through purchases from foreign partners and also through cooperation agreements but with the consent of the Romanian Government. Maintenance of special products required for SNAOPSN can be achieved through maintenance centers especially set up.

[1] in case of an aquisition contract based on a defense cooperation program of within the EU, notifying National Authority for Regulating and Monitoring Public Procurement / ANRMAP is mandatory

[2] According to the draft law on national defense industry, essential security interests represent national interests which serve to ensure the vital functions of safety, defense and national security, sovereignty, independence and integrity of the country and national infrastructures

4. CONCLUSIONS & ACKNOWLEDGMENT

In accordance with industrial, research and innovation policies, the Digital Agenda for Europe, trade policy, competition policy, CSDP or strategies in the EU legislation, including EDA, at national or European level, can form clusters / groups focusing on IMMs, research institutes, educational structures and technology transfer, to ensure the necessary SNAOPSN products, manufacture some competitive products for more than 5 years and increase cooperation in military affairs. International promotion of the defense industry and cooperation at European level is considered through the European Market of defense equipment and by the development of the base of European technological and industrial of defense, corroborated with a process of retooling of existing production capacities in national industrial resort.

At national level, in the near future, the aim is seeking for privatization of economic operators with production for the defense sector and which have a 100% state invested fund or state majority, based on criteria established by the Government for restructuring, improvement and value to specific activity. Investors which are able to access such opportunities must maintain production company profile; have a modern technology and an advanced know-how. The state maintains investments at these companies in an amount of at least 20% from company fund and the contract will contain the line that the new investor cannot change the business profile of industrial operator before 5 years starting from the time the initial investment had been made and for a maximum percentage up to 50% of production capacity existing at the time of privatization. At privatization it can also participate in associations of existing employees, either for majority or for quotation.

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THE INTEROPERABILITY OF THE INTELLIGENCE SYSTEM – A SALIENT PREREQUISITE FOR ACQUIRING INTELLIGENCE COMPATIBILITY

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Abstract: *The information cycle is a means by which the efficiency achieved while conducting joint operations is assessed in terms of information management. In this respect, the information cycle is a model that allows for data to be translated into information to the benefit of decision makers and all parties concerned.*

Keywords: *intelligence, information*

1. INTRODUCTION

The increased role of information in economic, social, cultural and military areas has contributed to the development and increased importance of the concepts and fields based on this like: information warfare, information based war, information systems, information operations, information power, etc.

International commitments are politically made; however, it is the military that needs to translate these into practical terms. Thus, the military decision makers need to have the necessary forces deployed outside the national territory, but each such military mission requires a military structure with the right capabilities and able to tackle the conditions in the area of operations or to fulfill each and every goal of the mission.

It is our opinion that each mission is unique as a result of the circumstances under which it unfolds and the goals it pursues, requiring a military structure that has the necessary size and capabilities. That requires military force operationalization for each mission and a number of mandatory intermediate stages before deployment in the theatre of operations: force projection, staffing, endowment, training, evaluation and certification. The military force designed for various missions needs to have specific information and execution systems able to act in accordance with the specificity of a theatre of operations. Therefore, to this end, during the operationalization of the new structure a number of principles and methods need to be employed to design and size the systems along with system analysis.

Information power changes the manner of conducting wars and thus determines armed forces to also take into account its relationship with the actions undertaken.

Depending on the way command structures manage to gain and use information, they can plan, organize, coordinate and control subordinated forces so that the missions are successfully conducted, and as much as

possible, with fewer resources and human casualties.

During the conduct of operations, commandants have access to a great quantity of information. The fields of interest are varied and the pool of information is diverse since the focus is on understanding the adversary and the confrontational environment and also on acquiring an accurate understanding of the situation and one's own capabilities. Information outputs can be many and hence may stifle the command and control system of the force. Therefore, the information that needs to be delivered to the commandants needs to be carefully selected. If the latter are overloaded with nonessential information, they are not able to accurately asses the threats in their area of responsibility and, as a consequence, cannot make the right decisions.

2. THE INTELLIGENCE SYSTEM - AN ESSENTIAL ELEMENT OF THE MILITARY SYSTEM

Any planning of military actions relies on the information that is available. Every commandant tries to timely foresee the intentions of the adversary in order to make correct decisions and thus accomplish the mission assigned within the parameters already established.

Technological progress has heavily influences human activities, military ones included. In this respect, a modern intelligence system needs to be capable to continuously acquire information about the area of operations, the adversary, weather forecast, etc. However, the mere gathering of this is insufficient since it further requires that it is analyzed and disseminated with a view to enabling a forecast on the adversary's intentions and possibilities.

The possibilities to gather data are unlimited; however, the planning area requires information from specific fields. Therefore, the military intelligence analysts analyze and interpret the data required based on their experience and skills. The result of this process consists in a set of information that allows commandants to prepare and conduct battles under their own terms. It is worth noting that these activities aimed at collecting data and information is useless if the intelligence cycle works inefficiently, if the information does not reach the planners and the commandants in a timely manner and in such a way that it can be instantly used.

During operations commandants have access to a great amount of information related to every aspect of the theatre of operations and of the battle field. The available information covers a large number of fields concerning both own forces and the adversary's such as: size, identity, equipments, location, refueling status, number of losses, replenishment, fuel reserve, available ammunition, etc. An equally large amount of information concerns the area of operations and details like climate, weather, terrain, socio-political influence, to name just few. Selection of the information to be delivered to commandants is to be of particular concern: if they are stifled with non-essential information they are not able to assess the impact of the threats in the battlefield and hence cannot make the right decision.

One of the basic requirements for action planning is that every commandant identifies what information is needed concerning allied and enemy forces from the very beginning in order to make a decision and elaborate the operations order – OPORD. The questions requiring answers are included in the Commander's Critical Information Requirements = CCIR. These questions can be formulated from the moment a commandant assumes command for the new mission and continues all along mission analysis and planning. Based on CCIR, intelligence planners elaborate Commanders Priority Intelligence Requirements = PIR. These are the key questions that truly require answers so that the commandant is enabled to prepare and successfully conduct military action.

Military forces consist of intelligence structures that meet operational requirements. They are designed depending on the type of missions in order to meet the information needs of commandants at various decision making levels. The commandants of tactical combatant forces need tactical information and therefore the subordinated intelligence force is

designed in such a way that it meets the need for this type of information.

The intelligence force must focus on identifying the causes of the local problems and the means to be employed by the commandant to defuse tense situations and modify the behavior of the main political and military leaders in the area. The goals of intelligence activities are to anticipate the evolution of the situation and, in particular, to forecast the likely deterioration of the security environment or humanitarian problems in the area.

The participation of several nations under a unique command in order to accomplish the goal of multinational operations requires interoperability at several levels: operational, procedures, doctrine, technical, etc.

In intelligence terms, all of the above requires information supply to the forces of the various nations involved and receiving information from them. The flow of information is both among military structures and between the latter and non governmental organizations. Consequently, a set on intelligence procedures and criteria for information dissemination for is required for each multinational operation.

One way to solve the problem of standardization in the intelligence area is to use existing agreements (for example NATO STANAGs) as a starting point for establishing a common ground for interoperability. Since each multinational operation is unique, these standards are modified and adapted to the specificity of the mission. The interoperability of the intelligence system is to be established based on procedures and agreements that include clear dissemination criteria, the boundaries for information dissemination, definitions of specific terminology, taxonomies and other filed related guidelines.

The supply of valuable and timely information depends on the existence of optimal parameters for the intelligence system. The leadership of the military structure is to impose the working of the intelligence system so that it has access to information in a constant manner, in the fields of interest, in the already agreed form and through the convened channels. The quality of information underpinning future decisions and the command of the mission are indicators of the proper working of the intelligence system.

There are a number of elements that are characteristic of intelligence systems. Regardless of their nature, military or other, the intelligence system consists of data, information, intelligence, information flows and circuits.

The military intelligence system relies on a number of resources: human, theoretical and material. To operationalize a unit in order to collect information requires specialized technology.

One of the most evolved types of technology needed by the intelligence systems to collect IMINT intelligence is represented by unmanned aerial vehicles (UAV). The latter can be equipped with a wide range of sensors and technology that enable IMINT structures to conduct a wide array of missions.

One of the advantages of using UAVs is the capacity to conduct missions under highly threatening conditions that may lead to highly valuable casualties and to transmit intelligence in "real" or "almost real" time.

The successful accomplishment of missions on behalf of the IMINT structures in various theatres of operations has contributed to an increased interest for UAVs on behalf of the military and not only. In this respect, the use of these vehicles in other operations like monitoring key areas, environmental control, fire detection and monitoring, anti terrorist operations, etc. has also raised a lot of interest.

The employment of UAVs in the past actions provided the intelligence structures and the decision making factors important data about events and activities in the area of responsibility in a short period of time. Many of these platforms are technologically enabled to transmit data in a digital form so that the intelligence process is shortened and the military leader benefits from "real" or "almost real" time intelligence.

Besides the endowment of the system with the technology required by various intelligence sources, an information (hardware and software) subsystem must be also established within the intelligence system.

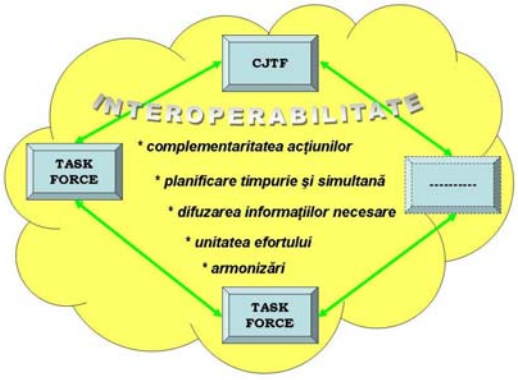
The information system needs an internal secure network identical to the one that the military structure already has. Additionally, the intelligence system must have terminals within the main networks used by NATO or by the states from within multinational coalitions: NATO SECRET, ISAF SECRET, CENTRIX, NIPRNET, SIPRNET etc. The software part of this system is to include interfaces that allow communication with databases (CIDNE, ANALYST DESKTOP, PATHFINDER, etc.).

3. THE INTEROPERABILITY OF THE INTELLIGENCE SYSTEM

The interoperability operational procedures, doctrines, technology, etc. of the forces involved in alliances or coalitions renders their efficiency and effectiveness. Thus, the "interoperability" concept requires a joint definition. Therefore, it is important that the development of capabilities is focused on intensifying interoperability among their own armed forces and with those of the alliance or of the coalition in order to endure effective multinational operations.

Interoperability in the intelligence area is established based on procedures and agreements that stipulate clear criteria and boundaries for information dissemination, definitions of specific terms and other filed related guidelines.

The basic principles to be applied in order to accomplish interoperability in the intelligence area presented in Figure 1.



Complementary actions
Early and simultaneous planning
Dissemination of all necessary information
Unity of effort
Harmonization

Fig. 2 Basic principles underpinning intelligence interoperability

Maintaining unity of effort – the personnel in the intelligence area, regardless of their affiliation, must view threats both from a national perspective and a multinational one. Any threat to one of the elements of the coalition or alliance made by a common adversary is a threat to the whole coalition/alliance.

Accomplishing harmonization – differences among coalition partners' doctrines and intelligence procedures are inevitable. Therefore, an important element for efficient intelligence activities at multinational level is the availability at all levels to make the necessary harmonization in order to eliminate the major differences in this area.

Early and simultaneous planning – the planning for operations done before taking actions is called early planning. The principle is applied by identifying the types of intelligence that can be disseminated to the forces of the other nations at the beginning of the operations. Moreover, the procedures and the agreements in the intelligence area allowing access to information are needed so that planning by various parties at different times during the operations is possible.

Dissemination of all necessary information – every coalition member must supply useful intelligence to the other partners and also comply with the existing national and coalition procedures and agreements.

The data on the sources and the methods employed to obtain information are shared with the other coalition members only upon obtaining approval from the national agency responsible for these aspects.

Force protection is another area where this principle must be applied. Any information concerning force protection is critical and must be immediately revealed to the decision making factors and troops.

Even if some information from certain sources cannot be disseminated, the resulting intelligence outputs are to be structured in a manner that makes it possible for partners to be informed on certain aspects related to it.

The successful application of this principle also requires that the C(J)2 personnel is familiar with the national doctrines, procedures, agreements in the intelligence field. If all these are respected and the principle is employed, an efficient information flow is ensured among the elements of a multinational force.

Complementary actions – all efforts in the intelligence area of every nation must be complementary. Each nation has its own intelligence system with its inherent strengths, weaknesses and capabilities. The host country – fro example- can significantly contribute to force protection given its available capabilities in the field. Complementary actions contribute to overcoming certain difficulties and to eliminating the weaknesses within the intelligence systems of certain troops. All capabilities and national resources in the intelligence area must be made available in order to include them into the intelligence process from within the theater of operations. In order to plan and coordinate multinational operations in the field of intelligence collection it is essential to establish a unit in charge with managing intelligence collection.

4. CONCLUSIONS & ACKNOWLEDGMENT

The judicious organization of the intelligence system in operational units is a factor contributing to the efficiency of the military structure and is to rely on the method of systemic analysis. The latter allows the identification of the current status, the current weaknesses, as well as the actions to address these and thus achieve efficiency.

The intelligence system in operational units can be established by putting into practice all the ideas presented by this paper. Moreover, it needs to continuously update in accordance with the latest technological and scientific developments.

Regardless of the level of performance of an intelligence system in operational units, this is heavily influenced by the changes in the surrounding environment, the inputs, the intelligence deliverables, the goals of the information system, etc.

All of the above results in reduced efficiency, stopvepipes in information flow, system errors – to mention just a few of the problems that may occur.

Therefore, the mere concern for designing a modern intelligence system in operational units and coordinating all the stages leading to the operationalization of these units is not enough.

Competitiveness in the intelligence field is maintained through the continuous analysis of the intelligence system from within operationalized units and this aims at "conducting a complex study on existing information flows and activities, the amount of processed information, the scope of the intelligence system and the endowment with the technology that allows highlighting the strengths, the limits and weaknesses of the current intelligence system in order to establish the general requirements" that are to

underpin the improvements in the intelligence system of operationalized units.

The comprehensive understanding of the intelligence system of operationalized units must rely on systemic analysis since this method allows for grasping the likelihood of a system to disintegrate given its loose relationships or stovepipes. Lack of coordination, overlapping structures, communication blockages among various elements, rigid planning, lack of coherence among goals, delayed correlations lead to imbalances and hence to the need to reorganize the system.

Continuous improvement of the intelligence system by employing all sources is mandatory so that missions can be accomplished as a result of highly credible information, good decision making and, ultimately, highly diminished casualties among one's own troops. Intelligence interoperability and compatibility can be acquired by connecting our intelligence system to the allies' system and this is an essential prerequisite for including defense information management into the framework of integrated defense resources management.

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INSTRUMENTS FOR THE EVALUATION OF THE AERODYNAMIC PERFORMANCE OF WIND TUNNELS

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Abstract: *Wind tunnels are installations which generate air flow around a model or one of its components in the test room in order to perform aerodynamic experiments. The current article aims at reviewing the experimental wind tunnels as well as the visualization techniques used.*

Keywords: *wind tunnel, visualization technique, test room, air flow quality*

1. INTRODUCTION

Wind tunnels are installations which generate air flow around a model or one of its components in the test room in order to perform aerodynamic experiments measured by a set of sensors. According to the way in which the air flow is entrained, wind tunnels classify in open-circuit and closed-circuit wind tunnels while experiment duration classifies them in continuous-flow and intermittent-flow wind tunnels (with vacuum storage tank, with pressure tank). Depending on the speed reached in the test room area, these installations fall in different categories as follows: low-speed subsonic wind tunnels ($M \leq 0,5$); high-speed subsonic wind tunnels ($0,5 \leq M \leq 0,9$); transonic wind tunnels ($0,9 \leq M \leq 1,3$); supersonic wind tunnels ($1,3 \leq M \leq 5,0$); hypersonic wind tunnels ($M > 5,0$).

1.1. Subsonic wind tunnels.

These wind tunnels are mostly continuous- flow and of incompressible flow speed. They are shaped like variable section tubes (convergent-divergent) and can be closed-circuit or open-circuit ones; see figures 1.1 and 1.2 [1]. The closed-circuit subsonic wind tunnel has some advantages: superior air flow, low operating costs, mostly uniform flow in the test room, the fan compensates only for the air flow losses, silent performance unlike the open-circuit wind tunnels. Its disadvantages are the high construction costs, the need of air cooling installations and the dumping of the exhaust waste.

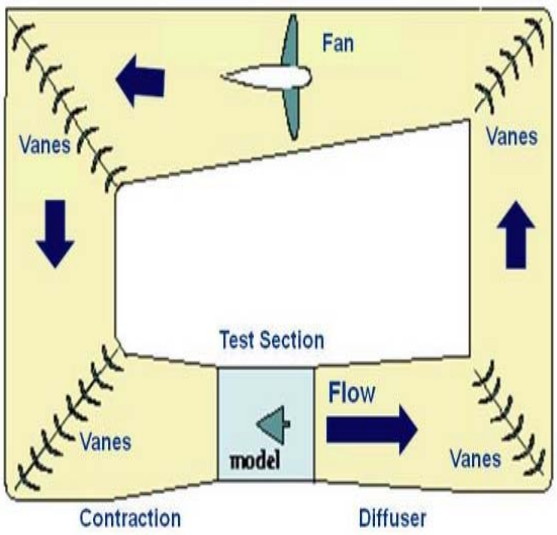


Fig. 1.1 Closed-circuit wind tunnel

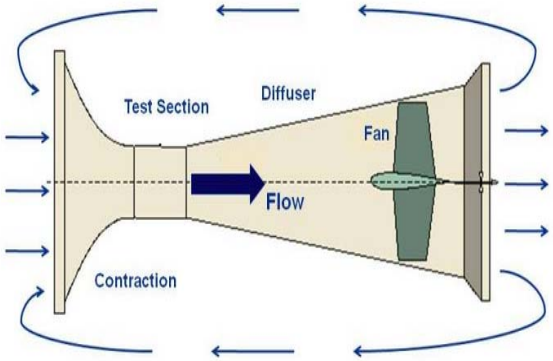


Fig.1.2 Open-circuit wind tunnel

1.2. High-speed subsonic wind tunnels. Due to the high speed of the flow, the air warms up and influences the precision of the experiment if appropriate measures are not taken. Therefore, a cooling installation is needed. The simplest option is evacuating some of the warm air at the entrance of the collector and collecting cold air behind the diffuser from the outside environment.

1.3. Transonic tunnels. They may be continuous-flow, closed-circuit wind tunnels or intermittent-flow, open-circuit wind tunnels. Reynolds numbers must be around $6x10^6$ for 0,1% turbulence in order to obtain data as similar to the one in real flight conditions as possible. When Mach numbers are close to 1, the blockage or choking effect occurs in the wind tunnels with solid wall test area. This is characterized by the fact that, in spite of the rise of the compression level, the Mach number does not grow anymore, which leads to the impossibility of experimenting with a Mach number close or equal to the unit; see figure 1.3.

1.4. Supersonic tunnels. According to their way of functioning, these installations fall in two categories: intermittent-flow wind tunnels and continuous-flow wind tunnels. The intermittent-flow wind tunnels classify in wind tunnels with vacuum storage tank, wind tunnels with pressure tanks, and combined wind tunnels. They can function as transonic ones as well. Due to the speed conditions, the current and future requirements impose $Re>6x10^6$ Reynolds numbers which can only be achieved through pressure variation. Consequently, wind tunnels with pressure tanks (up to 10 atm.) are largely used.

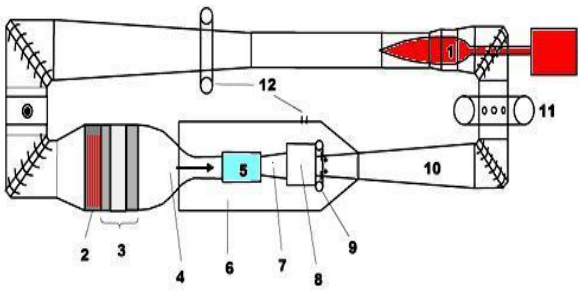


Fig. 1.3 Open transonic wind tunnel [2, 3]

1 – main compressor; 2 – heat exchanger; 3 – honeycomb and screens; 4 – first and second (flexible) nozzles; 5 – test section with ventilated walls (allow mass flow out from test section to establish transonic regimes); 6 – plenum chamber (adjusts pressure in the test section); 7 – reentry flaps (return mass to the main circuit); 8 – second throat (forces shock formation top revent flow disturbances from moving backward into the test section); 9 – injectors (provide extra momentum to the main flow, saving main compressor power requirements); 10 – diffuser (decelerates the flow); 11 – blow-off (exhausts mass flow injected); 12 – plenum extraction and re-admission ports.

1.5 Hypersonic tunnels. Such wind tunnels have been required by the field of aerospace. An intercontinental ballistic missile can reach a 10,000 km distance during flight M=22. At such speeds, dissociation, ionization and formation of compounds such as the nitric oxide occur. Ionization can lead to magnetic field interaction and the acting forces during the flight can change. The research method in the hypersonic field employs hypersonic wind tunnels which use air or helium to reach M > 5 by means of retention in diffusers. Once these Mach numbers are reached, the decrease in temperature is so significant that the work area is in danger of liquefying. If air is being used as working area, it is previously heated to prevent liquefaction after retention. If helium is used though, problems disappear as it liquefies at much lower temperatures than air. Therefore, M = 30 can be achieved with no heating.

2. THE WIND TUNNEL. COMPONENT PARTS

As shown in figure 2.1, the components of the wind tunnels are the following:

The confuser is placed before the test section and has the task of increasing air flow velocity up to value V_c and of decreasing turbulence in the test room. There are several types of confusers, with main geometrical characteristics of a confuser with section variation in one plane and double curvature and curvilinear generators.

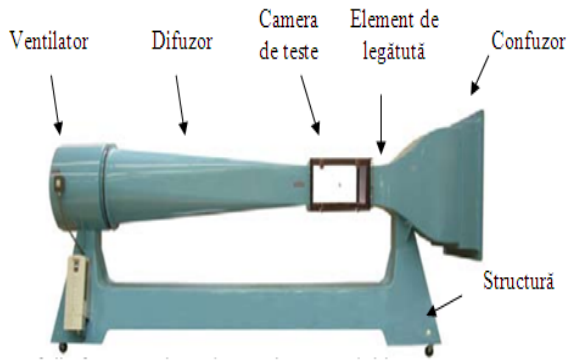


Fig. 2.1 Components of a didactic subsonic wind tunnel [4]

The test room is where the model for studying is placed and the usual natural conditions are created. In the transversal section, the test room can take different shapes depending on the tunnel destination, the most often used being the rectangular and circular ones while octagonal and elliptical ones are rarer.

The diffuser is placed in continuation of the experiment chamber and it needs to be created so as not to allow air flow detachment from its walls.

Turbulence reduction screens are used to reduce air flow turbulence and to favorably lead the flow towards other important components such as the confuser.

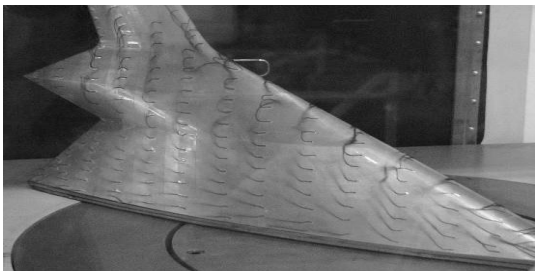
The blower/ The fan is the power source of the installation which ensures air circulation through the tunnel. The axial ones are commonly used with classical wind tunnels. In order to reduce vortices generated by the blower's rotor, two identical blowers spinning in opposite directions are sometimes mounted consecutively. Turbulence reduction screens and different profiles are often introduced along the wind tunnel circuit. They are mounted the farthest from the test room. If the speed of the blower is constant, the air flow is adjusted by means of a vane.

Connecting elements are generally needed in closed-circuit wind tunnels and they connect the main component parts. They are mainly curvatures and pieces ensuring passage from one section to another such as is the passage from the circular section of the blower to the rectangular flow section.

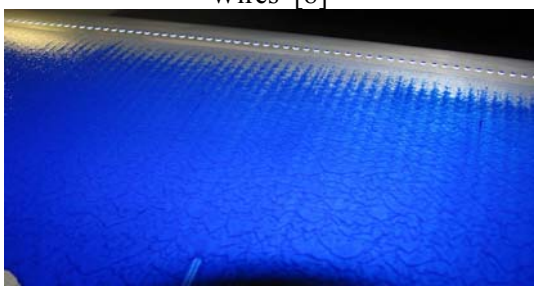
3. VISUALISATION TECHNIQUES IN WIND TUNNELS

Visualization of the experimental air flow is necessary for collecting an image of the flow around the model as well as for testing flow theories. Suitable visualization techniques can help in visualizing light flows (for example, vortices) or heavy flows characterized by tack effects (for example, boundary layer flows, and separation areas).

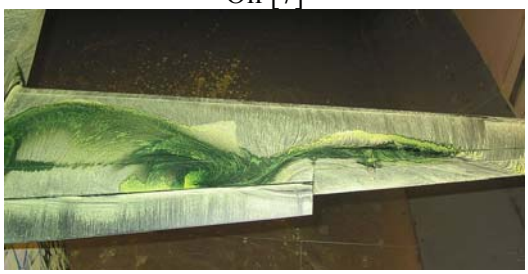
Smoke [9]



Wires [8]



Oil [7]

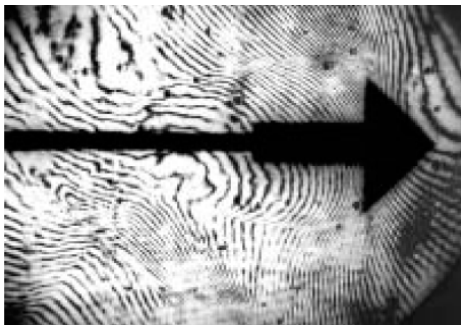


Powder [7]

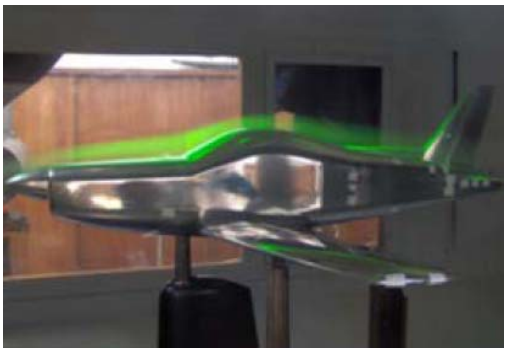
Fig. 3.1. Non-optical visualization techniques

Visualization of the flows in the test room can be achieved through two techniques: non-optical and optical. Non-optical methods make use of a series of agents such as smoke, fluorescent coloring agents, powder, gas blobs, fiber piles, oil, and colored wires [5, 6, 7].

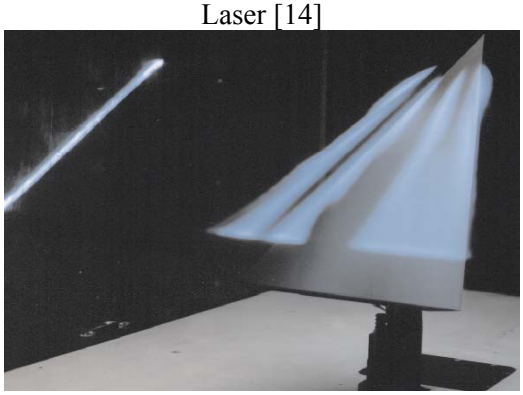
Visualization through optical methods is performed with specific markers (smoke particles, oil drops) and image illumination and image recording devices (cameras) see figure 3.2. The optical methods are used to view compressible flows by means of the following main means: shadows, Schlieren imaging, interferometry, and velocimetry with laser and Doppler Effect [10, 11, 12, 13, 14, 15].



Interferometry [13]



Laser [14]



Doppler Effect [15]

Fig. 3.2. Optical visualization techniques

4. STANDARDS REGARDING AIR FLOW QUALITY

To generalize and validate test results, a set of norms and recommendations have been issued, such as those of SAE (*Society of Automotive Engineering*) which have been published in wind tunnel testing reports, namely SAE J2071 JUN94 norms , [16]. The minimum recommendations for obtaining the proper quality of the air flow in the test room (open) of a wind tunnel are the following:

- *Angular aberration in relation to plane* xOy : $\Delta\alpha \leq \pm 0.5°$;

The angle between the air flow direction and the transversal plane xOy is considered to be positive for upward deviations;

- *Angular aberration in relation to plane* xOz : $\Delta\beta \leq \pm 0.5°$;

The angle between the air flow direction and the longitudinal plane xOz is considered to be positive for left to right deviations;

- *Uniformity of flow speed distribution:* $\Delta v \leq 1.0\ \%$,defined as:

$$\Delta v = 100\frac{v-v_\infty}{v_\infty}\ [\%] \qquad (1)$$

where: v - local speed (from its measurement point);
v_∞ - reference speed;

- *Degree of turbulence*: $T \le 0.5\,\%$;
- *Uniformity of pressure distribution along the direction of the air flow,* $Ox : \Delta p < 0.01$; defined as:

$$\Delta p = \frac{p_x - p_\infty}{q_\infty} \qquad (2)$$

- *Length of the constant pressure area:* $(\Delta l / L) \ge 1.0$; according to length L, specific to the model for study;
- *The thickness,* δ^* *[mm],of the boundary layer in motion:* $\le 10\%$; according to the value of the minimum distance between the model for testing and the walls of the test room.

5. CONCLUSIONS & ACKNOWLEDGMENTS

Wind tunnels are experimental installations for didactic and research activities meant to confirm the results obtained through theoretical and/or numerical methods CFD. The reliability of results provided by the wind tunnels is directly proportional to the quality of the air flow generated, to the precision of data collection equipment, to the quality of the design of the test element (the experimental model) and, last, but not least, to the methods used in the experimental process.

Test results generally depend on a set of parameters from the test room as follows: the air flow quality, the reference dynamic pressure, the way in which the boundary layer is formed, the geometry of the test room, and the blocking rate.

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SHORAD SOLUTIONS FOR THE AIR FORCES SYSTEMS UP-GRADE

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Abstract: *From time-to-time, due to the new technological development, the generation of weapon systems must be changed, air defence equipment included. The Romanian Air Forces is about to introduce in operations first unit of multirole fighter, alongside to increasing presence of allied aircraft on Romanian AFB's. For this main reason and few others, the Air Defence – those belonging of RoAF especially – requires correspondingly upgrade. The work-paper analyses actual air defence infrastructure and proposes two applications. These should be capable to improve the efficacy parameters in relative short time and for a good cost / performance report. This kind of programs strongly involves the local industry for integration, training and maintenance.*

Keywords: *SHORAD, missile, integration, RAP, communication*

1. INTRODUCTION

East-European area was much time connected to doctrines, tactics and weapon technologies considering a possible major open confrontation between coalitions leaded by the heading superpowers as US and Russia. In these conditions the GBAD, in all its aspects, constantly was preoccupied the Romanian military thinking, especially because our country has many time must face to an enemy aerial superiority.

In our country the AD equipment production have a tradition starting with the guns produced under licence before WW2 (caliber 75mm model Vickers and caliber 37mm model Rheinmetal), indigenously developed centralized fire control devices, alongside of the ammunition production.

Regarding the ADMS, in the '60 –'70 decade few maintenance facilities were founded, followed in '80s by the R&D and production capacities, especially for short range missiles.

The ADMS CA-94 and CA-95 is representative for this period.

Figure 1 - CA-94 VSHORAD

Figure 2 - CA-95 SHORAD

Its destination was the ground forces protection using IR homing missiles. The Romanian industry produced also the support equipment for school, check, maintenance and training.

CA-94 MANPADS uses an IR homing missile while the CA-95 represents a SP, light armored and amphibious system, both in the light and mechanized infantry units' endowment.

Table 1 - Characteristics of the used missiles

	U/M	A-94	A-95
Missile caliber	[mm]	72	120
Operational ceiling	[m]	2,300	2,800
Slant range		4,200	4,200
Target maximum speed	[M]	0.75	0.9
Missile average speed		1.5	1.5
Warhead	[kg]	0.8 HE	2.8 HEF
Missile weight		10	30
SSKP		0.22	0,33

The local industry development and integration capacity in missile weaponry was clear demonstrated by the common Electromecanica Ploieşti and Krauss Maffei Wegmann program aiming to mix the German SPAAG Gepard with the Romanian CA-94 VSHORAD, with good operational results.

Figure 3 - Gepard/CA-94 Mixed ADS

Figure 4 - Field range fire results

The Romanian partner had in charge the missile, the launcher and the missile launching interface, crew training and field range logistics, while German partner had in charge the FCS integration, supplies, special testing facilities. The mixed ADS was tested in real firings and out-passed the initial requirements.

2. SHORAD SYSTEMS vs. THREAT

2.1 New operational trends and new system requirements.

The new security environment, supposing more flexible tasks and tactics raise in front of the air defence infrastructure and weaponry adequate arrangements. Regarding the roaf missions, two appear direct connected with actual defence configuration:

- improvement of the SHORAD to MR GBAD in centralized multilayer C2I structure;
- assurance of the AFB close self-defence.

Concerning mainly the enemy evolving at low level, the modern battlefield imposes to AD systems few peculiarities, like:

- a wide targets diversity including fighter-bombers, helicopters, cruise missiles, U©AV's and stand-off munitions;
- high density of the attacks;
- growing of the attacks coordination level;
- intensively use of the ECM/ furtive tactics to blind or decoy the defensive systems;
- communications networks disturbing;
- ELINT systems use to locate the AD pattern and to setup the SEAD operations.

All this considerations required the AD configuration concordant with the threat evolution.

One widely used tactics is to assure a gradual response of the aerial threat, with an increasing firepower, high SSKP, short reaction time and self-defence capability in proximity of the protected disposal.

Especially for the high value targets, AD systems must be capable to reject the saturation attacks. In order to accomplish this task is strongly recommended that these systems to have some characteristics, as:

- high automation level;
- improved C^2I / C^4I capabilities;
- good ECM resistance;
- short reaction time;
- multiple target engagement.

The general menaces against which the SHORAD's must be ready to intercept are represented by fighter-bomber multirole and ground attack fixed wing aircraft, attack and support helicopters, cruise and ballistic missiles, UAV's and UCAV's and artillery rockets.

Figure 5 – Targets catalogue

It can be observed that the threat catalogue presents a wide range of characteristics, demanding a high agility and flexibility of defense. The modern SHORAD's assure these requirements at a good cost/effectiveness report.

2.2 Proposal for SIRET SHORAD

The exposed reason imposes to gain a technological joint deal with a powerful western ally supplier, in measure to propose an up-to-date high-performance SHORAD, based to a state-of-the-art dual purpose air-to-air and ground-to-air missile.

Figure 6 – SIRET for Ground Forces SHORAD

Based on the Diehl of Germany and EMP of Romania MoU, the SIRET SHORAD uses the IRIS-T missile in modern system architecture, with local or centralized working mode, as independent platform or integrated element into a multi-layer AD network, for a range of 10 km and a SSKP of 0.95.

2.3 IRIS-based SHORAD – an industrial cooperation opportunity

IRIS-T is a short-range, dual command (link and IIR guidance), vertical launch and high accurate ground-to-air missile, identically for the air-to-air use.

The main missile characteristics are:

- Weight < 90 kg
- Length ~ 3 m
- Maneuverability > 40 g
- Average speed > Mach 2
- Kill probability ~ 95%
- Range ground-to-air 10 km
- Altitude ground-to-air 6 km

Its aspect and envelope are presented in the following figure.

Figure 7 - IRIS-T missile aspect

IRIS-T is the result of cooperation between a NATO-member consortium including Germany, Norway, Italy, Spain, Greece and Austria. Its 5th generation remarkable features include:

- thrust vector control;
- advanced maneuverability;
- accurate IIR processor;
- countermeasures resistance;
- high SSKP;
- anti-missile capability.

The SHORAD development based on a state-of-the-art missile represents for the local

industry and especially for the Electromecanica Ploieşti (EMP) a good opportunity to access new technological level and to have a significant participation into the system integration work.

3. APPLICATIONS FOR AIR FORCES

As derivative of this comprehensive concept, the Air Forces could benefit of the some relatively easy developments, as:

- A sort range AAM reserve directly and other aerial platforms (IAR-99);
- Integrated SHORAD system layered with MRAD Hawk XXI and the future HSAM.

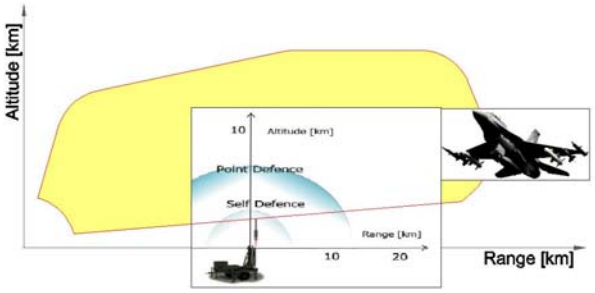

Figure 8 - Covering the low level gaps

- Close self-defence for AFBs

The variants for Air Forces can be simpler and respectively cheaper than the basic SIRET system, because:

- No necessary own search & track radar having integration with the available sensors;
- No necessary the mobility specific for the Ground Forces AD system, nor its ballistic protection.

Figure 9 - Towed IRIS-T SLS launcher

The integration of the battle management sub-system in an open architecture allows the access to all AD resources of zone.

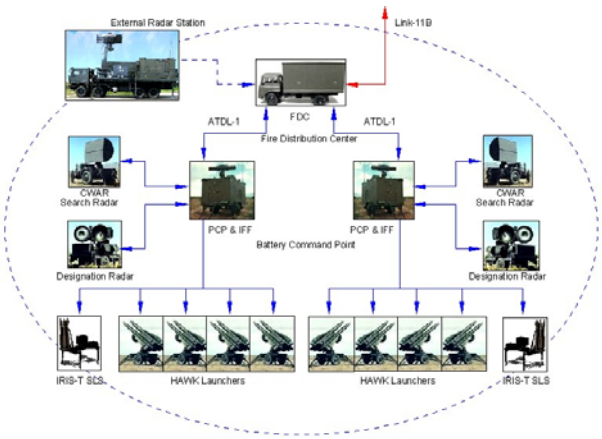

Figure 10 - Integration with MRAD Hawk XXI

Any accepted variant should have in background a national integration schedule containing a large participation of the local industry regarding the production, integration, maintenance and training for the whole system.

4. CONCLUSIONS

This vision offers a significant participation of the local industry and even of some R&D local organizations in order to implements the technological requirements into the local military infrastructure. Between the fields identified we can looks to:

- Integration of launching system;
- Vehicle production & integration;
- C3 hardware integration;
- Integrated Logistic Support;
- Documentation & training.

An example of system integration shows that the local industry has a wide range of sub-assembly for development and production.

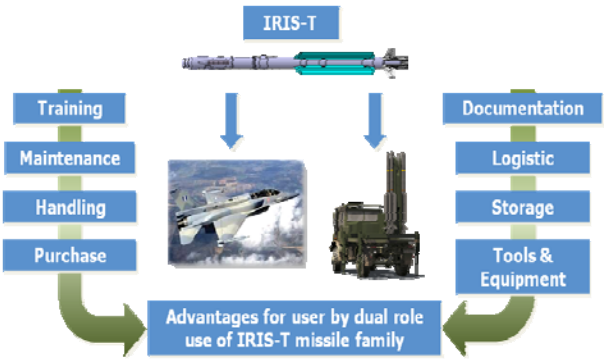

Figure 11 - The dual role missiles offers a wide field of technological transfer to the local industry

The option for a local-integrated SHORAD assures to the user local long term

maintenance and training facilities and even the possibilities of the further upgrade programs in cooperation with the basic product provider.

Figure 12 - Local training for operators and maintenance personnel

EMP is capable to assure main local industrial facilities and also to concentrates a local (Romanian) R&D and industrial consortium to accomplish our part of system development engineering and integration work. In this respect, EMP as local partner can assume the organization of the computer based training facility, the local operating training facility, the maintenance facility or even a local Centre of Excellence for Missile Systems.

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NIGHT WATCHBIRD UAV SYSTEM: AN EFFECTIVE TOOL IMPROVING FORCE PROTECTION CAPABILITIES IN THE WAR THEATRES

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Abstract: *The Unmanned Aerial Vehicles (UAV) or Unmanned Aerial Systems (UAS) are widely used today in real time, high precision reconnaissance missions. The UAS can lean on various types of the UAVs, whilst this paper deals only with multirotor UAV application. The special flying abilities of the multirotor UAVs (e.g. vertical take-off and landing, hovering, flying at extremely low altitudes and airspeeds etc.) open new areas in UAV applications. Challenges of the modern era put many problems to be solved such as problems of safeguarding in civil life, handling disaster management tasks, and, finally, solution of force protection tasks in operational theatre, or out of war theatre. Author will lay down a brand-new concept of the UAV system, applied nightly (or in bad visibility, during the day) to improve efficiency of the solution of the safe-guarding problems, and, also improve efficiency of the solution of the force protection problems, and reduces human resources needed for this purpose.*

Keywords: *UAV, multirotor UAV, Night Watchbird UAV system, force protection, war theatre, conceptual design of air robot systems, system definition, flying and handling qualities of Night Watchbird UAVs.*

1. INTRODUCTION

No doubt the unmanned aeriel systems are promising tools applied in both public and civil applications. The publication of the European Committee's "Flightpath 2050 – Europe's Vision for Aviation" is dealing with main trends of evolution of the aviation, including UAV-technologies, till the year of 2050, deriving main tasks to be solved maintaining the goals proposed by EC. This strategic document can be effectively used although in military UAV applications and missions, i.e. in force protection tasks maintained by military units serving in war theatres.

Being member of the NATO NTM–I-team mentoring pilot-course of the Joint Staff College, Al Rustamiyah, Iraq, the author of this article had gained experiences in force protection activity in desert war theatre in the Middle-East.

Both military and non-military UAV applications define further requests for designers to design and produce UASs with those attributes pre-defined by the users.

The goal of the author is lay down basic principles of the brand-new UAV reconnaissance system concept applied in military missions to improve force protection capabilities established before using conventional methods and tools.

2. PRELIMINARIES, RELATED WORKS

The term *Watchbird* firstly mentioned and used by English writer Robert Sheckley (1928–2005). In his science fiction story written and published in 1967 he described a UAV-based reconnaissance system used in crime prevention actions of the modern societies [1, 2] (Figure 1).

Fig. 1 UAV recce system by Robert Sheckley [1, 2]. (Source: www.google.com. Downloaded: 07 Dec 2014.)

The FAST-System is described in [3], underlining advantages and disadvantages of the proposed system, although focusing on bottlenecks of the recce sytem. There is a series of scientific articles published by the author dealing with flying and handling qualities of the UAV systems. The UAV systems applied in military missions might have system of requirements given in articles of [4, 8, 9, 14], whilst UAVs applied in non-military missions can have requirements as they are defined in publications of [5, 6, 7, 11, 12]. UAVs applied in D3 (Dirty-Dull-Dangerous) missions migh be designed using extra-cheap concept, due to conditions of their missions (e.g. monitoring nuclear powerplant catastrophies, etc.). Due to difficulties of decontamination of theirs UAVs are used as non-reusable ones with no obligations of the successful and safe landing [13, 14]. In article [10] the author investigates advantages of the propulsion systems applied by the UAV. The fixed wing and the rotary wing concept was evaluated to show how to select the appropriate UAV type fitting best the user's requirements. The flight dynamics and dynamical models of the multirotor UAV (quadrotor-type) are outlined in [15, 16]. Articles of [17, 18] show application of the LQ-based preliminary design of the flight control systems of the UAV. Article [19] deals with design of the optimal flight path design of the UAV.

3. NIGHT VISION SYSTEMS AND IR-IMAGES

The *Night Watchbird UAV System* is a new concept of the autonomous UAV recce system supporting solution of the force protection taks of the military units serving mainly in war theatres. The proposed system is a reconnaissance system, which executes simultaneously the data acquisition, data storage, data transmission to the ground control station, with preliminary data assessment to support commanders to take fast and correct decisions.

There might be a simple question: whether a new technical system can generate new tasks solved by the military staff, and if so, how the staff must be prepared for solution of these new tasks.

It is easy to agree that due to physical and mental overload of the staff, any new initiative in the war theatre might not be requisite with new loads meaning new skills in UAV maintenance. Due to complexity of this problem, UAVs are maintenaced in war theatre by special units especially prepared for UAV maintenance and repair. Considering this fact, the proposed UAV-system would not put any additional overload onto military staff; it must act autonomously, supporting military fighting units with real-time information.

It is easy to see that the basic idea can realized in remotely-controlled UAV-recce system having joint ground control stations with abilities and resources to control the UAV recce flights, in case of necessity, to repair UAVs, or to change them for new ones, if it is required.

The ground control station has in the staff personnel certified by given authorities (i.e. European Aviation Safety Agency, Department of Transportation, Federal Aviation Authority USA, NATO, national authorities) to fly the UAV, to maintain and to repair UAVs.

This paper would not evaluate questions of airspace management. The reason is that in war theatre the airspace mostly segregated providing privilege for military aviation. In

this particular case, unless otherwise specified, the UAVs can be flown as per the request of the given war situation.

The basic vision and requisite condition of the author is: the military camp has a special, secure platform, or landing zone able to incorporate of (3-4) UAVs on this physical platform. As a rule: UAVs have serial numbers for their take-offs derived by theirs level of technical status. The pre-defined serial number system can be rearranged during flight service of the UAVs with the consideration of the worthiness to fly, with technical status of the UAV, and finally, with pre-derived system of logical rules and conditions. For that purpose the UAV on-board diagnostics is a prerequisite one.

The basic mission of the brand-new, proposed by the author multirotor *Night Watchbird UAV System* is the identification of the event (fact) of the incursion into the military base having some mechanical shielding (e.g. concrete walls, wired fences etc.), and alerting military staff on duty.

Large military camps and bases can have conventional security systems based upon static cameras of given spectrum. If the ground control station is not equipped and not prepared with necessary tools and kits to support decision making of the military person on duty, although information from cameras can be evaluated with large time delays, which worsen the effectiveness of the solution of the force protection tasks, and, reduces level of security of the military camp.

Figure 2 shows a night vision infra image of a '*creature*'. Using this image it is very difficult to decide whether it is a human or non-human being. Moreover, in general, it is difficult to decide whether it is a living, or a non-living organism. Having no automated data evaluation system in conventional security systems, the decision of the duty officer is based upon his skills, knowledge and experiences busy with many subjective elements of his.

Fig. 2 Infra image of the creauture.
(Source: www.google.com. Downloaded: 07 Dec 2014.)

The *Night Watchbird UAV System* is a new security system able to identify:

- the event of incursion into military base;
- the intruder, making difference between '*human*' and '*not human*' intruders;
- intentional, or unintentional incursion of the human intruder. If intentional incursion of the human is identified, he will be *grab* and *escorted* by the UAV till ground forces take actions.

The UAV of the *Night Watchbird UAV System* can fly in fence (borderline) patrol mission whether in stelth, in other words, in silence mode, or in normal flight regime generating large emissions to show its flight. The first method can be applied effectively if incursion into camp is intentional one, whilst second method can be applied in case of deterrence of intension of the incursion showing skills of the security system to human intruder.

4. NIGHT WATCHBIRD UAV SYSTEM APPLIED FOR FORCE PROTECTION MISSSIONS IN DESERT AREA WAR THEATRES

The force protection in war theatre military actions is the key factor. Its importance is vital and undesputed. The military success is often and basically determined by human factors. If the military staff safe in his camp, for the next mission he can be prepared very effectively, and the next battle would be won with high probability with minimized losses. If there is no safety, no rest in the camp, the military unit can loss some skills, or use them with reduced effectiveness.

In war theatre, the level of safety is coded via colours. The top level of safety is coded via '*green*' colour. The arming stance in these green-zones is: having short-barrel personal weapon, no round in the chamber. In war theatre, the weakest level of safety is provided in '*red*' zones. The arming stance in these red-zones is: having short-, and long-barrel weapons with necessary amount of ammunition, first round in the chamber. The combat uniform contains body-armour and helmet, too.

Figure 3 shows a military base in the Middle-East desert area, inserted into populated area busy with insurgent actions. The base has large dimensions, there is large area to defend and provide safety at minimum levels. The static elements of the force protection system are conrete walls, T-walls, concrete shelters, fences. The walls have gunner-towers with large calibre, long barrel guns inside, applied mainly against vehicle-borne improvised explosive devices (VBIEDs) driven by insurgents into check-points, or into walls of military bases.

Fig. 3 Military base in desert area.
(Source: www.google.com. Downloaded: 07 Dec 2014. Redrawn by the author)

The walls being controlled at the military base are colored in Fig 3 in red. The length of the walls is measured in kilometers. For military duty personnel having limited forces, it is difficult to action in right way with appropriate and sufficient force. However, the static borders of the military camp suggest applying effectively the UAV-technology for recce purposes to minimize time delays in detection and identification of the event of incursion. Due to main features of mechanical elements of the force protection system in case of military base protection one must deal only with intentional intrusion of the human intruder.

5. BASIC CONCEPT OF THE NIGHT WATCHBIRD UAV SYSTEM AND REQUIREMENTS

The new UAV applications are mostly driven by demand of the users guiding path of evolution of the UAVs. Main principle is to have appropriate technical skills to solve main tasks of the UAV flights. The main requirements derived by UAV users are published in the author's scientific papers of [4, 5, 6, 7, 8, 9, 10, 11, 12].

The first phase of the UAV design is the conceptual, simetimes the pre-conceptual design stage. The new concept of the UAV recce system proposed in this article also has many missing definitions and criteria. The *Night Watchbird UAV System* conceptual design requires new definitions, new logical conditions and logical rules. Copceptual design means and requires solution of the following problems:

- definition of the main tasks of the UAV recce system. This is a key element of the system of requirements.
- definition of the technical parameters of the UAV recce system.
- definition of the UAV flight envelope. The flight envelope predicts many technical parameters of the system, i.e. propulsion system favoured by experts.
- definition of the flying and handling qualities of the UAV recce system. There

are many actions taken by EASA to determine flying and handling qualities of the UAVs applied in public aviation for economical reasons. Worth to mention that there is an existing NATO STANAG 4671 applied by the Military dealing with UAV airworthiness problems.

- definition of the type-, and airworthiness criteria for the UAV recce system. Due to lack of regulations in the field of public (civil) UAV applications, there are new actions taken by international and domestic organizations to compile norms and rules accepted by lawmakers and UAV-experts;
- solution of problems of the airspace management at the national level, as the minimum;
- definition of the ground control station supporting UAV recce system. The ground station is important segment of the UAS system, mainly determined by type of the UAV being flown.
- description of the UAV type. There might be applied the rule of chosing appropriate by parameters UAV.
- definition of the flight phases. The flight must be segmented into flight phases, and into parts of flight phases. The normal flight must be defined, and definition of the emergency flight must be given to separate them, and to create plan of activity and procedures to be followed in emergency flight situation.
- solution of flight safety problems. Flight safety has many aspects starting with technical and finishing with human factors. A new maintenance system must be established involving those aspects of flight safety known from conventional, piloted flights.
- design of the landing zone of the UAV. Landing zone must be safey having enough space for taxiing and ground maneovering of the quadrotor UAV. The UAVs serving at a given platform must have wheels for taxi purposes, and, onboard systems of the UAV must be prepared for solution of the docking problem.
- selection of the type of the UAV applied in the recce system;
- taxiing on the ground platform;
- docking to charge/recharge batteries;
- ground-diagnostics of the UAV systems. The OBD-technology applied principally for monitoring the energy supply system of the UAV.
- definition of the *sense* procedure. There are many sensors available for application. Due to main motivation to provide night vision capabilities the sensor unit can be easily defined, and determined.
- definition of the intentional, illegal intrusion. The logical conditions and rules must be outlined, and technical parameters allowing giving such alert might be designed. The military base has check-points to entry human personnel and military techniques, so any intrusion via borderlines can be considered for illegal one.
- definition of the unintentional, illegal intrusion. This is a large dilemma how to design decision making process able to make difference between intentional, and unintentional intrusion. If the military base has weak mechanical defence, or at its borderlines there are missing mechanical defence, an unintentional intrusion into the base can happen.
- definition of the alert procedure. After derivation of the intrusion attributes, an alert signal must be given to duty staff ta take appropriate actions.

- on-board decision making process. If the UAV is prepared for that, on-board evaluation of the information msut be done to give alert signals.
- ground decision making process. If data from the UAV are transmitted to the ground control station, there might be applied an automated decision making process.
- conceptual and preliminary desing of the UAV automatic flight control systems;
- definition of the flight plan of the normal flying day;
- definition of the take-off maneouver;
- definition of the cruise/navigation flight phase;
- execution of the flight, data acquisition, data storage, data transmission;
- return-to-home mission of the UAV;
- the landing maneouver;
- state transitions between flight phases;
- definition of the types and forms of the collision avoidance problems. Collision avoidance can be defined in following relations: UAV-non UAV aircraft; UAV-UAV; UAV-static objects; UAV-single bird; UAV-swarm of bird. There are many aspects to be considered. The most dangerous avoidance situations must be handled, i.e. the UAV must execute emergency maneuver to avoid collisions.
- definition of the loss of thrust problem. In case of application of the quadrotor UAV, a scenario must be prepared to continue flight mission, or to abort it and execute emergency landing. Flight dynamics and flight performances of the UAV must be evaluated thourougly to make correct decision in this sensitive situation.
- definition of the onboard failures leading to the end of the flight. Very important to have a list of failures leading to aborting flights to provide flight safety at given levels defined in flight maintenance regulations.

The mentioned above problems does not mean the complex set of its to be solved. Problems of UAV pilot selection and training also in the focus of attention today, and represent an urgent problem to be solved very soon.

6. CONCLUSIONS AND FUTURE WORK

The multirotor *Night Watchbird UAV System* can represent a new element of the existing military force protection system. Signals and information provided by the UAV recce system can be used by many staffs requiring them. The most of the system elements still in conceptual phase, there are many legal and technical problems to be solved that way that regulations support new initiatives involved in this concept.

The newest element in multirotor UAV ground taxiing and maneuvering is the wheeled-maneuvers on the UAV platform, and docking for charging batteries.

The proposed autonomous UAV-recce system has privileges highly appreciated by those military leaders responsible for security of the large transit camps of war theatre. As an example, Camp Striker in BIAP, Iraq, had had dozens of thousands of military personnel travelling for R&R, and after returning back to military service. The military techniques available the same time at the base could be counted as techniques of the military brigade, sometimes a division.

The strategic military bases, such as airports can have borderlines measured in dozens of kilometers. It is easily can be determined that conventional force protection can require very large resources, and sometimes can have low efficiency. Force protection of those military bases having static borderlines can be easily improved by using UAV technology widely used and applied for reconnaissance purposes.

The use of UAVs in given force protection problems can meet many problems having no solution till today. For example, detection and identification of the intentional, human intrusion requires definition of the set of biometrical parameters of the human being (e.g. blood pressure, speed of respiration, size of pupils, color of the face, partial oxygen content of the blood etc.) describing stress of the given person. The problem is that many of those humans are able to manipulate these parameters e.g. able to reduce speed of respiration. It is easy to agree that there are many unconventional problems requiring unconventional solutions.

Future work of the author is to investigate in deep details those problems defined above to support UAV-manufacturers in pre-conceptual and conceptual design phase of the UAV recce system.

It is easy to agree that complexity of the system high level enough so that find solutions to those problems listed above requires wide-range knowledge and skills. For that reason, last year the first Hungarian UAV cluster called 'Unmanned Aerial System Cluster' was established incorporating organizations representing Hungarian Academy of Sciences, institutions from higher education and industrial partners.

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NATO STRATEGY TO DEFEAT ENEMY FORCES IN THE HYBRID WAR

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Abstract: *The current paper brings forward the present issues concerning the challenges of the new types of armed conflict in its hybrid form. The need for preparation in order to adequately prepare to react to the new national/regional security challenges, such as the conflict at the western European border, in particular, has forced NATO to improve its response capacity. First of all, NATO is required to identify a conflict in which the organization rules are not the well-known ones. For such situations going beyond the limits of Article 5 and even Article 4 of the Treaty of Alliance, the immediate reaction as well as the North Atlantic Council (NAC) authorization for action is very difficult to achieve. In such circumstances NATO policies need to be seriously reconsidered in terms of flexibility. The current paper, therefore, draws attention to the need of reconfiguring the framework for defining conflict nowadays and hence the appropriate ways to respond.*

Keywords: *hybrid threats, hybrid warfare, hybrid tactics, deterrence policy, destabilization*

1. INTRODUCTION

Nowadays, we are facing a difficult period of time generated by advanced technology use, globalization and violent extremists. All these resulted in hybrid threats in which state and non-state actors make use of various, more or less legal forces and means, combining diverse tactics and technologies to achieve their goals.

These confrontations do not submit to classic warfare rules as the parties involved use conventional and unconventional as well as military and non-military capabilities, combined tactics, terrorism and crime and disorder [1].

2. HYBRID WARFARE

The latest military conflicts have demonstrated that the belligerents use new methods and state-of-the-art technology in order to plan and shape conflict. The technological advances and the globalization have ensured the legal and material foundation for the belligerents.

Although civilian and interstate conflicts happen more frequently, their strategic and operational effects have had little impact on the West.

Looking into the more recent military conflicts, military analysts have classified war generating threats as follows:

- conventional threats;
- unconventional threats;
- hybrid threats.

Future threats are evolving by incorporating new ideas and capabilities while divesting others through atrophy.

Furthermore, many contemporaneous writings on the future threat deal directly with the ***means*** by which an adversary may fight (precision guided mortars, cyber warfare, armed unmanned aerial systems) without a coherent understanding of the ***ways*** in which adversaries will approach both strategy and warfare to serve their political objectives (deterrence through low scale attrition, active defense, war on the enemies' infrastructure and economy). We intend to provide a clearer description of the emerging threats that forces will confront and to frame a more specific problem set for use in guiding the design of a future joint force that is as agile and adaptive as the threats we may face in the future.

Future threats will be entities or movements that continually scan the environment for opportunities, and threaten to or apply violence to affect the will and psyche of others to achieve their political objectives.

Hybrid threats lead to hybrid warfare.

Hybrid warfare concept appeared and evolved within the military thinking of the last decade as a theoretical response to the necessity to adapt armed forces to the new realities of an unclear conflict environment.

Even terms, tools, and techniques that Russia has employed in Ukraine are new, hybrid warfare concept is not. At the begining of World War II, German disguised in Polish uniforms and shot down German regular forces to provide justification for the entire world for Hitler's invasion of Poland.

The Soviets would regularly establish friendly "governments" of exiled communists and fellow-travelers to legitimize their foreign military invasions and occupations. The Chinese have advanced warfare strategy that includes information, media and psychological elements.

The hybrid warfare concept first appeared in 2005 in the article entitled "Future Warfare. The Rise of Hybrid Wars" [2].

Hybrid warfare is a military strategy that combined irregular warfare, conventional warfare and cyberwarfare. More over, hybrid warfare describes attacks by nuclear, biological and chemical weapons, improvised explosive devices and information warfare. This approach to conflicts is a potent, complex variation of warfare. By combining kinetic operations with subversive efforts, the aggressor wants to avoid attribution or retribution. Hybrid warfare can be used to describe the flexible and complex dynamics of the battlespace requiring a highly adaptable and resilient response [3].

Lt. Col. Bill Nemeth, United States Marine Corps, described hybrid warfare as "the contemporary form of guerrilla warfare" that "employs both modern technology and modern mobilization methods" [4].

Retired United States Army Col. Jack McCuen presents hybrid warfare as the focus of activity of asymmetric warfare, fought on three decisive battlegrounds: (1) within the conflict zone population; (2) home front population; and (3) international community [5].

David Kilcullen, author of the book "The Accidental Guerrilla", states that hybrid warfare is the best explanation for modern conflicts, but highlights that it includes a combination of irregular warfare, civil war, insurgency and terrorism [6].

Hybrid war combined a variety of military activities, resources and applications to reform hostile governments, movements, or trends in politically, socially, and economically unstable conditions, characteristic of failing/failed states. In addition, includes a full spectrum of military intelligence capabilities, armaments, nonconventional weapons, support units, and combat equipment, available for instant employment if opposing elements of regular forces or irregular insurgents, terrorists, or other non-state actors ever cross the hostility threshold and constitute a direct threat to or threaten these non-hostile activities [7].

In comparison to conventional warfare, the "centre of gravity" in hybrid warfare is a target population. The adversary tries to influence the policy-makers and key decision makers by combining kinetic operations with subversive efforts.

In his 2007 work entitled "Conflict in the 21st Century. The Rise of Hybrid Wars", Frank Hoffman highlights the special adaptation

ability of the adversaries who prepare and employ different asymmetrical capabilities and methods. Therefore, future conflicts cannot be classified as conventional or irregular as the most capable of the opponents will aim at combining multiple capabilities and capacities in a complex typological mixture while constantly keeping approach methods unclear. The challenge will not originate in a single state choosing a particular approach but in states or groups that choose the entire arsenal available as well as the technologies and tactics which are applicable to own geography and culture.

Russia may be the main example in terms of hybrid war but others states also own the resources and the will for it. For instance, competing for resources combined with geo-strategic tensions and a huge Chinese Diaspora turn South China Sea region into another "hybrid war" hotbed.

The situation is similar in the Middle East. The ethnic and religious tensions there can contribute to "hybrid war". Iran has invested huge sums of money in developing electronic intelligence. It owns huge amounts of energy resources and a media-controlled regime. If international negotiations are successful by the end of the year and Iran takes its place back in the international economic system, a significant evolvement of the "hybrid war" in Teheran can be the unintentional effect, as a new and strong regional politics tool.

3. NATO STRATEGY TO DEFEAT ENEMY FORCES IN THE HYBRID WAR

NATO is a military alliance that never covers the full spectrum of hybrid warfare challenges. NATO has a lot of instruments at its disposal. The Alliance spent a lot of money and effort during the last years to stay abreast of new threats, especially in cyberspace**.**

NATO is a collective security alliance which is able to deter threats and defend its populations in the event of conflict. The collective use of force needs authorization of the North Atlantic Council (NAC) – which requires the identification of an armed attack against a member as understood by Article 5 of the Washington Treaty. The NAC authorize military action only by the Alliance unanimous votes. Hybrid warfare tactics present difficulties vis-à-vis NAC – authorized collective action as their ambiguity makes them difficult to detect and define accurately.

A strength point of hybrid tactics is that they can progress incrementally towards a threatening situation while remaining under the Article 5 [8] threshold. It is obvious that avoiding Article 5 violations is in Russia's interests, as NATO's military superiority has effectively removed conventional warfare from the suite of practical options. As a result, a form of strategic competition targeting the political, economic, and societal vulnerabilities in the West, while remaining concealed and below the threshold of conventional response, is the only viable option for Russia today to achieve its goals.

The new field for the strategic competition between NATO and Russia is subject for the Article 4 level. Article 4 of the Washington Treaty states: "The parties will consult together whenever, in the opinion of any of them, the territorial integrity, political independence or security of any of the Parties is threatened." The challenge to Article 4 is coming to a unified and coherent understanding of the threat is difficult when perceptions are different around the 28 member states**.**

2014 forced NATO to reanalyze the international security environment in which they are operating. In the East, the international behavioral norms established by NATO, were challenged by Russia's annexation of Crimea. Using force to alter Ukraine's established border called into question assumptions about the sovereign territorial integrity of European states – introducing doubt into the post-Cold War interest of a Europe increasingly whole, at peace, and free.

Rhetoric evoking spheres of influence and protection of "Russians everywhere" provoked fears that Russian President Vladimir Putin was even challenging the very notion of the pluralistic nation state – the reality of the vast majority of the nation states in existence today. Despite all of this, the grand strategic vision driving Russia's actions remains unclear [9].

President Putin is trying to alter a problem which he seen it to be counter to Russian interests. He want a new geopolitical map for Europe. Putin's vision for a new Europe appears to be one wherein closer European political and economic union stalls, and the role of the United States declines to a point where the Euro-Atlantic security community splinters. New Russian military doctrine, published on 2014, stated that Russia considered NATO and US efforts in Central and Eastern Europe to be a direct threat – a memory of the days when NATO and Russia tried to forge a partnership after Soviet Union collapsed.

NATO faces a new unstable era from the Middle East to North Africa to the Sahel. There are powerful non-state armed groups which continue to grind away at state structures and leave a host of problems in their wake from resource depravation to mass migrations to intense localized conflict. The new threat which has grown recently is the rise of Daesh with its base of operations in Syria and Iraq. Daesh's rapid advance in Iraq during the summer of 2014 brings the control over extensive areas of both Syria and Iraq. The group has the capacity to attract pledges of allegiance from other groups from North Africa and the Sahel. Recently Libya shows the appeal of the group's message of forming a new caliphate in the state structures in the Middle East and North Africa (MENA) region since the WWI.

The group's capacity to organize that territory, using a mix of conventional tactics and terrorists, and recruiting thousands of fighters from the entire world gives it a particularly new challenge in the domain of non-state armed groups. Daesh achieved important stocks of powerful weaponry and a lot of cash when it overran Iraqi forces in Mosul; this, in addition with there's ability to maintain control over oil fields placed in occupied territory, allows for it to be relatively self-financing. Daesh's violent campaigns have disrupted local populations and broken down state authority through a vast area causing an increased outflow of mass migration and arms, drug, and human trafficking within its areas.

NATO deterrence policy for hybrid warfare is based on a rapid military response. It has three potential weaknesses. First, it is difficult for all member states to agree on the source of a conflict, creating a problem when they have to vote for a collective action. Second, fighting alone is insufficient to counter irregular threats. Although it will be a rapid response, deploying military force to a hybrid warfare area will turn out as "too little too late". Sometimes, the conflict evolves under the radar. Finally, a deterrent built upon military force alone will not be credible. NATO cannot use the strategy of massive retaliation, or rely exclusively on one course of action, fighting against irregular threats. States which appear vulnerable to destabilization could adopt early measures to increase the resilience of their security.

NATO can apply for a flexible policy and strive to deter prospective adversaries with a lot of means: reinforcing links between domestic agencies, intelligence sharing, increased role of NATO's Special Forces political will and investment, force mobilization, political authority.

4. CONCLUSIONS

Future conflicts will make use of no conventional or asymmetrical actions

exclusively but of a combination of these. The enemies will employ a combination of traditional, asymmetrical and disruptive methods to achieve operational and strategic superiority. Consequently, hybrid threats refer to the evolution of contemporary actors, the need of sustained national effort to effectively respond to them in due time.

The diversity and complexity of the issues raised by hybrid threats confirm the need of finding something more than technical or regional answers. Therefore, a suitable security strategy is needed to stand against hybrid threats effectively operationally and in a unified manner.

Additionally, flexible command and control structures need to be established to quickly adapt to the tactics, methods and means employed by the new actors that put into practice hybrid threats.

The best means of countering hybrid warfare is to prevent it before development. It is more difficult to deal with irregular threats once they become an overt attempt at destabilization. The open fire exchanges, as it happened in Ukraine, signify that a hybrid conflict has evolved to its later stages. Those kinds of actions could easily escalate into an insurgency with no foreseeable political or military solution. For instance the conflict from Ukraine could be a "frozen conflict."

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THE CHARACTERISTICS OF THE TERRORIST TARGETS IDENTIFICATION PROCESS

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Abstract: *In contemporary realities of a multipolar world dominated by dynamism, in which uncertainty follows an ascending path, the management of risks associated to terrorist actions compels deciding factors to concentrate efforts in managing relevant data (geopolitical context; favoring factors; opportunities; vulnerabilities, threats, challenges and risks; religious conflicts, inter-civilization conflicts, interests, political-ideological; activities, illegal manifestations and actions, hostile, deviant, destabilizing or other perturbative factors). An analysis of the history of the combat of the terrorism confirms the fact that the best method to defeat terrorism is to locate and isolate terrorist activities, monitor and destroy them through "surgical actions" using the most efficient assets, avoiding unnecessary losses or extension / amplification of the effects. Given the wide variation of the ways of display, difficulty of anticipation of location and release moment of terrorist acts, as well as the impossibility of outlining a standard profile of terrorism, the activity of terrorist target identification represents a complex process which involves a thoughtful analysis of terrorist threats areas, the study of the specific threats spectrum, and an efficient management of the data.*

Keywords: *terrorist targets, targeting, stability*

1. INTRODUCTION

Terrorism has been perceived as being an isolated phenomenon, with a limited area of manifestation that transformed to a global threat able to continually improve the adjustment capacity to contemporary security environment, without respecting any rule, speculating vulnerabilities or human or judicial weaknesses.

With the Cold War ending and the last years accelerating trend of the globalization, terrorist networks have adapted the organizational structure as well as the command-execution relations, thus witnessing to an organized destructing process, with dispersed groups and cells coordinated by a core that sets general guidelines, provides resources and synchronizes the actions. For the purpose of covering operational needs the terrorist organizations retain departments specialized in recruiting, propaganda, funding, and related logistics. The admin headquarters where operations are designed and planned or where the terrorists train themselves are generally conspiratorial, in private areas uncontrollable by authorities, but there are countless examples in which have been used religious edifices, buildings of charity/ beneficence organizations or spaces/ lands belonging to firms/consorts with unclearly stated object of activity.

Critical infrastructures targeted by terrorists represent those targets that are material (real or virtual), informational or

organizational that have a symbolic value or are essential/vital to representative community, and their engagement have a major and immediate impact at the public viewpoint level. Given the major risk of being the target of terrorist actions and the implications/effects/consequences, the importance of providing protection and prevention of attacks on these targets represents a major goal of all the structures with responsibilities in the field of security and maintaining public order.

Preferred locations of terrorist attacks remain crowded areas in big cities with minimum security possibilities (train stations, markets, sports facilities, cinemas, schools, theaters, bars and intensive circulation streets), and the trigger moment is so called "rush hour" specific to every particular target (depending on: number of victims, possibility of an audience or large live broadcast).

The main challenge in prevention and direct confrontation of terrorism is represents the globalization and the unpredictability of terrorist threat both by widening of manifestation area and the intensification of media coverage and by the continuous improvement of modus operandi and the action speed. Actual potential of terrorism demonstrates that the prevention of this phenomenon is vital to ensuring international stability and security, but also to defending the interests and national values, regional, individual etc.

Combating risks generated by terrorist threats consists of terrorist targets identification, removal of critical vulnerabilities that can be exploited by terrorists and applying of measures in order to counterattack the impact/destructive effects (physical, systemic, ideological, informational etc.) adapted to respective circumstances, on the bases of directives/ plans or security strategies, protection and direct or indirect action/ intervention.

2. TERRORIST TARGETS

On the background of some dissatisfactions and beliefs that cannot be easily shaken, human terrorist targets can be ideologically indoctrinated, blackmailed, corrupted, used or forced to take steps to violent actions that lead to committing terrorists attacks. The recruitment of the terrorists has its bases into identification of human vulnerabilities and sensibilities, finally leading to persuasion of these individuals to committing reprehensible acts. Usually, are sought persons that consider themselves oppressed/disadvantaged (ethnic or religious minorities; young individuals with extremist views; anti-system young individuals or who want to revenge the death of someone close or an idol; people that feel unjust; people that want to feel important, willing for adventurous/ dangerous sensations, are easy to influence or have deviant/ abnormal psycho-behavioral issues etc.) who, under different methods (money, promises, lies, threats, blackmail etc.) are convinced, up to fanaticism, to commit atrocities on followers without having any remorse, even with the risk of their own lives.

For instance the Islamic State of Iraq and ash-Sham (ISIS) generates and issues brochures (guidance books, handbooks etc.) wherein they portray behavioral models of raising children in the spirit of the Islamic radicalness, as a future generation of jihadist fighters, able to revive the Islamic flame after they are capable of wielding a weapon.

Lately, as a part of the irrational actions of terrorist organizations can be observed that, increasingly more often, the woman is used both as a tool to fulfill terrorist goals and as well as a target of their attacks. Suicide bombers aim women as targets, together with other categories of victims, acknowledged as being helpless and pacifists in the collective mental (children, elders, persons with disabilities/handicaps etc.), most of all from the perspective of mass media impact, proving once more that there are no rules in terrorist actions.

The death of one or more close (husband, father, son, relative etc.), out of belief or simply the wish to overcome given classical condition (the symbol of the family, of life and of love; inequality in rights with men in

some areas or cultures etc.), women are more often and more efficiently used for terrorist actions, networks recruiting and involving them on the basis of the following considerations:

- mass media/public opinion impact, in particular the suicide attacks;
- achievement of surprise through the unforeseen of the situation;
- avoiding personal body checks or detention enforcement by the authorities;
- the possibility of easily hiding weapons, ammunitions, and explosives under clothing items.

Terrorist targets may be of human nature, material or ideological, real or virtual, as follows:

- isolated individuals or human collectives who plan, execute, promote or support terrorist acts;
- institutions, sects/ cultures, organizations (political, military, non-governmental, religious, ethnic etc.) that facilitate, support, commit or promote the conduct of terrorist actions;
- propaganda-making entities (media/ virtual space) promoting ideologies, terrorist activities or carry out actions in their benefit;
- physically bounded areas (infrastructure elements/ constructions) or fixed/ mobile means occupied by terrorists or that harbor them or their facilities;
- financial systems and resources used by terrorist or in support of the actions executed by them.

Terrorists' targets are selected in relation to the assumed objectives and ideology, so that their employment in violent actions produce the planned effect both through the symbol that they represent, and damages and victims produced as well as through amplification of the consequences (panic broadening, compromising accountable authorities, advertising organizational power on a large scale, promoting objectives and purposes to public opinion, winning new adepts or supporters etc.). The selection of the targets, in the first place, aims to influence an audience (readers, listeners, spectators etc.) wider than the intended target, and also to disturb some activities or discredit state authorities.

Along time counteraction strategies have been designed, but the optimal solution that would strike a balance between enforcement tools and the power to persuade is yet to be found, most of the times unsatisfactory, inconclusive and ineffective.

As a conclusion, understanding and multi-factorial analysis of terrorist entities, of their targets and of favorable conditions of executing attacks represents the basis in the research of the terrorist phenomenon, as well as of the identifying the most efficient methods and means to prevent and counter the risks, threats and terrorist actions.

3. PREVENTION OF TERRORIST EVENTS

The main strategic form of preventing terrorism is considered, unanimously, by the specialists of this domain, intelligence acquisition. In this sense, the intelligence structures must offer, as soon as possible, information on real and potential threat that terrorist organizations represent. All information gathered will traverse the stages of evaluation and processing, so that they can be disseminated to deciding factors as soon as possible in a usable form, in order to be able to preemptively intervene with the goal of thwart terrorist elements' foreseen actions.

The new configuration of contemporary threats originating in some of the non-state actors, undetectable, diffuse and specially the

unprecedented amplification of terrorism constitute the coagulant of international cooperation in intelligence domain. The prevention of a terrorist event is unquestionably more efficient than it's countering, being mainly conditioned by the predictive- anticipatory efficiency of Intelligence structures, by the possibilities of protecting the vulnerabilities/weak points, by the volitional-reactive capabilities of deciding factors, and also by the context/existing situation of the investigated potential risk.

Early warning represents a proactive process of organizing and directing of the joint effort in order to prevent some risks associated to terrorist phenomena or management and minimization of their impact on planned targets to be engaged by terrorists.

Within the early warning process I have identified 5 *phases*:

- detection of incipient elements of a potential terrorist crisis;
- gathering, sorting and analysis of the information;
- forecast of the evolution and impact of the event;
- commencing of the warning;
- monitoring of the specific elements that lead to the terrorist action.

Prevention of surprise in case of a terrorist violence is achieved through provision of some warning intelligence products over terrorist intentions in order to protect the intended targets and to dispose or reduce the planned destructive effects. Establishing the needs and requests for information as well as gathering them both from open and covered sources demands attention, skillfulness, discretion, patience, and professionalism.

Efficient managing of information regarding terrorists represents a complex and mandatory process for countering them. Opportune delivery of information (time, moment, relevance, accuracy etc.) in conjunction with analysis, prediction, and dissemination capabilities are essential requests in countering terrorist actions.

Intelligence analysis of areas presenting terrorist risk constitute a process of judgment, logical, and structured able to ensure development possibilities/trends of events, hypotheses, strong/vulnerable point, capabilities and probable courses of action of terrorists. Anticipation and diminish of the risk generated by terrorist actions is a desideratum of all intelligence organizations belonging to forces that aim to combat terrorist manifestations.

Shaping actions for combating terrorism presumes an analytic typology based on the need to locate fragmented entities, which relate to each other and of whose actions do not fit within standard operating model, in a complex environment dominated by unknown and ambiguities.

The unique and relevant image of battle space achieved at force nominated for counter must lead to profound understanding of local, regional, and international issues of untraditional enemy in order to be able to establish the most appropriate ways and means to influence his will and the factors that can affect both our own actions and those of the enemy. Surveillance, detection and identification assets of the targets must allow founding of centers of gravity, identification of decisive points and key possibilities of terrorist entities, an aspect that can permit enhancement of own capabilities and the successful completion of the mission.

Following study of the documents that investigate terrorist phenomenon we estimate as being relevant/key factors in identifying person suspect of extremist manifestations or potential terrorists, the following analytic elements/ components:

- familial environment (specific relationships, number of members, shortcomings, status/social position, religion, ethnicity, influences, habits/ customs, rivalries/ adversaries, closed ones etc.);
- relational environment (family/ friends, work/school, collectivity, entourages, membership and status in various foundations/organizations/circles, intensely lived experiences within elitist/usual/ decaying environments);

- level of education (institutions, specialization, locations, performance, skills)
- information sources (written media, internet, radio/television, presentations/ speeches, circles/institutions);
- the occupation (performance/attitude towards work/ perception within the institution etc);
- hobbies/preferences/ambitions/goals;
- strong points (intelligence, character, courage etc.) an weaknesses (alcohol, drugs, gambling women/men, luxury/money, and physical/mental deficiencies addictions);
- behavior (normal/ maladaptive/ incoherent, constant/ adapted)/ temper;
- financial situation (debts, unjustified money, lack of control etc.);
- miscellaneous (religion, age, ethnicity, marital status/children, health etc.).

Proactive attitude and civic education can represent key to terrorist prevention. All we need to promote is creating a collective group against terrorism without ignoring, neglecting or refusing the existence of this phenomenon, but, more than that, to involve, contribute and participate to its counter even through the simple provision of some information to competent institutions. In this sense, every citizen can easily observe cues of ***indicators*** that can generate terrorist risks, as follows:

- prolonged and unjustified stationing of some individuals in the proximity of areas with great importance (foreign diplomatic missions; headquarters of national and international institutions; military facilities/ installations; scientific laboratories and research centers etc.) who take pictures or videos of these objectives such activities are forbidden;
- persons that persistently study crowded places (train or subway stations; highways or heavy traffic routes; ports or airports; big commercial centers or industrial sites; educational institutions; touristic, cultural, and sports sites etc.) or airways, naval, railway, road, and underground access points, without having plausible reasons for doing that;
- persons interested in procuring substances (explosive, chemical, biological, radioactive etc.) or who manufactures, poses, transport or manipulate illegal weapons, ammunitions, substances and other ensembles/parts that could be used with terrorist purposes;
- suspect individuals who ask baseless questions regarding the program of institutions and daily important moments in their schedule that implies diminish of vigilance or moments of maximum agglomeration (shifts of guards, beginning/ ending of the working hours, assemblies/ meetings etc.);
- actions, of any nature, through which they try to paralyze or disturb the running of institutions/strategic objectives of high importance, with major repercussions for humane collectivities.

In order to provide these information civil population must know to whom they need to address and, especially, to trust the contacted authority. This participatory attitude of the civil environment can be developed only through education/training that leads to profound understanding of the phenomenon and to acknowledgement of the role of the citizens for terrorism prevention, as well as to encouraging an adequate civic behavior and to removal of the potential factors/fears that can affect combative spirit.

Reality demonstrates that terrorists originate from all social environments, have no age or gender and do not belong exclusively to an ethnic group or religion, thus design, anticipation, identification and

clear defining of a target or terrorist action in time and space represents the biggest challenge for the action of countering terrorism. Thus any information that can prevent, anticipate or alleviate a terrorist attack is valuable and must be managed professionally and timely opportune.

4. CONCLUSIONS

Terrorist threats are characterized by ambiguity through the nature of locations, means, operating procedures and attackers' profile, and training for countering them consist of scenarios based on statistics, active intuitive models, contextual equations, likely targets and o variety of information more or less processed, truthful and important for a specific situation.

An efficient and coherent process of intelligence can lead to removal of uncertainty, to acknowledge and understanding of the potential environmental risk, to anticipate future terrorist nature events or to substantiate decisional support which is the basis for the lethal or non-lethal active reactions that will lead to prevention/defusing a terrorist crisis or to capture/destroy the terrorists.

The best method to defeat terrorism through preventive means constitutes localize, monitor and isolate them as well as preparing to counter, through the conduct of the following activities:

- preparation of the legal framework adequate for handling terrorist crisis and doctrinaire concepts to prepare and act regarding countering the terrorist phenomenon, the projection of specialized forces and training of the personnel and identification of needed equipment and means;
- continuous surveillance of key/critical areas exposed to threats and risks, as well as analysis of terrorists' trends in order to identify any clue that can reveal future or under preparations actions;
- informing and training of the population, pointing out risks that they are exposed to, size of the threat and operating procedures to undergo, but also the active involvement in protecting targets (including security of activities and objectives of national importance that can be potential targets of terrorist attacks);
- listening to and encouraging persons that consider themselves, justified or not, the object of a recruitment by the terrorist entities and warranting discretion and protection for interlocutors;
- real-time monitoring of all available information pertaining to past or ongoing actions, with analyses and interpretations made by specialists;
- centralization and formulation of proposals, suggestions and variants or courses of action proportionate to threat level that are tangible, argued and feasible will be made available to deciding factors.

Therefore we can conclude that terrorist attacks may take part in developed as well as in underdeveloped countries, both in democratic or dictatorial regimes, the condition of manifestation being division of public opinion in pros and cons, or the generated effect to produce even more chaos, instability, uncertainty etc., so that terrorist entities say their name, demonstrate their aggressiveness, various power dispersed capabilities, but without "showing their face" as a palpable whole, well defined and delimited.

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THE MILITARY AUTHORITY – THE DECISIONAL SUPPORT OF THE MILITARY ADMINISTRATION

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***Abstract**: The military authority represents the essence of the military administration's right to impose its decisions. The military authorities are public authorities invested by law with the exercise of public power. The military authority imposes considering its legal operational substitutes, respectively the delegation of authority and the transfer of authority. The delegation of authority, as an institutional process is characteristic to the military administration of the state of affiliation, while the transfer of authority is characteristic to multinational military administration.*

***Key words**: administration, military authority, authority delegation, authority transfer*

1. INTRODUCTION

In the area of conceptual boundaries regarding the military administration, the basic feature of enforcing prerogatives within the military administration, in the applied state of its operational formula, *is the military authority*.

It is considered that the *military authority* is represented by the military administration's right to command, to give directives, in situations stipulated by law.

2. THE MILITARY AUTHORITY

2.1 The military authority in the Romanian legislation.

The digression, from the specific comprehension of *the military authority*, as it is found in the Romanian legislation, indicates exceptional situations, in which the military administration has de decisive role. Thus, searching for the references in the legislation to the military authority notion, we find it, firstly, in the law regarding the civil status, in which it is stipulated that in the documents for granting the citizenship, given that a territory is under the military administration jurisdiction, are presented: "… *extracts from the civil status documents which were issued by **the military authorities** under the law*". A more pronounced use of the phrase it is found in the Law regulating activities specific to the military administration, specifying issues like: "*the goods are commandeered only based on the order issued by **the military authorities***"; "*The delivery order of the commandeered goods will compulsory include the nomination of the issuing **military authority**, and the beneficiary military unit, the legal base of the commandeering, identification data of the goods, of the owner or the possessor, as well as specifications of the place and the place and term of the delivery of the goods"; "The*

commandeering order will compulsory include: the name of the issuing ***military authority,*** *and the beneficiary unit, the legal grounds of the request, the name, surname and the address of the requested person, the term and the location where to be presented".* In another normative act, regulating the military administration's activity in the term of the state of siege, quoting the military administration's role, there are specified it's legal rights, more important being the following: *"In exercising the attributions in their duty in the period of the state of siege or the state of emergency,* ***the military authorities*** *issue military commands having force of law (…)… "the information regarding the state of siege or the state of emergency, excepting those referring to natural disasters, are published only with the notification of the* ***military authorities****" … "The military commands are issued on the period of the state of siege by the minister of national defense or the Chief of General Staff, as exclusive* ***military authorities*** *at national level, when the state of siege was established on the entire territory of the country." … "The military command includes (…) the issuing* ***military authority****, the legal grounds, the period of application the date, the stamp and the signature of the issuing* ***authority"*** *… "On the period of the state of siege, (…) a) the application by the* ***military authorities*** *of the measures provided in the approved plans according to the provisions of the present emergency order and the decree of establishment, is compulsory."*

Likewise, the defined role of the *military authority* is cited in the law regarding the *Agreement between the member states of the North Atlantic Treaty Organization and the participant states to the Partnership for Peace,* in which are defined, especially the ***military authorities*** of the sending state, as well as the main attributes, stipulating: ***the military authorities*** *of the sending state are those authorities invested with command attributions and with attributions of applying the legislation of that state regarding the members of its force or the civilian component" … "The sending state's* ***military authorities*** *will grant all the support to ensure that the goods susceptible to be seized by the Romanian custom or fiscal authorities or on their behalf will be made available for the respective authorities." … "the sending state's* ***military authorities*** *will have the right to exercise the penal jurisdiction or the disciplinary competence conferred by the law of the sending state in relation to persons subject to that state's military laws" … "the sending state's* ***military authorities*** *will have the right to exercise their exclusive jurisdiction on persons subject to that state's military laws for the offenses, including to its security, incriminated by the sending state's legislation, but not by the Romanian law."*

The interwar localization of the operational concept relative to the *military authority*, as an efficient operational instrument of the military administration acts, is identified in the constitutional enactment of the *military power*, in which, in fact, it was appointed the public power of military nature of the state. Specific but also significant of that period, is the opinion that *"****the military authority*** *through which the public order and state security is done is the Commander besides which it exists a court (The military Commander of the Capital, the army commandments and certain division commandments). All these commanders exercise these powers either directly, either by delegating certain attributions, on the garrison commanders from the respective juridical circumscription."*

Allowing certain preliminary conclusions regarding the operational concept of *military authority/ military authorities*, it can be affirmed that: in the present Romanian legislation, the collocation military authority/military authorities does not have a strong use, this being an effect of the sluggish change in the defense and security culture after December '89 from the communist mentality to the democratic evolution paradigm: lacking a definition to conceptually explain the collocation *military authority* or *military authorities,* some have comprehensively subordinated, with the same meaning, names of some military institutions with a very powerful and well known public image – The General Staff or the staffs of all the services (forces), the area military centers, the specific

commandments; the late and somehow feeble affirmation in the specific juridical literature of the notion of *military authority*, can be explained also by the fact that, in the same semantic sense, the collocations "*military bodies*" and "*military staff*" were largely used, having assigned, subliminally, the meaning of military authorities. We record that, according to the operational defining of the military authority, this concept does not refer to the relations present inside the military body, or the military institution, but exclusively to the direct relations of the latter with the citizens or the public authorities.

Regarding the military specific legislation, but also the internal normative acts arising from it we encounter the collocation – military authority, in the Military disciplinary regulation, in the issue from the year 2000. In the body of the Regulation, the topic regarding "*The military authority and the obligations arising from it*", is treated separately, however, in its following normative development, there are more common the terms "commanders", "superiors", "hierarchical chiefs", "military structures", "upper echelon", all being used subliminally with the meaning of *military authorities.* We find that, probably because of a breach in the process of elaboration, in the context of the definition of the misbehaviors it is appreciated that "*the lack of respect for the commanders, superiors, equals or inferiors in rank ant for the authorities*". The wording as such leads indirectly towards the supposition that the authorities referred to are exclusively civilian. We appreciate that this is a hiatus of theoretical process of defining the *military authority*, the construction of this concept not being fulfilled in institutional paradigms.

However, the document that frequently uses the notion of *military authority*, in certain way establishing this concept in the profile literature, is the General regulation for conducting military actions. Being systematically subscribed to the notion of *authority*, we can find the concept in phrases that target and regulate: the stipulation according to which "the ***commander is the authority*** *legally invested or assumed which exercise the act of command on the personnel of the subordinated structures, as well as on the temporarily subordinated personnel*" … the provision according to which "*the command act includes the* ***authority*** *and the responsibility for the efficient use of the available resources and for planning the action, organizing, coordinating and the control of the forces in order to accomplish the missions"* … the organizational role of the deputy commander, defining it as "*the invested* ***authority*** *taking part to the act of command within the boundaries established by the commander"*, as well as the role of the chief of staff, as "*authority invested with exercising the act of command on the staff, he can make decisions regarding the entire base, only in the absence of the commander or his deputy"*. Likewise, in the supporting section of the of the Regulation we find defined "*the legally assumed authority"* as "*the right to issue orders, which a military assumes according to normative acts in force, to hierarchy of ranks, positions and competences in the field"*.

There are committed to memory, in this advocacy, the rules in force of the military discipline. The document assigns one distinctive sector to the *military authority*, which entitles the supposition that the references to institutional roles of the military hierarchy are dealt with having the conceptual support of the *military authority*. It is withhold as representative for this exposure the assertion according to which "*The commander/chief represents the military authority legally invested with responsibilities and rights for exercising the acct of command in a military structure"*. In the spirit of a endemic conclusion, it can be assessed "*the military authorities as being public authorities invested by the law with the exercise of public power, which have attributions of command and of applying the military legislation in their area of responsibility in times of peace, crisis and war, exercising it under civilian control from the public constitutional authorities, by military bodies with unipersonal or collective character, in compliance with the rules and principles of the public law."*

2.2 The authority transfer and the authority delegation. The approach of the *military authority* concept requires considering its operational legal substitutes, respectively, the *authority delegation* and the *authority transfer*, very important in exercising the administrative and commandment acts of the military administration. The concepts are recorded and defined, according to the manner they act in the operational space of the military administration. The *delegation of authority* is realized according to the general rules, through which, in certain situations provided by law, it is used exercise the specific attributions of the public offices, by persons, other than the one fulfilling the institutional holder of the position. In this respect, the military normative system contains clear provisions, stating that according to the situation, "*The commander of the military unit, in exercising the act of command, can temporarily assign, through delegation of competences, part of his duties and responsibilities to subordinates"*. The descriptive analysis of the commander's attributions, indicate that the regulated amount of those (32 responsibilities, defined and delimited through distinct phrases), only two are not be delegated, respectively, the responsibility of "*providing the operational capacity of the unit"* and the obligation to "*inform the deputy/chief of staff with necessary data for taking over the command."*

Regarding the *authority transfer*, this procedure is specific to the operational context in which it is engaged a multinational force. It is the manner in which, according to rules assumed in consensus, the unique military command of all the forces taking part to the mission is assured, regardless of the country of origin. This means that all but one of the participant national military forces admit being under the command of a foreign military. Also it means that the *transfer of authority* represents the manner to provide continuous and unitary, from the point of view of concept and all the participant forces, the leadership for the multinational force, in other words, of the organization and execution by the *multinational military administration* of the assigned missions. From the conceptual perspective of this topic, the leading body of the participant multinational forces at such a mission can be assimilated, from the prospect of the administrative and commandment acts by which it is responsible, to the *multinational military administration*. Thus it results a fist feature of the *authority transfer*. If the *authority delegation* operates al all the levels of the military administration, the *authority transfer* consists of the full transition of operational leadership of the participant forces at the mission in the responsibility of military leaders, others than those belonging to the national structure. The *authority transfer* is a very well developed procedure, preceded by the assuming by the military administrations of the states participating in the multinational force, but also by the political decision-makers in the respective countries, by consensus, of the Rules of Engagement. These are "*directives issued by the political/military authority, towards the military structures participating to the military operation in which there are specified the circumstances and the limits within which they can initiate or continue combat actions with the opposing forces"*. Legally based, the exercise of the national political control over the military and the assumed understanding of the military necessity, the Rules of Engagement guarantee the *transfer of authority* the administrative and operational framework of the multinational forces, without malfunctions, stagnations or specific involutions.

The *authority transfer* has a series of features which personalizes is a specific procedure of the multinational military administration, significant being:

- The *authority transfer* is produced without altering the principle of the command unit, which determines the operational cohesion of the multinational forces, any national contingent, part of the multinational force, can receive orders and instructions exclusively from the commander of the force, also by utterly from the multinational military administration;
- The *authority transfer* doesn't affect the administrative and jurisdictional authority under which the commander of a national contingent acts, these being under the operational authority of the multinational

military administration, remaining fully subordinated to the national authorities of the country of origin (it isn't a double subordination, the subordination to the national authorities avoiding the separation of responsibility towards the resources, order and discipline of the forces in command);

- The *authority transfer* gives the military authority a well-defined juridical framework, in the administrative and commandment acts of the multinational military administration. While the organizational interior of the national contingent the participant forces are subject to national legislation, in the multinational forces these fulfill exactly the administrative and commandment acts of the organization and execution, and the accomplishment of the missions, in accordance with the standard documents and procedures of operating the multinational alliance or coalition.

3. CONCLUSION

The presented conceptual arguments, entitle the conclusion that the military authority, through its operational features, represents the decisional support of the military administration. Moreover, the military administration's authority legally consists in the act of command, in fact in making use of it, as a method of accomplishing acts and deeds of administration and command.

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LOGISTIC DECISION MAKING PROCESS INSIDE THE MILITARY ORGANISATION USING EXPERT SYSTEMS

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Abstract: *Inside military organisation, logistic's management has its' own architecture, it is made off structural elements, with functionalities which are directly related to their interpedencies and connections. From its components, an important role is being held by logistic decision subsystem, this being used at all levels, and which is characterised by dynamism. Logistic decision holds a central role inside management process; this has to be approached through conceptual delimitations and role, involving the existence of many alternatives in order to facilitate the efficient one. The artificial intelligence tehniques lead to utilize the ''expert'' systems in many domains and scopes, one of them is the logistic decision making process.*

Keywords: *military organisation, logistic, decisional subsystem, logistic decision, expert systems.*

1. CONCEPTUAL DELIMITATIONS RELATED TO LOGISTIC DECISION

The logistic decision subsystem is a component of logistic managerial system which represents the assembly of decisions taken inside, those being applied accordingly to objectives established by military structures and their managerial architecture.

Through logistic decision subsystem all the 5 specific functions of logistic management are used, the main percentage beeing held by prevision, this one could be found in all logistic decision processes.

The logistic decision subsystem can be compared with a command system which has the role of adjusting, correcting and streamlining the logistic activities inside any military structure at all levels (service branches, headquarters, brigades and bellow).

During peace time this represents a special complexity, the variety depending on the type, nature, characteristics and the quality of the decisions taken.

We can conclude that the logistic decision is the main component of logistic decision process, a tool through functions of logistic management could be trained. In practice, logistic decision can be compared or equate with a standard formula, this being adequated to concretely situations of military logistic domains during peace time.

Inside military organisation, in relation with other types of organisations, logistic decision becomes the action which reunited material, human, financial, informational resources with specific character, in order to accomplish military objectives and tasks.

Brigades and bellow units unfold their activity under the influence of events, with diverse frequence and types, which are not all,

become logistic decision problems but can be solved in a certain way. So that an event could to become a logistic decision problem, it has to fulfill the main condition of obtaining the same result using different paths with different characteristics.

Inside any military structure, appearance of logistic decision problems will be generated by the following situations:

-the situation in which disruptive factors created an imbalance between operational and functional subsystems with negative results in achieving logistic objectives and its mandatory to reestablish the system functionality at standard parameters;

-the situation in which it is a balance between those 2 subsystems in order to realise the proposed logistic objectives but where the manager wants high class performances.

The diversity and complexity of decisional problems which have to be solved by logistic managers ask for a systematization related to certain criterias or elements.

Criterias are different but all have a same common element which is to "order and make easy decident work". The diversity of systematization criterias of logistic decision problems determined different points of view regarding their hierarchy, phenomenon explained through their way of approach and criteria's importance.

The systemic approach of military organization allows grouping of logistic decision problems according to those three essential components of functioning: inputs, logistic processes, outputs. System inputs are related to marketing, suppling and transportation functions and are referring to material resources, procurements and their quality.

The logistic processes which are taking place inside brigades and bellow structures determin a great number of decision problems, with a high degree of complexity.

The outputs generate various decision problems which are related, mainly, to: quantities of goods and services which have to be ensured, maintenance services, medical assistance.

The systematization of logistic decision making process, according to some criterias, represents a special importance, because, it is related to some characteristics as: information volume and structure, the methods of using information and the decision of taking courses of action, indicators' system (estimates) for analyzing consequences and results.

Establishing systematization (evalution) criterias and logistic decision frame is a complex problem, influenced by multiple effects when it will be materialized.

For example, taking a decision related to procure and use a more performant medical equipment than those which are already in use, can be framed inside the group of "technical decisions", but during equipment using and exploatation can be obtain effects that will determin achievement or increasing performance indicators.

Using the equipment can lead to social effects, especially if it has new and upgrated technologies integrated, which will ask for high qualification of medical personnel through different courses. Of course, the problem can be solved through supervising of the decision in a group with similar effects.

From the data presented above it results that, in most of the cases, the logistic decisions inside military structure could have triple dimension: tehnique, financial – economical and social one. Most important criterias and elements which are used to group logistic decisions are: destination, hierarchically level of decident, problems which have to be solved, substantiation level, events asessment, decidents number, etc.

Present days, in logistic manager's activity, there are a great number of decisions based on empiric analysis or rough information which are available during logistic decision making process.

The scope has to be concordance between level of efficiency and numbers of superior decisions according to available resources. The activity of optimizing the report between the objectives established by the manager and the available resources has to be done sequentially, according to each military logistic domain.

The activity of training in logistic decision process has three levels: organisational, informational and methodological.

The evolution of Romanian society, of military organisation and also of national and regional security environment, determines the process of taking the logistic decision to fulfill some requests.

They are mandatory in order to achieve, efficently, all those functions related to the domain where they are issued.

2. USING THE EXPERT SYSTEMS IN THE PROCESS OF TAKING DECISION

The theory of systems and systemic thinking and also their conceptual delimitations determin disputes, contradictions and evolutions in all scientific domains (mathematics, astronomy, economy, sociology, military science).

The apeareance of systemic thinking was tied with the process of thinking; even from antiquity Aristotle gave a definition, whose quote was "the whole is greater than the sum of its parts".

Ludwig von Bertalanffy (1950) defines the system as "an assembly of elements which interact in order to accomplish a common objective using an assembly of material, informational, energetical and human resources".

The development of systemic thinking is almost similar with the evolution of society, of organisations, including military one, this being faster in evolution than other because of economical activities intensification and also because of I.T. technological revolution**.**

The system, in especially literature, is defined as "*mass of identifiable and related components and conections which evolv according to laws, and / or plans and / or established tasks*" or "*an assembly composed of parts each of them having its own laws and partially independently"*, *[Arsac, J. Informatics, Romanian Encyclopedic Publisher, 1973, p. 179.]*.

Inside the military organisation, the logistic management has its own architecture, being made of structural elements, its functionality depending directly on interdependencies and connections between them.

The evolution of technology in I.T. industry is very fast, the bound from one to another technical generation being realised in short periods of time. The I.T. systems performances grow from one year to another, sometimes much faster, so one could say that artificial inteligence is characterized by a continuous dynamic.

Once since the I.T. has appeared, especially the computers, a new word has been created "the artificial intelligence", which is part of information technology.

The natural and also artificial intelligence have at their bases processes, mechanisms and logical reasonings, the difference being that the artificial inteligence can reach maximum performances, results and established objectives can be realised in optimal times.

The appereance of artificial inteligence was immediatly after The Second World War, and was related to fascination or curiosity and concretized through creation of some programs which could resolve puzzles or play some games.

After that, those programs were upgrated and were necessary to add more knowledge, rules, theorems, which lead to resolving and demonstrating complex problems.

An important period of developing the artificial intelligence was between 1965-1975, when some equipments, named "machines", through their programs, could understand the natural language (ELIZA an PARRY programs) for example: dialogues or tales even simulations.

The most important period was the evoluated expert systems period when artificial intelligence becomes more lucid,

more critical with itself even more pragmatic, for the first time appearing efficient expert systems, these being utilised in industry (XCON was used for configuring some calculation systems).

From that moment the evolution was continuous, exploating the artificial inteligence in order to acumulate more knowledges, to make judgments and logical processes, to take decision and leading some material processes and of course cooperating with human factor through a common language, realising interaction between expert system and user.

We can say that expert systems are components of the artificial intelligence apllied to economical, technological processes and also to management, to financial mechanisms or statistics.

The expert systems represents high complexity programs which incorporates high level knowledges, using the human experts background in a multitude of domains, some of the programs being used to resolve complex problems or to obtain performant solutions or results.

The architecture of expert systems represents a general structure of artifical intelligence systems with some particularities which derive from representation modes, knowledge organisation and utilisation for expert aplications *[Marian Zaharia, Claudia Cârstea, Liana Sălăgean, Artificial inteligence and expert systems in assisting economical decisions, Economic Publisher, Bucharest, 2003, p. 33]*.

In the case of using the expert systems in decision taking process, only the identified problems will be used, these problems have to be very clear and well issued; the scope of resolving is to obtain a result for each unknown.

These parameters will be obtained as a result of a logical reasoning, from where will depart, using the bases of a logistic problem, taking into account the situation, thus a conclusion will be drown.

The mechanism used for unwinding the reasonings is the engine of interferences, this being the fundament of any expert system.

An example of expert system for assisting the decision process is *VB-Expert editor,* which has a text editor used from 2 menus: main and consulting one. If the selection is made from main menu, the user will point the file name which has to be edited.

When it is started, *VB-Expert* editor will functioned as a normal text editor where the user can use specific commands to edit, through functional tastes.

In the case of logistic decision, when data are introduced, it has to follow some steps:

- the introduction of data related to legal aspect and specific rules (as organisation, table of equipments);
- the scope of analysis;
- the establishing of the logistic situation (risk, certainty, incertainty);
- establishing criterias (including those for performance);
- establishing the rules and the clasification matrix;
- the introduction of questions which system will have to answer;
- finding the optimal decision course.

This type of expert system can be used especially in the resources domain, supply and ressuply and also in transportation field where logistic decisions are required to be performant and optimal.

Another example of using the artificial inteligence is the utilising of some programs as Excel, through it can be created optimal conditions for each criteria (tastes through we can select the options of maxim and minim with implications in data processing).

4. CONCLUSIONS & ACKNOWLEDGEMENT

Mathematic and economical models as tools of aquiring knowledge, used through decision making process has to be done taking account different factors interactions and the final result will be a comparison between proposed and realised objectives / tasks.

The content is changing, during military units activities, lead to a logistic decision process with a dynamic character and a continous training.

Utilising the expert systems in logistic decision process can be seen as a modern method of optimising activty, because of the

fact that it offers the posibility of upgrating the decision act and initiate premises of obtaining a high performance status through:

-realising a focus of decision activity;

-identifying the ways of implementing adequate decision;

-can be considered as base for continuing the increase of decision processes quality;

- facilitate the control of logistic processes.

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MANAGEMENT

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INSTITUTIONAL GOVERNANCE STRATEGIES OF HUMAN RESOURCES IN THE PUBLIC INSTITUTIONS OF THE REPUBLIC OF ECUADOR

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Abstract: *Institutional governance strategies of human resources of public institutions in developed countries are based on the relationships existing between the entity and the human resources it uses, being responsible for the way in which the objectives of the institutions are defined and accomplished, with the help of employees efficiently selected and recruited. Elaborating, implementing and monitoring these strategies in the area of human resources leads to the accomplishment of the main objective of the institution, meaning, serving the citizen in an efficient and effective manner. This paper presents a theoretical study on institutional governance models of human resources in public institutions. The study of these strategies leads to the possibility of adapting them, for being utilized by public institutions in the Republic of Ecuador. The purpose of this research is to propose an institutional governance model regarding human resources management, adapted to the culture and traditions of this country that could be a useful instrument for managers and administration councils of public institutions.*

Keywords*: human resources, institutional governance, inventory, management, strategies.*

1. INTRODUCTION

The achievement of institutional objectives takes place by building an efficient institutional governance environment, the policies of which are followed by the entire team made by managers, employees and external environment. The way in which the team will put into practice institutional strategies leads to the long-term organization success, one of the essential factors being the strategy for using human resources. Within this context, the focus is on the way in which the process of efficient human resources management is conducted, with all its aspects: economic, political and social [9].From an economic perspective, it is necessary to harmonize working procedures with the existent legislation, as well as to modernize the remuneration systems, to professionalize human resources as far as competence is concerned. The political aspect is fulfilled by decentralizing and ensuring flexibility of public services, directing them towards competitiveness between the public and private sector, initiating, applying and monitoring reforms of technological modernization.

The social aspect regards improving the relationship between employees and management and measures for developing individual responsibility within working teams

[8]. At the same time, employee satisfaction becomes a major aspect, in the context of achieving her/his objectives, as an important indicator of organization success [7]. The strategies elaborated within the framework of a well-performing management include the management of human resources, with all the components: policies, culture, value and practices [10].

2. CONTENTS

Human resources management is directly linked to the organization performance, reason for which it should be treated as a strategic priority [5]. In developing countries, innovative management of human resources in public institutions is somehow limited by the legislation framework. However, for fulfilling the requirements of an efficient management, strategies can be elaborated in order to modernize and adapt it, according to the international norms for development. These guiding lines have the role to integrate human resources management in the institutional management, determining the public institutions to build their own institutional governance policies [11]. Obtaining the adherence of the entire personnel to fulfill the tasks that lead to reaching the intended results, represented by general and specific objectives, will ensure a climate of participation and capitalization each employee's potential. The manner in which the manager will know how to use the existing human resource's potential, his decisions and actions will always have an effect on the nature of the relationships between the organization and its employees, leading them to success or failure [2].

3. METHODS

The strategic administration of human resources is built on the framework of institutional governance, with policies, instruments and procedures that lead to the development of a tight connection between the two factors, the employed human resources and the performances expected of them[4]. At the same time, one should take into consideration the fact that, adopting without a prior analysis of standardized governance strategies in this field can be considered, by the employees, as being ineffectual and difficult to implement. These can be perceived as an obstacle for innovation, and the manner or organizing operational structures and procedures, as bureaucratic and lacking diversity [12].

In addition, applying inadequate governance strategies for human resources leads to the current reality, meaning that, although unemployment rate worldwide is high, employers experience a lack of candidates with the necessary experience and aptitudes for occupying critical positions; there is an emerging trend of introducing, in the human resources strategy, distinct policies regarding the remuneration of human talent [10], for additional compensation of performance.

The role of developing human resources strategies [6], in a competitive environment can be analyzed from the perspective of the way in which the manager – employee relationship is built, on common action lines. These concern: 1) ensuring workplace safety, through the elaboration of policies for reducing incidents by appropriately instructing them, as well as the administration of physical risks and compensations for health loss, through health insurance; 2) personnel selection and employment with the help of programs related to the promoting policies of the organization, for recognizing the competencies of the already employed personnel; 3) continuous training and development of employees competencies as well as of additional competencies, which constitutes an important factor in the evaluation and promotion processes; 4) using adequate payment programs, focused on competence and performance, with additional incentives for talented employees, by introducing in the organization policies criteria for performance evaluation and, according to these, granting benefits for talented employees, within the framework of current budgetary constraints; 5) personalizing the relationship between manager and employees, by using specific measures of creating a closer connection, in order to create a team with shared interests, the entity and the employee having common goals.

4. RESULTS

We propose a model for building an environment favorable to the institutional governance of human resources, for public institutions in the Republic of Ecuador. It implies the implementation of three strategies, generic details on the main action lines for each of them being presented below:

4.1. Human potential strategy, focused on capitalizing on human resources, in order to raise awareness on achieving institution objectives, by teams, manager and employees. The action lines taken into consideration for this strategy refer to, on one hand, actions regarding the employee, and on the other hand, actions regarding the manager. The actions regarding the manager include: elaboration of personalized methodologies for recruiting, selecting, employing an promoting personnel, with details on establishing recruitment criteria, selection tests, negotiating contracts and control of compliance with work ethic rules, inventory of needed/existent positions, their description and analysis, elaborating the job description model; elaborating and adopting policies for ensuring the permanent existence of efficient human resources, by creating a data base of own employees including their qualifications and professional level, professional experience, other relevant data, possible preferences for working in a certain area/position/job; listing external recruiting sources, public or private agencies for having immediate access, if needed, to another potential employee.

The actions regarding the employee concern the way in which she/he, through her/his actions, shows willingness to actively contribute to the future development of the institution. The organization can elaborate policies for ensuring knowledge and compliance of work ethics, for maintaining an efficient work environment, programs for analyzing work quantity and quality by: standardizing the quantity of work, establishing the minimum time necessary for performing each task; standardizing the quality of work, establishing evaluation criteria for the quality degree of the tasks performed.

4.2. Technological strategy, focused on developing employees potential and aptitudes, in order to increase their efficiency level in the case of a future introduction of new competitive technologies. In this context, the main action lines of the manager concern establishing the institutional vision, strategy and objectives, medium and long-term, establishing personnel policies adequate to the institution purposes, which are further transposed into actual working tasks, recorded in the work contract and job description; determining specific evaluation criteria for employees' professional performances and analyzing the possibilities for future extension, if needed. Policies regarding capitalization on human resources can be developed, by drawing a promotion and remuneration plan, according to the employee's innovative contribution to the increase of productivity; policies for incentivizing employee talent, by drawing a plan of granting financial benefits (promotions, salary raises) or non-financial (granting diplomas, public mentions of the employee's contribution, others).

4.3. Work environment strategy, focused on improving work conditions and eliminating stress. Within this strategy, the manager's role is to evaluate work conditions, both through ensuring employees health in a specialized environment, preferably through medical consulting offices that serve the institution, as well as through ensuring an adequate, familiar space for recreational activities and drawing

common recreational programs for managers and employees.

The actions regarding the employee concern policies on consulting employees, with the help of questionnaires, on possible ways of eliminating stress and implementing adequate measures. Relaxation programs can be introduces, such as: opening gyms and massage rooms, special spaces where they can listen to ambient music, dancing rooms, exhibitions with employees' or their family members' artistic products, others.

4. CONCLUSIONS

Performance indicators for public entities activity can include organizational culture, improving decision taking, information sharing, human resources retention, safety, absenteeism, satisfaction or workplace complaints [1]. The implementation of successful strategies concerning corporate governance of human resource in public institutions shows its results through the way in which it manages to create and maintain a pleasant and motivating workplace for the internal participants which is, at the same time, competitive in relation to the external environment.

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RESEARCH ON CADETS' PREFERENCES AND REQUIREMENTS REGARDING THE GUIDED PHYSICAL TRAINING AND SPORT ACTIVITY

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Abstract: *As a result of my cadets' reluctance to attend practical sessions of military physical training, a situation generated by the content of the imposed curriculum, I have taken the decision to carry out some research on their preferences regarding physical training activities. The only way to engage them in an active and continuous manner whilst at the same time ensuring that they enjoy such activities is to adapt the requirements to the cadets' needs. This can be achieved by pursuing the graduate' s model from the physical development point of view, by cultivating physical abilities and by developing motor abilities specific to the military field. The present paper identifies the purposes of physical training, adapted to the requirements of the end product's beneficiary, namely "the graduate from the higher military institution", and to the cadets' needs in accordance with the educational ideal. Based on the information processed from the questionnaires, the research results indicated a greater need for collective rather than individual sports activities, in spite of the fact that participants are fully aware that it is only by training individually, as well as by getting at least satisfactory scores in the topic areas of the discipline that one can pass physical fitness tests, and achieve the minimum.*

Keywords: *physical training, sport for everyone, guided activity, individual training*

1. INTRODUCTION

Just as J.J. Rouseau used to ask his generation „to make in such a way that the exercises for the mind and the body become relaxing activities one for the other", a widely acknowledged fact even nowadays, the entire teaching staff, ranging from participants to the those guiding the newer generations, should analyze and recognize the importance of doing physical training as an instrument to educate and train the young military man as a future organization leader, specialist, fighter, educator and citizen.

Regardless of their background, cadets should actively and consciously commit to their continuous training by carrying out guided group or individual training.

It is due to the fact that the cadets' preferences have never been taken into account before, not even when approaching the topic areas imposed by the rules and regulations in effect, that we are now confronted with a serious situation: practice sessions of military physical training have become an issue for the cadets, who have responded to this by going absent with or without leave, resorting to medical certificates especially during those sessions regarded as

irrelevant by the cadets, or by going on leave for reasons such as completing term papers for basic or specialized disciplines.

2. RESEARCH HYPOTHESIS

Using as a starting point the hypothesis that physical training is an inherent part of the educational process, being compulsory for the entire military personnel [1], and therefore for the military cadets, I intend to prove that by wisely combining "business with pleasure" not only will the cadets' level of training increase, but the teaching staff will also feel rewarded for their efforts.

Given the principles, characteristics, and objectives of the military physical training, as listed in the rules and regulations [2], yet less frequently applied in practice, my intention was to outline that my research hypothesis, namely that by applying the specific topics to the topic areas, as presented in the documents governing the organization of the military physical training, yet adapted to the cadets' requirements and preferences, the rate "of active and conscious participation" [3,4] in physical training sessions will be superior to the mandatory participation rate due to the fact that any activity guided by specialized personnel is always more efficient than the one carried out using empirical methods by the personnel that is trained unilaterally and is less specialized in the military field [5].

3. THE AIM OF THE RESEARCH

Our research sets out to present the cadets' preferences and, based on them, how to approach the educational process based on the pedagogical principles currently in effect, adapted to the cadets' preferences and following the general and specific objectives of the military education.

4. RATIONALE FOR SELECTING THE TOPIC

The main reason for approaching this research topic is my personal observation that satisfactory general training and inadequate specific training constitute a serious drawback that the military high school graduate is faced with when enrolling a higher education military institution. Regardless of their training environment or methods as used throughout the 4 years preceding their university studies, it has been noted that young cadets are not used to "physical combat", only to virtual combat as experienced in front of a screen; what is more, most of them have not even developed their physical and motor abilities, which are rather specific to gymnasium education level [6, 7].

5. MATERIAL AND METHODS

Subjects: 60 cadets in the 1st year, of various backgrounds, (46 from the military system and 14 from the civilian one).

Research protocol

The entire activity was carried out at the „Henri Coandă" Air Force Academy, the drill square, between 01-30.09.2014. Taking advantage of the initial basic training the subjects were undergoing, I wanted to identify their motor ability training level before they actually entered their first year of military education.

For starter, a questionnaire was administered regarding general personal, anthropometric, pathological, and physiological information specific to physical training and sports (disciplines/ branches / physical fitness tests as part of the PT sessions in secondary school and organized sports competitions at high school level). Also, I have presented sports and PT activities organized within the academy [8].

Individual questionnaire

Student

Military high school / civilian high school:

Identification data: BI / CI

Information: - personal:
- date of birth:
- anthropometric:
- height:
- weight:
- physiological:
- blood pressure
- heart rate
- respiratory rate

Do you practice any performance sport?
Which subject/branch/ type?
Name of the Sports Club/Association.
Do you have any medical recommendations/ restrictions?
For what type of effort?

The following are organized by the Academy:

- military training lessons/sessions on topics related to these areas:
  a. Running in diverse terrain, fast running, throwing hand grenades for training purposes
  b. Self-defense – judo, karate, tae kwon do and close combat with individual gear
  c. Gymnastics
  d. Obstacle course for military men belonging to all services
  e. Ski training
  f. Swimming and swimming across rivers.
- training sessions for military summer and winter sports competitions, military judo championships, pentathlon, tae kwon do, orienteering
- sports clubs (mass sports activities /sport for everyone): aerobic tae bo, aikido, climbing, air trekkers, athletics, basketball, mountain cycling, hiking, football, handball, swimming, karate (Shito-ryu, Shotokan), kiting, sports orienteering, paragliding, cross-country skiing, extreme skiing, snowboard, table tennis, tennis, volleyball.
- disciplines, branches, physical fitness tests that one has carried out during PT sessions and of which one has participated in sports competitions (athletics, combat disciplines, gymnastics, swimming, winter sports, sports games).

Results have revealed the subjects' preferences regarding compulsory topic areas within the military physical training, sports disciplines and branches for which national competitions are organized and in which military institutions participate, mass sports activities such as sports for everyone, and the set-up of a pool of candidates from which to select candidates for performance sports.

6. CADETS' PREFERENCES

In order to identify the cadets' training level, their motor abilities were tested by repeating the same physical fitness tests that are required for admission to academy (physical skills track and 2 km long distance race) (Fig. 1, 2, and 3).

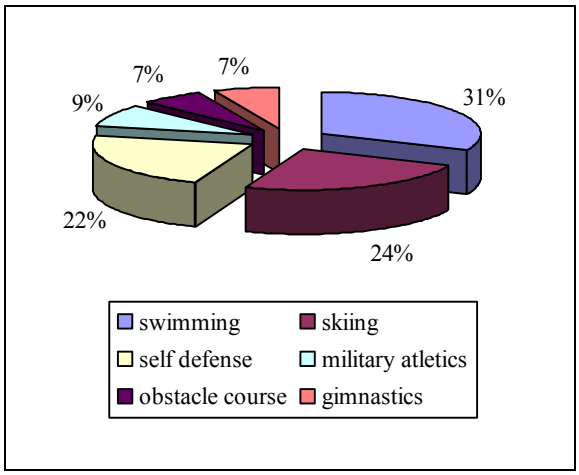

Fig. 1 Compulsory topic areas

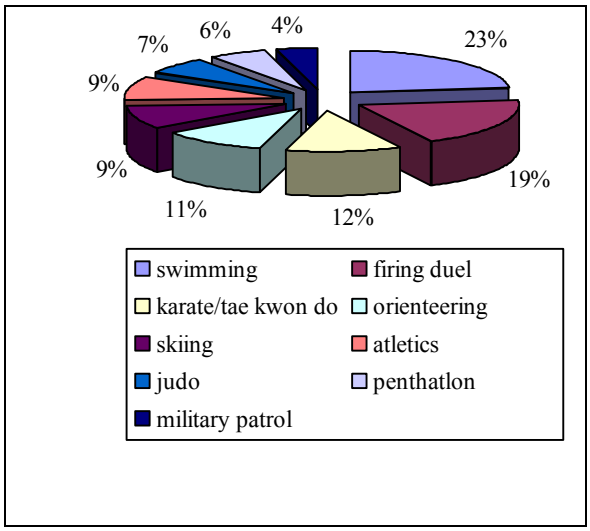

Fig. 2 Performance sports

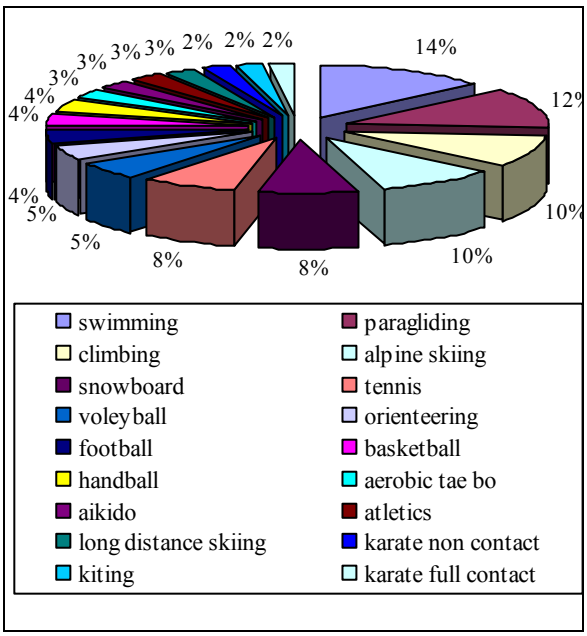

Fig. 3 Sports clubs

After cadets were divided into two groups, military and civilian, depending on the type of secondary education, in order to have a clear image of the quality of the training undergone before, I organized the above mentioned tests, and the results obtained are shown in figures 4 and 5.

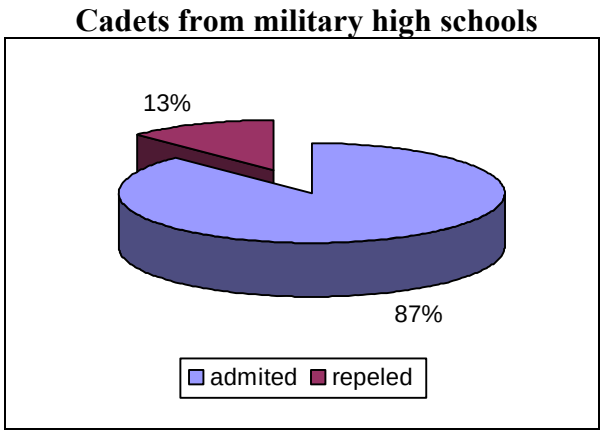

Fig. 4 Results of tests preceding the initial test

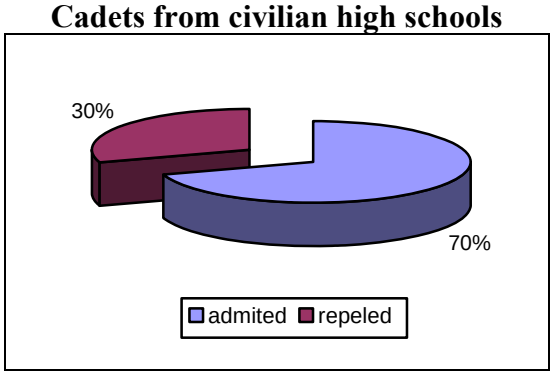

Fig. 5 Results of tests preceding the initial test

A week after the physical fitness tests, the entire group was challenged to achieve the minimum performance standard required for the entire military personnel within the Romanian Armed Forces (push-ups, sit-ups, running in diverse terrain for 3km – the boys - and 2km – the girls), in accordance to the age groups (Fig. 6).

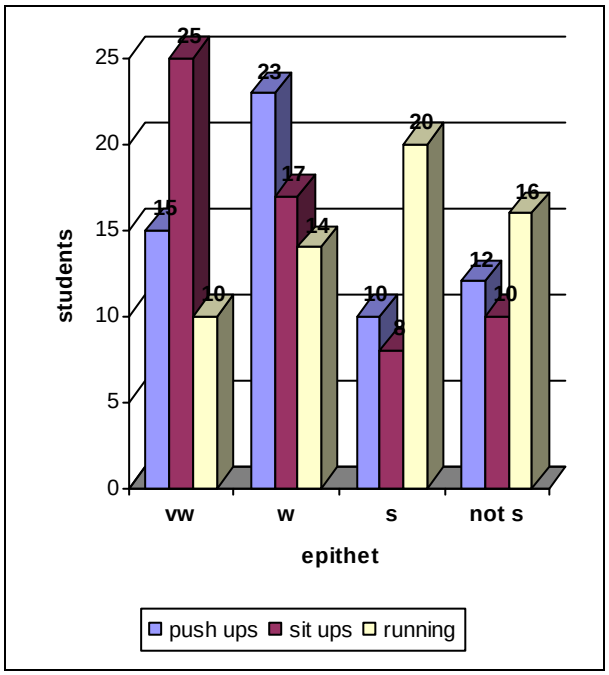

Fig. 6 Results of tests for the minimum performance standard

Results were then centralized and analyzed, and a situation regarding their current level of training as well as their needs in terms of motor abilities was drafted (Fig. 7). The latter were compared to the physical training requirements and the vision of the physical training and sports commission within the academy.

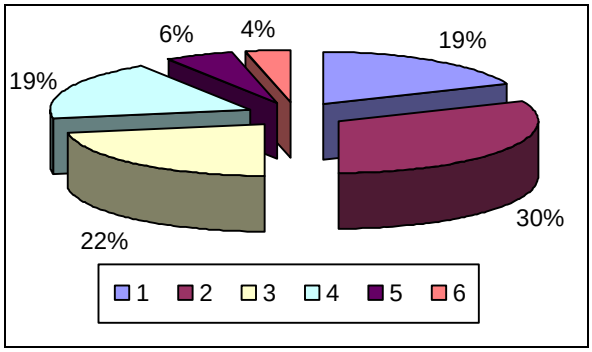

Fig. 7 Cadets' physical training level

7. CONCLUSIONS AND RECOMMENDATIONS

Given the level of training and the preferences, the physical training and sports teaching board together with the sports council, and in accordance with the documents that govern the organization of physical training and sports both in general, and in the army, have decided to modify the curriculum for the military physical training by attaching a greater importance to cadets' preferences, whilst also complying with the rules and regulations of the military physical training.

Cadets are recruited to practice performance sports based on their personal decision/option and not because it is compulsory. Sports activities in the form of sport for everyone should aim at improving the required set physical and motor abilities both in formal and informal settings (as free time activities).

8. CONFLICT OF INTERESTS

Nothing to declare

9. COMMENTS

The present paper capitalizes on the results revealed by the author's preliminary research as part of his PhD thesis.

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CONCEPTION OF COMPETENCES DEVELOPMENT OF AIR DEFENSE OF ARMED FORCES

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Abstract: *The article deals with present problems of Air Defense – modernization, organization structures, weapons, moral and material effeteness and economical (financial) costingness. It evaluates and critics lately accepted conception of Air Defense development, which is not real in present conditions and possibilities. The article confronts some opinions with present development of Air Defense in some NATO countries and shows on possible solution processes and cooperation within membership states.*

Keywords: *Air Forces, Air Defense, weapons, possibilities, modernization, structure, armament*

1. INTRODUCTION

Since what people invented the aircraft started to deal with and thoughts about their use in wars and conflicts. The first combat use of the aircraft was carried out at the beginning of the 20th century in the local wars. In October 1911 in a military conflict Italy with Turkey, carried out by the Italian pilot on the first reconnaissance flight in Bleriot airplane watching the movement of Turkish troops. In November 1911, another Italian plane throw down on the Turkish position 4 heavy artillery grenades and in January 1912, the Italian plane throw down leaflets calling for Turkish soldiers to surrender. In February 1912, the Italians used aircraft for the first time in this war, to the execution of the photographic image of the combat theatre. Soon it was necessary to seek ways of defense against this new kind of armed forces. The scene is getting air defense.

An analysis of the experience gained in the field of AD in the local wars made it possible to highlight and, in practice show a wide range of directions and trends that characterize the development of the new branch of the armed forces. It concerned these directions and trends:

- increasing the role of AD in the war;
- decisive role of land means of AD in the fight with air attack enemy means;
- shift of combat aviation activities and hence the AD to small heights;
- the need for protection of the AD means against warfare battle means;
- the use of new means of aviation to the penetration of the AD-system;
- combat readiness AD – the first pre-condition for the successful destruction of the air enemy.

The role of land means of AD substantially increased in destroying of air enemy. Just compare:

- in the WW1, a total of 15% of planes were shoot downed by AD means;
- during WW2, was a number of downed aircraft by AD 40%;
- in the local wars in Asia and the Middle East, the number of downed aircraft by AD raised up to 90%.

2. THE CURRENT STATE OF AIR DEFENSE (AD) OF THE ARMED FORCES OF THE SLOVAK REPUBLIC (AF SR)

Of the conclusions and recommendations of the AD study from 2003, which was processed on the basis of the requirements of the Ministry of Defense of the Slovak Republic from 2001 through NATO AD committee for AD (NATO Air Defense Committee – the NADC, it follows that(1):

- to ensure the defense of the whole of the territory of the Slovak Republic would require substantially more AD systems than in current time, however, it is not sustainable from an economic point;
- the use of AD means must be prioritized and combined with tactical aircrafts;
- it is necessary to integrate an independent air surveillance radars missile groups to supply the decentralized command system (to supply primary RL information).

These recommendations, however, failed. To strengthen operational capabilities (an extension of the capacity of land AD means) was not realized due to the lack of financial resources. Use of the AD means in the framework of the recommendations within combination with the air force is provided according standard operating procedures at random in. The inclusion of independent surveillance radars to the missile groups has been carried out. The supply the primary radar information for the using of AD fire means is provided only in the SA-10 system (S-300PMU).

The "long-term plan of the structure and development of the Slovak Armed with a planning perspective in 2015" in 2004, to achieve the desired air defense capabilities have been proposed the following main steps [2]:

- acquisition of SAMOC (SAM-OC) in accordance with the objective forces A2900, Figure 1-3;
- modernization of SA-10 (PLRK S-300PMU) IFF system, Figure 4;
- upgrading/ replacement of SA-6 (PLRK 2K12KUB), Figure 5;
- ensure objective forces L1400.

Of those measures was partially realized modernization 3D RL ST-68MSK the system AD S-300PMU a part of the projects for the Objective Force 2008 (CS 2008) L1400, other projects have been not implemented.

Figures 1-3 SAMOC for AD systems

Figures 4-5 SA – 10 and SA – 6 AD systems

The main project objectives in AD were filled only partially and did not solve the achievement of the desired operational capabilities. The current organizational structure of the AD is shown in Figure 6.

AF SR has limited operational capabilities AD, which allows a defense only part of the critical infrastructure and part of units of AF - figure 7.

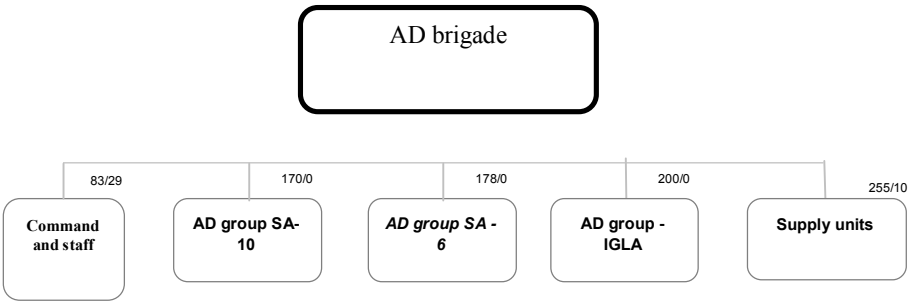

Figure 6 Organization structure of AD brigade – current state

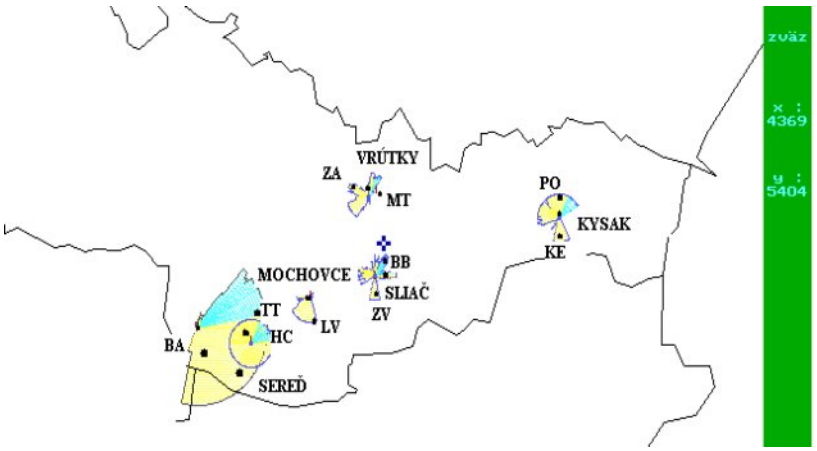

Figure 7 Defense of critical infrastructure by AD means

3. PERSPECTIVES OF AD DEVELOPMENT

Last year was created new model "Conception of competences development of Air Defense of Armed Forces". As suggested by the "Basic model AF SR 2024", the intention is to maintain one anti-aircraft missile wing Figure 8 [3].

To supply the required commitment of the Slovak Republic is crucial that the anti-aircraft missile wing possessed:

* The January 1, 2018 capabilities:
  - C3 SAMOC at the wing level
  - GOC at group level
  - MSAM – M
  - MANPADS and C-RAM.
* The January 1, 2021 competence:
  - HIMAD with TBMD.

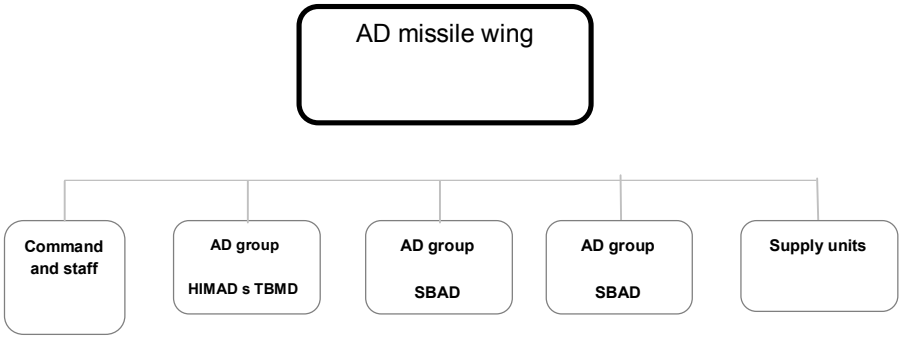

Figure 8 Organization structure of AD wing

In realization this target state will be assumed from composition of several branches of missiles systems which combat capabilities complement each other and at the same time eliminate restrictions on other branches of AD systems, their command and control will be provided by automated systems C2 (SAMOC and GOC) and will be connected to NATO operational networks -Table 1.

* Target state:

The target state of the AD of AF SR will created – Table 2:

- Command and Control System (SAMOC, GOC, ASV ASTRA AD);
- Anti-aircraft defense systems with long-range HIMAD with TBMD (up to 200 km, change of range from the current medium-range to long range to be secured by new radar and new anti-aircraft missiles);
- Anti-aircraft missile sets medium-range MSAM-M (up to 80 km);
- Anti-aircraft missile sets very short-range MANPADS (up to 6 km);
- Anti-aircraft defense systems against arriving munitions C-RAM (rockets, mortar shells and artillery shells up to 6 km).

Table 1 Tasks of AF SR with AD means

No	Tasks of AF SR	Unit of AD	Notes
1.	The continuous maintenance allowances SR to NATO high readiness forces (HRF)	Group - IGLA *(MANPADS)*	To favor battalion group
2.	Mechanized Brigade in low readiness NATO Forces	group SBAD	To favor Mechanized Brigade
3.	Keeping forces necessary to support the forces of high and low readiness.	antiaircraft missile wing	
4.	Air Defense Critical Infrastructure	antiaircraft missile wing	Group of ground AD means - SBAD

Table 2 Draft of AD systems for new structure

Characteristics of AD system	**S-400**	**SAMP-T (ASTER 30)**	**PATRIOT PAC-3**
Targets chanels	6	10	9
TBMD	Áno	Áno	Áno
Recco distance	400	150 km	180 km
Range *(min/max)*	3 / 240 km	3 / 120 km	3 / 160 km
Range to TMBR *(min/max)*	5 / 60 km	3 / 35 km	3 / 20 km
Altitude *(min/max)*	5 / 30 000 m	15 / 20 000 m	60 / 24000 m
Guidance	TVM	distance / active	distance / TVM
Max. speed of target	4 800 m/s	2 000 m/s	2 200 m/s
Time to ready	> 5 min	>10 min.	> 25 min.
Price *(mil. €)*	500	400	1 100

3.1. Cost Analysis. The total cost for capital construction in the years 2013 - 2024 for anti-aircraft missile wing represent 5,954,840, - €. Buying new AD systems or major modernization of existing systems costs would require billions of Euros. It is not within the power of the Ministry of Defense and even the Government.

To achieve technical and technological compatibility of communications and information systems:

- By the end of 2016 to purchase an automated system command SAMOC;
- By the end of 2017 to purchase automated command of 3 GOC;
- By the end of 2019 to implement the "Mode 5 IFF" and "Mode S" on the newly procured RL technique;
- Ensure the continuous performance of the tasks interoperability in response to the current requirements of NATO and the EU in the areas of management and the use of force, training, material and technical equipment.

4. COMMENTS AND OBJECTIONS TO THE PROPOSED DEVELOPMENT CONCEPT AD

4.1. Motion weapon systems. The concept envisages the AD systems long, medium, small and short range. This proposal does not comply immediately for three reasons: 3.1 Establishment of air defense system of different range could afford at the time the CSLA which had more than 350,000 men, two armies, 10 divisions and creates a front - figure 9.

The organization of such groupings has logic and justification: AD system long range as a front mean; AD system medium range than military means; AD system small range as division means; AD system short range as regiment means.

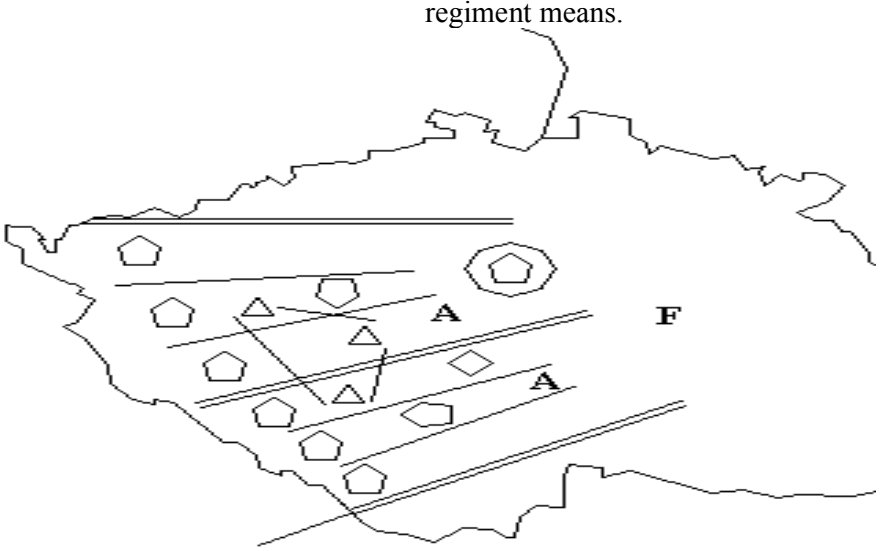

Figure 9 AD units in operational formation of front CSLA

4.2. Operation of AD systems. The proposed conception is also disadvantageous in terms of cost exploitation weapon systems. The diversity of systems creates excessive

requirements for the operation of equipment, supply of spare parts, carry out repairs, care, tuning and controls demand quality staff and technological background. Estimate can calculate that the above provision is needed an additional 50% of the purchase price AD system.

4.3. Use of combat possibilities of AD systems. In Slovakia, the extremely rugged terrain sharply reduces some combat characteristics. This fact may be mentioned the following two examples of the use AD systems SA – 10 (S-300 PMU) and SA – 6 (2K12 – KUB) on Middle and in Eastern Slovakia. From Figure 7 and in Table 3 that the measure killing zone and restrain zone is substantially reduced opposite optimal conditions.

Table 3

Data / AD system	Optimal positions			Middle SR			East SR		
	S	S_{br}	$N_{str.}$	S	S_{br}	$N_{str.}$	S	S_{br}	$N_{str.}$
SA 10 (S – 300)	5311	4285	18,64	962	746	3	2802	2333	15
SA 6 (2K12)	1183	674	11,65	690	288	6,73	905	212	9,87

Data for target with $S_{ef} = 1m^2$, $v_c = 300ms^{-1}$, H_c = 300m, S – kiling zone, S_{br} – protect area N_{str} - number of fires

We can see the reduction of fire possibilities:

a) Middle Slovakia – SA-10: S_{PUP} more about 80%; S_{br} more about 85%; N_{str} 6 times;

SA-6: S_{PUP} more about 45%; S_{br} more about 55%; N_{str} 1.8 times;

b) East Slovakia – SA-10: S_{PUP} more about 46%; S_{br} more about 48%; N_{str} about 20%;

SA-6: S_{PUP} more about 21%; S_{br} more about 32%; N_{str} about 15%.

These figures indicate that in conditions of the rugged terrain are not combat possibilities of AD systems medium and long range so far used as in AD systems small and close-range.

5. CONCLUSION

Development of Air Defense of Air Force Slovak should ensure elimination of negative trends in the available financial and material resources and the achievement of operational capabilities necessary for the smooth execution of the tasks of defense, national and international crisis management. Based on the assessment of operational needs and economic opportunities, we should focus on middle range 1-2 of AD systems and 2-3 AD systems PLRK small or short range.

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RELATIONSHIP MOTIVATION - VOCATIONAL MATURITY TO STUDENTS TO PRACTICE SPORTS CONTACT

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Abstract: *The present study aims to asses the maturity, vocational level and motivation of a group of 23 students who practice contact sports and institutionalized children, in order to identify relationships that, at group level, between their motivation to practice sport and the level of: decision, goal-oriented and trust, as well as vocational maturity factors. Results confirmed that vocational students are motivated for success, determined and goal oriented students are motivated by standards of performance and goal oriented students are extrinsically motivated. What we didn't get is a positive correlation, statistically significant between vocational maturity as a factor of confidence and motivation. One can say our group is not motivated by trust vocational level. It can be put down to the fact that these children come from institutional environment, which has not cultivated a sense of confidence.*

Keywords: *motivation, vocational maturity, students, sports performance, contact sport*

1. INTRODUCTION

1.1 Motivation. Man runs many activities: eating, playing, learning, collects works of art, assaulting their peers, helps them, etc. A common feature of these activities is motivation, their first chronological element. To know a person's motivation equates to finding the answer to the question "why" does he undertake the activity. The answer is difficult, because the causes are multiple triggers and can not be reduced to external stimuli. The activity, the reactions are triggered from internal causes; Motivational system components are numerous, varying origin, way of meeting and function, classification and their explanation is controversial. Most psychologists now accept that human motivation includes needs, trends, intentions, desires, motives, interests, aspirations, beliefs.

1.2 Vocational Development / vocational Maturity. Super (1996) proposes a number of vocational development stages, starting from the stage of growth, in early childhood, and going through the exploration phase, stabilizing and maintaining careers and final disengagement or withdrawal in advanced ages. Each stage requires a certain task development. Vocational maturity of the person is the extent to which the person can cope with the condition for the effective functioning of the person concerned in stage roles and prepare the person for passage to the next stage. Steps are representative of school age and growth stage exploration stage. Tasks specific to development stage of growth are self-knowledge and knowledge occupations.

These next steps are basal elements, without considering that the process of self-knowledge and knowledge of the occupations ended. Exploration phase is characterized by: crystallization, specification and implementation of vocational options (Super, Savickas and Super, 1996). This means that adolescents evaluate their skills and values and make the choice for a general field (crystallization), then specify this option (specification) and follow the implementation of the option.

1.3 Research methodology.

The research objective: is to identify at the research group, motivational aspects, as well as vocational maturity level, these two aspects of students who practice contact sports can influence their further life. Knowing that motivational factors are those who mobilize an action-oriented person, highlights the possibility of a close relationship between the level and type of student motivation and choice, decision and vocational orientation. For a small group of participants ,so as in case , the research to practical purpose is to provide relevant information for the coach ,for the team, providing information about the motivational factors but also develop vocational maturity level, both at group level and individual level. Correlation motivation-vocational maturity place the athlete both in group level, but also as individual data, with that, the coach becomes conscious of the potential of student's motivational level, and the coach may steer them as a future sports men. Hence and support for this research.

A general OBJECTIVE The study is to identify the existence of positive relationship between student's motivation practicing contact sports and vocational maturity.

The hypothesis of the study is that there on direct and positive relationship between students' motivation to practice contact sports and vocational maturity.

1.4 Method.

Participants: The study has 23 participants, they are part of a group of **50 children in foster care** in family homes in Giurgiu, belonging to the General Directorate of Social Assistance and child Protection Giurgiu, **participate in** organized **sports activities** in the gym of High School "Viceamiral Nicolae Balanescu". Thus, as of February 2014 three times a week, after classes, children from family homes St. John, Gabriela Constantin, Danube, Asaloni, My House, they usefully spend their free time pleasantly. Along with other children in the community, children of Giurgiu DGASPC (foster homes) are involved in physical training and tactical activities under section wrestling Municipal Sports Club Danube Giurgiu. The activities conducted under the guidance of Florin Antonescu, CSM coach Giurgiu Danube

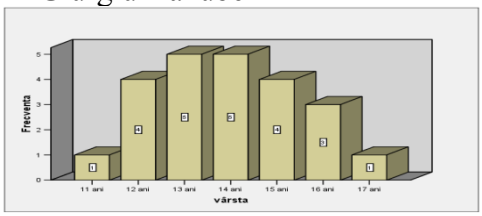

Chart 1: Number of pupils by age

The graph above presents the number of students participating in the study, depending on their age. So: we can easily identify: a student of 11 years, 4 students 12 years, 5 students 13 years, 5 students 14 years, 14-year 4 students, 3 students of 16 years and a student of 17 years.

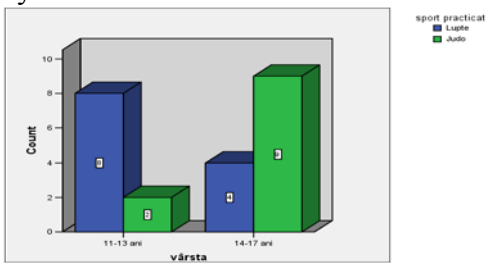

Chart 2: Distribution of participants by age levels and the sport

The No.2 graphic presents the age group between 11 and 13 (m = 12.40, SD = .69), and group students aged 14-17 years old (m = 15.00, SD = 1.00) 4 practice wrestling and Judo.

Tools: two instruments were for motivational factors and one to determine the level of vocational maturity. These are: ***Scale-Lynn Ray about the reason for success / achievement.*** It is a self-assessment scale consists of 14 items. The instrument is a translation-adaptation of the scale developed and validated J. J. Ray from University of New South Wales, on the basis of old scales (Lynn, 1969, and Smith, 1973) and is a measure of

motivation for achievement and personal success.

Academic Motivation Scale (AMS), the authors: Robrt J Vallerand, Luc G. Pelletier, Marc R. Blais, Nathalie M. Briere, Caroline B. Senecal, Evelyne F. Vallieres (1992-1993). It has 28 items and five subscales: motivation generated by interest accumulating information, intrinsic motivation, extrinsic motivation, motivation for performance standards, responsible for learning motivation.

Questionnaire for determining vocational maturity (CAMI): created by John O. Crites in 1978. It contains 28 items and three subscales: Scale decision guidance, scale-purpose and reliable scale.

Procedure: Data was collected by the coach after informing them about the purpose of research but not least, the legal matter and use of data for research purposes. Both parties agree, finally, a random, selecting 23 students out of 50, to avoid the possibility of identifying subjects in the study. Participants understood the instructions and reply to answer items.

1.5 Results. The research results were processed with SPSS v.13.

After analyzing descriptive data resulted the following table (Table 1) where we can see the internal coefficient consistency of the scales applied.

Table 1. Variables internal consistency coefficient measured

Scale	***Cronbach Alpha***
Motivation for Success	.74
Motivation- interest generated by accumulating information	.6 8
Motivation- intrinsic	.78
Motivation-extrinsic,	.61
Motivation for performance standards.	.54
Motivation- responsible for learning	.75
Decision	.58
Orientation towards a goal	.68
Confidence	.50

For inferential data analysis, nonparametric test was used, Spearman's bivariate correlation because the small number of participants and the deeds that following the Kolmogorov-Smirnov test, there was normalcy in data, it was decided to assign ranks, scores, variables measured to be able to use a non-parametric test.

As will be seen in Table 2, the average correlation exists between: motivation for success of students who practice contact sports and vocational maturity factor size decision, which may mean that students who have already taken a decision in terms of career they are more motivated for success. Anna Roe, specialist in clinical psychology believes that each person inherits a certain tendency to use their own "psychic energy" in a specific way. His theory is based on three components, being influenced by Gardner Murphy's theoretical concepts and Abraham Maslow. Gardner Murphy's influence is found in the use of the concept of channeling psychic energy in establishing the influence he has on the choice of vocational life experiences from childhood. Anna Roe is also based on A. Maslow's theory about the needs and prioritizing them. The third component is the influence of genetic factors in decision making vocational as the structure ***hierarchy of needs.***

We can see three correlations average intensity: goal-oriented students were predominantly intrinsic motivation type, which can create prerequisites for a bigger conditioning during training, as well as better defined tasks in which the student can respond promptly; students who have a motivation based on performance standards, they also have vocational maturity as determinants of

decision and orientation effect, which emphasizes the natural course of things, namely, athletes who know their purpose, and butter orientate for this, they made a decision based and sustained level of performance-energetic who aims to reach; Regarding orientation brings purpose and need of support from motivation to learn, what emerges from the positive correlation between the two concepts. "The process of maturation of interests on the one hand characterized by widening their scope and, on the other hand, selectivity: the multitude of objects and activities interest at this age begin to stop preteen strongly to one or which are thus two interests - pivot, the other is polarizing around them. In this way, cognitive interests intertwine with the professional - human characteristic phenomenon of vocation. "(I. Drăgan after 1975, p. 45-47).

What was not identified in the study, namely the absence in the study group, statistically significant correlations between trust factor and motivational dimensions of students, practitioners of contact sports? In this case, we can take into account that all students come from family homes, or maternal family, the car is actually in these young people, in terms of their social status, trust as a valuable condition is poorly delineated , which is demonstrated by numerous other studies, based on research on self-esteem Brown and Dutton (1995). Ginzberg, Ginsburg, Axelrad and Helma (1950): These four experts from different backgrounds (economist, psychiatrist, sociologist and psychologist) believes that the first 25 years of a person can be divided into three periods: fantasy; During attempts / flirtation; realistic period.

Stage interests (11-12 years) - stage where children begin to realize the need to identify a vocational directions. The choice is made based on the intrinsic potentiality of the work itself, how pleasant is that activity. Often, the choice reflects identification with one parent, usually the father.

Stage Capacity (13-14) is introducing the concept of novelty skill in vocational considerations. Increased degree of identification with the father and its influence in choosing vocations; increase the influence of others.

The state values (15-16 years) introduce the idea of serving society. Teenagers seem to become aware that they can meet their labor needs; is the period when the first signs may appear of a future careers (ex.: doctor) humanitarian reasons rather than the status of that activity.

The state transition (17-18 years old) is a calm stage. Young people understand that we must take responsibility for the consequences of their own decisions. This stage differs from the previous in that the young have more independence in its actions. Start external factors awareness work.

Table 2. Spearman test

			RANK of aturitatea_voc ientarea_spre scop	RANK of aturitatea_voc decizia	RANK of maturitatea_ increderea
Corelatie cu testul S	RANK of Motivatie_p	Correlation Coe	,309	,528*	,119
		Sig. (2-tailed)	,151	,010	,588
		N	23	23	23
	RANK of motivatia_ir	Correlation Coe	,078	,210	-,321
		Sig. (2-tailed)	,723	,335	,135
		N	23	23	23
	RANK of motivatia_ir	Correlation Coe	,299	,391	-,111
		Sig. (2-tailed)	,165	,065	,614
		N	23	23	23
	RANK of motivatia_e	Correlation Coe	,554*	,398	,073
		Sig. (2-tailed)	,006	,060	,739
		N	23	23	23
	RANK of motivatia_p performanta	Correlation Coe	,529*	,560*	-,151
		Sig. (2-tailed)	,009	,005	,492
		N	23	23	23
	RANK of motivatia_ responsab_pt_invata	Correlation Coe	,471*	,230	-,137
		Sig. (2-tailed)	,023	,291	,534
		N	23	23	23

**.Corelatia este semnificativă la nivelul 0.01 (2-tailed).

*.Corelatia este semnificativă la nivelul 0.05 (2-tailed).

2 CONCLUSIONS

Starting from the objective and the general assumption study, covering the results, we can say that at this group study found positive relationships between the two concepts: motivation and vocational maturity. Also it can be stated that ACES students, aged between 11 and 17 years, and their decisions are motivated sports career and oriented in order to start a successful career also, extrinsic reasons and standards performance requirements. Also, as we have seen, are distrustful of the future, which can be explained by the lack of psycho-emotional support due to their status of institutionalized children.

3. LIMITS OF RESEARCH

The boundaries of this research are extremely small number of participants, not including data in a complete psycho-emotional assessment and not including the profiles for the students. Failure applying parametric tests.

In the future we like to continue RESEARCH including overcoming the limitations.

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THE PROJECT-BASED LEARNING IN THE HIGHER EDUCATION - THEORETICAL AND PRACTICAL ASPECTS

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Abstract: *In the educational practice, the project-based learning is well-known and used as a teaching-learning method, and also as a complementary evaluation method, both in the pre-university and higher education. This complex method was first used by J. Dewey and W. Kilpatrick, in the United Stated, and it implied replacing the classical study subjects with the performance of practical activities, having a real purpose (learning-by-doing), starting from the Pupils' spontaneous interests. It was believed that by doing so, by solving real issues, knowledge could be acquired, and abilities could be built. The project-based learning can take a variety of shapes, depending on the subject specificity the project is prepared for, the approached topic complexity (imposed or chosen, preferred), the age of the Project-Creators, their creative skills, the workmanship of the Teaching Staff, who must stimulate the Project Initiators' efforts, to encourage them during the activity performance, regardless of whether it is performed at individual or micro-group level. This article presents both some theoretical aspects related to the project-based learning method and its features, and some aspects regarding how it was applied in the artistic higher education, within the National Music University in Bucharest.*

Keywords: *project-based learning, teaching-learning method, complementary evaluation method, authentic evaluation, artistic higher education*

1. INTRODUCTION (THEORETICAL INSIGHTS)

Amongst the concerns on the minds of specialists in the field of education sciences is also the study of those teaching-learning-evaluation methods proposing that the theory be entwined with the practice in the didactic process, thus stimulating both the Teachers and the pupils or students. Amongst the teaching-learning methods, the ones meeting this requirement would bathe active-participative ones, and amongst the evaluation methods -the complementary evaluation methods.

Unlike the traditional methods, states *I.T. Radu*–who performs the evaluation of school/academic results obtained over a limited period of time and, usually, covering a wider or smaller content area, but nevertheless a defined one – "*the alternative evaluation methods* have, at least, *two features*: on the one hand, assess the results in close connection to the training/learning, many times, simultaneously to it; on the other hand, they concern the school/academic results obtained over a long period of time, aiming at creating abilities, acquiring skills and, above all,

changes in interests, and attitudes, correlated to the learning activity".[7, pag. 223-224].

Moreover, A. Stoica highlights the advantages of the alternative evaluation methods [8, pag. 124-125], mentioning that using the complementary evaluation methods leads to the creation of the *authentic evaluation.* This is a relatively new concept referring to the evaluation of the Pupils'/Students' performances through complex work tasks. Furthermore, the authentic evaluation in not managed strictly formally. Thus, the Students complete work tasks not only during the course, seminar or laboratory work, but also at home, the time period being flexible: from several hours or days up to several months, one semester, or even an academic year (in the case of the portfolio performance). Therefore, *the authentic evaluation* aims both at *evaluating the process* the task is performed through, and at *evaluating the final product.*

Hereinafter follows a list of the *main complementary evaluation methods* the Teachers use (both in the pre-university and higher education):*systematic observation of the Student's activity and behavior; paper; essay; evaluation sheet; questionnaire; investigation; project; portfolio; conceptual maps; Master's/Bachelor's degree thesis; self-evaluation.*

Amongst them, the *project method* holds relevance for this paper, which aims at being a plea for the higher use of the project method in the Romanian educational system, highlighting below the benefits it has.

Thus, the project is a complex method of *individual* or *group* evaluation, recommended to the Teachers for the summative evaluation. Furthermore, some authors consider that the project "can be used in the case of Pupils in the upper classes of high-school and of Students for learning topics lending themselves to multidisciplinary, interdisciplinary and cross-disciplinary approaches. Sometimes, it is used as an evaluation test for graduating a vocational school, an industrial or art school, as well for graduating a faculty in the technical, art and architecture fields". [2, pag. 531]

The project subjects are imposed by the Teacher or chosen by the Student, the Teacher imposing the *performance period* and initiating them in the (individual or collective) *work stages and techniques*.

According to *D.S. Frith and H. G. Macintosh* [apud 4, pag.275], performing a project implies going through the following *stages:*

1. Identifying an issue/topic/subject;
2. Collecting, organizing, processing and evaluating the information related to the chosen issue or topic;
3. Elaborating a set of possible solutions to the issue;
4. Evaluating the solutions and deciding on the best choice;
5. * (optionally) Applying the solution opted for, which implies elaborating an implementation plan, with stages, resources, responsibilities, manners of evaluating the obtained results.

The Students shall enjoy support, guidance, counselling, but also interim evaluations, during the project performance, performed by the Teacher.

The abilities which can be evaluated during the project performance are the following: observing and choosing the work methods; using the bibliography appropriately; handling the information and using the knowledge; ability to reason and use simple procedures; ability to investigate, analyze, synthesize and organize the material and prepare a product[6, pag. 595-596].

For issuing a project evaluation that is as objective as possible, the Teacher must envisage (both for the interim evaluations, for the final one, when the project is delivered, defended) certain *general evaluation criteria,* criteria *related,* on the one hand, *to the quality of the product* (project), and on the other hand, *to the quality of the process* (the Student's activity).

Several of these *criteria* are presented herein below: Setting forth the project scope/objectives and the content structure; Individual activity performed by the Author (investigation, experiment, enquiry, etc.); Results, conclusions, observations. Appraisal of the project success, in terms of efficiency, validity, applicability, etc. Project presentation (communication quality, clarity, coherence, synthesis ability, etc.); Project relevance

(usefulness, interdisciplinary connections, etc.).

The project evaluation strategy is of a holistic nature, which must be clearly defined through the criteria negotiated or not with the Students, but which they are made aware of, so as to value the Author(s)' exclusive effort in preparing the project. The appraisal grids can be successfully used in evaluating projects.

The second part of the paper shall provide examples related to these criteria.

2. STUDY DESIGN

2.1. Problem statement. The basic training programmes for the Teaching Staff in our country include topics specific to the subject matter of *Pupil Class Management*, but they leave out approaching certain issues, situations when different management knowledge should be applied (such as the ones related to the *Educational Programme Design and Management*, for instance). The subject matter mentioned above is only studied during the 2nd level of the psychological and pedagogical training module. We consider that certain knowledge specific to the mentioned subject matter is required not only for the Teachers-to-be, but that it can also be introduced to the class, as an integral part of the Pupils' learning experience. At the same time as transferring the knowledge, certain logical-thinking, problem-solving and decision-making skills should also be practiced. It is important to get used to aspects related to the time management, communication, planning, evaluation, and team work not only in the context of studying subject matters such as the *Project Management* or the *Educational Programme Management*, but also in the context of everyday-life. The complex task management can become more efficient if the technique of breaking the bigger project down into smaller projects, easier to approach is used. Thus, the use of the project method, on a large scale, in the Romanian educational system, would have motivational benefits, both for the Teachers, and for the Pupils or Students, would provide the latter with the possibility to join the theory and the practice together, would thus prepare them for life, and offer them the possibility to capitalize on their creative ideas.

The study (micro-research) was performed at the *National Music University in Bucharest*, where the Author of this paper performs her activity as an Associate Teaching Staff.

2.2. Research Purpose. The research purpose aims at identifying difficulties, errors, typical mistakes which can occur in the Pupils' or Students' elaborating projects, in order to provide recommendations as to how to use the project method, useful to the Teaching Staff (in the context of the project elaboration and implementation).

2.3Research Hypotheses. Has the Students' personal previous experience got any influence on the project (requested work task) performance (elaboration)?

Is the lack of teaching experience in the Master's Degree Students (in their 1st or 2nd academic year) an impediment in identifying valid problems whose solution can be determined through the proposed projects?

2.4 Research methodology

2.4.1 Research sample

This study was performed on a *sample* of *81 students* in their 2nd year in the Master's Degree Programme, all majors (Compositional style and language, Musicological synthesis, Conducting stylistics, Jazz and pop musical cultures, Musical education and religious musical cultures), students who are studying, this semester, as part of the 2nd level of the

psychological and pedagogical training module, the subject: *Educational Programme Design and Management*, the subject matter mentioned above in the problem description. We mention that some of the Students are already Teachers in the state or private music educational system, and some of them give classes of instrument playing. The random sampling may not be representative for the entire population the sample was selected from.

2.4.2 Data collection procedures

The method used in this investigation was the *content analysis method.* It "consists of describing, explaining or theorizing a testimony, an experience, an event of a phenomenon through specific systematization and classification methods. Although it is used in the qualitative data analysis - considered by some authors to be a quasi-qualitative method (Muchielli, 2002)-the content analysis also includes an important quantitative element". [5, pag. 63]

During the seminar activity, at the classes on the subject of *Educational Programme Design and Management*, the Students received the work task to prepare a micro-project, having an imposed structure. The starting point was the identification of a problem they faced in the teaching practice, and then, starting from that, the project was to be a solution to the identified problem (mentioning the title, place of performance, duration, objectives, target group, actions, responsible persons, deadlines, resources, partners, expected results, evaluation, etc.).We mention that this task was given at the beginning of the semester, in order to identify some of the Students' difficulties, and to take improvement measures in the teaching activities during the classes. It was an initial evaluation test, which was based on their previous knowledge, on their professional and personal experience and, particularly, on their creativity. Each project was prepared in micro-groups, each group consisting of 3 students.

2.4.3 Data analysis procedures

THE DATA ANALYSIS AND INTERPRETATION WERE PERFORMED BY RESORTING TO QUALITATIVE METHODS (ANALYSIS, SYNTHESIS, AND COMPARISON) AND QUANTITATIVE ONES (STATISTICAL ANALYSES).

We developed a matrix, where we entered the criteria and sub-criteria based on which we analyzed every single project, the grades for each criterion being granted on a scale from 1 to 5. Here are some of them: Topic complexity (relevance, usefulness, interdisciplinary connections), Approach completeness, Project structure (objective elaboration, objective correlation to the activities), Efficiency, validity, applicability, Elements of novelty and originality, etc.

The projects designed by each team were analyzed by using the content analysis - combining the qualitative and quantitative approaches consisting in rating projects on a five points scale for each of the pre-established criteria and describing the way the projects met those criteria. A mean value for each project was computed. The means were recorded in order to identify low scores (1to2.5), medium scores (2.51 to 3.5), and high scores (3.51to5). In the qualitative analysis, the Author was interested to conduct an in-depth investigation in order to identify usual errors and vulnerable areas of the Students' responses.

A cluster matrix was designed in order to pursue the requirements of such a combined analysis.

3. EMPIRICAL RESULTS AND DISCUSSION

The recorded scores and the applicable frequencies are shown in the table below:

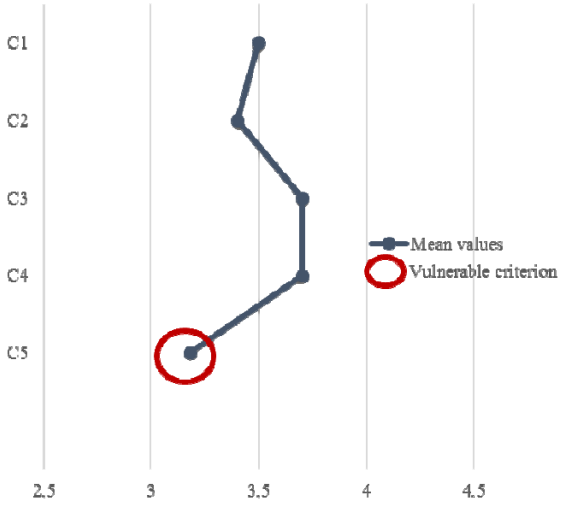
Table 1 Scores in projects' assessment

Score	Frequency
Low scores	14.8%
Medium scores	29.6%
High scores	55.6%
	Total: 100%

As it can be noticed, most of the recorded scores are medium and high, the latter having a frequency higher than 50%.

Moreover, errors and vulnerable criteria were determined, as shown in the chart below (see Fig. 1):

Fig. 1 Mean values for cluster criteria



The difficulties the students encountered in elaborating the projects are: the ones related to identifying a real, necessary and useful problem in the Romanian educational system, uncertainties or ambiguities in identifying the problem, which, further on, leads to an inappropriate project title, superficiality or improper wording in elaborating the objectives, a lack of correlation between activities and objectives, low chances for the proposed projects to become applicable. The problematic criterion is the criterion 5, related to the elements of novelty and originality.

4. THE RESEARCH CONCLUSIONS

Given the results obtained above, the research purpose, of identifying difficulties, errors or typical mistakes, was reached. Furthermore, it is difficult to identify a real problem that the Romanian educational system is facing, because of the lack of teaching experience. Thus, the second hypothesis proposed is validated. It is true that, in the absence of the teaching experience, the Subjects' previous life and learning experience had a positive contribution to the completion of the received work task (the project elaboration), thus validating the first hypothesis, as well.

The performed research was a finding one, which helped and guided the author in subsequently teaching the class on the Educational Programme Design and Management to her Master's Degree Students, and it can become the base for future researches in the field.

We recommend the Teachers using the project method to pay attention, in coordinating the Students' projects, to aspects such as: the topic relevance and usefulness (if chosen by the Students), elaboration of the objectives and their correlation with the activities, the project success appraisal in terms of efficiency, applicability, validity, permanent Students' motivation, and, not least of all, appraising and encouraging their originality, and creativity.

5. CONCLUSIONS

For an effective educational system, the Teacher must create a balance between the use of traditional evaluation methods (oral, written and practical tests) and the alternative ones, and using the project, as a complex teaching-learning-evaluation method, of a training nature, is preferred since it offers the Students enough and varied possibilities to prove what they know (as a set of knowledge), but, especially, what they know and can do (as a set of talents, skills, and abilities).

"The project distinguishes itself as a global, interdisciplinary method, susceptible of stimulating and developing, on a number of levels, the personality in the making of the ones we are training. It is, at same time, an excellent method of testing, verifying the

pupils' intellectual capacities and their creative skills, their energy and willpower, including of certain social and moral qualities (cooperation and team spirit, honesty, etc.) having both a diagnostic, and a prognostic value". [1, pag. 87-88]

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STRESSING FACTORS IN AVIATION

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***Abstract**: Due to the price and consequences of stress generated by work situations, during the last decades, most of the researches have mainly oriented towards it. Occupational stress was initially studied at the level of managers (stress of the executives), the study was subsequently enlarged to those professions with more intense demands and with a high risk degree: pilots, workers in the oil industry and nuclear centers, nurses, policemen, military etc., and it is accepted nowadays that occupational stress is present in all the activity fields and in all professions. Some professional categories are more powerfully affected, as compared to others. This category, more affected, also includes surgeons and the remaining staff employed in the medical care system, the staff in the field of social work, education, pilots, air traffic controllers, terminal operators, policemen etc.*

***Key words**: stress, traumatic, burn-out, specific, coping, stressors, strategies*

1. INTRODUCTION

The word "stress" has been used so often lately, that it started to lose its meaning of "danger", "tremor". Most of the diseases of the third millennium include stress that is awful fatigue, irritation, unbearable pressure we are object of due to the crazy speed of our restless life, due to acerb competition, running for the money, loneliness, lack of communication, depression. The term of stress, come from medieval English - distress - (trouble, difficulty, and unpleasant situation), means unspecific response of our body to any demand. Although the term itself does not mean only nervous pressure, consequence of the action of harmful factors (stress can be a pleasant thing, without negative consequences), only indicating the adoptive demand of the body, in the daily language stress is related to overload, that fact that it represents a permanent comrade of life being neglected. The adaptation possibilities of the human being are more and more demanding due to modern life, with all it assumes. Under such conditions, stress became an issue we permanently deal with, both extra-professionally and professionally. Systemic stress, understood like a syndrome, characterized by an inter-waved multitude of specific and nonspecific responses of the body to the action of stressors, including both the lesion, and the wear of the body and the suffering felt, it always has a psychic structure. This is the so-called secondary psychic stress. But there is also a primary psychic stress, where the stressors injure the scope of the psychic, leading to absurd subjective experiences, discomfort, and anxiety. The negative or indifferent stimuli are perceived as having harmful significance and therefore, disproportionate, non-adaptive conduct

changes occur. Psychic stress is induced most often by language. But the structures altered by psychic stress are both material (the central nervous system, and mental (psychic processes as such).

The Air Forces, by the nature and specificity of their duties, generate occupational stress. The military environment – more than any other – is strongly individualized in the society by a series of characteristic elements which may represent occupational stress sources. We regard here the social liability of the military profession and the structure of the military organization (hierarchic, linear, multi-level, rigid, which involves a hierarchic authority, an exclusive vertical subordination). Such organizing requires conformism and, even, a relative unification, the military environment being relatively closed, therefore limiting the connections with the outside, and if seen as liberty restrictive it can become frustrating for the individual. The values promoted by the military organization are sometimes differentiated by those of the civil environment – for example, the military requests altruism, while the civil environment is marked by the increase of individualism; the military environment claims abidance, subordination, adaptation as premises of success, the civil encourages autonomy, self-improvement, tolerance as premises of success in life and profession etc. Under such conditions, if the pilot does not understand such differences, does not accept them or considers them incompliant with civil life, he / she feels constrained, frustrated, stressed. Other pressure sources for the pilot may also be deprivations, restrictions, dangers, and doubt, physical and psychic intense demands. Some statistics look like aircraft pilots, decision of which deals with human lives, suffer from hypertension as consequence of the stress, in a proportion forth times higher than the other professional categories. These specificity elements of the military environment do not automatically launch occupational stress. The mode the individual intercepts, interprets and evaluates on the one hand, the stressors, and on the other hand, his/her capacity proportions to handle them, determines the appearance of stress or eustress, that beneficial stress which may mobilize personal resources and leads to occupational satisfaction and success.

If the symptoms of stress are relatively simple to recognize, its causes are difficult to guess. In the thousand studies dedicated to it, its origin is localized both in highly banal facts – lack of material safety or excess of positive ions -, and in complex facts, usually spiritual: deaths, divorces, separations etc. Stress often results from conflicts occurred between two or several individuals, having a different manifestation: the desire of communication opposes to the desire of solitude, the desire of independence, dependence, desire of competition, of cooperation, desire to do what you like, to abide by social obligations. Naturally, if we are to know which of such conflicts we face, we shall know better how to remedy the stress they lead to.

The psychological and emotional stress factors may appear due to several causes. Such cause may relate to the job (flight difficulties at the beginning of the career or a stressed relation to chiefs and mates) or to the family (marital or financial issues). The result of psychological stress shall impose overload of the pilot and the appearance of weak professional results. The factors concurring to such type of stress are: focusing on one single problem and distraction from the flight; weak analysis capacity; easy loss of orientation; distraction from initial duties; resigned attitude in front of the problems; tiresome, early breakdown.

Most militaries accept stress as normal in their specific activity, but the problems appear when its effects exceed the individual's strength of coping. Military psychiatrists and psychologists describe, depending on the intensity, the following types of stress:

a) Basic stress – is determined especially by the interpersonal relations set within activities and based on personal attributes: age, education, physical condition, previous experience, skills, convictions, attitudes, self-esteem etc. Such type of stress is not too serious and can benefit from effective management if treated before reaching a level beyond control. For such purpose, it is necessary to identify the stress sources, to

know personal limits and a good time management.

b) Cumulative stress – consists of discomfort, lasts for more and is more serious than basic stress. Discomfort may lead to breakdown, intense tiresome, "burn-out" depression and other manifestations such person is incapable to face.

c) Traumatic stress – is the result of stressing situation, appears suddenly and violently and the individual can no longer continue his/her activity. This type of stress may be immediately signaled, few hours/days or even months/years from the impact to a stressing event and is characterized as acute stress. This is the most harmful as it erodes the capacity of the person to adapt and may lead to serious health issues.

Any demand for the individual may be a possible stressing factor seeing the overload of the individual, the incapacity of adaptive response to the agents in the surrounding environment, if the situation is not correctly managed. Therefore, the body is worn out and high suffering degree is generated. In case of pilots, even combining minimum demands may lead to fatigue (a radio call from the soil while the pilot makes a difficult maneuver to reach lateral wind in turbulence conditions, low or night visibility, faulty operation of equipment on board). A lower demand may awake our interest, determining the settlement of the situation and the growth of attention to the alert level. Over-demand may lead us to an inferior action area, in the area of "panic", which has as effect a weak performance in our actions. The target is, certainly, a demand level which we shall successfully face and which shall be as low as possible, below the over-demand, but not as low as not to react at all.

2. STRESS IN AVIATION

We identified in aviation types of stress specific to the developed activity:

Physical Stress. Unexpected fear, as for example perception of physical danger, determines the brain to get quickly ready for action. Suprarenal glands release the adrenaline hormone which physically stimulates the body to face the threat– fight or run. The pulse grows rapidly, certain blood veins contract in order to guide blood to the body areas which need it. Performances may intensity and, in the limits of experience and training, the response to such stimuli may be quick and precise. The decision to "fight or run" depends on several factors, including the personality and aptitude for the activity to be deployed and for the level of perception of dangers.

Non-physical stress. Some stress situation does not necessarily come from perceived physical threat but from some intellectual, psychological or emotional causes. They may be the pressures imposed by time, decisions difficult to make (to continue the flight in worse and worse weather conditions or to change direction and to land at a reserve airport), and lack of trust, strange interpersonal relationship or emotional overstimulation. Some psychological or emotional demands, as for example a loss, may imbalance for long term or chromicise, while intellectual pressure shall prepare you for a quick mental activity. The stimuli may increase or decrease performances. The way the pilot faces a situation depends on his/her active awareness status. A part of the stimuli increase the status of active awareness (feeling of fear), others inhibit it (fatigue). A low level of awareness is related to profound sleep, tiresome, sleep deprivation, lack of motivation, a low body temperature. A high level of awareness is related to fear, panic, ad lack of trust. Both a

very low level of awareness and a very high level of awareness lead to weak performances. There is, between these two extremes, an optimum area where the active awareness status determines optimum performances for the fulfilment of duties. The measure of performance depends on the response speed to a given situation, on the intensity and accuracy of the response, on the optimum coordination of the response, on the quick modification of the response if the situation changes.

High temperature stress (hyperthermia). In a high temperature environment, more than 35 degrees C, the body fights to keep its temperature to 37° C preventing hyperthermia. The breathing rate, blood pressure or pulse grows in such situation. In moist atmosphere, skin transpiration does not evaporate and the tendency is for the human body to overheat. In order to reduce such type of stress, it is enough to control the temperature of the work environment and the most important, to drink liquids, especially water, before any thirst sensation installs, this being already an indication of dehydration.

Low temperature stress (hypothermia). In a cold environment, the body automatically sends more blood to the central areas than to the extremities. This is an attempt to keep internal temperature of approx. 37°C by reducing heat losses through the skin. The heat loss is made by: a) radiation in the open areas of the skin, especially around the head, scalp which has lots of surface blood veins; b) conduction, when wind passes onto the skin and takes over some of the heat exhaled by it (also known as cold wind factor); c) evaporation of sweat from the skin. In low temperatures, the fingers from hands and legs may be cold, the muscles may be stiff and weak, and the status of the body shall be tiresome and drowsiness, followed by tremble, this is the attempt of the body to generate more heat by muscles activity.

Stress generated by vibration. The vibrations transmitted to the body from the plane by the chair, the safety belt and the floor may determine a discomfort, which shall distract the pilot from the main duties and may lead to tiresome. A vibrating board panel makes it harder to read the apparatuses. Due to strong vibrations the globe of the eye starts vibrating making it almost impossible to read boar apparatuses, maps or to survey the airspace. Even if the vibrations of the aircraft are impossible to reduce, the construction of the chairs may diminish body vibrations, in case they are well assembled and equipped with buffers.

Stress generated by turbulence. Turbulence leads to irregular movements of the aircraft, varying from small trepidations, to very large movements which may damage the aircraft. Turbulences create discomfort both for the pilots, and for the passengers who are also object to unexpected G forces, which may lead to motion sickness. All this makes it harder to control the aircraft.

Stress generated by noise. Excessive noise in the cockpit, especially high frequency and loud, determines the appearance of stress and tiresome. Industrial limit for noise is 85dB and exceeding such limit recommends hearing protection. The noise in the cockpit is 75 – 80dB, and this is the background noise only. However, the noise of the communication radio station adds to it (more than 90dB), noise which leads to stress and irritation and hence to tiresome. Over the level of 80dB, hearing protection is used. Faulty receipt of messages is also stress; therefore, having high quality headphones shall reduce such risk.

Stress generated by discomfort. By the nature of their trade, pilots are forced to stay in small cockpits for long periods of time. The stress caused by being in a noisy aircraft, with high vibrations, and by the usual flight demands, as for example, turbulence, navigation, radio communications etc., may lead to accumulation of tiresome. The most indicated mean to fight against this type of stress is for the pilot to be fit, well rested before the flight, and properly positioned in his/ her chair.

Stress produced by sickness. Sickness may very easily lead to overload and predisposition to tiresome. The body shall use a part of its energy in order to fight against sickness and, therefore, a small amount of energy shall remain for the other duties. Human performances shall be lower than usual. If accompanied by headaches, infections

of the upper respiratory tract, light wounds, stomach aches or coughing access, it is not advisable for the pilot to start the flight. Airsickness/ motion sickness may even induce disinterest to what happens. This phenomenon does not only limit to beginners and to passengers, but, seldom, it may also happen to experimented pilot. A pilot may be as well object of useless stress unless regularly or well fed, in this case, the result being low hypoglycemia.

The stress generated by eye fatigue. Eye fatigue may occur due to faulty sight and weak lighting. Faulty sight may be corrected by glasses or contact lenses. The solution for weak lighting is turning on the lights so that the needed comfort is created. During night, if the lights in the cockpits are too strong, eye fatigue may occur, in case the pilot looks out for searching for other aircrafts, or in order to notice weather evolution.

Stress occurred by intermittent lights. Intermittent light has the role to focus attention on other machines or aircrafts. The sight of intermittent lights shall make you more alert. If intermittent light does not adapt to sight, it becomes bothering and tedious. As well, when the plane is in the clouds, its own intermittent lights may become stressing.

Stress generated by focus. This type of stress may result from keeping high performance level for a long time (for example, piloting the aircraft during turbulences, IFR, or even horizontal flying VFR, log time in case of experimented pilot).

Stress occurred by the lack of sleep. The lack of refreshing sleep creates tiresome and the pilot must stay awake in order to face the flight demands. The pilot must fight to stay awake and this focusing effort leads to a high stress level, even strong tiresome. The solution is, of course, rest and refusal to perform the flight mission.

Stress from the place of work. Most of the pilots live the experience of fear related to the future flight, but this is not normal, as the awareness level is high, to the best understanding level which leads to good results. However, a stressed pilot, overloaded due to the problems during the flight, may be at an awareness level which leads to good performances, customary situation in case of student-pilots or beginners but also in case of the most experimented.

Psychological and emotional stress. It can be caused by personal problems. Therefore, domestic stress may be dangerous for the pilot. If the focusing power during maximum demands is affected by the problems at home (death in the family, divorce or financial problems), a responsible pilot shall stay at soil due to own initiative. This type of stress may lead to insomnia, chronic tiresome, emotional instability and dangerous flight operations.

Beyond the controversies and disputes existing in the problem of occupational stress, there are three essential concepts channeling researchers' preoccupations in the field: stressors, their effects on people and coping modalities to stress.

Stressors (stressing factors) represent any occupational-organizational condition which needs adaptive responses from the individual. There are various taxonomies which group stressors. The most often quoted stressors in the specialty literature are: ambiguity and role conflict, work overload, danger of accidents and rhythm of work, situational constraints imposed to the individual by the organization etc. Please find that stressors are not the same for all people, therefore, the same situation may be for some real stress source, while for others, just a challenge.

Effects represent those individual reactions to the action of a stressor, while the "tensions" created are aversive effects on the individual. The most frequent examples of effects are: –

psychological effects (depression, burnout, tiresome, fatigue, hostility, depersonalization, anxiety, frustration etc.); – physical health issues (various physical pains, ulcer, cardiovascular diseases, hormonal imbalances) – behavioral effects related to the organization and individual (absenteeism, work performance, staff fluctuation, occupational accidents, abuse of harmful, toxic substance, of tobacco, alcohol, drugs, marital issues, accidents, suicide etc.); The most serious consequence of uncorrected occupational stress is "burnout" or the fatigue syndrome, nervous wear which appears as result of long term stress at the place of work and evolution of which is divided into three steps: ● physical fatigue – tiresome, frazzle, insomnia, lack of energy, weakness, chronic tiresome etc; ● mental fatigue – negative attitudes oriented either towards work, mates, partners, customers, collaborators, chiefs, job and even family; ● emotional fatigue – depression, helplessness, dispersion, disappearance of previous satisfactions etc.

3. CONCLUSIONS

Coping methods (management of occupational stress). Like in case of stressors, there is much taxonomy which groups various prophylaxis strategies and stress control both individually, and organizationally. Newmann & Beehr (1978) group the coping strategies of individual occupational stress into four categories: – psychological strategies (organizing own life, realistic evaluation of own person and own aspirations); – physical/physiological strategies (diet, physical exercise, sleep); – strategies to change own conduct / spare time management, using relaxing response, cultivating friendships for social support); – strategies to change the work environment (employment in a less demanding place of work or changing the occupation, changing the organization, in favour of another one, less demanding). There are lots of studies which show the effectiveness of individually oriented coping methods which lead to significant improvements, but unfortunately, short term, in case of anxiety, depression, high blood pressure etc.

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ADOLESCENT DEVELOPMENT: NEEDS, DESIRES, REQUIREMENTS

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Abstract: *Since adolescence, the human being seeks to know himself. From an early age, the child-adolescent should be advised to decide what he wants to achieve in life. A good start is always a gain in life. At 14 years old, it is normal for a teenager to be responsible on what has to done. Parents should advise them that the future should not be left in the hands of dreams and hopes. Parents should teach teenagers to have a sense of responsibility, to be responsible for their own value, to discover their desires and beliefs. Teenagers should be advised by the family and by the teachers at school, to give their best to know the values of life and seek answers in themselves. Also, teenagers should be advised not to be controlled by others, believe in their own feelings, and be brave to change things for the better when they think they can do this. The teenager has the ability to rebuild himself, to build his way and to create his opportunities. Also, each adolescent must decide three major aspects of his life. These are: what profession to choose, what place to have in society, who he chooses to be his life partner for being happy together.*

Keywords: *adolescence, identity crises, changes, desires*

1. INTRODUCTION

„«Adolescence» is a psycho social-biological stage of development that corresponds to changes in many areas which accompany the transition from childhood to adult hood. The working definition of adolescence we use is the stage of life that starts with puberty and ends at the time when the person has attained a reasonable degree of independence from his parents. Once in high school or its equivalent, the vast majority of teenagers have al ready undergone the biological changes of puberty".[1]

The period of transition from childhood to adulthood is between 10 and 14 years. This is called pre-adolescence. Even this is the time when the first impulses and feelings are manifested; the teenagers are guided by family almost in everything they do. In preadolescence, they try to impose their views, but some of them fail because, often the family believes that a teenager has not the capacity to 14, 15 years to decide for him. Unfortunately, this attitude displayed by the family is not good because it can reduce or even destroy the dreams and desires of a teenager, and its ability to get what he wants in life.

The preadolescent discovers the pleasure of playing with words and situations therefore should be allowed to discover his creative spirit.

Adolescence itself occurs around age 16, 17. Now occur the main physical changes, and

the young cannot deny his evolution because of changes of the body.

During the transition from childhood to adolescence and then adulthood, a young live many identity crises. It is a very difficult task to overcome the struggle with his own conscience, to gear away from family and meet new stage of his existence.

Teenagers vary both, in terms of their identity and in terms of choice of existence. At 18, a young should choose his path in life, should choose a college or another. At this age, the biggest changes happen.

2. EXISTENTIAL COORDINATES FOR AN ADOLESCENT

2.1 Make an inventory of qualities and defects! Around the age of 14, when teenagers start to realize the values of life, they want to establish their existence. This is the age when teenagers are isolated from family and friends because they want to understand better the mysteries of the world and they will set their own priorities. Relations with others can be left out.

Parents and teachers should actively participate in this phase of discovery of adolescents, should be with them, support them and understand them without violating the right to privacy of their thoughts and feelings.

However adolescence is a difficult stage in the life of a teenager who is just of the beginning to understand how the world works and how it is the natural order of the events.

Therefore, teenagers are sensitive and they go through a period of testing, so they can be easily touched by the negative things. Adults should behave well with teenagers, they must explain how life works and what dangers are, but without exaggerating explaining the consequences to which we all are exposed at any time.

Teenagers should be warned by family and teachers how to react to hazards and how to prevent them. There are several types of hazards. Some can be avoided by us, others are independent of our power. At 16, teenagers feel inferior to others. Sometimes they feel helpless, they feel worthless.

„A very good test that adolescents should do it would be to take a piece of paper on which to split into two. In the first column on the left, they should write their defects, and in the second column on the right, the qualities.

In the left column, teens must pass all the things they do not like at them. They must be very careful not to omit anything. When they have completed the list, they should tick the most annoying defect, in their opinion. After that, they have to check the list again, carefully. This time, they should tick the things they could do to change the most annoying defect. For example, if the most annoying defect is the shyness, a teenager must be honest and write what could help him to not be shy.

In the left column, they must write all strengths: qualities, talents and abilities that others admire at them. Teenagers should write about their physical attributes, about strong character traits, about personality traits, achievements, talents, areas that they know, skills, attributes which he can offer as a student at the school, as colleague, as son/ daughter, nephew/ niece; inclined to a certain profession (technical or intellectual inclinations), artistic or musical talent (painting or decorative art, singing, playing an instrument), hobbies and sports (skiing, dancing, crocheting, football). It is possible that this project cannot be achieved at the first attempt.

However, in this way, the teenager will be motivated to measure its potential so he will develop a sense of personal worth and he will have more confidence. A teenager must understand since 14 years, he is unique in this world and no one else is identical with him, because he has unlimited potential".[2]

The hardest fight for a teenager has, is to control his thoughts. So unconsciously, the teenager will feel worthless. That is why, it would be necessary for a teenager «to be set» to think positively. Researchers recommended for adolescents to have, some quotes or passages inspired by books. It's a big psychological difference between saying or thinking, and reading a passage from a book.

2.2 There is someone or something that can always protect us? „Teenagers may be

strongly affected by natural disasters or man-made, such as earthquakes, health emergencies, terrorist attacks or acts of war. Even indirect contact with such events through media can test their ability to cope. Teenagers are generally more aware of world events and become more interested as children. They are able to imagine frightening situations in more detail and can be very or extremely upset by images of destruction. Teenagers are already dealing with many physical, social and emotional specific to their age. As they struggle to develop their own identity and values, they tend to put things in question, or to adopt attitudes that range from cynicism to idealism.

Disasters can undermine their belief that the world is a safe place their trust in their parents or some institutions or even their certainty that life has meaning and that a better society is possible.

It is normal for teens worry, be sad or confused or afraid when disasters, terrorism or war make the headlines. They need adults around them pay attention to their emotions and their reactions" [3].

When teenagers are worried or sad, they should be allowed to exceed this short stage. Adults should ensure the teenagers of their unconditional support. They should tell them they are not alone and that always are protected from family, school, security organs of the country to which they belong.

But it is possible that parents are not entitled to help children in everything they need. Therefore there are institutions dealing with human security and they should develop programs in schools for children-teenagers to know that they can appeal to people with specialized training to help them when they need it. Teenagers feel safe when they know the concrete measures taken by the authorities in case of disasters. Even if no one wants to live a natural disaster or a terrorist act, it is necessary that teenagers know that this risk exists and that they can always rely on authorities.

It is possible that at 14, 16, 17, adolescents joke about these disasters. It is normal for them to overcome the emotional shock through a joke. Also, it is normal that some teenagers scare and respond with verbal violence. Then, adults should divert the conversation to deep feelings and tell them that fear is normal and adults also are afraid, but we all need to be calm and rational, especially in these extreme situations.

It is mandatory that at school and at home, teens discuss with teachers and family about current issues in the world. If teenagers discuss global juncture, they will better understand the events and the context in which they happened. Psychological preparation is very important for all of us, but especially for fragile souls. Family and school routine helps a lot in keeping calm and rational thought. Adults should keep a relaxing atmosphere and be always ready to discuss with teens about their fears and questions.

3. CONCLUSIONS

Always teenagers have resources and they feel full of energy. Therefore, it would be great for parents to enable them to participate in sports which they wish or to participate in various campaigns to collect or to help people in need.

Teenagers have a great capacity to adapt. Therefore, they should be encouraged to follow one direction or another, because, surely, they are able to accomplish many things they did not know that they can do. Adults need to advise teenagers to be honest with them-selves and not to exaggerate their defects or infirmities.

Certainly, we all are destined to be good and useful. It is true that the most difficult task that has to fulfill an adult it to act as a real adult in front of teenagers. Teens need landmarks, the pillars of strength, strong examples to be able to develop in harmony and trust. Clearly, adults did not solve and answer to every problem or question, but they are bound to be able to meet the needs of teenagers in one way or another.

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THE ARTICULATION AND AGGREGATION OF INTERESTS IN THE ANALYSIS OF INFORMATION TECHNOLOGIES COOPERATION

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Abstract: *This work is a part of a more complex project, with the goal of offering decision making factors an efficient and flexible instrument for specific actions of the cyberwarfare, with the help of the theory of international relationships. The developed model extends the concepts of articulation and aggregation of interest between the developmental pluralist political sociology and the collective action in cooperating relations between the states, using four case studies. The articulation and aggregation of interests of industrial cooperation policy in the information's technology of the great powers include dependent variables (actor behavior) but also independent ones (perception and standard identity).*

Keywords: *articulation and aggregation of intrerests, identity theory, information technology, cyberwarfare, foreign policy*

1. INTRODUCTION

The cyberwarfare is defined as a confrontation performed with informational resources by the means of network (internet). As a relatively recent phenomenon (after the year 2000), the cyberwarfare appears between state actors and/or non-state actors in cyberspace. From these reasons, the cyberwarfare has two components: engineering (computer science) and international relations theory [1]. Choucri (2007) considers that the articulation and aggregation of interests are primary forms of typical organizations, specific to any form of political system in any historical period of humanity [2]. The international political arena can be considered an extension of the cyberspace in which articulation and aggregation of interests serve at the outlining the objectives and means of the state and non-state actors. The cyberspace becomes the confrontation field among heterogeneous coalitions, between state actors, but also non state, fact that cannot be determined by classic theories [3] which separate on more levels of analysis the interaction between actors.

By articulation of interests [4] it is described the process by which political actors defines a common interest. Same authors, by aggregation of interests, define the process by which more actors with different interests can identify a form of action than can satisfy their interests. In this study, by articulation of interests it is define the process of negotiation among more actors in order to reach a common goal. The interests of the actors, when talking about the aggregation of interests, might be divergent, but the coherence of the common means, as the participation of the actors at this system of social interaction, asks for a previous process

of articulation of interests. The analysis takes place in the context in which two great emerging powers (Russian federation and China) seek an alteration of the USA hegemony in the semiconductors domain through industrial cooperation in the military and civilian applications.

This study suggests a new approach of the articulation and aggregation of interests in which state and non-state actors can take part in. The classic paradigms of the action's sociology, collective action or the international relations, does not converge for the unitary treatment of a heterogeneous coalition formed by state and non-state actors. In this study, the treatment of coalitions will be realized by the use of *structural symbolic interactionism*.

2. INFORMATION TECHNOLOGY COOPERATION AMONG GREAT POWERS

2.1 Some aspects regarding structural symbolic interactionism. In the *structural symbolic interactionism*, the identity concept is defined by four elements: the input, the standard identity, the comparator and the output [5]. The identity is a characteristic attached to the political actor, be it a person, social group, state or non-state actor. The identity, when speaking of a state actor, is the perception that the steering group has towards the foreign policy of other states, the actions of non-state actors, other international political processes.

For example, in the case of the Russian Federation, the sanctions required by the western world in the Ukrainian are inputs involving conflicts. The Chinese-Russian cooperation to build the pipeline "Power of Siberia" is a cooperative type of input. So, generally, the inputs represent the perceptions of the leaders that are implied in the process of foreign policy have towards the international political processes with various connotations of messages that accompany these perceptions.

The identity is defined by a set of meanings or messages that the actor attributes to perception. If the sanctions of the occident have a hostile character towards the Russian government, this is defined by the standard identity.

The standard identity represents a set of meanings the actor attributes to a certain perception. For this reason, two entries of a conflictual type can have different meanings for two different actions (for one it might not mean an act of hostility and for the other one it might mean a revolting behavior).

The exit represents the actor's behavior at a certain perception towards the environment in which it operates. Its behavior can be a conflictual or a cooperate one with other state or non-state actors. The type of output is dictated by the identity comparator which analyses the perception of the actor towards the exterior environment, or standard identity.

In this research, the analysis unit is the technological cooperation in the domain of semiconductors between Russia and China, as a factor of enrichment for these two states, in relation with the USA's hegemony.

Dependent variables are the articulation or aggregation of interests between Russian and Chinese government, and independent variables are the perception of the Russian government towards Western or Chinese political interests and towards semiconductor technologies from the Western or Chinese industries. Other independent variables are the standard identities resulted from Russian political objectives or the development of the semiconductor industry in the Russian Federation (Fig. 1).

The articulation of Russian-Chinese interests comes as a result of the intergovernmental agreements in domains such as IT, finances, science-technology-education etc. Moreover, the aggregation of Russian-Chinese interests is a consequence of the common projects resulting from the intergovernmental agreements. The cooperation from the IT domain was a result of the development and applications of the microprocessors in the military domain, being performed in three main directions:

- the development of large computing systems for research and simulation of various scientific organizational-managerial processes (e.g. B2 Spirit Bomber and M1A1 Abrams battle tank);

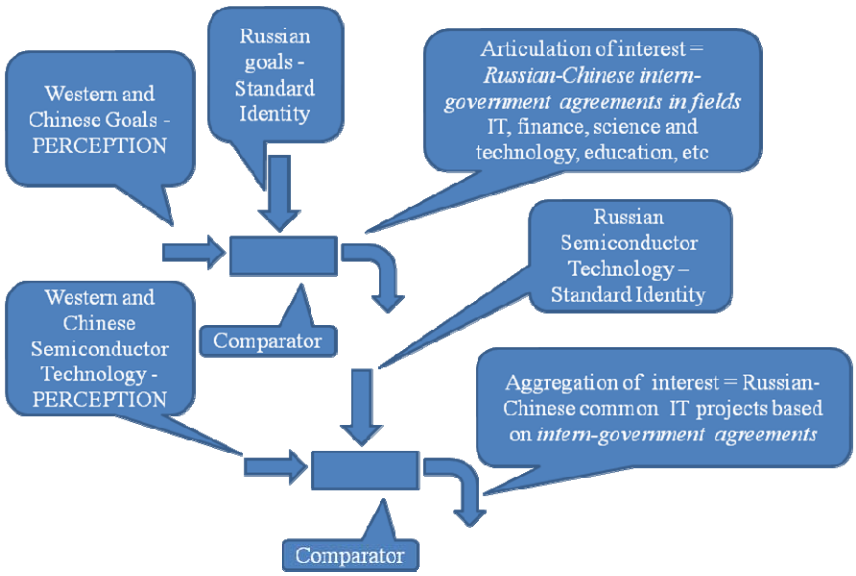

Fig.1. The relationship between independent and dependent variables of Russian-Chinese aggregation and articulation processes

- the organization of computer networks with client-server systems (architecture which originally served the administrative and logistics of a modern army);
- the introduction of equipping the Western armies with new models of weapon systems (e.g.: smart munitions or modern telecommunication platforms) which include systems of information gathering, processing/filtering, data storage and transmission.

2.2 Russian's Perception towards Western Semiconductor Technology. For the first two types of computing systems, there were imposed general use microprocessors (GUM), which are present nowadays in a variety of computing systems (e.g.: tablets, laptops, complex servers, etc.). For the last class of systems, there were used digital signal processors (DSP). These have in their components, besides the architecture of a classic GUM, specialized circuits dedicated to complex mathematic operations, needed in domains like speech processing, image processing or telecommunication processing.

Ever since the beginning, the GUM family had a competition between two families that were different by construction and still competing. The two families were Reduced Instruction Set Computer (RISC), and Complex Instruction Set Computer (CISC) [6]. Between the champions of the two conceptions there were defined, in time, the processors developed by the INTEL/AMG companies in CISC's architecture, and in RISC's one, specific to the products developed by the Sun and Motorola manufacturers. The Sun Company, being at that moment a producer of computers and not semiconductors, created an international consortium of American and Japanese producers of semiconductors which provided circuits for Sun's computers. Thus, SPARC International occurred, and the SPARC processors in RISC's architecture in the mid 80's. These would have a major impact in the development of Russian processors of casual use ELBRUS from the 90s [7].

For the specialized microprocessors type DSP, ever since the beginning there was the Texas Instruments components, which imposed via its product, TMS-320. This is a mathematic processor specialized in complex calculus. Through its specialized architecture, it represented a basic product for aero-spatial and aeronautics military electronics, but for processing television signals, audio, video or telecommunications as well. It was a patent that inspired the DSP manufacturers for the mobile phoning from the 90-2000s.

After 1980, the microelectronic revolution of microprocessors brought, as a military contribution in the military balance East-West during the period of the Cold War, an obvious advantage for NATO and USA regarding conventional weaponry. Because of the new models of semiconducting circuits, the easy

weaponry succeeded for the first time in history to change the balance of forces at the expense of heavy weapons on the battlefield.

The fall of the communist system in the 1989-1991 and the occurrence of the globalization phenomenon led to the spread of semiconductor technologies in the former socialist countries. The great beneficiary was China, Russia remaining a great incubator of patents in the domains of the two concepts (GUM and DSP) (Tab. 1).

2.3 Russian's Perception towards Chinese Semiconductor Technology. Through its profound economic reforms of modernization, China signs into a new internal stage of its internal evolution, but especially international. Via its closeness to USA, initiated in the early 70's, China comes again in contact with the Western world.

The emerge on the Chinese market of the great manufacturers of calculus technology was made after the second half of the 70s, through the big American enterprises that produced main frames (e.g. IBM, DEQ, or CrayCC) [8]. The great step occurs in the 80s, when the first manufactures of semiconductors and modern computer technology appear.

For the market of computers and servers, in China there are several famous producers, including Legend Group/ Lenovo, Founder Group, Great Wall Group, Foxcon, which produce systems based on INTERL technology in CISC architecture.

Likewise, for the market of big computer system, a great contribution was the Chinese academic environment, which began developing its own large computer systems. This paved the People's Liberation Army the opportunity to align with the new trend of the early 80s, "the Army of the third wave" [9].

For the two zones of products remembered, the People's Liberation Army could begin extensive structural reforms: reducing staff, improving logistics and resource management in the Chinese military body; the development, along with the academic and university world, of a wide range of projects locally, through the assimilation of military technology, aviation or naval. Moving the production from the USA and Europe in the Asia-Pacific area made from China the 'floor of the world' [10].

In the twenty-first century, China managed to become the main manufacturer of telecommunication systems, semiconductors, computers, and for the subcontractors of the big American producers of weaponry (Raytheon, Lockheed Martin, Boeing, Northrop Grumman and General Dynamics). An impossible thing to do in the 70-80s – to obtain semiconductor's technology from the USA, was realized by the globalization in the 90-2000s, via American producers which left to China with sensitive technology.

	GUM	DSP
Data center	China dominates technologically and Russia dominates the design experience and patents.	There are no such products.
Computer Networks	China dominates the hardware technology (servers and clients area).	The benefits of Chinese experience in the development of switching and routing, the Russian Federation, because of the experience in design, has great development potential.
Intelligent weapons	Rarely are present in such type of products.	China dominates in the sensor technology, and Russia dominates in its DSP design and telecommunication standards.

Tab. 1 The hardware potential for growth and development

The intake of American semiconductor technology on the Chinese market and the development of their own facilities, both in the printed circuit boards and semiconductors, allowed the occurrence of a public-private consortium to promote a standard Chinese microprocessor for the consumer market, but also for military applications. This *Longson*

processor (initially named *Godsone*), nowadays reached the fourth generation [11]. It presents an RISC architecture with a MIPS set of instructions and the capacity to emulate the set instruction for INTELx86.

It is considered than it will be the standard future for the products on the internal Chinese market, a fact that creates a discomfort to the Western manufacturers for their future products [12].

One of the advantages of the Chinese microprocessors in the future fight with the American ones is the independence of the Chinese industry of the necessary machinery needed for such a semiconductor factory. This was produced in three countries: USA, Japan, and Netherlands. Now China is the fourth producer.

2.4 The Russian Standard Identity – The Russian Semiconductor Technology. The Soviet Union, and later the Russian Federation, represents a strong foundation in the research and design in the electronic industry. The main obstacle was Russia's outdated technological support, compared to the semiconductor industry in the West.

After World War II, the Soviet Union, because of the ideological conflict with the USA, was deprived of access to the new technology – however, this thing was achieved by the use of the secret services. Thus there appeared the city of Zelenograd, a Valley of Silicon in USSR, where were produced the necessary integrate circuits for the industry/Soviet army, programmes of research were run and staff was personally prepared for the manufacturers in the electronic domain [13].

Even though it didn't possess a industrial base such as the American one, in a CIA report it is considered that the Soviet Union, although at 25% of the USA's production in semiconductors, had a promising potential for development and diversification of products [14]. The development of semiconductor industry in the USSR led to the development of an entire computer industry. From independent computer system or PC type to large system of mainframe type (ELBRUS) or onboard computers, aircraft, missiles or complex space techniques.

An original approach was the development of electronics on tubes and their miniaturization so that in the USSR until the late 80s there were build analog computing systems based on electronic tubes. An example of this is the board computers of MiG-23, which could perform combat missions in radioactive environments. Involvement in the large computers area was performed both in the academic and in the industrial one, resulting ELBRUS mainframes family. These were used both on the research and in the Soviet Army's logistic system.

At the end of the 90s, the ELBRUS 2000 architecture was acquired fraudulently by INTEL and integrated in the ITANIUM microprocessor's patent [15]. In the 90-2000s, the ELBRUS 2000 microprocessors work with a double set of instructions. The first set is the original ELBRUS-SPARC one and the possibility of using a written translator in the Linux core. which translates the x86 instructions (alike Transmeta processors). The system's architecture is getting better because of the borrowed elements from the SPARC architecture, but the number of processors is increased as well – two, then four, and this year it is expected a release of the system with 8 cores. Around 2010-2011, the ELBRUS 2C+ systems (which contained two unities GUM and 4 units of DSP ELVEES type – the RISC-EPIC architecture), were executing faster than the INTEL/AMD the matricial and vectorial calculus, because of the four co-unities DSP, but slower the office operations in case of operating with Word and Excel documents. They weren't more efficient than

INTEL/AMD in office processing documents, but much more efficient in the military systems – systems INTEL/AMD [16].

The ELBRUS systems with two cores are embedded in anti-missile system, missile type S-300/400, the plane model aircraft Su-32/32, Su-33, Su-35, Su T-50 PAK FA, and other antiaircraft systems like Tor-M1/2 or Patsir.

The ELBRUS family is a good basis for the development of Russian microelectronic industry in terms of the new embargo caused by the Ukrainian crisis.

Since the 90s, in Russia have appeared private companies that developed systems of DSP (e.g.: Neuromatrix), Global Navigation (GLONASS), revolutionary architectures for market products with high computing power (e.g.: the Multiclet patent); For large systems of mainframe type and data center, in Russia has developed T-Platforms, a large manufacturer company of High Power Computing. T-Platforms, with Rosnano and Roselectronica, taking the ARM Cortx-57 8-core and 64-bit over 2GHz patent processor, have initiated a new Russian processor project called BAIKAL. Along with ELBRUS, BAIKAL is the new line that Russia wants to compete the systems based on x86 technology of American type. The Kremlin wants a reconfiguration of the entire Russian state apparatus by giving up the IT infrastructure of Microsoft-Intel/AMD type and implements an infrastructure of ELBRUS/BAIKAL hardware, with a Debian Linux operating system.

In support of this project, besides „Soviet Silicon Valley" in Zelenograd, a few years ago the building of another „Russian Silicon Valley" began in Skolkovo. Architecture in the new center is not layered as it was in Zelenograd, but cluster. Technology research areas are of the technology of information, energetic technologies, nuclear technologies, biomedical technologies, aerospace and telecommunication technologies.

Analyzing the context of foreign policy of the Russian Federation, President Vladimir Putin, in a speech to parliament in 2013, defines the future lines of foreign policy as follows [17]:

- struggle against capital to evade state control through off shore activities;
- struggle against US hegemony and against Prompt Global Strike doctrine;
- struggle between traditional values and "promoting immorality, destruction of the traditional family and institutionalized dehumanization".

3. THE ANALYSIS OF ARTICULATION AND AGGREGATION OF INTERESTS

In this study it is examined the way Russian Federation understands fighting against the US hegemony and which are the processes of articulation and aggregation of interest promoted in this research.

To promote an offensive foreign policy against USA, the Russian Federation has the Chinese support. As retired Colonel Liu Mingfu wrote in his work on "Chinese Dream", China's goal is to be the exchange for the role of tomorrow's US worldwide hegemony. To do this, China is pursuing a special relationship with Russia through cooperation in the energy sphere, military, technical, scientific and technological [18].

In the nearly four decades ago of modernization, China has reached technological level near Japan, scientists and academics Chinese are attending international scientific conferences or teaching at all prestigious universities around the world. This unprecedented development of China offers Russian Federation an important ally and creates a Russian-Chinese strategic binomial as a counterweight for the Nippon-American binomial in the Pacific Ocean basin. The future confrontation in the Asia-Pacific basin, but also at the global level, depends on two important variables:

1. How will the transition of power happen between US and China? (peacefully through international institutions and political consultations and permanent diplomatic or through military confrontation).

2. How stable will be the Pivotal Global Nuclear Deterrent system? (this is based on mutual nuclear deterrence system between three actors: the Us, China and Russia).

Sutyagin (2014) considers that the reason which prompted the Kremlin to choose the path of fight against US hegemony is the post-

Cold War situation, when the international influence of the Russian Federation and its international voice had not been heard by the United States. The only leverage that Russia may limit US influence is: Russian veto right in the UN Security Council; tools like gas and oil; Russian Nuclear Triad [19].

The articulation of interests of Russian foreign policy for an international joint objective against US hegemony, was building an entire system of formal/informal relationships, bilateral or multilateral format. To challenge the US, Russian-Chinese binomial has several options of tools, not just the military. On financial terms, the two great powers pursue what is called "de-dollarization of the global economy", that the international financial system replaces the US dollar with gold transactions and to prevent a part of the economy of future international economic cataclysm produced by the big US commercial deficit. Another way is to create an alternative financial institution from IMF to World Bank, Asian Bank for Investment and Infrastructure based in Beijing [20].

In the semiconductor technologies field exist agreements of governmental cooperation between the Russian and Chinese parties (nanotechnologies, software development, communications and satellite navigation system, interoperability between GLONASS satellite navigation and the Chinese one, Beidou). Although China possesses advanced microelectronics technology in the US level, it imports from Russia due to lack of experience in certain areas of semiconductor devices, such as telecommunications and radar technique AESA/PESA (Kashin, 2014).

One area in which Chinese experience is particularly rich is that of optoelectronic devices, system cameras or sensors in various electromagnetic with special character. China has rich experience in working with Sagem of Frace. Also, cooperation with the Austrian company Continental Motors, the world's only manufacturer of drones engines with pistons (used to Global Hawks in US and at Heron by the Israelis) which allowed the development of the ambitious program with Chinese drones [21].

Aggregation of interests of the policy in the industrial cooperation in the field of manufacturing semiconductor products and IT can be achieved in three major directions of development of an army of "third wave" type, through joint projects in the area of computer systems and microprocessors.

At the Russian experience (large computer systems, High Power Computing systems), adds the Chinese (data center, software development). Future cooperation in the field of large computing system can be implemented in software through the joint development of software platforms on Linux architectures, starting from the Russian experience of ALT Linux/ Debian Linux, namely the Chinese one in Red Flag Linux. Systems in an open source type of Linux, and the software industries in the two countries can have a huge development potential in the field of office package software, databases or development tools necessary for engineering applications, tools needed for part researches and logistic organization of a modern army in the information age.

The distance between the integration capabilities of semiconductor products that develop in the West or China is relatively small, and the distance between semiconductor industries in Russia and the West can be reduced based on the development of new production capacities, and processing important equipment in China. This will ensure that in the next 10 years the Russian Federation will be independent technologically, both to West and China.

The two great powers cannot develop self-sufficiently in a global world and

interdependent, but must each find niches of cooperation, namely separation, in economic relations in the IT area.

4. CONCLUSIONS

Both the Russian Federation and china, as a standard identity in the sphere of common objectives, have the erosion of the US hegemony (to transfer decision by the US to the world countries in BRICS group). In this area the identity of the articulation of interests standardly requires a set of common objectives, such as de-dollarization of the global economy; creating alternatives to the US institutional instruments; the complementarity of the two economies and their integration.

In terms of the articulation of interests between the two great powers in the area of industrial cooperation in IT and semiconductor industry, we conclude the following:

- the area of software development in both countries is similar or even superior to many western states. Many western companies have branches in Russia and China, and these braches play strategic roles in the many upward trends of these companies.
- the hardware has the potential for growth and development in new standard identities (which the armies of the two countries can acquire) and the national semiconductor industries, are summarized in Table 1.

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SATISFACTION AND PERFORMANCE WORK - DIMENSIONS RELEVANT FOR THE ORGANIZATIONAL YIELD

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Abstract: *The purpose of this paper is to present the psychological dimensions relevant to the work of organizational dimensions that are closely related to job satisfaction and performance, with profit and organizational performance. In this paper we will refer only to some of these dimensions, which have shown from numerous empirical studies that are relevant to organizational performance. To achieve the applicative approach, we propose the following objectives: 1. Identifying characteristics of dimensions of organizational climate, environment specific security and protection of companies from Iasi, 2. psychological intervention on organizational climate improvement.*

Keywords: *trust, satisfaction, cohesion, psychosocial stability*

1. INTRODUCTION

Any psychological assessment has certain objectives that apply regardless of the stage in which the analysis or evaluation methodology used. A prime objective of psychological evaluation is to facilitate individual and organizational performance, be it the selection of candidates who have psychological characteristics closest to the open position requirements (selection training), whether it's psychological evaluation to identify potential professional development (career management) or consulting the employee about the issues, concerns or opportunities that arise in the working collective (organizational climate analysis), final result that we want to obtain or to influence, is performance. Performance or performance at work, visible at first individually and then collectively, lead ultimately to the profit and creating new development opportunities (individually and at the company/ institution). The second objective of psychological evaluation of staff is to create a climate conducive to individual and collective performance, which translates climate individually by contentment, satisfaction, professional fulfillment, and not by identifying with the company/ institution and its mission. At the organizational level, this second objective has a corresponding concept clearly, but I might call "stimulating environment", "participatory culture" or "organizational harmony." (Armstrong, M. 2014). Given that we live much of our lives working, sometimes at the same firm-institution is important for her to bring us satisfaction, we accomplish, not to give us the feeling that time is lost or obligation. Because if this happens, we lost so we as employees and the organization we belong to, as an employer and user of our time and effort.

All staff psychological assessment procedures aimed at achieving the two

objectives, although in every action, they are formulated as specific targets (identify the best candidate, identify training needs, define the grounds for dissatisfaction professional identify resistance to change etc.). Do not forget the fact that the two objectives are interdependent. For example, scientific research has shown that employees with higher job satisfaction achieved higher performance than other employees; professional dissatisfaction was associated with both low productivity and with absenteeism, accidents and illnesses. (Pitariu, H. 2000). On the other hand, obtaining a recognized performance, individual or collective, increase confidence and job satisfaction and performance creates new premises.

Beyond the organization's overall management efficiency, communication problems often occur within a group or between departments, employee job satisfaction, motivation and agreement to payment system, the practical organization of current activity or the quality of hierarchical relation. Can be no question of achieving major shifts in the institution, changes usually are expected of all kinds of rumors and therefore can accumulate dissatisfaction, conflict, open or hidden, between the heads, collective or hierarchical structures.

It becomes clear that in terms of human resources for the smooth management of an institution is not always enough jobs / functions are well defined; the tasks are clear to all employees as professional selection exams to be well made assessment procedures or the work to be performed correctly and with finality stimulating. Interventions are needed and other managers from HR, interventions that include analysis of organizational climate, (Zlate, M. p.176). Organizational climate can be described as affective components (feelings, fears, feelings, positive or negative), cognitive (beliefs, opinions, rumors), behavior (involvement, slow, absenteeism, protests, etc.). And obviously the size that I already did reference - communication, job satisfaction, organization, etc.. Organizational climate depends on the quality of actions for ensuring the physical and social environment - without organizational dysfunction and functional - that is how the formation and structure micro groups work, quality of labor relations and social environment, the system of evaluating work of existing shares to training and promotion, information systems and communications, management style and methods, etc.

Determines the organizational climate factors fall into two categories: 1. Objective - working conditions, age group and its components, the training of staff members, the remuneration of employees. 2. Subject: a) individual related factors - the conception of man, professional competence, leadership style, pedagogical tact, fairness distribution tasks, assessing work efforts and results, incentives, knowledge work and life issues faced by people, prestige and authority. b) factors related to the collective - cohesion, mood, morality group work force of collective opinion.

The relationship between the two factors is not about cause - effect, but an interaction mediated by individual and collective characteristics of the group in question. Therefore, psychosocial climate has a lot of tests, not caused by events, isolated positive or negative. A single failure in activity does not work install a climate of tension, just as a reward does not lead to a collective good climate. But small facts fulfill a particular role when it collects in individual and collective memory and, over time, contribute to the deterioration working atmosphere. The mood is a synthetic indicator of the psychosocial climate. It is generated by ideas; feelings and aspirations that stabilized, due to a higher consciousness and of enduring beliefs cannot be easily shaken. From the psychological point of view, the mood is defined as available to members of a collective dominant, characterized by confidence in the group, self-confidence, about the role played in the group, commitment to group work and willingness to strive group to achieve goals.

Cole G. (2000) for individual morale as a phenomenon, but determined group. Theories on moral are expressed as a combination of factors that are considered to represent elements of satisfaction or dissatisfaction generators: 1. Stimulating factors - cohesion, the optimal management, high level of training, self-confidence, lack of fatigue and

illness, decent, success in training, motivation, correct assessment of group members and the head of hierarchy, etc.. 2. Negative factors - increased intensity of stress, lack of cohesion, poor process management, fatigue, poor training, inadequate skills formats, poor motivation, lack of self-confidence, passivity, etc.

Multitude of factors that determine moral act simultaneously, but the amount, direction and meaning of their influence is dependent on situational context of objective and subjective. It is vital to select and act each time on that dominant factor influencing the positive and morale within the group. "Organizational climate analysis provides invaluable information in the form of suggestions or solutions to solve specific problems, possible leverage to motivate employees, descriptions of possible future threats or opportunities for development of efficient business or firm-institution" (Armstrong, M., 2006).

2. APPLIED RESEARCH APPROACH

Our research aims to identify the characteristics of dimensions of organizational climate, specific environmental protection and security firms and psychological intervention on organizational climate improvement. The sample investigated. For the smooth running of research have been a lot of 90 employees of security companies and protection of Iasi, under contract, with average age between 20-40 years old mostly based on a year, married, with a level of secondary schooling.

Table 1. Numerical and percentage distribution by age of employees:

Category Age	20 – 25 years	25 – 30 years	30 – 35 years	35 – 40 years
Numeric	20	27	19	24
Percentage	23,26 %	26,74 %	22,09 %	27,91 %

Table 2. Tenure of employees:

Tenure-year	2008	2009	2010
Numeric	22	13	55
Percentage	20,93 %	15,12 %	63,95 %

Table 3. Level of schooling of employees:

School	Education Vocational	Higher Education	High School
Numeric	18	70	2
Percentage	20,93 %	77,91 %	1,16 5

Table 4. Marital status of employees:

Marital status	Married	Unmarried
Numeric	67	23
Percentage	73,26 %	26,74 %

2.1. Methods, techniques and evaluation procedures. The methodology is conceived as a variant of operational research, being simultaneously a modern design and a method of psycho-sociological investigation that combines the knowledge and diagnosis of status quo and behaviors functions of assessment, intervention and prognosis of staff morale. Practical effectiveness of the methodology is directly related to how to comply with certain principles, such as: a) the responsibility for quality assurance, objectivity and timeliness of analysis and morale; b) to achieve and maintain among staff morale has a collective leading role in relation to individual morale, c) the positive-negative affect staff morale team morale decisive military groups. I used to achieve research-based questionnaire survey, observation, interview and questionnaire as a tool to record and analyze the psychological state of mind.

2.2. Description. Mood questionnaire analysis is structured on four main dimensions that define this area: trust, satisfaction, cohesion and psychosocial stability. Trust and satisfaction with every three overtones (relevant for individual morale), and

psychosocial cohesion and stability, with four overtones (collectively important for morale). Here is the main significance of the size considered in the methodology:

- TRUST is the basic size of individual morale with a complex psycho-social content. It simultaneously shows a personality trait (high capacity assessment, self and action) and an invigorating mood, optimistic, safe in their own and collective success. This dimension refers to: a) confidence b) confidence in leaders, c) trust in logistics equipment used.
- SATISFACTION is an emotional-affective state, which deeply influences the positive morale, especially its role regulating, supporting and mobilizing effective action mental for us. This dimension refers to: a) satisfaction with the working and living conditions, b) job satisfaction, c) the satisfaction given by the welfare state.
- COHESION is an essential condition. Designates bonds of unity, solidarity between group members, relations under which it operates powerful, coherent and relatively autonomous. This dimension refers to: a) interpersonal relations, b) engaging in tasks c) adaptability; d) the force of collective opinion.
- PSYCHOSOCIAL STABILITY mainly means the ability to perform assigned duties group, to act consistently effective, competent, providing a relaxed atmosphere psychosocial positive. Overtones: a) quality of training, b) the normative, c) stability of leadership, d) psychological stability.

The questionnaire includes 33 items relating to physical factors, psychosocial and psycho individual that can positively or negatively influence the state of morale. The response is assessed on a Likert scale of intensity from 1 (minimum) to 10 (maximum), depending on the individual opinion of each employee (rating scale in 10 steps). General appreciation of the state of morale and of every size, and indicator variables is made through five grades, which correspond to the evaluation scale of 10 steps, notes, as follows - VERY GOOD - Grades 10 and 9, good - Notes 8 and 7, ENVIRONMENT - grades 6 and 5, SATISFACTORY - Unsatisfactory grades 4 and 3 - Notes 2 and 1. Since the media is obtained is calculated in hundredths, transforming the notes are rated according out relationship: a) Unsatisfactory (0 - 1,50); b) Partially satisfactory (1.51 to 3.50); c) Satisfactory (3, 51 to 6.50); d) Good (6.51 to 8.50); e) Very good (8.51 - 10).

2.3. Interpretation of results. To achieve goals, using specific instruments work, we proposed to analyze the psychological dimensions relevant to organizational activity, namely to identify psychosocial characteristics of organizational climate, with an important role in maintaining and stimulating the activity of employees. Assessing organizational climate in the work group assessed were purchased, processed and interpreted information about mood and attitudes favorable or unfavorable working group to carry out its tasks, from interpersonal relationships vertically and horizontally rewards and punishment system, opportunities for career development, etc.

In this took into account objective factors, subjective, which can positively or negatively influence the psychosocial climate, the conclusions and direct observations of direct leaders, discussions with staff, the leadership and participation in certain practical activities. In table 5 present the results obtained by questionnaire on mood and confidence ratings appropriate size.

Table 5. Results obtained in confidence dimension.

Dimension	**TRUST**		
Under size	Self confidence	Trust chief	Trust technical
Average	8,84	8,57	8,46
General average	8,62		
Rating	Very good		

Interpretation: Trust is relevant to employees of security firms and protection by the expression of feelings and attitudes that are strong motivating forces in domestic certainty that has a very good training, high commitment to the heads, which are characterized by professional competence through style effective management, the principled and fairness, commitment to the organization's mission. This is highlighted by notes that were given great confidence in chief

and in itself, logistic equipment, this resulting in average size 8.62, corresponding to a very good rating.

Table 6. Satisfaction dimension

Dimension	**SATISFACTION**		
Under size	Working conditions	Job satisfaction	Social status
Average	8,53	8,32	8,43
General average	8,43		
Rating	Good		

Interpretation: Employee satisfaction is reflected by the joy and pleasure expressed by success in business, the satisfaction on fulfillment of needs, goals and aspirations, and felt the fullness of recognition of merit. Employees said they were satisfied with the socio-professional status held, and in particular working conditions which are provided with the fitting line and solve personal problems that arise, and thus job satisfaction, this dimension obtained average 8.43 corresponding good qualifier.

Table 7. Cohesion dimension.

Dimension	**COHESION**			
Under size	Interpersonal relations	Engaging in tasks	Adapting	Collective opinion
Average	8,55	8,06	8,51	8,77
General average	8,47			
Rating	Good			

Interpretation: The cohesion dimension, good grades were given force of collective opinion, the existing positive interpersonal relationships in the organization, both horizontally and vertically, members of the capacity to adapt to new situations and engaging them in their duties. At this size they obtained average 8.47, corresponding good qualifier.

Table 8. Psychosocial dimension stability

Dimensions	**Psychosocial stability**			
Under size	Quality	Normativity	Leadership stability	Psychological stability
Average	8,34	8,92	8,27	8,68
Average general	8,55			
Rating	Very good			

Interpretation: The psychosocial dimension stability were assessed with very good grades normative, psychological stability, training and management in terms of stability (s direction), the averages obtained were assessed with a good grade. Media in this dimension is 8.55, corresponding to very good qualifier. The results allow us to belief that the organization is functional psychosocial climate, characterized by high trust in leaders and in themselves, strong collective opinion, positive interpersonal relationships, a good adaptive capacity, psychological stability, normativity and training high.

3. CONCLUSIONS

The results of the questionnaire on mood, shows that the working group analyzed, the climate is optimal psychosocial, functional, characterized by trust between team members, collaboration and mutual aid, communication, optimism, positive interpersonal relationships, open expression of ideas, initiatives, strong cohesion and collective opinion, the lack of tension and conflict.

Strengths of the work group studied are: normative (8.92), confidence (8.84), the force of collective opinion (8.77), psychological stability (8.68) confidence in leaders (8.57) ; positive interpersonal relations (8.55), working and living conditions (8.53), ability to adapt to new situations (8.51). Of course there are

complaints mostly related to the salary and financial incentives - as activators of economic motivation - concerned, without doubt, an important place among the other categories of stimuli able to maintain a high level of mood. However their place and role is not as important as you might think at first sight. Although the economic motivation remains a significant stimulation of the propeller work, which is treated with respect at work, recognition and personal development, play a major role in boosting their performance.

Most of the strengths listed above are considered psychosocial factors of satisfaction and the use by line managers, can lead to increased job satisfaction and performance. Heads must ensure that employees benefit from a balanced system of appropriate rewards and needs met because of factors motivating exclusively pecuniary - that could work spores of subjective value - recognizing individual achievements and encouraging communication in the workplace are decisive in obtaining the participation of employee's performance. In conclusion, the importance of psychosocial climate is that it can influence the efficiency and increase employee job satisfaction, loyalty and keeping them in the organization, which means in fact achieve a fundamental purpose of organization.

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IRRATIONAL BELIEFS, PROFESSIONAL STRESS AND PERSONALITY IN THE MILITARY

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Abstract: *The study covers relations between the distorted or convictions irrational beliefs, the different magnitudes of occupational stress and their influences on the personality traits in the military. The study was conducted on a sample of 90 military of different professional categories (officers, low ranking officers, non-commissioned officers and soldiers/other military professionals). From the study, we can draw some robust findings, as such: in a certain measure distorted convictions/irrational beliefs may interact directly both with professional stress, as well as with some personality traits; on a greater extent, professional stress interacts directly with the personality structure and may augment the interaction between the distorted convictions/irrational beliefs and the military's personality. Psychological assistance offered to the military personnel, as support or intervention, should be aimed at simultaneously reducing the role of the magnitude of the stressors and of the distorted beliefs/irrational convictions on the personality of the military.*

Keywords: *stress, distorted convictions, irrational beliefs, personality, psychological assistance*

1. INTRODUCTION

In the contemporary society, psychology's mission is to contribute, along with the other sciences, at increasing the efficiency of human activity at both individual and organizational level. In this regard, out of the various fields of psychology, major roles are assigned to clinical psychology, psychological counselling and psychotherapy.

In terms of theory and cognitive-behavioural therapy strategy, the triad composed of distorted beliefs, automatic negative thoughts and maladaptive behaviours with regard to self, society and the world, might be viewed as the major directions of therapeutic intervention as stated by many experts (Ellis, 1962 Beck, 1979, Anderson, 1990, Young, 1990, Beck 1995, Taylor 1996, Alford & Beck, 1997, Williams & al., 1997, Leahy & Holland, 2000 Holdevici 2009, Clark & Beck, 2010, etc. .).

The cognitive therapeutic approach of various mental disorders (Beck, 1995 Leahy, 2003) integrates a number of essential components of rational-emotive therapy developed by Ellis (1994, 2004, 2011), thus harmonizing the concepts related to: cognitive distortions which make the stressed person vulnerable to negative life events that will be interpreted in a catastrophic and exaggerated manner; at different levels of cognitive integration - thoughts, beliefs and negative cognitive schemes which make the person enter automatisms and become fragile; furthermore, emotions emphasize the already

weakened role of resistance to frustration and of cognition invasion with categorical and inflexible imperatives (Leahy & Holland, 2000 Holdevici, 2009).

From the perspective of the cognitive model there were developed counselling and psychotherapeutic intervention strategies, demonstrated empirically and scientifically and validated for various disorders especially on axis I and axis II of the DSM-IV-R (APA, 2000). Out of these, psychotherapy and treatment for stress disorder is a major direction of action. For the military, occupational stress, in its most dramatic and probable form - posttraumatic stress disorder (PTSD), can be approached theoretically and practically, from the perspective of the cognitive model put forward by Clark & Beck (2010), which is based on three cognitive models developed by Ehlers & Clark (2000), Brewin, Dalgleish & Joseph (1996) and Foa & al. (1998, 2004), which apart from the distinct perspectives, share " the fundamental assumption that PTSD symptoms are the result of erroneous beliefs and estimations on trauma, as well as of dysfunctional encoding and recovery of memory and trauma" (Clark & Beck, 2010, p .285).Therefore, the proposed model deals with PTSD as a cognitive organization disorder on three interrelated levels of conceptualization: the etiologic level, the automated processing level and the strategic processing level (Clark & Beck, 2010, p.285-286). In essence, developing trauma is a dynamic, hyper-complex, multiphase and multi-level interaction: the etiologic level connects the traumatic experience with pre-existing vulnerability and associated with some personality traits and dysfunctional cognitive schemes; the automatic, or primary, processing level uses maladaptive cognitive structures for traumatic memories and for self convictions, on world and future beliefs, where the biases of attention and memory favour the threats, allowing a erroneous recovery of the traumatic memory, traumatic intrusions and physiological stimulations; the strategic, or secondary, processing level allows for a negative estimate of intrusions and stimulations in the efforts to find self safety, through denial and avoidance actions, or by gaining control, all under the pressure of persistent negative emotions (Clark & Beck, 2010, p.284-295).

Therefore, the literature provides empirical evidence and theoretical assumptions about the presence of some interdependent relations between distorted beliefs, professional stress and personality traits.

This study aimed to identify the existence of such relations in a military structure, in order to ensure knowledge and specialized psychological support for the specialised military personnel.

2. METHOD

2.1. Objectives. Within this research there are formulated three objectives: theoretical, methodological and practical.

The theoretical objective is to study the relationships between the dimensions of distorted beliefs, personality and military occupational stress level, given the requirements, demands and specificities of the profession, on the one hand and military status, on the other hand.

The methodological objective is the application of psychological tools with which to assess the size of irrational beliefs, professional stress level and the size of various personality traits of the randomly selected subjects within a military unit.

The practical objective is to demonstrate the assumptions' validity regarding the inter-relationships between irrational beliefs, professional stress and personality traits in the military environment.

2.2. Hypoyheses. In this paper we present only two of the assumptions that have been made within the research, as follows:

I_1 - in the military environment, the existence of irrational beliefs generate a high level of professional stress;

I_2 - the irrational beliefs, occupational stress and status indicators (age and professional occupation) influence the manifestation of personality traits;

2.3. Variables. In this research there were established two categories of variables, as follows:

a) dependent variables: personality traits and their emerging manifestations, measured using a personality questionnaire;

b) independent variables: the size of the psychological instruments used to measure irrational beliefs and the level of stress factors, as well as the dimensions of certain status indicators.

2.4. Participants. The study included a group of soldiers (N = 90, 100% men, M_{age} = 33,24 years, SD_{age} = 7.2, age rank: 21-56 Also, $N = N_1 + N_2 = 90$, where $N_1 = 45$ (50%) non-commissioned officers (NCOs) and $N_2 = 45$ (50%) military personnel (officers, low ranking officers and other foremen). The distribution of the military professionals on staff or personnel bodies, is as follows: eight officers (8.9%) and 37 low ranking officers and other foremen (41.1%).

2.5. Procedures. The study was directed to verify the established hypotheses and, in this respect there were used certain investigative tools to gather the necessary information.

The gathered information were summarized in relevant databases and were processed by various specific methods of descriptive and inferential statistics, such as trend calculations of central values (mean, median, mode, standard deviation) correlation study and regression analysis.

2.6. Instruments. The data were collected from the application of three tools that have measured the irrational beliefs, professional stress magnitude and the dimensions of personality traits for some subjects in the military. Also, an individual form was used to record the status indicators.

These tools are presented below:

2.6.1. *The individual form* is a tool for collecting information on a range of indicators of status (data identification, military rank, position, age, education, marital status etc.). For this study we retained only two status indicators - SI, i.e. age - AG and occupation or socio-professional military status - O.

2.6.2. *Personality Questionnaire* (*SID*) is a psychological assessment tool used in the army (SEPA Archive, 1992). It has proven its ecological validity in highlighting the main features of personality, deemed important to the efficient performance of the military service (Chițu & al., 2005, p.86-92). Having premised on a theoretical model of the ideal soldier, able to undergo the military educational process in optimal conditions, there were determined three factors, absolutely necessary, for woking efficiently: stability - S; integration - I; dynamism – D, thus given the acronym SID. Stability Factor - S is composed of 30 items, which make up two subscales: a) stability of self - Ss, with 20 items, expressing self-control in critical situations, the balanced character of actions and decisions, the emotional adequacy in certain situations; b) emotional stability - Sem, with 10 items, which highlight the general affective tonus, the overall allure of emotional moods, their dynamics in time. Integration factor - I has 30 items that make up the three scales: a) sociability - So, which expresses the ability to initiate and maintain interpersonal relationships, desire and need for communication and involvement in the life of the group, with 11 items; b) Cooperation - Co, which highlights the possibilities for cooperation with individuals and groups, the tend to avoid, not to generate or to settle conflicts and tensioned situations, tolerance and adaptation capacity, with 10 items; c) friendship - Fr, which expresses the patience and tact manifested towards others, understanding their problems and difficulties,

peer acceptance, with 9 items. Dynamic factor - D groups 30 items, which consist of three scales: a) activism - Ac, expressing dynamism, energy, pleasure and speed of action, excitement, with 20 items; b) ascendance - As, which identifies the force of self, the individual's ability to reveal, to impose its own personality and ideas, with 8 items; c) objectivity - Ob, which expresses the ability to realistically and accurately assess the current life and activity problems, with two items (SEPA Archive, 1992). For this study, internal consistency is as follows: stability factor - S, α = .556; integration factor I, α = .719; dynamic factor - D, α = .518; the entire questionnaire - α = .725.

2.6.3. *Stress Level Questionnaire* (*SLQ*) was designed by J. Abraham (1985). The questionnaire assesses the overall intensity of stress on the six factors, which are sources and also its manifestation areas, such as: ambiance, damaging ego/self harm, interpersonal relationships, occupation, use of time and lifestyle. The questionnaire contains 84 items and has an increased sensitivity due to the four possible answers for each item, graded according to the intensity of the event in question. The ambience factor – A, highlights the stress responses generated by the lack of privacy in terms of psychological space, which the person has the feeling that he, or she, can not control and within which does not experience peace and relaxation, accompanied by the perception of physical space as uncomfortable. The self harm/damaging ego factor - EP highlights stress responses expressed by feelings of personal failure consisting of fear, anxiety, inability to assert, guilt, devaluation, avoidant and submissive behaviour. The interpersonal relations factor - RI illustrates stress responses of guilt and disappointment affecting family relationships, financial difficulties, sexual problems, the inability to maintain lasting relationships of friendship, insufficient and unsatisfactory relationship with oneself. The occupation factor - AP demonstrates stress responses due to the inability to organize ones workload, the inability to refuse additional tasks and to delegate responsibilities when they become overwhelming, the inability to ask for help, or to request appropriate rewards, show the job's dull and non-stimulating character, or the harmful conditions in which it takes place. The use of time factor - AT highlights stress responses arising from the lack of ability to plan ones own spare time, voluntary overflows with tasks that often force the person to run out of time, thus, creating conflicting feelings towards the person's family, the failure to separate professional and personal activities, which would imply making time for relaxation and rest. Lifestyle factor - RV underlines stress responses produced by an imbalance between activity and rest, intense exercise and unbalanced nutrition. This factor also reflects the effects of accumulated stress in other areas, both translated by compensatory behaviours (overeating, abuse of stimulating products etc.) and by weakening the overall body resistance, thus increasing the risk for disease. The internal consistency of the questionnaire is α = .885, for the present study.

2.6.4. *Rating Scale for vulnerability to stress - adapted (SEVS-A)* is modelled after The Shortened General Attitude and Belief Scale (SGABS), which was designed by Lindner, Kirkby, Wertheim and Birch (1999, p.651-663) to measure irrational beliefs, largely considered to be stress generators (David Lynn Ellis, 2010 Macavei, McMahon, 2010, Owings, Thorpe, McMillan, Burrows, Sigmon, Alley, 2013). As the name implies, The Shortened General Attitude and Belief Scale (SGABS) is a short version of the General Attitude and Belief Scale (GABS), whose scientific validation was conducted by Bernard (1998, p.183-196). SGABS was translated into Romanian and adapted by Simona Trip (2007) and can be found in the paper "Clinical Evaluation System" published by RTS in Cluj-Napoca and coordinated by Daniel David (2007). The scale was adapted and calibrated from a cultural standpoint for the military professionals (S.P. Archive, 2009), thus being used as a scale for assessing vulnerability to stress (SEVS). The scale is applied in order to identify people who have high potential to generate stress. The scale's dimensions in terms of irrational beliefs, appears to be effective predictors of a broadened psychopathological spectrum (Sava & al., 2011, Bridges, Harnish, 2010, Terjesen, Salhany, Sciutto 2009, Chang, D'Zurilla, 1996

Muran, Motta, 1993 Wertheim, Poulakis, 1992). The scale is based upon the theory that people who formulate their wishes in terms of imperative needs, have a high potential for generating emotional stress (Ellis, 1994 Ellis, 2004 Vernon, 2010, Ellis & Ellis, 2011). The measurement of the degree to which people formulate their desires in terms of imperative needs, which they internalize, can be accomplished by evaluating their irrational cognitions (Zurawski, Smith, 1987, Lindner & al., 1999, MacInnes, 2003). Irrational beliefs are logically incorrect, absolutistic and dogmatic in nature; they also are inconsistent with the objective reality, causing negative and maladaptive emotions, which block the capacity to achieve the individual's aims (Lohr, bong, 1981 Lindner & al., 1999, David Lynn Ellis, 2010). The test includes 26 statements grouped into 8 specific subscales (Lindner & al., 1999, Tripp, 2007 Macavei, McMahon, 2010, Sava & al., 2011), which covers the following dimensions: the need for achievement – NR, the need for approval - NA, the need for comfort - NC, absolutist requirement of justice - NJ overall assessment of self - EP, the overall assessment of others - EC, rationality - R and irrationality IB.

The usage of The General Attitudes and Beliefs Scale – Short Version (GABS-SV) (Lindner et al., 2007) allowed the measuring of a global score for irrational beliefs - IB as a result of the first six dimensions above.

In another study (Sava & al., 2011), a ranking of the irrational beliefs scales was made, in accordance with their internal consistency, thus: the distribution obtained from $\alpha = .57$ for the overall evaluation of others - EC (other- downing) to $\alpha = .85$ for the overall evaluation of oneself - EP (self-downing); the internal consistency score of irrationality global scales was $\alpha = .86$; high scores indicate higher levels of irrational beliefs.

In this study, the internal consistency of the overall score scales for irrationality was $\alpha = .83$.

2.7. Results. In accordance with previous theoretical assertions, irrational beliefs generate stress, which in turn affects ones personality and behaviour.

However, Table 1 shows that there are no significant simultaneous correlations between the dimensions measured by Shortened General Attitude and Belief Scale (SGABS), Stress Level Questionnaire (SLQ) and Personality Questionnaire (DIS) and Status Indicators (SI), but a few, which we shall explain below.

As can be seen in Table 2, we reversed the order of the variables in the regression equations.

Although theories generally state that irrational beliefs, stress and status indicators should be predictors of personality behaviour, we used them as criteria, while personality, namely the stability dimension of it, we considered as predictor. This decision allowed the simultaneous look at the relationship between the two categories of variables, as well as testing their interactive effect, without affecting, from a statistical perspective, the degree of relation between variables.

We hereby present the data in Table 2. Case one: stabilitate - S din SID şi nevoia de aprobare - NA din SGAVS stability - S from SID and the need for approval - NA from SGAVS are in negative and significant correlation ($r = -.212$, $p < .05$); the statistical results of the regression equation show that $R = .212$, $R2 = .045$, $\Delta R2 = .034$, $\beta = -.212$, $p < .05$, which demonstrates a good ability for

making predictions; from the statistics of change's effect results that R2c = .045, Fc = 4.135, Sig. Fc = .045, and D-W = 1<1,8 < 3 which reinforces the idea of a good ability for making predictions. Case two: based on inductive reasoning, we find that the need for approval - and the need to achieve NA - NR in SGAVS present a strong, positive and significant correlation (r = .362, p < .01); furthermore, the need to achieve - NR in SGAVS and Self harm – PE in SLQ correlate strongly, positively and significantly (r = .286, p < .01); Self harm - PE and the need for comfort - CN from SGAVS show a strong, positive and significant correlation (r = .234, p < .01); Self harm - PE in SLQ and irrational beliefs - IB in SGAV correlated positively and significantly (r = .260, p < .05); age - AG (SI) and the need for approval - NA in SGAVS correlated in negative strong and significant result (r = -.311, p < .01);); the statistical results of the regression equation are R = .552, R2 = .305, ΔR2 = .255, β (PE) = -.503, p < .01 and β (NR) = .369, p < .05, which shows a good ability for making predictions where the two predictors are concerned; the statistics of change's effect results in R2c = .305, Fc = 6.069, Sig. Fc = .045, and D-W = 1< 1,6 < 3, which reinforces the idea of a good ability for making predictions. Case three: the results obtained in case two lead us to give up four of the predictors, i.e. NA, NC, IB and AG as the values of the tests of significance are not acceptable; from the regression equation statistics results R = .495, R2 = .245, ΔR2 = .228, β (EP) = .211, p < .05 şi β (NR) = -.513, p < .01, which show a good ability for making predictions; from the change's effect statistics results that R2c = .245, Fc = 14.148, Sig. Fc = .000, and D-W = 1< 1,5 < 3, which reinforces the idea of a good ability for making predictions. As shown in the last two columns of Table 2, according to F test of significance of the ANOVA model, in all three cases, multiple regression coefficient is statistically significant (Sig.= .000).

2.8. Discussion. This research supports our general hypothesis, resulted also from the literature review, thus, by empirical evidence and theoretical assumptions, confirming the presence of interdependent relationships between distorted beliefs, professional stress and personality traits (Leahy & Holland, 2000 Clark & Beck, 2010). More specifically, our findings, in case one, is consistent with the specific relationship between the predictor (need of approval) and the criterion (stability of personality), which shows that a structured, mature, stable and balanced personality is better aware of its social and professional roles and responsibilities and feels less the need for approval and supervision. Also, in a somewhat similar manner, in the second case it appears that the personality structure, through the dimension of stability, relates negatively to aspects that can lead to self-harm, namely to self-esteem (Sava & al., 2011) and positively to the need achievement. In the third case as well, the results show that the stability of the personality structure maintains the related rapports between the Ego and the need to achieve, while the standardized β coefficient values change to various degrees, whilst keeping their rank contribution to the variability criterion. Consequently, the possible harms of the Ego would adversely affect the stability of the whole personality (ΔβPE = 51,3% - 50,3% = 1%), while the need for achievement, even if it would have a positive influence on personality's stability, would lose significantly in terms of its contribution to variability ΔβNR = 36,9% - 21,1% = 15,8%).

From the perspective of the ego-personality rapport, more specifically between self-harm/ damaging ego (PE) and personality stability (S), any aspect adversely affecting the Ego will produce significant changes in the structure of personality, through its destabilization. In this regard, the specialty literature offers numerous and consistent arguments, of which we retain only the following: a) if a person is unstable, it is because one's core, meaning the ego is unstable, and the discrepancies between the various manifestations of the ego, particularly those unstable, duplicated and accentuated, correlate with a wide variety of emotional vulnerabilities interpreted as negative psychological states of personality or personality psychological discomfort (Zlate, 2002); b) if there are discrepancies between certain aspects of the ego (real ego - ideal ego), then they are associated with the

emergence of emotions related to rejection, disappointment, dissatisfaction, and if those appear among others (real ego and expected ego), then they generate negative emotional states of fright, fear, agitation (Higgins, 1987).

From the perspective of the distorted beliefs - personality rapport, namely the need for achievement (NR) and stability of personality structure (S), emerges the idea that in a significant proportion, the constraints within the motivational structure affect the stability of personality structure. In this respect too, the present study is consistent with the literature, which, based on theoretical assumptions and empirical research, highlights extensively the motivation-personality relationship, especially the association between motivation, performance and job satisfaction. Without being considered restrictive and unilaterally we present as arguments only those theories on motivation which focus needs' satisfaction: the needs' hierarchical model (Abraham Maslow, 1954), the two-factor motivation-hygiene theory (Frederick Herzberg, 1960), the AAP theory (Achievement, Affiliation, Power) of the three motivational agents (McClleland, 1961), and the ERG theory (Existence, Relatedness, Growth) concerning other three motivational factors (Clayton Paul Alderfer, 1969).

If for the need of achievement predictor (NR) measured for this study, we associate the superior needs to achieve of the personality (the necessity of esteem and self-realization - Maslow, assessing performance - Herzberg, the need for self-fulfilment and power - McClleland, need for development - Alderfer), than their influence on stability in the sense of personality or homeostasis becomes more explicit and intuitive (equilibrium), when there are compatibility relations, either in the sense of entropy (imbalance), or in the sense of incompatibility relations between the need for achievement and the need for a stable personality.

We agree with the studies found in the scientific literature which show that the relations of incompatibility between the need for achievement (NR) and stability of personality structure (S) are generating professional stress and even PTSD (Gabor, Jianu & Prisăcaru 2014 2013, Cracsner, 2003 Foa, & Rothbaum, 1998).

We also consider that the results of the study also highlight a number of limitations related to: the relatively small number of evaluated subjects; the investigated sample group was established randomly; the structure of the lot is uneven where professionals or staff bodies are concerned, and genderwise - the study population is represented exclusively by men.

3. CONCLUSIONS

Occupational stress in the military is present in the life of the combatants, being driven by various military connections relating to the military's type of work, echelon, career development, employment relations, structure and dynamics of organizational climate, etc. (Cracsner 2003, Gabor & al., 2013, 2014).

Through this study, we tried to highlight how and in which manner some of irrational beliefs or distorted convictions and professional stress can influence the military's personality.

As a consequence, we have analyzed the relationship between stress levels, values and personality dimensions, but also the emotional balance of the military, based on correlations between different variables (age, occupation, size of the measurement tools), all leading to

both the confirmation and validation of the hypotheses, but furthermore, helped to identify some favourable conditions of stress management, especially PTSD (Cracsner, 2003 Foa, & Rothbaum, 1998), as well as certain managerial and professional measures in order to provide assistance and psychological intervention in the military (Gabor, Jianu & Prisăcaru 2014, 2013).

The identification of positive significant correlations, between the socio-professional category, the measured dimensions of stress and age reflect the need for compatibility between the job requirements, the skills of the military personnel and their levels of experience in service, as well as approaching stress.

The stability and integration dimensions of the personality structure are found to be good predictors for an effective stress management, but also critical in achieving an efficient management of human resources in the military.

Achieving significant positive correlations between the various measured dimensions of stress (ambiance, self-harm, interpersonal relationships, use of time, employment, and lifestyle), prove that the knowledge and proper management of internal and external factors of stress, allow for an optimal functioning of the military personnel.

The identification of several positive significant correlations between the different dimensions of irrational beliefs and maladaptive convictions (need for achievement, need for approval, the need for comfort, the absolutist requirement for justice, the global assessment of oneself, the overall assessment of others and the degree of internalization of all the other necessities transferred into the unconscious as forms of irrationality) allows for a better understanding of military vulnerability where stress is concerned, and provides multiple opportunities for the prevention, prophylaxis and psychotherapy of individual and organizational stress.

The usage of the multiple linear regression in the present study, revealed the relationship between the criterion variable (the stability of the personality structure) and predictors variables (need for achievement and self-harm), arguing that, on the one hand, the personality can be evaluated according to a certain type of resilient behaviour performance-oriented, but on the other hand, the non-resilient amplitude in situations which can damage the ego, the self image and explicit self-esteem (Sava & al., 2011, David, 2007 Trip, 2007).

Hence, the present study generates several solutions on establishing strategies and means to prevent, limit or eliminate irrational beliefs and distress effects, and these should be a management priority, due to the high degree of risk, danger and unexpected, which call for all the physical resources of the human being in the modern armed struggle.

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Table 1. Means, standard deviation and inter-correlations among the study's variables (N = 90)

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Criteria - Irrational beliefs																					
1. Achievement (NR)	--																				
2. Approval (NA)	.362**	--																			
3. Comfort (NC)	.590**	.577**	--																		
4. Justice (NJ)	.601**	.453**	.744**	--																	
5. Self-downing (EP)	.329**	.500**	.441**	.348**	--																
6. Other-downing (EC)	.234*	.299**	.511**	.491**	.311**	--															
7. Irrational beliefs (overall) (IB)	.759**	.658**	.860**	.821**	.617**	.582**	--														
8. Rational beliefs (RB)	-	-	-	-	-	-	-	--													
Criteria - Dimensions of stress																					
9. Ambiance (A)	-	-	-	-	-	-	-	-	--												
10. Damaging ego/Self harm (PE)	.286**	-	.234**	-	-	-	.260*	-.262*	.637**	--											
11. Interpersonal relationships (RI)	-	-	-	-	-	-	-	-	.689**	.658**	--										
12. Occupation (AP)	-	-	-	-	-	-	-	-	.637**	.634**	.689**	--									
13. Use of time (AT)	-	-	-	-	-	-	-	-	.598**	.531**	.650**	.714**	--								
14. Lifesyle (RV)	-	-	-	-	-	-	-	-	.465**	.297**	.445**	.492**	.537**	--							
15. Total stress value (TS)	-	-	-	-	-	-	-	-	.799**	.769**	.846**	.886**	.852**	.664**	--						
Criteria- Dimensions of status																					
16. Age (V)	-	-.311**	-	-	-	-	-	-	-	-	.312**	.233*	.236*	-	.240*	--					
17. Ocupa□ia (O)	-	-	-	-	-	-	-	-	-.349**	-.372**	-.432**	-.432**	-.363**	-.295**	-.463**	-.508**	--				
Predictors - Dimensions of personality																					
18. Stability (S)	-	-.212*	-	-	-	-	-	.219*	-.324**	-.452**	-	-.400**	-.361**	-	-.390**	-	-	--			
19. Integration (I)	-	-	-	-	-	-	-	.394**	-.400**	-.589**	-.365**	-.421**	-.469**	-.253*	-.516**	-	.329**	.493**	--		
20. Dinamism (D)	-	-	-	-	-	-	-	-	-.279**	-.495**	-.285**	-.364**	-.230*	-	-.358**	-.266*	-	.382**	.530**	--1	
21. Total personality score (P)	-	-	-	-	-	-	-	.323**	-.420**	-.640**	-.349**	-.492**	-.448**	-	-.530**	-	-	.769**	.861**	.778**	--
Means	10.84	8.76	9.79	10.18	8.16	8.93	57.19	16.16	12.00	19.73	18.72	25.56	28.23	22.01	126.1	33.24	2.41	25.86	25.73	16.38	67.97
SD	3.80	2.47	3.77	3.66	2.94	3.10	14.90	2.72	3.45	4.59	4.46	6.12	5.53	4.57	23.28	7.19	.65	2.93	3.45	2.83	7.44

** Correlation is significant at the 0.01 level (2-tailed)
* Correlation is significant at the 0.05 level (2-tailed)

Table 2. A summary table of hierarchical regression predicting stability (S) and the criteria identified in three cases

Stability (S)	**R**	**R^2**	**ΔR^2**	**β**	**Sig.**	**R^2_c**	**F_c**	**Sig. F_c**	**D-W**
Case one	.212[a]	.045	.034			.045	4.135	.045	1.8
Approval				-.212	.045				
Case two	.552[b]	.305	.255			.305	6.069	.000	1.6
Ego injury - EP				-.503	.000				
Achievement - NR				.369	.018				
Approval - NA				-.113	.391				
Comfort - NC				-.098	.593				
Irrational beliefs - NR				-. 084	.743				
Age (AG)				.079	.431				
Case three	.495	.245	.228			.245	14.148	.000	1.5
Ego injury - EP				.211	.033				
Achievement - NR				-.513	.000				

Dependent variable: Stability

a. Predictors: (Constant), Approval

b. Predictors: (Constant), Ego Injury - EP, Achievement - NR, , Approval -NA, Comfort -NC, Irrational beliefs - NR, Age - AG

c. Predictors: (Constant), Ego Injury - EP, Achievement - NR

Legend: R - multiple correlation, R^2 - the proportion of the predicted value variation in relation to the value of combined predictors, ΔR^2 - R^2 corellation in accordance witht the number of predictors and subjects, β - standardized coefficients used to predict the standardized values, Sig. - Significance of regression coefficients, R^2_c – the effect on R^2 by removing each predictor, F_c – the value of the change's effect, Sig. F_c - the significance of the change's effect , D-W - Durbin-Watson test on the condition of independence of errors, F - the significance test in the ANOVA model, Sig. - the significance of the F test

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CAREER COUNSELOR'S/CONSULTANT'S ROLE FOR A PROFESSION

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Abstract: *The purpose of counseling is to offer students the possibility to explore, to discover and to clarify the optimal ways to live their own life, to a happy existence. Initially, counseling was wrongly identified with psychotherapy, only afterwards the two were clearly separated from a theoretical point of view. Between these two there are major differences: counseling is a proactive action, while psychotherapy is a postfactum intervention (as remedy, as therapy). Student and professional counseling represents all the optional and consultative actions realized through pedagogical means, general and specialized, subordinated to the technological dimension of the education and from the methodological point of view represents the psycho-pedagogical assistance of teachers, parents and students for a knowledgeable choice regarding school and carrier.*

Keywords: *counseling, career, profession, counselor, consultant*

1. INTRODUCTION

A good definition of the term *counseling* is found in a psychology dictionary, edited in Romanian, in 1981, where M. Golu defines it as *the action through which it is followed to suggest the model to proceed or to behave that has to be used in a certain situation or in general, in life and in day to day life.*

The counseling means: a relationship; listening to the other; preventing crisis; a person helped by another guided by certain theories and models.

The purpose of counseling is reached through information, discussions; collaborative decision making; offering it in the education field.

Career, a word with French roots, it is understood in Romanian as a profession, occupation and *in extenso* as a wellbeing, or as a good status in the society that is different from careerism, perceived as a tendency to be hypocrite, with all the possible means.

Profession, respectively a career represents: *a succession of jobs or planned activities or not, involving elements of advancement, employment and personal development along a defined timeline.* (F. Clark, 1992)

The counselor is: a supervisor, agent of change, supporter of the disadvantaged, trainer, consultant, adviser, agent of development, mediator, evaluator, coordinator, psychotherapist, and researcher.

The career consultant is the person with specialty higher education that counsels clients regarding different professions, gives information and support.

2. COUNSELOR'S PERSONALITY

In the context of professionalization, the counseling and advising activity, team work with all the stakeholders is needed to create a bridge between the counselor and the client, to support efficient cooperation among work, family and community.

The counselor assures this connection through proposing, organizing and carrying the adequate activities of counseling and advising, that are centered on the beneficiaries' need, but also on educational programs that have the purpose to eliminate any obstacles faced along the way.

The list of difficulties that require intervention from the psychology counselor can be as follows:

- **adaptation difficulties**: problems of adapting to the social or professional environment, refusal of the work collective;
- **difficulties regarding career planning**: difficulties in taking career related decisions, unemployment perspective
- **relationship problems**
- **behavioral difficulties**: aggressiveness control and channeling its energy in positive activities, negative behaviors, intimidation;
- **personal difficulties**: identity crisis, problems in maintain friends' relationships, the incapacity to meet others' expectations, low self-esteem, drug use, depression, anxiety.

The main activities of the counselor are: being informed about the services offered in the field of counseling, sending educational and professional offers, using occupational standards and profiles; identifying the possibilities of mobility for education, of training and of work; psycho-pedagogical counseling and assistance, coordinating educational activities that develop the following competences: self-knowledge and personal development, interpersonal communication and relationships, learning and information management, career planning, entrepreneurial education and lifestyle management.

At the basis of his training are his **traits** and **attitudes.**

The traits of the counselor are synthesized by G. Egan, in its known model: the relationship capacity, empathy, authenticity, challenging, exploratory spirit, probing, questioning, personal development, altruism, creativity, humor. (G. Egan, 2006)

In relationship with his client, **the attitudes** of the counselor are: unconditional acceptance, empathy, positive thinking, congruency, collaboration, respect and responsibility. (E. Cocoradă, 2004)

Unconditional acceptance represents the recognizing attitude of client's dignity and personal value, with its strong and weak points, with qualities and defects, with positive and negative attitudes, sterile and constructive interests, thoughts and behaviors, without criticizing, judging, controlling and especially, without conditioning.

Positive thinking has the purpose to improve less developed aspects of the human. Through his activities, the counselor must focus on developing client's self-image and respect, his personal responsibility. The vision of the world must be in a positive note, being given by self-trust and other people's trust.

Collaboration is the ability of the counselor to involve a group of people in personal development decisions.

The respect-partnership relationship means that the role of the counselor is to help the client to find the most relevant information so he can take responsible decisions.

Congruency is about the consistency of counselor's behavior and beliefs, emotions and his personal values that defines the authenticity of one's existence.

Useful behaviors: using the tone of voice according to the client's emotional comfort needs, maintaining a good eye contact, using gestures that confirm that the client is listened, using smile, optimal physical distance, relaxed and open posture, a tone of voice that sends security.

Avoidable behaviors: lack of visual contact, staying far from the client, sarcasm, pointing fingers, closing your eyes, talking to fast or to slow.

Empathy is the ability to put you in the place of another person, to understand the he thinks, feels and behaves with others. Empathy is developed through assuming verbal and

nonverbal communication skills, using open ended questions, avoiding criticizing the other person and negative feedback.

The communication skills represent the key to success in the process of communication and counseling and when we talk about communication techniques we have to acknowledge a list of desirable behaviors, but also a list of ones to avoid.

The nonverbal communication skills contain the following elements: *eye contact, body posture, pauses, voice's tone and intensity, physical distance, touch and warmth.*

Maintaining *eye contact* means the success of an honest and open communication. Usually, the eye contact with the client is beneficial and can lead to an honest, open and trustful counselor-counseled relationship.

The body posture is the first aspect that client notices at the counselor and it should transmit professionalism, security and relaxation.

Pauses in discussions with the clients have the role to encourage them to re-gather their thoughts.

The tone and intensity of the voice is the best way to reflect the emotional status of a person. It is recommended to have a congruency between counselor's and client's voice.

The gestures and facial expressions largely reflect the emotional status of the actors. The counselor must check for them to be in accordance with what messages he communicates. Also, *the personal gestures* must be monitored by the counselor, especially in situation in which he knows that his client has some tics.

The physical distance is about the degree of comfort of the individuals regarding the management of their personal space. The counselor has to offer to his clients the liberty to choose the ideal distance and his office should have a sofa and at least one chair. The client will the furthest or the closest distance from the counselor depending on his degree of comfort.

Using *touch* – shoulder tap, hand shake – is dependent on the situation and on each individual client, so the counselor has to decide if using a gesture that involves touch is useful for the relationship or not.

The verbal communication skills contain the following elements: *active listening, coordination, reflection, challenging and summarization.*

Active listening is the active process of interception, processing and interpretation of the message, of the public and of the contextual stimuli in the framework of communication. It is the basic counselor's ability to encourage the client to talk openly and freely.

Reflection is expressing the counselor's understanding of the content, as well as the emotional state sent by the client. Reflecting client's feelings and experience gives him the belief that he is listened to and what he lives or expresses is important.

The reflection process is directly linked with the feedback that the counselor is offering. An efficient feedback has to: focus on the positive aspects, to be specific, concrete, descriptive, not evaluative, to offer compartmental alternatives; to address the behavior of the person and not the person in general.

Challenging is a technique of communication with high impact that brings the client to a certain level of conversation: openness and honesty. Out of this reason, the counselor is able to use it only after he gets to a solid relationship with his client.

Summarization is the way to gather and put together, to focus in an organized manner the most significant aspects of the interlocutor's speech. It is used to recap the content of a speech, to close a conversation or open a new one on certain topic.

The desired behaviors are: using terms accessible to the client, summing up the client's speech; using active listening, calling the client by his name, using humor, adopting a positive attitude towards the client, clarifying client's questions and giving objective feedback.

And **the avoidable behaviors** are: cutting of the client, giving useless advice, blaming or judging the client, using "why…" questions to many times, minimizing the client's stories and avoiding uncomfortable topics.

Identifying or naming the client's sentiments trough "affective words" or "metaphors".

Usually, the *affective messages* that can be separated from the client's account include experiences and sentiments from one of the following domains: affection, anger and fear.

The affective words are grouped in 5 categories: joy, competency, love, happiness and hope.

The anger feelings are grouped in 4 categories: attack, rejection, defense and fight.

The fear feelings are grouped in 5 categories: fear, doubt, sadness, pain and avoidance.

The metaphors are expressed through phrases like: "I reached the bottom" or "I am like a bomb ready to explode".

Reflection can also express the results of behavior's observation by the counselor. For an efficient reflection it is recommended that the message to be analyzed from 3 points of view: the verbal content, the feelings it expresses and the nonverbal behavior of the client.

3. CAREER COUNSELOR'S/ CONSULTANT'S PROFILE

The career consultant is the person having higher specialty education that counsels clients on the subject of different profession of the working environment, offers information, provides consultancy and support.

Consultancy is an activity of solving a specialty problem by a specialist or organization, that consists of elaborating, arguing and explaining a solution or some viable alternatives.

The professional counselor works: at undergraduate level, graduate level, work and unemployment offices, in private institutions or other similar state institutions.

The target groups are: pupils, students, youth and adults.

The necessary competencies of the counselors are:

- **methodological competencies** – theoretical and practical training for using specific means for psychological investigation;
- workforce related competencies – having the knowledge about ways of training, employment procedures, occupations' description;
- competencies about using the communication techniques – these assures the quality of the relationship established between the counselor and the counseled, being an important factor for determining the efficiency of the activity;
- competencies of intervention and negotiation – the necessity to negotiate the condition of work's framework.

An AIOSP study regarding the required competencies for a career counselor reveals aspects like:

- professional and ethical behavior;
- capacity to lead and persuade;
- sensibility to cultural differences;
- capacity to use theories and research in practice: conceiving, applying and evaluation of career counseling programs;
- communication capacity;
- conciseness of professional limits;
- capacity to use computer and information technology;
- capacity to work in team of professionals;
- knowing the process of professional evolution during a person's lifetime.

A reference inventory of the professional competencies required for the career counselor profession it is offered by IAEVG (International Association for Educational and

Vocational Guidance) established *11 key skills* and *10 specialized skills*.

The key competencies are available for all practitioners, no matter what the context in which they work and the specific skills are attributed to certain counseling work.

The key skills are:

- adopting an ethical behavior and a adequate professional attitude in fulfilling the roles and responsibilities of the job;
- knowing how to counsel and support the clients in the learning process for developing a career and in solving the personal problems of them;
- proving openness and interest towards the cultural differences of the clients and properly evaluating them to interact in an efficient way with all kinds of people;
- integrating theory and research for career guidance, professional development, counseling and consulting;
- capacity to conceive, implement and evaluate programs and interventions in the field of guidance and counseling;
- being aware of own capacities and limitations;
- being able to effectively communicate with colleagues and clients, using and adequate language;
- being up to date to new information regarding education, training, employment trends, workforce and social aspects;
- being open to social and multicultural aspects;
- being able to efficiently cooperate in a team of professionals;
- knowing the process of developing a career during the whole lifetime.

The specific skills in counseling are reflected in determining the self-assessment, in the purpose of clarifying the self-image, in identifying options, taking decisions and in solving difficulties.

From the perspective of 21st century professionalization, the required skills for a good professional career are:

- competencies for a multicultural and intercultural perspective to answer to diverse clients;
- necessary competencies to prepare users to select and utilize available information with the help of new communication and informational technologies;
- ability to offer counseling to a greater number of people;
- global approach of counseling services offered to adults.

The counselor must prove professionalism and knowledge of the ethical code through:

- maintaining professional standards;
- admitting own limits of competency;
- offering counseling services only for the situations for which he is ready;
- being a competent professional;
- continuous improving;
- customization of the intervention according to the age, gender, ethnicity, social and cultural context, language and educational level of the client.

An ideal profile of a career counselor's skills with a master specialization, according to NCDA (National Career Development Association, USA), includes:

- knowledge of counseling theories and associated techniques;
- knowledge of the career development models;
- individual and group evaluation abilities;
- information and resources;
- promotion and management of programs;
- mentorship and performance growth;
- ethical and legal aspects.

4. CONCLUSIONS

In Romania, we can't talk yet about a clear legal framework, the counselor profession borrowing a series of ethical rules from psychologist, educators and sociologists.

We are expecting that in the near future, along with the adjustment of the legal framework, that a professional code of conduct to be defined, as a sign that this profession overcame the interim moment and gained its well defined space in the Romanian professional landscape.

Counseling/consultancy as it presents today is more of a social phenomenon than a profession just like any other.

It is, probably, one of the very few jobs that implies an interdisciplinary effort and a holistic vision on the child's personality, today's student, tomorrow's adult and specialist.

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STRESS IN MILITARY FIELD

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Abstract: *Hypothesis: Stress in military field has a significant impact on employees. Objectives: To explain what stress is, how it works, how to extract the maximum benefits from it and how to reduce to a minimum its inconveniences, what is occupational health and occupational stress, individual and situational factors delimitation.*

Keywords: *Stress, military, factors, impact, health, benefits, reduce, inconvenience.*

1. INTRODUCTION

We start off by assuming that stress in the military has a significant impact on employees. Mental stress is a psychophysiological response of the individual who is forced to face situations for which he has not been prepared, who anticipates failure and gives great significance to the consequences resulting from his inability to resolve the situation.[1]

We can say that stress is a normal and necessary part of life, which man cannot escape. Stress may cause temporary discomfort, but can also induce long-term consequences. We note that if in excess, stress can alter the health of the individual and his welfare, however, for an amount of stress is needed.

2. OCCUPATIONAL HEALTH

We are talking about a modern integrative concept of organizational psychology, which focuses on the quality of the relationship employee - working environment having as aim to value the individual, improve the quality of life and promote the wellbeing at the place of work, the optimal adaptation to the demands and professional stress, work safety, to prevent accidents, optimizing the relationship between work and personal life.

3. CLASSIFICATION OF STRESS

Taking into account the nature of stress agents, stress can be classified as follows:

- Mental stress: here we will find the combined action of multiple stressors agents.
- Occupational stress: this is determined by the joint or not action of physical or chemical stressors.
- Preoperative and postoperative stress: it is based on the characters of psychological stress, to which is added, as multiplication agent, the anticipation of pre-operative and post-operative stress.
- Underload stress: this is determined by the changing nature of business, such as the obligation to perform certain repetitive,

monotonous tasks, for which the subject finds no justification; a source of stress may being even one's inactivity.[3]

4. STRESS IN THE MILITARY

One can define the army as a social group of people organized per subunits, units and large military units whose activity is carried out based on the provisions of the constitution and defense laws, military regulations, orders and dispositions of commanders, equipped, trained and maintained by the state in view of leading wars of defense or offense and maintaining and restoring the rule of law.

As opposed to other social activities, through a variety of conditions and specific features, military activity contains important potential sources of stress, being among the most stressful professions.

We have noted that military conflicts that use an extremely wide range of means of combat with particularly destructive consequences, use a variety of forms and methods of combat, including ideological influencing and subtle psychological persuasion, which capitalize the great advantages of massive and rapid dissemination of messages that contemporary mass – media has and with which it skillfully exploits all human weaknesses, to challenge the intellectual and physical abilities of warriors.

Prompt recognition of the presence of stress in military personnel is of outmost importance, being the first step in controlling and stopping this phenomenon, ensuring fulfillment of tasks without loss of efficiency. Both individual and collective methods and techniques can be used to decrease the intensity or limit the negative effects of this phenomenon, together with the identification of stress.[4]

By increasing the pace of demands and changes in the environment, stress in the army, especially on the battlefield, can affect the moral of troops, mitigate and combat capability of the military units, jeopardize military life and influence certain parts of the body and health.

R. Williams and B. Smith, vol. II of the book "American Soldier", states the 12 features of the struggle that generates stress:

- Danger to life, to some parts of the body and health;
- Fever; insufficient food, water and clothing;
- Long term work, insufficient sleep;
- Lack of sexual relations;
- Lack of trust and sympathy (kindness);
- Loss of comrades and looking at the wounded and the dead;
- Limited opportunities for travel;
- Failure and limited opportunities for targeting;
- Inner conflict between sense of duty and personal integrity, acceptance standards of living in the community and the requirements of the fight;
- The feeling that man is nothing (he is way / tool);
- Lack of private life and permanent constraint of collective life (group), etc. [1, 2].

And mental fatigue due to noise from the battlefield, may even affect massively the ability to react of a fighter, to handle weapon, transmission and complex research systems. The factors that help install a state of discomfort are the rapid deployment in areas with special climatic conditions, where they are more dangerous than the enemy's guns. It is well known that prolonged exposure to extreme weather conditions alter endocrine rhythms and progressive training is required to adapt.

Any external or internal stimulus that exceeds or falls below a certain threshold may be a source of stress and can affect behavior and mental activity of a person.

Methods that can help us defend ourselves from stress:

The immunological system, receives stress messages and gradually deteriorates, if the individual does not externalize emotions. It is recommended that people express emotions, not suppress them, this being the best method of preventing physical and mental illness.

Some of the "weapons" efficient in neutralizing aggression stress, as per a "guide" put together by specialists in psychosomatics from the University of Boston are:

- After you have suffered a psycho-affective shock caused for instance by the loss of a loved one, try to exteriorize your feelings;
- When something in your family life makes you unhappy, speak your mind;
- Do not impose yourself lifestyle changes that are overwhelming, try to know your capacity to adjust;
- The regular deep breathing technique provides a better oxygenation of the brain and calms the palpitations cause by anxiety, learn to relax;
- Cultivate your friendships: loneliness is particularly harmful to health, therefore, do not lead an isolated life;
- Movement is health;
- Keep your health intact. It is possible to overcome the attacks of stress. that stress can be foiled attacks.

5. CONCLUSIONS

Activity in the military field contains important potential sources of stress, being from this point of view, one of the most stressful professions.

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HUMAN SECURITY PSYCHO-MORAL CONSIDERATIONS

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Abstract: *The concept of security should be reported to the mental capacity of humans to live in normality conditions, namely emotionally balanced, to have a morally behavior, to realize the mission and the meaning of life, to progress and to grow spiritually by acquiring the cultural and religious values. Whereas the human is a "bio-psycho-cultural-moral" creature, also the concept of security should cover both the cognitive dimension and spiritual aspirations of the people. The security rules turn into beliefs as far as it is reflected in all the psyche's plans: cognitive, affective and volitional. The introversion of moral values, psycho-therapy, the mental life balance, responsibility, represents premises for strengthening the human security concept. The security of post-ancient society is in danger without ecclesiastical moral, but also, the Christian religion will accomplish its meaning if it will make its presence felt in current society, and if the Church through its mission will be more involved in current issues.*

Key concepts: *responsible freedom, self-monitoring, self-awareness*

1. QUALITY OF LIFE - PREREQUISITE FOR THE DEVELOPMENT OF MODERN SECURITY CONCEPT

The term "security" comes from the Latin words "Securitas" and "securitatis" which express both, the absence of danger and a state of calm and peace.

In Romanian, the term is attested in the Chronicle of George Şincai, with the meaning of "being safe from any danger", "be safe", "having a sense of confidence and tranquility due to the absence of danger."

The notion of "security" means premises and circumstances that determine not just a feeling or a fact that generates trust, peace, protection, defense against danger or lack of danger, but also measures which determine the prevention of any danger.

Over time, the concept of "security" has taken different forms and meanings, but because of the changes that have occurred on the international scene and the emergence of new security challenges, it remained "a concept not fully developed."

"The complexity of this concept should be based on human nature, because security's subject, at any level is man that transcends all boundaries. In this case, what should be emphasized in security studies is precisely the individual security or, as some experts calls it, human security. This includes a number of rights and freedoms, set out in the Universal Declaration of Human Rights.

The most important aspect of human security is the quality of life, which is an evaluative concept and is the result of reporting living conditions and activities that make up human life, to needs, values and

human aspirations. It is noted that this concept, refers both to the objective conditions in which human life is established and also, how subjectively, each individual evaluates its own life. The most important social and sociological indicators that measure the objective conditions are: failure to achieve basic rights and freedoms of man and, in particular, low quality of life that adversely affects the achievement of security at all levels and fields. As it is shown in the literature, human security is not a zero sum game, but on the contrary, its components are interdependent.

In other words, systems of national, zonal, regional or global security cannot be built in environments in which the individual does not feel protected. If an individual is threatened, then both security group to which belongs, and other related communities are threatened. If all societal groups want to achieve and preserve security status, then, they must be based on the insurance of individual security, on the basis of the inherent connection of humanity. Therefore, in our opinion, the security analysis should be based on human security, not states or groups of states, whereas individual is the basis of all social organization."

According to the National Defense College (Canada): "National security is maintaining an acceptable lifestyle for people and compatible with the needs and aspirations of all others. It includes the absence of armed robbery and coercion, lack of internal subversion and absence of political economic and social erosion, which are essential for quality of life."

"National Security" issue turns out to be a problem of security system in which, individuals, states and the system itself, play a role, in which, economic, social and environmental factors aren`t so important as the political and military are."

One aspect that develops the concept of human security concerns the possibility of a person to adapt to life situations; implying a consistent answer that the person gives to the external world by adopting certain attitudes, reactions, actions and behavior patterns. So, one new security feature represents the "normality condition, which is considered to be the best way of adapting the individual, the result of self-knowledge and self-control."

L. B. Krause and Joseph Nye noted that "neither economists nor political science professionals have not paid sufficient attention to the complexity of the concept of security, including its instrumental role in the amplification of other values."

The tint of security concept lies in the answer to the questions: "What should I do?" and, especially, "How should I act within my existence?" namely, "What are my moral debt?" both, to me and to others. This topic assumes that I must act so as to realize during my existence a double agreement: an agreement with me and an agreement with the others. To be able to achieve this agreement, I have to convert my impulses in noble goals, oriented in superior actions, in terms of axiological-moral actions. In this process, a crucial role lies with my conscience that tells me what should I and should I not do."

Therefore, conscience and moral debt is the core of actions that converge on social security.

"The existence is one of the most important dimensions of the person, who - along with her inner "bio-psycho-cultural-moral" organization - defines and individualizes it, as something unique."

We know that: "Every person is a paideia and for that reason, thru the embedded values it acquires new dimensions and meanings, and its study will exceed the limits of descriptive type of general psychology. Its understanding is possible and complete only if you appeal to cultural factors and moral values."

The concept of security should be reported to the mental capacity of man to live in hub-normality, to balanced living soul, to behave morally, to fulfill their purpose and meaning of life, to progress through knowledge and work and grow spiritually by adopting religious values.

Since man is a "bio-psycho-cultural-moral" being, the concept of security ought to cover both the cognitive dimension and spiritual aspirations of the people.

The presence of the Church in the field of human security is justified by the fact that "man is the being of value, the result of

education, thru which internalizes its moral, spiritual, cultural and religious values. But the human being is the product of formative factors of socio-cultural and moral-religious model's values; it is what man becomes by imitating or by internalization of models."

So, proved the fact that "influence of moral and cultural patterns makes man, natural being, to be transformed into a person, a moral being ", we realize that there is an interdependence between morality and security. One of the premises of modern security is the ability of the individual to be "human".

This quality of humans is exploited by religion and "embodied" by the Church by human, perfectly made, which it is translated by word - holiness. The way of being, of thinking, of behaving, of a saint, shape the ideal that must seek modern security concept.

To illustrate this statement, I used the characterization of saints made by Pr. Dumitru Stăniloaie, as follows: "The saint has nothing trivial, nothing rude, nothing vile, nothing affected, nothing dishonest. In him it is updated in a climax degree: delicacy, sensitivity, transparency, purity, shyness, attention to the mystery of others. He sees the soul states of the other and he avoids everything that would displease them, although he doesn't avoid helping them overcome their weaknesses. He reads the least articulated need of others and promptly fulfilled it, but also their impurities, skillfully hidden, exerting a purifying action, even by soft power of his purity. From him, continuously radiates a spirit of dedication to all, without any care of himself, a spirit that heats the others and gives them confidence that they are not alone. He is innocent lamb, ready to self-aware sacrifice and also the unwavering wall that offers an unwavering support. And yet, there isn't someone more humble, more simply, more natural more sincere, more genuine in his behavior, creating an atmosphere of clean familiarity."

2. MORAL THERAPY - AN ESSENTIAL COORDINATE OF SECURITY

In a vivid and intimate relationship with God, man, acquires health of the soul, sonship, peace, the feeling of security and stability, hope and personal fulfillment.

In this sense, the psychologist Constantin Enăchescu, testifies: "Any rescue has a deep moral and spiritual significance, as it represents an act of reparation, a comforting note with a value of a genuine form of moral therapy of my ego. It is the act of restoration of my being. Return to original condition will not be the equivalent of a final acceptance of the limits Nietzsche′s amor fati love type of reconciliation with fate, but it will be the act by which I entrust myself to a authority located above me, which I find to have protective virtues, through which, depends my fate. This austerity will restore my peace and my safety, which will permanently cancel inner anguish of my being. My salvation is related to a supreme authority, whose moral virtues are absolute and where, I find myself. By this, any act of rescue, will have both a moral and a metaphysical, spiritual significance, I will design both, in the divine person, in God, ended by admitting that I'm part of it. Since this moment, the unrest that interiorizes me, will be replaced with openness gave me by the hope. All these, prove, however, that the human person is, paradoxically, complex, bringing into it the psychological, moral and metaphysical dimensions. But this fact, which gives its stability and consistency, is simultaneously, condition of its progress and perfection."

The religious dimension, by its morality and its lessons, is relevant to security, since:

"every person projects his own life according to its ideals and aspirations, in relation to a particular system of cultural, moral and spiritual values, which belongs to it, and which it have been acquired through education, represented by the place it occupies in the world in relation to the other."

A secure world cannot be built only thru state laws, but especially thru the formation and strengthening of human consciousness. What is this consciousness? "Moral consciousness represents the property of human spirit to capture and to feel moral value and to explain this feeling through normative judgments (M. Bernes)"

"Moral values complement inner soul forces. They assign a meaning. They will be, ultimately, moral profile of that person. The will and the power of action, its firmness. This man will be his master and master of his actions. It is the model of a farm personality, fully constructed and ready for life, able to adapt and withstand to any situation, overcome all obstacles, solve all situations and to rise above fate. "

Morality, showing him the worthy way to forward in life and equipping him with qualities and powers to progress, despite inherent difficulties and obstacles of life, can be called "the heart of security."

The person who enjoys the atmosphere of security is only "active man, a psychologically motivated person, who feels that is doing something useful, necessary, good, useful, and durable. A dynamic person, concerned or passionate about what she does, that engage others. In addition, she has a kind of regular, constant activity, which stimulates her and which is dedicated, leading to the end the action taken."

"Both, morality and religion meet in a complementary relationship concerning the human person. Both have therapeutic virtues and their mechanisms of action converge in the general plan of psychotherapy."

Human security is simply: "Using life in a positive direction, good, that is based on the individual's intelligence, which controls it. Between requirements and options is determined a permanent state of equilibrium, thereby avoiding the excesses accepted by the wrong life, disregarding the danger to which they expose. The intelligence will put a severe censure on desires, thus avoiding errors and preserving linear and balanced flow of life, which is reflected in the mood and in the moral state of the person."

From the perspective of St. Fathers, human reason can be strengthened by prayer and spiritual discernment acquisition.

Happiness and mental integrity of man are some of the effects of living in a secure environment. "Soul's health is given by the peace and the steady inner of the psychic life. Moral health is given by the happiness that gives individual, internalization of moral values, of virtues".

The attitude towards life, the way of building and of leading your own life is not only a matter of vital-biological order, related to psychological capacities, but, primarily, is a moral one. Values and moral norms constitute the guiding principles for any individual."

Security education should acquire religious teachings, because they sum up all ethical laws. "The superego restricts from the moral point of view, all actions of the ego thru moral consciousness, which represents the court of individual responsibility, of the personal ego to its acts and its conducts. The principles of moral psychology sphere, develops into individual, with the formation and maturation of the superego. This process, which began in childhood, having as a primary model the origin family, will continue throughout its live, following the circumstances and the events that individual will come in contact. In this regard, an important role rests to education and to social life."

Beyond the primacy's dilemma between moralization of the individual and eradication of evil in his historical, social and political manifestation, church, emphasizes man's personal change. Yannaras Christ in his work "moral freedom", states that: "When they were defeated, the failure and the existential sin, in the personal life of one man, the result is always a social event of an unexpected scale and also of an unlimited dynamism. Everyone is responsible for fulfilling the universal life, in the unlimited sphere of existence and personal freedom. "

3. IMPLEMENTATION OF MORAL VALUES IN SOCIETY, AN ESSENTIAL COORDINATE OF SECURITY

The Church, in her attempt to make timeless the divine message to people, causing human freedom to embody Christian morality in collective conviviality of people, transforming the world in the spirit of releasing of passion, love, justice and communion, but also, for managing the common good in the direction of improving living conditions, reducing arbitrary autonomous structures, a fair distribution of goods, etc.

If no networking with God, inevitably lead to total preservation and imperative empowerment of biological existence, transforming the world into an arena of antagonism and rivalry, where individuals seek by any means to satisfy individual independence, then, truly, the implementation of moral values in society, thru Church, is a goal and an essential coordinate of security.

Ecclesiastical morality, proposes to every man, that, through dedication and love, to recapitulate itself, the whole world, by saving it from a natural need, to give it the joy of finding the authenticity of the existence.

"The moral of the Church itself, creates a social coexistence and a specific way of using the world, so, a civilization, a universal attitude of life, which can be found in politics and economics expressions." (Christ Yannaras)

Universal Declaration of Human Rights is a cultural, legal, political and theological result, marking the intersection between church and state. We could conclude, that the Church, from its origins to today, denounced the actions of society's alteration, tried to correct the moral deviations of the ruling power of the people, preached by all means the virtue, proving exactness in its mission to preserve as well, divine image of man.

4. PRO-SOCIAL BEHAVIOR, HUMAN RESPONSIBILITY, SELF-CONTROL AND SELF-AWARENESS - PRINCIPLES OF SOCIAL SECURITY

Another dimension of social security is "pro-social behavior". The concept of pro-social behavior was defined as the conduct "oriented to help, to protect, to support, to the others development, without expectation of external rewards."

"Research on helping behavior (a category of pro-social behavior), started with a tragic event, that took a significant echo at the time: the killing of a young female, Kitty Genovese, in New York, in the street, in 1964, a crime at which, 38 people attended in silence, behind the curtains, without any reaction. Since then, the issue has raised many experimental approaches, all, concerned in finding the most appropriate strategy to mitigate the perverse social phenomenon, accentuated by anonymity." This situation constitutes a clear picture, of what means the vulnerability of social security system. Problems of this kind, can be prevented thorough a solid education of human security; and a central role in this, occupies the cultivation of the moral conscience.

"An important role in the activation of pro-social behavior plays the implicit social norms. True unwritten rules, often stronger and more viable than the main official rules, prescribe the type of behavior they "expected", or "normal", and what behavior is described as "abnormal". "Subscribing to this idea, we believe that the involvement of the Church in society, can lead to the formation of a behavior appropriate to a human security environment.

An important coordinate, underpinning human security is "moral responsibility - a

complex attitude, with a reflective nature-censored character, representing everything that forces me as a person, to do for myself and for others. This is the act of inner responsibility of my person, in front of my own moral conscience, in relation to my ideas, acts, statements or my conducts."

This moral responsibility, that we owe our way of being and acting, is born and strengthened by evangelical precepts.

Human security depends to a large extent of "fundamental condition, as a psychological and moral gift of a human, which is the state of equanimity. It is felt as an inner state of well, like a thanksgiving that procures satisfaction and optimism, comfort and safety. Peace of mind is acquired through a lengthy exercise of self-knowledge, through an exercise of an ongoing effort of self-control."

Security's coordinator principle is prevention. This draws our attention and sends us to investigate the cognitive forum and the man's soul, because here, are the roots of all human acts.

If human is grown and learned to live in the spirit of the Gospel and he is integrated into the communion of the Church, there are chances of success that moral self-control to work for the benefit of human security.

"The principle of self-control is the act of moral censorship, on which rules of the superego exerts constantly on personal self, whenever it seeks to make, or to take action. It is the principle of accountability, whereby, an individual, providing the consequences of his acts, will refrain from making them or not. It is a principle of self-evaluation of the consequences or behaviors of a person from psychologically and morally."

Social security is not intended to restrict the man, but proposes launching the life naturally and healthy, after "the principle of responsible freedom."

Determine human not to think of evil, through responsibility learning, means to predict actions that can destabilize social security; because: "Moral responsibility is not only censorship. It is, first of all, the limit that I'm allowed and which I should not, I'm not allowed to outweigh thru my intentions or my actions."

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THE TERRORISM AND ITS PSYCHOLOGICAL EFFECTS

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Abstract: *Terrorism is essentially a weapon that depends on the transmission of a threat to the general public, as public opinion is the only factor that can press political actors to meet the terrorist's power demands. Thus, terrorists quickly accepted an important lesson: the media are crucial in their campaigns. The terrorist act itself means almost nothing, while advertising is everything. The result is a generalized state of panic and uncertainty resulting from the possibility of carrying out such an attack in any place at any time. Terrorism can be considered a threat not only to national and international security, but more than anything, an attack on the psychological welfare of all people who are knowledgeable about this phenomenon. The consequences of terrorism can be most of the times felt even without ever experiencing up-close such an appalling event. This paper intends to merely sketch the psychological effects which terrorism inflicts, as the subject is wide and in ongoing research.*

Keywords: *Terrorism, psychological, effects, consequences, pathology*

1. INTRODUCTION

What is terrorism, if not a show in essence, a drama that exists only by the echo it raises in the media? Any attack is wanted, carefully planned, orchestrated according to its target: the public opinion.

When seeking information on an attack, one is struck by the appearance of a violence that seems unbridled, unchecked and uncontrolled, chaotic and unfair to indiscriminately innocent victims. Exploding bombs, automatic weapons that take the crowd to target, hijacking, men and women taken hostage, sometimes brutally executed by the aggressors, atrocious and shocking unexpectedness – that is terrorism. What is striking is the sudden emergence of events returned to the incomprehensible and unacceptable in terms of reason. Thus an inattentive observer can take terrorism for what it is not: an irrational, barbaric act of violence.

When analyzing its mode of action, it is clear that none of its acts is a matter of chance. It is not violence for the sake of violence! Instead, the attacks are planned and meet a strategy based on political ideology and it is always finalized by a goal, such as the conquest of power or the autonomy, or take-over, of a territory. This can only be achieved through a program and tools adapted to its realization. This is, indeed, terrorism: a weapon in the service of a goal, or, more accurately, a fighting technique acting as an influence process in the context of subverting the established power and psychologically obliterate populations. Such an ambition cannot result from disordered action relying on violence alone. The latter is necessary, no

doubt, but not just any kind of violence. An attack is therefore directed by a scenario which regulates precisely all the details, actors, places, terms, victims, according to a protocol developed in advance where every aspect was evaluated and decided for the specific opportunities it presents in terms of creating dread and chaos.

The terrorist violence is anything but haphazard, and tends, instead, to an organized *modus operandi* where improvisation and randomness have little space and its main stand is the mass media, whose deployment is turned to the terrorists' advantage by carefully manipulating the symbols they scripted. Terrorism uses very precise choices whose combination represents the basic equation of the terrorist action. This mix of elements represents, in the mind of a terrorist, sufficient force in regard to the sought psychological impact, which is considered more devastating than the act itself. In fact, the terrorist action abounds in horror as the perpetrators make a huge effort to exceed the limits of dreadfulness.

2. PSYCHOLOGICAL CONSEQUENCES

2.1 Mental disorders caused by terrorist acts.

Contrary to what one might think terrorism is not expressed primarily in the field of reality, but in that of potentiality. It is less well defined by the actions it implements, as it is by those the terrorists announce for future realization. All past and present actions merely offer the support and certification for its future ones; they endorse the issued threats and base their credibility. So that terrorism is never summarized in an action, but locked in the manner of a compressed spring, in a tense dynamic which leads one's thoughts towards future actions. An attack is thus never an end in itself, but the promise of all the attacks that will certainly succeed from that.

The psychological consequences of terrorism have been described following the attacks in Munich in the 1972. The social and political climate of the time also favored the recognition of "psychological victims" of terrorism, but also made it clear that retaliation follows soon after.

The first epidemiological studies are initially relied on the knowledge acquired during military conflicts in the second half of the 20th century, particularly during the Vietnam War. Subsequently, several studies on the psychological effects of attacks in Europe or in the context of the Israeli-Palestinian conflict have shown a sometimes high rate of depressive disorder and post-traumatic stress disorder (PTSD) among victims. [2-5] The analysis of this literature, however, faces a problem often imprecise definition of "psychological victim" of a terrorist act, as well as extremely diverse methodologies, particularly in regard to measurement tools or screening for psychiatric disorders. [5] The group studied is often incomplete, based on hospital records, insurance or even police regularly away tourists or foreign language patients. [2-4] It will eventually expect the attacks in New York in 2001 and Madrid in 2004 to appear several epidemiological studies on a large scale, illustrating the major psychological consequences of these events, both among the direct victims than in the general population (Table 1).

As seen in the table below, PTSD varies from 2.7 to as high as 18%, this maximum being reached in the cases of individuals who

Table 1 - Prevalence of psychiatric disorders seen after attacks [6-14]

Prevalence of psychiatric disorders seen after attacks	Psychiatric disorders within individuals involved on site	Local Population	National Population
Post Traumatic Stress Disorder	12 – 18%	7,5 – 11,5%	2,7 – 4,3%
Depression	-	8 – 10%	-
Anxiety Disorders	39%	-	-
Alcohol or drug incidence	-	-	38%
Psychiatric medication	-	7,7 – 8,1%	-
Alcohol use	-	17,5 – 24,6%	-
Nicotine	-	9,7 – 9,9%	-
Marijuana	-	2,7 – 3,3%	-

were on site at the time of the event. Depression has a prevalence of 8 to 10%, present within the local population. Anxiety Disorders show the highest predominance, of 39% in the case of individuals involved in the terrorist attack, followed closely by alcohol or drug use in the national population - 38%. Psychiatric medication, alcohol abuse, nicotine and marijuana consumption also record a growth in numbers.

2.2 Individual psychosomatic effects. The psychological trauma induced by a terrorist act typically follows three stages, succeeding over time (Table 2). The victims initially have a legitimate reaction to stress and fear, tailored to the violence and unpredictability of the event. During this period especially, victims try to make contact with their loved ones for reassurance about their condition, or only to obtain support and comfort. [5] This first phase gradually fades and can leave room for sleep disorders, anxiety or aggression manifestations. Finally, a variable proportion of the affected individuals subsequently develop psychiatric complications, particularly in the form of post-traumatic stress disorder or depressive episodes.

As shown, the reaction's length varies from a few hours to a long-term response and the symptoms escalate from anxiety, stress, fear, insomnia, and irritability, to depression, post-traumatic stress disorder, and substance abuse.

The female population, the precarious, or living alone, and patients with a psychiatric history are at increased risk of psychiatric complications, especially in the form of PTSD. [3, 4, 17-20] Advanced age seems sometimes be a protective factor, although it appears inconsistently in the literature. [2, 6, 17, 21] Patients physically affected by the attack or having felt a threat against their bodily integrity (physical proximity, hearing or vision of site of the attack) have an increased risk of developing post-traumatic stress syndrome. [3, 22, 23] This risk is correlated to the extent of physical injuries, especially aesthetically (amputation injuries face or hands) and the loss of a loved one (family, friend, colleague) in the attack. [3, 5, 22, 23]

The emergency services (fire, police or ambulance) face directly the victims of the attacks and also the at-risk population. They are sometimes the target of terrorists, whether deliberately (second attack after the first explosion in a market in Tel Aviv) or unintentionally (collapse of the World Trade Centre in New York). Studies of rescuers who

Table 2 - Sequence of psychological reactions after a terrorist attack [15, 16]

Time phases	Duration	Characteristics
Immediate reaction	Hours to a few days	anxiety, stress, fear, confusion, activation of the autonomic nervous system response
Intermediate reaction	A week to several months	nightmares, insomnia, hyper-vigilance, aggressiveness, irritability, somatic disorders (dizziness, headache, fatigue, nausea)
Long-term reaction	≥ one year	depression, anxiety and somatoform disorders, post-traumatic stress disorder, substance abuse, sleep disorders

spoke in New York or Oklahoma City have confirmed a high rate of psychiatric complications in the form of post-traumatic stress disorder or depression, associated with excessive alcohol consumption. [24] Curiously, the rescuers' spouses also have post-traumatic stress signals with a frequency higher than that of the rest of the population. [25]

Children are the ultimate particularly vulnerable population, at risk of psychiatric complications either during direct exposure with or by proximity to the event, or when a member of their family is hurt. [26-28] Alarmingly, the images transmitted by the media play a key role in the onset of symptoms of post-traumatic stress. [4, 18] The severity of psychological harm is thus directly correlated to the exposure to these images. [6] For example, during the attacks on the World Trade Centre in 2001, American children have faced an average of three hours of live images, to up to five hours or more in 25% of cases. [4] The effect of media on adult patients is definitely the same, albeit in a lesser extent. [14, 29]

2.3 The psychological consequences on the community. Terrorist acts not only reach individuals but also their families, colleagues, neighbors and ultimately the whole of society. The impact goes far beyond the individual direct victims. Following an attack, it is thus frequently observed in the general population the occurrence of risky behavior, with an increase in tobacco, alcohol and psychotropic drugs, an increase in risky sexual behavior, and a worsening of the peer relationships. [5, 7, 21, 30, 31] The economic and employment impact is also notable. Following the attacks on New York in 2001, nearly a third of Manhattan's residents have had to change one way or another professional activities, combined with periods of unemployment. [19]

Also the use of public transport (London Underground, Madrid train station), is challenged with frequent avoidance reactions and community phobias.

In the extreme situations, diffuse symptoms not explained by the attack itself were sometimes observed in the population. These protean manifestations (fatigue, difficulty in breathing, headache, nausea, etc.) are sometimes grouped under the term mass psychogenic illness. [32] They have been described in military conflicts (the Gulf War), industrial disasters (nuclear accident at Three Mile Island) or after deadly attacks (World Trade Centre in 2001).The majority of these symptoms is related to anxiety disorders, rather than a real disease. [33] This type of clinical manifestations may become dominant in case of a CBRN (chemical, bacterial, nuclear, radiological) attack, whether real or fictional, and induce a major panic, as experienced by the health services during the anthrax crisis. [34] The main challenge for primary care physicians would be to identify cases of proven pathologies, among a multitude of manifestations of anxiety. [16]

2.4 Concept of resilience. Contrary to popular belief, the collective reaction of society rarely expresses itself in the form of panic or aggression. Instead, there have been noticed community support initiatives, materialized in the form of blood donations, spontaneous help to extract the victims from the debris, or to accommodate victims. [16]

The attacks in Madrid and London have demonstrated the capabilities of the civilian population to overcome the event and to continue their daily activities despite her fears to live in the same vicinity of the site of the attack. This individual and community capacity to overcome the trauma of the attack has crystallized around the concept of resilience, currently spearheading civil strategy against terrorism. [35] The attacks remain difficult to avoid, thus the concept of resilience aims to prevent its consequences on the population and to limit the potential gains that could benefit terrorists. In this sense, resilience almost has a deterrent effect and can be considered a real counter-terrorism strategy. It tries to minimize the emotional and psychological impact and to strip the terrorist act of its terror potential, unifying the entire population against the perpetrators of the attack. [35, 36, 37] This concept of resilience applies to several levels of the society:

• Individual resilience: the individual ability to overcome the trauma, spontaneous reactions to

help other victims, as individuals show the tendency to gather in support groups.

• Societal resilience: the ability of the affected target to survive, to keep its habits, its independence and its rights.

• Political resilience: the ability of political structures to overcome the event and meet the population (the attack in Madrid's main railway station is excellent bad-example, as the lack of clarity and unity was very costly to Aznar's government).

The importance of accurate information and its quality, as given by the authorities, that the population recognizes and trusts is the cornerstone of the concept. [38, 39] The medical staff, fire-fighters, managers of public transport, municipal authorities and leaders civil society, play a key role here. [40] The reports sent out to the population (information about possible attacks, counter-terrorism strategy), the credibility of contingency plans and the existence of similar episodes when the authorities proved to be in control of the situation (see the IRA bombings in the London area, or the Israeli-Palestinian conflict) also allow for a better reaction of the whole society. [17, 40, 41]

2.4 Psychological Support for victims. Most direct or indirect victims of a terrorist act are able to gradually deal with the stress of the event and do not require psychological treatment. [17, 41] Contrary to some media belief, the spontaneous appeal of the general population to professional psychological help is thus extremely limited. Using a systematic debriefing is also highly controversial and may even be counter-productive, or at best useless. [38, 39] Directly injured individuals or those who have suffered the loss of a loved one, or people who cannot escape the fear of the attack, are nevertheless likely to develop psychiatric complications and should therefore be assessed and assisted in order to deal with the consequences of the event. The privileged position of the primary care physician allows for playing a key role here, by detecting and identifying patients at risk of developing symptoms of depression or post-traumatic stress. [42] The decision of a secondary referral to specialist treatment can be based on some anamnestic and clinical indices.

3. CONCLUSIONS & ACKNOWLEDGMENT

Attracting domestic and international public attention on "the noble goal" pursued by the terrorists in their need of solving problems caused by a conflict in a region on an ideology, the "injustice and persecution" that is subject to a social group is the core objective of these type of violent groups. In fact, public opinion is the main force to whom terrorism in terms of propaganda and psychological effect is addressing. Thus, by raising even a small segment of the population, terrorism causes a polarization of society in terms of supporters and adherents.

Apparently comprehensive and clear, the definitions of terrorism yield inevitable gaps and generalizations, if you submit them to a synchronic and diachronic comparative analysis. Such an attempt was made by Alex P. Schmidt and Albert I. Jongman in their paper on Political Terrorism published in 2001. They identified and scrutinized 109 definitions of terrorism given in different periods, effort which led to the identification of recurrent elements: violence, force - 83.5%; political act - 65%; **focus on terror fear - 51%;** threat - 47%; **psychological effects and anticipated reactions - 41.5%;** discrepancy between targets and victims - 37.5%; deliberateness, planned, systematic, organized action - 32%;

methods of combat, strategy, tactics - 30.5%. As terrorism does not have a unanimously accepted definition, if we were to link the words above, we would most probably come up with the most accurate description of this phenomenon.

Terrorism depends on the spread of a threat to the general public, as public opinion is the only factor that can push the political actors to meet the power demands of terrorism, given that political power has as a rule the refusal *ab ovo* to negotiate with terrorists, because such a process implies the recognition of the partner's legitimacy. As such, putting pressure on the general public gives terrorists the leverage they need to constraint the political class.

Terrorists quickly learnt and accepted a major lesson: the media are crucial in their campaigns; the terrorist act itself is almost nothing, while advertising is everything.

The result is a generalized state of panic and uncertainty resulting from the possibility of carrying out such an attack in any place at any time. The second effect they pursue is targeting symbols of the concerned entity or known personalities. The result in this case is general moral decline especially where the confidence in the system's ability to control a terrorist threat is concerned. The most telling in this respect is the strategy of Al-Qaida in the past decade.

Influencing the violence, calling for terrorism to achieve its goals, is a complex phenomenon that does not fit into the classical scheme of manipulation in which "A" influences "B" acting on emotions, interests or background. In the democratic system, the game is played by many participants: terrorist organizations, the media, the public, state authorities, and the political power.

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GUNS FOR HIRE: PRIVATE MILITARY COMPANIES AND THEIR STATUS UNDER INTERNATIONAL HUMANITARIAN LAW

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Abstract: *An increasing number of states are more and more frequently employing private military companies to be present in areas where armed conflicts are occurring and require them to fulfill tasks, traditionally fulfilled by military personnel. The preponderant idea among international public judgment is that the best way of action is to shape out a framework for such service providers. Bringing into picture two examples from Iraq Theatre of Operations, as starting points, this paper aims to highlight the amplitude of this phenomenon, analyzing its variation, in number of employees, from 2010 to present days within the Afghan Theater of Operations. Following the overview of the private military companies industry, a brief outline will be granted on the law of mercenaries in international humanitarian law. The difficulty of looking upon these private military company employees as combatants or civilians in accordance with the legal international humanitarian law definitions and that the concept of mercenary is unhelpful for regulating these companies will then be debated. The paper will sum up with some general suggestions that states may wish to take into consideration when trying to legalize these private military companies status and with an overview of elements of the Romanian law in relation to mercenaries, private military and security companies.*

Keywords: *private military company, international humanitarian law, mercenary, combatant, civilian.*

1. INTRODUCTION

However out of the common road seems to be, currently new security or military assistance providers rise up in the private sector. Private military companies (PMCs) are becoming a worldwide well-known occurrence. These quite new entities perform tasks in uncommonly blurred situations where the action of pointing out the boundaries between legal and illegal is a demanding job. The new business branch of security provided by private companies is responsible for handling large amounts of weapons and military equipment. It offers its services in support of military operations enrolling former militaries as civilians to carry out passive or defensive security.

Often addressed as *mercenaries*, they do not fall under the international humanitarian law definition for this category of personnel and modern-day PMCs prefer to refer to their staff as *security contractors* or *private military contractors*. The definition of *mercenary* under international law is so exclusive that it is difficult to outline who would actually qualify as a mercenary. A repeatedly and notorious quotation belongs to Geoffrey Best and fully

explains this inconvenience: "any mercenary who cannot exclude himself from this definition deserves to be shot - and his lawyer with him"[1].

The initial point was the statement that "these private military companies act in a void, virtually free from legal restraints"[2].

2. BRIEF SCOPE OF THE INDUSTRY

March 31, 2004. City of Fallujah. Iraq. Four employees of the US-owned private military company Blackwater are ambushed and killed by an angry Iraqi crowd, their corpses incinerated and mutilated, and then hung sinisterly from a bridge. As a response, because the city of Fallujah was like a painful thorn for the US forces since their arrival in Iraq, the following assault that involved both participation of US forces and Blackwater contractors on Fallujah in April 2004, using a total disproportionate means of attack, have resulted in raising questions about the connection between the military and these contractors and the exactness of addressing them as *civilian contractors*.

Second example refers to the participation of employees of the private military company CACI in the mistreatment of inmates at the Iraqi Abu Ghraib detention facility and the attention drawn by the tasks these contractors are performing, as well as to their accountability for human rights abuses they may commit.

These two incidents[3] draw the public opinion attention on the feeling of mightiness these PMCs have about themselves. Held under the auspices of the United Nations, an assembly of specialist on the subject of PMCs industry pointed out, into a report, that all these armed entities maneuvers in a field of activity valued at US$100 billion[4]. Therefore, this fellowship represents a compelling strength that will not dissipate all at once. PMCs play a worldwide substantial role, frequently with strategic effect on both the process and consequences of conflicts.

As for the types of services they provide, Peter Singer separates PMCs into three business sectors:

1. "military provider firms supplying direct, tactical military assistance that can include serving in front-line combat;
2. military consulting firms that provide strategic advice and training;
3. military support forms that provide logistics, maintenance and intelligence services to armed forces"[5].

From instructing military personnel in former Yugoslavia, in collaboration with regular armed forces, raising encampments for dislocated individuals in Macedonia, helping US Central Intelligence Agency in South America in its fight against drugs and protecting oil pipe lines and diamond mines in Africa to a wide variety of tasks performed in Iraq and more recently in Afghanistan, private military companies have been implicated in an extensive range of missions and expanded their tentacles all around the globe. "In Angola, for example, domestic laws require extraction companies to bring their own security forces, many of which may end up engaged in battles with local rebel groups"[6]. Governments may use, also, private military companies in order to elude some imposed

[1] Geoffrey Best: "*Humanity in Warfare: The History of International Law of Armed Conflict"*, Columbia University Press, 1980, p.328, ISBN-10: 0231051581, ISBN-13: 978-0231051583.

[2] Heather Carney: "*Prosecuting the lawless: Human rights abuses and private military firms*", George Washington Law Review, vol. 74, 2006, p. 323.

[3] Shaista Shameem, United Nations former Special Rapporteur on the right of people to self-determination and the application of that right to people under colonial or alien domination or foreign occupation, officially refers to these two incidents in her annual report, "*Use of mercenaries as a means of violating human rights and impeding the exercise of the right of peoples to self-determination*", UN Document E/CN.4/2005/14, paragraphs 49 and 50.

[4] UN Document E/CN.4/2005/23 - "*Report of the Third Meeting of Experts on traditional and new forms of mercenary activity"*, paragraph 12.

[5] Peter Singer: "*Corporate Warriors: The Rise of the Privatized Military Industry"*, Cornell University Press, New York, 2007, ISBN-10: 0801474361, ISBN-13: 978-0801474361.

[6] Peter Singer: "*Corporate Warriors: The Rise of the Privatized Military Industry"*, Cornell University Press, New York, 2007, ISBN-10: 0801474361, ISBN-13: 978-0801474361.

constraints, like it is, for instances the number of regulate army troops being sent in missions abroad.

In Afghanistan, although the RSM (Resolute Support Mission)[7] presence is twisting down, "the increase in the contractors to troop ratio is yet another indication that although the vast majority of troops are leaving Afghanistan, a private army will remain in the country for years."[8]

A brief analysis of these numbers (figure 1), from 2010 to 2015, proves that, indeed RSM troops are, slowly but surely, being replaced by a subcontracted private army.

As resulting from the analysis, even if the troops are leaving Afghanistan their tasks are taken over by the private military companies, proven by the exponential increasing ratios. A comment is, also, needed to be done. The number of private contractors represents only those employed by U.S. companies, but not necessarily Americans. These figures only count those contractors employed by the U.S. Department of Defense. Taking into account that many other institutions or private companies use these contractors, too, the ratios are even higher or even more disproportionate.

Using private military companies may have some possible advantages like rapid deployment, the mitigation of public opinion on use of regular armed forces or they can act like a counter weight to local armed forces in countries where the political institutions have no, or no longer, a real authority. Also, outsourcing some military services, like logistics or maintenance, can be justified by a desire of seeking efficiency and allowing the regulate military forces to focus on the main, more important, combat missions.

Real or not, these advantages are counter balanced by some important disadvantages. Private military companies' employees are rather motivated by financial gain then by a sense of duty and they do not follow a military hierarchy.

3. MERCENARIES UNDER INTERNATIONAL HUMANITARIAN LAW

The root for the mercenaries' status finds its place of birth within the Protocol Additional I (adopted on 8th of June 1977) to the Geneva Conventions of 12 August 1949, relating to the Protection of Victims of International Armed Conflicts.

Also, their status is defined in two other international conventions: first comes the International Convention against the Recruitment, Use, Financing and Training of Mercenaries adopted on 04th of December 1989 by United Nations General Assembly Resolution A/RES/44/34, entered into force on 20th of October 2001 and, secondly, Convention for the Elimination of Mercenarism in Africa, entered into force on 22nd of April 1985.

Since the mercenary conventions appropriate delimitation for mercenary term that is comparable to that established in Article 47 of Protocol I, I shall use that definition.

[7] The Resolute Support mission (RSM) is a new NATO-led mission to train, advise and assist the Afghan Security Forces and institutions. The mission was launched on 1 January 2015, immediately following the stand-down of the International Security Assistance Force (ISAF).

[8] David Francis: "*U.S. Troops Replaced by an Outsourced Army in Afghanistan*", The Fiscal Times, 2013. See it at <http://www.thefiscaltimes.com/Articles/2013/05/10/US-Troops-Replaced-by-an-Outsourced-Army-in-Afghanistan#page1>.

Figure 1

Year	Number of ISAF/RSM troops	US nationals (from ISAF troops number)[9]	Private contractors[10]	ISAF/RSM to private contractors ratio	US to private contractors ratio
2010	130.930 [11]	90.000	88.000	0,67:1	0,97:1
2011	130.313 [12]	90.000	101.789	0,78:1	1,13:1
2012	102.508 [13]	68.000	109.564	1,06:1	1,61:1
2013	84.271 [14]	60.000	85.528	1,01:1	1,42:1
2014	28.360 [15]	18.180	45.349	1,59:1	2,49:1
2015	13.195 [16]	6.839	39.609	3,00:1	5,79:1

"A mercenary is any person who:

a) is specially recruited locally or abroad in order to fight in an armed conflict;

b) does, in fact, take a direct part in the hostilities;

c) is motivated to take part in the hostilities essentially by the desire for private gain and, in fact, is promised, by or on behalf of a Party to the conflict, material compensation substantially in excess of that promised or paid to combatants of similar ranks and functions in the armed forces of that Party;

d) is neither a national of a Party to the conflict nor a resident of territory controlled by a Party to the conflict;

e) is not a member of the armed forces of a Party to the conflict; and

has not been sent by a State which is not a Party to the conflict on official duty as a member of its armed forces."[17]

One is possible to be framed as mercenary, if, cumulatively, fall under all these six conditions. This definition is simply too restrictive and infeasible. It's an undisputable reality that nowadays international conflicts are supported by many countries around the world. And, also, take into account that there is not only a probability, but certitude that the majority of these private security companies' employees are nationals of a party to the conflict - subparagraph (d). So, after all, Geoffrey Best was right in his statement about the huge opportunity of driving through the stipulations of this definition.

Analyzing the status of private military companies' employees usually stops with

[9] Figures reported on the RSM official website on the same placemats as the total figures of RSM troops (see below notes 11 to 16).

[10] Ian S. Livingston, Michael O'Hanlon: "*Afghanistan index*", Brookings Institute, 10th of February 2015.

[11] Figure reported on November 15, 2010 on International Security Assistance Force official website. See it at <http://www.nato.int/isaf/placemats_archive/2010-11-15-ISAF-Placemat.pdf> (last visited on 25th of April 2015).

[12] Figure reported on December 08, 2011 on International Security Assistance Force official website. See it at <http://www.nato.int/isaf/placemats_archive/2011-12-08-ISAF-Placemat.pdf> (last visited on 25th of April 2015).

[13] Figure reported on December 04, 2012 on International Security Assistance Force official website. See it at <http://www.nato.int/isaf/placemats_archive/2012-12-04-ISAF-Placemat.pdf> (last visited on 25th of April 2015).

[14] Figure reported on December 01, 2013 on International Security Assistance Force official website. See it at <http://www.nato.int/isaf/placemats_archive/2013-12-01-ISAF-Placemat.pdf> (last visited on 25th of April 2015).

[15] Figure reported on November 07, 2014 on International Security Assistance Force official website. See it at <http://www.nato.int/nato_static_fl2014/assets/pdf/pdf_2014_11/20141111_141107-ISAF-Placemat-final.pdf> (last visited on 25th of April 2015).

[16] Figure reported on February 25, 2015 on Resolute Support Mission official website. See it at <http://www.nato.int/nato_static_fl2014/assets/pdf/pdf_2015_02/20150227_1502-RSM-Placemat.pdf> (last visited on 25th of April 2015).

[17] Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts (Protocol I), 8 June 1977, art. 47, paragraph 2.

framing them if they qualify as mercenaries. But this assessment doesn't answer the question of how private military companies' employees are allowed to behave in conflict situations. If it's tried to regulate the PMCs status, it is imperious to deliberate upon whether their employees are civilians or combatants.

Combatants are "members of the armed forces of a Party to a conflict (other than medical personnel and chaplains), that is to say, they have the right to participate directly in hostilities"[18]. Being a combatant exempts one from any criminal charges (such as killing an enemy), as long as his behavior doesn't break international humanitarian law norms and, furthermore, grants him prisoner of war status.

Since PMCs employees are not members of the regular armed forces, the conclusion is that they cannot be assimilated to combatants, so they do not benefit of a prisoner of war status, fact specifically mentioned in the Protocol I to Geneva Conventions, first paragraph of article 47.

From international humanitarian law point of view, somebody can be a combatant or a civilian. Therefore PMCs employees may be assimilated with civilians. But a civilian is defined as "any person who does not belong to one of the categories of persons"[19] defining combatants. But many PMCs employees take direct part in hostilities while others, although they do not directly take part in hostilities, they bring a certain advantage to the war effort, depriving them, even more, of a possible civil status. But nobody is allowed to breach the norms of international humanitarian law and, so, these *civilian contractors* may be trialed under their national jurisdiction and in accordance with the national norms on mercenarism (if that certain state has specific norms incriminating mercenarism).

With the increasing use of private military companies' personnel around the world, now more than ever it's necessary to regulate their activity.

There is much confusion over human rights mistreatments executed by private military companies. All these non-state entities must be accountable for violations of human rights and is, also, necessary to show the responsibility of individuals under international humanitarian law. One option for building human rights legally stringent for private military companies is to concept them as institutionalized agencies. Another way is to write human rights stipulations promptly into contracts assumed with these PMCs. These solutions do not necessarily represent the law as it stands now, but rather reflect the direction in which the law should go.

Another idea would be to create a convention that would specify the minimum control standards, such as a new system of granting the functioning license that would include an exact list of the activities performed by a specific PMC.

4. ELEMENTS OF THE ROMANIAN LAW IN RELATION TO MERCENARIES, PRIVATE MILITARY AND SECURITY COMPANIES

The Romanian Constitution adopted in 1991, as amended by Law no. 429/2003, qualifies that "the organization of military or

[18] Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts (Protocol I), 8 June 1977, art. 43, paragraph 2.

[19] Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts (Protocol I), 8 June 1977, art. 50, paragraph 1.

paramilitary activities outside a State authority is prohibited."[20]

Therefore, the State may not enroll, dispose, financially support or instruct mercenaries. Moreover, the concept of private military companies is not codified by the Romanian domestic law.

As far as the activity of private security companies is concerned, the Romanian legislation in the field, Law no. 333/2003 regarding the security of objectives, goods, valuables and the protection of individuals, along with its implementation norms, Government Decision no. 1010/2004, allows for the private companies to act strictly in the field of protection and security, any involvement in military or paramilitary activities being a crime.

Specialized security and protection companies may have, according to the law, one or more fields of activity, such as safeguarding services for objectives, possessions and objects of value, for the transport of possessions and objects of value or specialized personal protection services (bodyguards), as well as counseling services in all these fields.[21]

To start a legal way of functioning these companies have to obtain a license issued by the General Inspectorate of the Romanian Police, with the prior approval of the Romanian Intelligence Service. Licenses can be renewed every three years.[22]

As for sanctions, the law specifies the crimes specialized security companies are punished for (among others, performing actions of aggression, constrained execution, debt recoveries, labor conflicts or opposition to actions of restoring order by the competent public authorities) and they are punishable with imprisonment for a period of 6 months up to 3 years or with a fine if the action is not a crime.[23]

[20] The Constitution of Romania of 1991, article 117, paragraph (4)

[21] Law no. 333/2003 regarding the security of objectives, goods, valuables and the protection of individuals, republished in Official Monitor no. 189/18th of March 2014, article 19, paragraph 4.

[22] See above note 21, article 31, paragraph 1.

[23] See above note 21, article 57.

Above all, Romania ratified the Additional Protocols I and II to Geneva Conventions from 12 August 1949, by Decree no. 224/11 May 1990.

Romania also signed the International Convention against the Recruitment, Use, Financing and Training of Mercenaries (December 4, 1989) on December 17, 1990, but the text was not, yet, ratified.

5. CONCLUSIONS & ACKNOWLEDGMENT

Being motivated by their own profit, it seems that private military companies will remain an integrate part of the security environment in the predictable future and it is an unquestionable need of improving the regulations, either by national or international measures. It's understandable why they will always have pretenders for employment, since after the end of The Cold War and the completion of the world's bipolarity, once the armies start reducing their personnel, there is a large amount of specialized military work force, especially former special operations fighters that found themselves in harsh financial situation.

These private military companies operate in extremely obscure circumstances where the border between a legal behavior and an illegal combat conduct is difficult to be identified.

Individuals carrying and using weapons or fulfill other essential military functions, under any circumstances they cannot be framed as civilians. Those individuals carrying weapons can permutate in an effortless manner from a defensive to an offensive posture and can perpetrate human rights violations. They cannot be assessed to combatants or supporting the combatants under international humanitarian law either, since they are not part of the armed forces or in the chain of command, and often belong to a large number of different nationalities. PMCs employees cannot, mostly, be considered to be mercenaries in the sense given by the definition of mercenaries as stipulated in the international conventions.

Private military and security companies operate in a legal vacuum: they pose a threat to

civilians and to international human rights law and this happen when PMCs stop taking orders and start taking over. Once the military's stretchiness it's increasing more and more, day by day, the more governments are going to hand over many of their functions to outsourced armies, because for some war is big business and this fact is accepted by some governments and the need to have a clear definition for this category of personnel raises, in order to distinguish them from other categories existing nowadays within a modern battlefield.

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FACILITATION OF LEARNING AT A DISTANCE TRAINING PROGRAM

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Abstract: *Education experts pay more and more attention to the concept of life-long learning correlated with the e-learning and distance learning programs. Facilitating learning during a distance learning course requires a series of simultaneous and different processes which take place in a virtual space, wherein there is intervention and exchange using ICT between the defined and shared learning objectives, the tutor service the individual learner and the participants amongst themselves. The present paper addresses to all those education experts (researchers, teachers, counsellors and psychologists) who ask themselves questions about how to improve the actual context of education and training, contributing to the development and implementation of the "learning facilitation" concept. The paper's aim is to present an overview on this concept related to the learning environments and to the authentic assessment in the context of distance learning. Moreover, we propose an outline of a development of a distance training program in the e-learning context in order to offer the learners an integrated and comfortable environment in cognitive, operational and socio-affective terms, thus allowing them to experience success in their learning.*

Keywords: *distance training program, facilitation of learning, e-learning, learning environments, authentic assessment*

1. E-LEARNING – A FREQUENT ALTERNATIVE FOR A BETTER EDUCATIONAL APPROACH

Learning is the key to productivity, competitiveness and prosperity, overcoming the barriers of opportunity, resource capacity, and accessibility. Such a society, which is called also an "E-Learning Society", would be enabled through a distributed, standards-based repository system linked by ubiquitous broadband networks, complete with appropriate tools, applications, and standards.

In a lifelong learning society, learning itself is perceived as a process that transcends work, home or school; it can happen anywhere and is essential to our personal development. Learning is also critical to our ability to adapt and compete, especially in the digital economy.

According to this society's challenges, an adequate approach to learning and educational assessment will take into consideration new opportunities for a better continuous professional development. This approach will measure accurately not only outcomes and curricular standards, but also will help drive

the system as a whole; towards increasing effectiveness taking into account the challenges of the knowledge based economy and society.

Taking into account all of these, education experts pay more and more attention to the concept of life-long learning correlated with the e-learning and distance learning programs. Facilitating learning during a distance learning course requires a series of simultaneous and different processes which take place in a virtual space, wherein there is intervention and exchange using ICT between the defined and shared learning objectives, the tutor service the individual learner and the participants amongst themselves [6].

The present paper addresses to all those education experts (researchers, teachers, counsellors and psychologists) who ask themselves questions about how to improve the actual context of education and training, contributing to the development and implementation of the "learning facilitation" concept. The paper's aim is to present an overview on this concept related to the learning environments and to the authentic assessment in the context of distance learning. Moreover, we propose an outline of a development of a distance training program in the e-learning context.

Most of us still think of effective learning as taking place with learners and experienced teachers interacting face-to-face, perhaps ideally one-on-one or in small groups. Whether such an approach is ideal in every situation can be debated. For example, in post-secondary settings, on-campus students will sometimes opt for online learning activities in preference to those of the classroom. Regardless of its theoretical limitations, reliance on face-to-face instruction is an expensive model to implement and is often not feasible for learners in remote locations or in dispersed groups. Nor does it reflect the realities of available space in schools.

When face-to-face learning is not possible, not affordable or not sufficient to meet the educational goals, e-learning and distance learning can provide a cost-effective complement, provided we understand when and how best to use them alongside other modes of learning. Escaping the constraints of time, location and physical space is sometimes the key to learning experiences that go well beyond what is possible in the classroom. For example, innovative use of online simulations can greatly reduce the cost and time to learn complex skills, as when a medical student practices procedures.

One specific dimension of scientific and technological progress that is already having a strong effect on the tertiary education sector is the information and communication revolution. Today, technological innovations in informatics and telecommunications are once more revolutionizing capacity to store, transmit, access, and use information. The accelerated pace of technological development has made access to knowledge a crucial requirement for participation in the global economy. The impact of new information and communication technologies (ICT) has significantly changed the speed of production, use, and distribution of knowledge. The co-ordination of these processes and the different learning activities derived from them implies managing the e-learning and distance learning environment by the tutor support service. Managing the e-learning/distance learning environment involves [1]:

a) putting the learning,
b) support and monitoring strategies into practice,
c) blending how these works together in order to offer the learners an integrated and comfortable environment in cognitive, operational and socio-affective terms, thus allowing them to experience success in their learning.

2. FACILITATION OF LEARNING IN THE DISTANCE TRAINING PROGRAMS

2.1 Authentic assessment issue facing the e-learning approach. Many claims have been made in recent years about the potentially positive effects of new forms of assessment on the quality of the teaching and learning process and the standard of outcomes produced by the process [5]. It is argued that the quality of teaching will be improved, with respect to both curriculum coverage and teaching methods, if higher-order skills and

competencies such as problem-solving, investigation and analysis are included in what is to be assessed. Thus assessment is being identified as a key mechanism for monitoring and intervening in the educational process, with attention being paid to the role of assessment in the education system as a system, and with key research questions being framed less in terms of the extent to which assessments measure what they purport to measure and more in terms of what impact assessment might have on the instructional process.

By definition, authentic approaches to assessment will engage students in more complex tasks than extended assignments which might involve the investigation of a problem and the production of essays or reports, charts, diagrams, practical artefacts and so on [1]. Some of these tasks and products could be set and marked by agencies outside the school, but this would leave them at a level of artificiality, which would deny the more ambitious claims for authentic assessment. In line with all of these, leaving unassessed the processes of investigating, analyzing and problem-solving which points out the importance of authentic assessment.

In the e-learning approach, taking into consideration the preparatory phase of the course, the implementation of the formative assessment activities and setting-up what type they will be is mandatory. The carrying out of these activities should comply with certain conditions in keeping with the concept of facilitation of e-learning and with the terms of the learning contract.

Some suggestions for carrying out formative assessment in the e-learning context [1]:

- *Opportunity for information*. In the phase that provided pre-course information about the program to the learners, aspects concerning formative assessment should have a predominant place. The participants must be informed about how assessment will be carried out, and the dates when it will take place. Moreover, in the induction to the course, the tutor support service must make certain that the assessment objectives have been understood both as a learning situation and source of information about what the participants are learning.
- *Clarity of activities*. In setting out the activities, the transparency of what is being assessed and the basis on which a judgment is made are essential premises so that the formative assessments comprise an important source of information for the learner. From this point, the need to include the anticipated performance as far as knowledge, skills and attitudes are concerned and a description of the criteria that will be applied to grade the results as satisfactory become clear. It is therefore necessary to take two steps:
  a) describe the objective being assessed; the competences related to it, the assessment criteria (with the levels of anticipated outcome).
  b) when introducing the activity, it is not sufficient to announce the topic and describe the activities that the participant should carry out. Rather it is necessary to specify the performances. Even when the assessment of knowledge is emphasized, when formulating a question it is fitting to provide appropriate indications so that the interpretation of what it is claimed is being assessed is indeed correct.
- *Opportunity for implementation*. Formative assessment activities form a

continuous process from the start to the end of the course. During the delivery of a program, the learner needs to have opportunities to gather evidence which shows what their progress is like towards the anticipated performance. It is for this reason that in programs with fixed timetables it is advisable to carry out the assessment activities in line with the plan which was ratified by the participants in the induction process. Any modifications to the assessment schedule owing to unforeseen institutional circumstances, or to extension of the delivery time for the course must be agreed upon with the participant as far in advance as possible.

- *Type of activity*. Right from the start opportunities must be sought for learners to check that they have acquired knowledge, that they can practice new skills and that they are capable of demonstrating the required performance. Therefore, the formative assessment activities must not be tricks to catch the learner out. The evidence that the learner gathers can be written documents, physical products, supervisor testimonials or even when dealing with demonstration of processes, the practical activities can be recorded on video, audio-cassette, etc.
- *Authorship.* Considering the current discussions on the validity of distance learning assessment and the difficulties that can occur in guaranteeing the identity of the author, some institutions believe it advisable to apply authorship control procedures by contracting with local professionals who act as supervisors during the carrying out of the assessment activity.
- *Recording of results*. A rigorous record of the formative assessments contributes to the transparency of the criteria applied. This record facilitates tracking work and support needs and also makes possible a subsequent review of the results when the learner wishes to appeal against the conclusions of the tutor. The record of results must guarantee the required level of confidentiality.

2.2 Learning environments in distance training. To summarize, it is hopeless to try to describe and analyze all kinds of different learning environments that are currently in use in distance education and training contexts. However, taking the risk of over-simplification and of overlooking some possibly important cases, we present the following arrangements for learning environments, as Adelina Guastavi has described [1].

Each learning environment analyzed has specific features which influence not only the conditions for learning, but also the quality of training, as a whole:

a. home-study environment

This is the more clear-cut situation for the so-called «pure» distance education learning regime: students use their homes to study their learning materials, to watch and listen to video and audio didactic units, to operate their computer equipment and related courseware, to write assignments, questions or comments to be mailed to the teaching system. The current improvement in quality and diversity of telecommunication services may contribute to reduce even more the need for physical displacement to contact the teaching system: instead of attending face-to-face tuition sessions, the distance education student may have access to the same kind of information through fax, e-mail and computer conferencing; the same means may be used to provide horizontal contacts with other students following the same courses, as well as for contacts among the members of the teaching staff.

Keeping this kind of limitations in mind, it is generally accepted that, despite the very significant costs associated with the production of quality, specific distance education learning materials, one of the major advantages of a home-based learning environment is its resulting comparatively low per capita teaching cost, as it does not require a permanent allotting of physical areas, proportional to students numbers, dedicated to presence learning activities.

b. training- or study-centre environment

In many educational or training situations it is necessary to provide a dedicated space for collective presence- learning activities, even if a distance education-like methodology is in use. This may occur for different kinds of reasons, such as: the need to provide a technological environment for the learning activity itself; the need to provide a meeting place for students in a distance education regime, wherein they may find guidance and tutoring provided by the organization itself, as well as some complementary facilities (library, databases, viewing and communication equipment, etc.); when dealing with in-service education or training, where some part of the current working time is made free for educational purposes.

c. hybrid environments

A number of educational organizations operate in the so-called «dual-mode» regime, whereby distance education as well as conventional presence learning methodologies is used, either within the same program or, alternatively, at different types of programs; this situation occurs in many higher education institutions, as well as in professional training organizations. The dual mode of operation tends to stimulate some degree of mix (either conceptual or practical) between methods, materials and learning environments.

From a different point of view, we think that conventional education, based on a significant amount of interaction between teachers and students taking place in school like environments, will evolve in the sense of encouraging the students to include an increased component of self-learning activities in their daily routines, as well as introducing more flexibility in curricula, assignment schedules and progression rhythms.

In the learning process, the specific environment plays an important role in terms of features influencing the building of good relationships in distance learning, or supporting individual or group distance learning processes. In an attempt to compare the characteristics of the traditional and the new learning environments (Table 1), we present a summarization based on the information included in the Adelina Guastavi's paper, "Deliver a training program. Module 4: Facilitate the distance learning" [1]:

Table 1. Learning environments 1

Traditional learning environments	New learning environments
Trainer-centered	Learner-centered
Single method	A combination of methods
Single media	Multimedia
Information delivery	Information exchange
Passive learning	Exploratory learning
Factual learning	Critical thinking
Reactive response	Proactive reaction
Individual work	Collaborative work
Isolate, artificial context	Authentic, real-word context

3. THE OUTLINE OF A TRAINING PROGRAM DEVELOPMENT IN THE E-LEARNING CONTEXT

Given the complexity of distance learning courses, and the relatively limited experience of Romanian education institutions in the area to develop and implement *long and mid-term training programs based on a major e-Learning component*, a team approach should be used. Experts in education, in curriculum development, in the different subjects approached and in DL courses, internal and external, have to work together for developing the curriculum framework, the distance education guidelines and the DL courses itself.

The programs' design should be based on a *competences-oriented approach*. The curriculum framework of the training program defines:

- Methodological principles;
- General framework for defining teaching profession related competences;
- A set of specific competences for each subject;
- Principles for defining study plans;
- Study plans (subjects, number of hours and type of didactical activities, number of credits, evaluation);
- Outline of subject, structured, mainly, on: identification data, general presentation, specific competencies, content, evaluation, methodological approach, bibliography.

The content covered by the training materials has to be relevant to the training needs of the participants. Along with the traditional content, the courses have to include specific modules adapted to the training needs of attendants, referring to the residential area (rural/urban, local specific), the status of participants (level of experience in particular fields), status of the training program (professional development/professional reconversion) etc.

Taking into consideration the specific of the training program carried out at distance, we expect that participants start reading the training materials, once the courses' study had begun. From this perspective, estimating this participants' behavior, at the end of each chapter, throughout the different units, it will be a good idea to insert a text-box with 'key points for reflection/action", stimulating the participant to undertake small research and apply the concepts outlined in the chapter to their country/working situation. Such short activities are not explicitly part of formative assessment, but their accomplishment puts the participant in an advantaged position for the successful completion of their final assignment.

On the other hand, participants might not have yet read the assignment question, and read through the learning material overlooking the importance of such short activities. In such case, when starting the preparation of the assignment, they might realize to have many questions and doubts and very little time to seek support before the deadline.

However, encouraging the accomplishment of the short activities could help participants to come across questions and doubts gradually along the learning process, and to get to the end of the reading phase with solid bases for the preparation of the assignment. If such encouragement is carried out through the Forum, using the e-learning platform, all participants can benefit from questions and clarifications arisen in the discussion.

Therefore, the training materials should be adapted to distance learning technology. Each module's design need to include at least the mention of the following aspects:

- introduction: is orienting the participant in what it concerns the learning and evaluation activities specific to the module;
- learning objectives, that a participant must attain for successful completion of the module;
- the content of the module;
- auto-evaluation tests (with feedback loops to the textual materials);
- assignments, required for participants to complete and send to the tutor, allowing the continuous evaluation during the program;
- application, study-cases and simulations, as appropriate;
- additional readings, either attached to the basic materials or as referrals in a bibliography;
- a conclusive evaluation mechanism for the participant to demonstrate completion of the module (may include tests, a portfolio, a presentation etc.).

Beside the elements of content presented above, the modules may contain icons, illustrations, graphs, etc. and have to be formatted in such a way in order to assure an easy and attractive pathway for the reader.

The modules may be provided to the participants into printed and/or CD-ROM format. An e-learning platform for trainers and

trainees' use could be also developed in order to host, not only the modules' content and bibliography, but also the applications, the trainer's feedback, a forum for discussions etc.

As far as the individual learning is concerned, the addressing of expressed needs – such as queries, doubts, and information requests – through the tutorial service and individual e-mail correspondence should be given specifically to the context, keeping in mind the criteria for constructive feedback, and empathetic listening.

4. CONCLUSIONS

This paper builds upon those issues concerning the e-learning environment, proposing an outline of a long/mid-term training program based on use of e-learning capability to support anytime, anyplace, life-long learning and universal access to high-quality e-learning content, overcoming the barriers of opportunity, resource capacity, and accessibility.

Managing the e-learning environment involves putting the learning, support and monitoring strategies into practice, blending how these works together in order to offer the learners an integrated and comfortable environment in cognitive, operational and socio-affective terms, thus allowing them to experience success in their learning [1].

Putting the above-mentioned strategies into practice in a coordinated way means bringing into play the classic skills of implementation and supervision that a training program requires, such as:

(i) having clarity about the direction of the processes and the objectives of the activities;

(ii) implementing the learning and support strategies in such as way that they contribute to the average successful performance of the participants;

(iii) intervening in problematic circumstances and contributing to the resolution of individual and group difficulties;

(iv) working in co-ordination with other professionals and members of the team;

(v) introducing modifications in the learning and support strategies, based on information generated by the monitoring process.

In reviewing the conditions under which measurement might have most impact on education and training, we could also explore the role which authentic assessment might play in our definition of high standards. From a training program's perspective, a special attention should be paid to both the theoretical problem of adequately conceptualizing and articulating how it is that higher-order skills and understandings can be taught, and the practical problem of whether or not trainers are able to implement new teaching methods and explore new contents. There is also the question of trainer involvement in the assessment process itself.

In this context, the proposed framework of a long/mid-term training program at distance describes an alternative learning approach, using the benefits of e-learning specific technologies. Moreover, the impact of these kinds of educational experiences requires by stakeholders and end-users an increasing awareness of the professional training meaning, contributing to the specific skills development, but using a collaborative e-learning environment.

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PROFESSIONAL TRAINING PROGRAMS FOR PRACTITIONERS IN CAREER COUNSELING

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Abstract: *Despite the fact that the students express needs and expectations related to the career counseling process, many times, counselors face the situation of lack of appropriate expertise in order to help them to manage the various educational, social, communicational, relational contexts. Real life situations generate a wide range of challenges for the counselors to cope with in terms of emotional and socio-affective reactions and behaviors. In these situations, counselors experience difficulties and need themselves advices and supervision in order to adapt their interventions to the particular aspect of the client/student. From this perspective, the present paper is aimed to present a couple of professional training programs in the specific field of career counseling in order to strengthen the need of training and the alternatives the counselors may benefit to, improving their level of competency and areas of expertise, and consequently, ensuring o higher quality of the counseling process. From my point of view, for development of the career counseling's domain, we need to have its representatives well-trained, involved and engaged in the process of empowering the meaning of counseling.*

Keywords: *career counseling, counselor, training in counseling, supervision in counseling, certified supervision professionals*

1. THE NEED OF TRAINING IN CAREER COUNSELING AREA

Studies of the characteristics of the universities' students suggest a diversity of needs for career guidance training programs. A formal research carried out in 2012 in seven of the most prestigious Romanian universities (from Bucharest, Brasov, Sibiu, Cluj, Iasi) shown that almost one half or more of students investigated recognized the need of help with educational and vocational planning. On the other hand, the reality reveals a different face of the coin, confusing and contradictory, in terms of students' interest and desire to benefit from specialized services about career choices and development. A small number of students, probably one out of five students visits, at least once during the university studies, in a career counseling center.

Therefore, is a huge discrepancy between the formal answer to a questionnaire exploring what the students would like to have or benefit from, in terms of learning facilities or specialized services, like counseling and guidance for a job or career, and the real situation in universities, in terms of students' determination and motivation to attend a career guidance program/session, for instance. We are all, experts in education or counseling,

teachers in higher education system, employers, used to explain this lack of students' interest for anything else, but academic performance, by saying that career counseling/planning/guidance has no longer tradition in Romanian education system. The truth is that students themselves, and the society at a large, have no culture of supporting professions like psychologist, counselor, etc., they are not customized to go easily to a counselor for specialized help. One of the explanations of this situation is closely related to the understanding of cultural influences on career development in Romania, during the former communist regime.

From other perspective, at the same level of scientific interest, the practitioners in career counseling field, including here all those people delivering specialized services of vocational counseling in public or private institutions, claim the need of specific training, as in-service training or as part of continuous professional development.

Despite the fact that the students express needs and expectations related to the career counseling process, many times, counselors face the situation of lack of appropriate expertise in order to help them to manage the various educational, social, communicational, relational contexts. Real life situations generate a wide range of challenges for the counselors to cope with in terms of emotional and socio-affective reactions and behaviors. In these situations, counselors experience difficulties and need themselves advices and supervision in order to adapt the interventions to the particular aspect of the client.

From this perspective, the present paper is aimed to present a couple of professional training programs in the specific field of career counseling in order to strengthen the need of training and the alternatives the counselors may benefit to, improving their level of competency and areas of expertise, and consequently, ensuring o higher quality of the counseling process. From my point of view, for development of the career counseling's domain, we need to have its representatives well-trained, involved and engaged in the process of empowering the meaning of counseling. We, as career counseling professionals, need commitment, enthusiasm and time for convince each person working in the educational system to become aware of career counseling benefits and fight against skepticism about the worth of career counseling goals and objectives.

2. SPECIFIC TRAINING PROGRAMS IN COUNSELING – PRACTICAL BENEFITS

On the one hand, it seems to have a tremendous need for training of career counselors at the level of these professionals working in education or in social sector of society. In this process of delivering specific training programs are involved mainly universities, ONGs and local teachers houses, each of them at different extents of professionalism and quality of services. The duration of training programs varies from several days/weeks to several months. Obviously, the depth of contents' approach varies accordingly, as well as, the consistency of the training program, which might be a simple and focused training course or integrated into a specific bachelor or master program, correlated with other subjects, relevant for the general understanding of the domain.

On the other hand, at the same level of awareness the need of training, we notice the need of supervisors' training, in order for them to train as many as possible counselors, trying to normalize the existing situation in the counseling system, where the lack of validation and feedback on the conducted interventions influences directly, not only the quality of the counseling process, but also the confidence/self-confidence of the counselor.

In the next sections of the paper we will describe two professional training programs in the career counseling area, two educational experiences addressing specifically to the practitioners or those who intend to do that in the next future.

2.1 The Global Career Development Facilitator. This first training experience described refers to one of the most consistent career counselors' training programs, in terms of the content and assumed objectives, developed in many countries worldwide, namely the Global Career Facilitator Development (GCDF) program [7,9]. This

program is developed by the Center for Credentialing and Education (CCE) from United States of America [7] and is aimed to offer country-specific standardization and recognition to career development professionals from 16 countries worldwide, including Romania. The program is customized to respond different nations' characteristics, taking into consideration their specific needs to approach different topics according to the different countries' reality.

In Romania, the authorized GCDF training provider is NBCC-Romania (National Board of Certified Counselors – Romania) [9], which is part of the European network run by EBCC (European Board for Certified Counselor, Lisbon), having a consultative and educational/training role in supporting career counsellors' professional development.

The GCDF program is not only a training program, but also, more important, a certification program. The career consultant is the graduate of the GCDF program. The duration is 120 training hours and the program is based on a manual approved by the CCE – Europe. The career consultant's twelve areas of expertise covers, in terms of knowledge and skills, the following major topics [5]:

- Career Development Models, referring to the general understanding of career development theories, models and techniques, and their application to the specific national background;
- Helping skills – basic skills of communication in order to facilitate career development processes;
- Diversity in Counseling – skills for adapting specialized counseling services to the diversity of human nature, to the special needs of various groups of population;
- Assessment skills – how to use under supervision, informal assessments in order to help clients involved in career development interventions, to make their own decisions, informed and appropriate;
- Technical/digital skills – understanding and use of computer applications, related to the career development field;
- Labor market – how to approach the labor market, globally and nationally, according to the specific resources, opportunities and trends in the occupational domains;
- Employability skills – how to prepare a portfolio for job searching, strategies and specific techniques for different vulnerable groups on the labour market, as women or universities' graduates, for instance;
- Training clients and peers – design and implementation of specific training programs;
- Promotion and Public relations – design and implementation of specific strategies for promoting career counseling services;
- Management skills – program/project management, communication management, time management, stress management;
- Supervision – be aware the situations when supervision is needed and how to proceed it;
- Ethical and Legal issues – be informed about the regulations and act according to the GCDF Code of Ethics.

As one of the master trainers of the GCDF training program I try in practice to keep the balance among these areas of expertise, reinforcing the need of basic knowledge and skills for every counselor. At the same time,

based on these twelve areas of competencies, counselors develop and consolidate a reflexive, systemic way of thinking, well oriented in situations and self-confident in interventions.

2.2 The Basic of supervision in helping professions. The second training experience is related to the supervision process and to the training programs on supervision, specifically. As I already mentioned, in Romanian career counseling system there are very few people working as supervisors, because of the low level of interest about the supervision process and the low level of awareness as far as the need and the practical benefits of supervision are concerned, as well. In this context, the initiative of organizing a training program on supervision process represents a big step forward in order to train supervisors working in career counseling. I was one of these supervisors, contributing in this way to the gradually development of the career counseling domain. The supervision training program, entitled "Basic of supervision in helping professions", is delivered by the same Romanian private provider as GCDF program, NBCC-Romania, in collaboration with the EBCC [7,9].

Areas of competency covered by the professional training program in *Basic of supervision* refer to the following components [6]:

- Purposes of Supervision
- Theoretical Frameworks and Models of Supervision
- Types of Supervision
- Roles and Relationships in Supervision
- Multicultural Issues in Supervision
- Supervision Interventions
- Professional Development of Supervisees
- Legal and Ethical Issues in Supervision

This is an introductory course, which combines the theoretical framework and practice, a valuable instrument for any counselor, who searches for answers or for clarifying specific contents or for validating experiences in the field. The feedback of the participants after the training has been very positive, appreciating the high standards and underlying the fact that the certification has filled a gap in the professional development of helping professionals.

Due to its international origin and in order to address needs in various contexts and cultures, this certification program in supervision ensures cultural relevance and adapts to the specifics of helping profession's circumstances. Up to now, the program has been delivered in Romania, Greece, Macedonia, Germany, Cyprus, Portugal and Bulgaria.

The Certified Supervision Professionals (CSP) certification has multiple benefits for all actors involved. For supervisors it increased awareness of beliefs, roles, and factors that can influence the supervision process; develops a set of skills and tools for individual, triadic and group supervision and increases awareness about the role of supervision in continuing professional development. For supervisees it benefits in the understanding the supervision process and developing the ability to organize a system for peer supervision and to conduct such sessions. For the clients it leads to an increased personal/professional satisfaction.

There are no doubts, in the countries where the helping professions are well-regulated, supervision is one of the most frequent activities of the helping professionals. In Romania, these issues are still under debate, and the professional and certification recognized bodies are in their progress of development. Step by step, practice of supervision in career counseling becomes a guarantee of professionalism, motivating the counselors to develop a higher level of expertise.

The both training program mentioned above are, at the same time, certification programs, offering to the attendants the possibility to practice as career counsellor/consultant or career supervisor, immediately after the training graduation.

Members of many professions and fields seek certification as GCDF and CSP: Vocational guidance specialists, career counselors, mental health counselors/specialists, school counselors, pastoral counselors, coaches, psychiatric nurses, psychiatrists, psychologists, social

workers, human resources specialists and other helping professionals and paraprofessionals.

3. ONLINE PLATFORMS FOR CAREER COUNSELORS PRACTITIONERS

The training programs for ICT skills' development need to address to the following critical points, already identified by the practitioners in the career counseling field:

- to offer models, professional standards and good practices in order to allow objective evaluation of the existing resources referring to ICT use in counseling, and to the development of the ICT's counseling contents, as well;
- to develop new attitudes for practitioners regarding to ICT use in counseling process, as support tools in current counseling activities.

Besides basic ICT skills, available in a large rank of professional situations, it should pay attention to acquire new competencies, not only for the counselors' practice to carry out traditional counseling activities in non-traditional styles, but also for providing complementary counseling services in an innovative and flexible approach.

How is possible to offer specific counseling services using ICT tools? How could we change the relationship between the client and the career counselor? Is still possible to use the same traditional methods and practices, following the same ethical principles? What new counseling activities could we undertake based on online platforms?

In this context, it will be relevant for the argumentation to mention some of those ICT specific tools, web-based, supporting the counseling process. Nowadays, the Web 2.0 applications, including social media, videoconferences, blogs, forums, and specialized sites are only few ideas about how ICT can contribute to the improved career counseling services. One of these ICT applications, which lately draw the practitioners' attention, is represented by the specific platforms/portals dedicated to offer career counseling services.

The counseling platforms/portals are aimed to support the professional development of the practitioners in career counseling field. Among other benefits, the counseling platforms, being specifically addressed to the counselors' community, provide them available and useful resources, such as [8]:

- theoretical and practical models,
- study-cases,
- good practices,
- books' reviews and
- specific instruments.

All of these resources are usually free of charge, and help professionals in counseling field to manage various situations during the process, to cope with the difficult and emotional issues, giving them the opportunity to share and also learn together.

At the same time, the instruments available on these portals are able to support not only the online counseling concept, but also the face to face counseling process, and the development of specific workshops and career events. The instruments are free of charge and focused on various contents, such as [8]:

- communication skills,
- time management,
- stress management,
- project management,
- decision-making strategies,
- creativity,
- leadership and
- teamwork.

Each of these instruments includes in presentation the guidelines for administration, which turn this experience into a real and helpful learning experience or professional/ personal development opportunity. Across the Europe, there are many examples of counseling platforms, using ICT tools and applications. These examples and good practices have inspired several Romanian counselors to take initiative and carry out the first platform dedicated exclusively to practitioners in the career counseling field: forcounselors.ro. [8].

One of the most interesting idea regarding to ICT tools' use in counseling imply the capitalization of the great potential of social media, which contribute to help people, especially the young adults, to promote themselves, to build a personal brand and an online identity, to use networking for social contacts and job opportunities.

4. CONCLUSIONS

As a trainer involved in the both, career counseling and supervision processes, working in the largest technical university in Romania – University POLITEHNICA of Bucharest, and coordinating the university's career counseling center, I have attended or coordinated numerous seminars, workshops and training programs specific to the career counseling domain. Not the last, as practitioner, I have conducted many individual or group counseling sessions. Exercising my professional roles I had to rely on my initial and continuous professional training in this filed, valuing the great potential of each training program attended in order for me to become a better professional. My belief as supervisor and trainer in career counseling training programs is that these kinds of training programs develop core competences that should be included in the education and training of all the future helping professionals, including the career counsellors.

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THE TEACHER-PARENT EDUCATIONAL PARTNERSHIP, HEALTH PROMOTION PROGRAM - SPECIFIC CASE - DENTAL HEALTH

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Abstract: *The current study suggests a foray in the teacher-parent dynamics, with the goal of attracting the latter in an authentic partnership, useful in the child's education. The endeavor comprises the analysis of 143 pupils on several health dimensions and the engagement of the parents in prevention activities, as well as in solving the children's health problems. The dimensions which this endeavor has centered upon are: the promotion of health and well-being, the prevention in the oral hygiene area, a healthy nutrition, the introduction of sports in the free-time activities of children. This study only presents the prevention area in the oral hygiene domain. The program we offer consists in 6 meetings with the parents in which the themes of discussion are centered on the dental health of the child between 7-8 years old.*

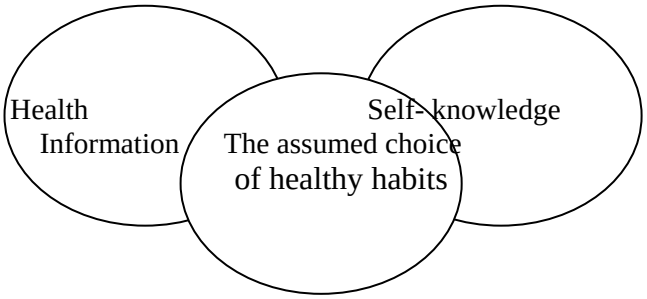
Keywords: teacher-parent dynamics, dentition, oral hygiene, prevention, health.

1. INTRODUCTION

Macbeth, cited by Bunescu sustains that there are four reasons why the school and the family are trying to establish lasting liaisons between each other [1]: the parents are legally responsible for their children's education, schooling being just a part of that education, research highlights the influence of the parental attitude upon their children's scholastic results and the social groups involved in the schooling institution have the right to influence the manner in which the educational processes are developed in the school. In this intersection of the family with the school through the common interests liaised with the pupil's education one can retrieve health as a value. In what concerns health we are interested as teachers, but especially as parents the optimal functioning of the child from a somatic, physiologic, metal, emotional, social and spiritual point of view. In order for the student to understand health as a value, and for him or her to attend and keep it there are a few necessary endeavors, which concern the prevention side, but also the intervention one in case of sickness. The orientation towards healthy habits is conceived as an educational action, in which the psychological preparation of the pupils/young people is made for the choice and development of efficient solutions for staying healthy or for getting over the illness, if the latter comes their way. The psychological preparation refers to the accumulation of knowledge, the formation of habits, the development of abilities, the formation of motivations for healthy choices, the development of self-knowledge and a better contact with the sole possibilities of the

body both in terms of its construction and in terms of its healthy build. An important role in this endeavor is played by the school, which is considered a central factor in the orientation and counseling in terms of health, through the instructive- educative process, though the knowledge and the given information, through the continuous preoccupation for the development of the child/young, trough the development of the self-knowledge, as well as through attracting parents as partners in this endeavor. Moreover, it must be mentioned that these educational actions must be permanent, with a weight and importance that differ depending on the educational cycle and with a different content, reported constantly to the child's age group. The participant to this process regarding health must become an active part of it as the decision to a better or worse health belongs to him or her – starting exactly from this point of the pupil's engagement as a decision-maker for health, resides the need to be accompanied by the parent, until the moment he or she is capable to make his or her own correct decisions.

The general structure of relevant information for the choice of healthy habits can be represented as follows:



The objectives of the healthy habit counseling are:

- The knowledge of its own body- the height-weight bearing, muscular masse etc.
- The knowledge of several health indicators – given by blood tests and the general practitioner's evaluations
- The knowledge of the age related requirements and the physical development due to them
- The knowledge of the relation between the physical development and the psychological, emotional, intellectual one.
- The agreement of different variables (in liaison with the development in laps or leaps, or with the unharmonious or incorrect development, etc.)

It is thus inherent that, in this endeavor, the parent to be the one accompanying and even coordinating the steps of the child, as many of the decisions concerning health are impossible to be taken at young ages, and even slightly later towards the teenage years/ The child/ young does not have the vision of the whole (as is my health), doesn't value health enough until an adult age and does not always understand the gravity of the sickness and the necessary steps to overcome it.

One of the dimensions in liaison with the health is the one connected to dental health. For sensitizing the parents on this subject there have been initiated, in many schools in Arad, actions described on the following dimensions:

- Sharing flyers on oral hygiene themes
- Scheduling children to dental screening activities – both evolution-wise, and health-wise and then presenting the results to the parents
- Orienting the parents towards healthy habits in terms of their children, towards overcoming dental problems that arose
- Orienting parents towards specific medical offices for overcoming the respective problems that arose

For a success of this counseling process, the teacher/headmaster and the counselor take the following into consideration:

- What are the parents' values in terms of health – what do they understand by it and what exactly are they willing to do to maintain and better their child's health
- What are the real possibilities of overcoming the problem (dimension described by the medical values of the child in terms of physical development, genetics, illnesses developed on the way, etc.)
- What are the possible obstacles they could encounter
- What are the personal resources of both themselves, and the child
- What are the determined health objectives and how adequately can they be accomplished.

The understanding of the child's dental health starts from the baby's first months, when the first teeth appear – moments which a parent experiments and lives at maximum intensity, especially due to the child's pain. The first steps for a better health start with the hygiene, so that; in the first years of life it is important for the parent to habituate the child with the custom of brushing teeth. Even though the operation in itself is not carried out correctly at all times, the implementation of this teeth-brushing ritual is important for the child's program. Subsequently, when the child will grow up, he or she will be instructed and will assimilate the correct brushing technique, however until that moment it is important to know that, for a good dental health, the teeth must be brushed at least twice a day. Afterwards, at around the age of 3-4 years old, depending on the child's receptivity and psycho-somatic development, it is a good moment to visit the dentist's for the first time. The child would thus be able to accustom him or herself with the equipment from the doctor's cabinet, the dental labor will be explained to him or her in an understandable language and possibly, if the child accepts, the dentist can perform a professional teeth-brushing technique. This first visit is very important, the child understanding that the dentist and his or her office is a sort of playground where he or she can find out interesting things about their teeth and their health, that the doctor is there to explain how to take care of their teeth and to help him or her in case of need. This first visit has an essential role in "striking a friendship" with the dentist and thus being related to the compliance to treatment in case of need. Around the age of 6, the first definitive molar teeth appear. These ones often appear without the child or the parent to notice. If they are not taken care of correctly, these will develop cavities very fast, and the child, the future adult, will lose one of the pillars of permanent dentition, much faster than he or she should [2]. The precocious loss of the 6 year molars brings with itself anomalies of growth and development of cheekbones, which is why a proper care, a daily brush and even their sealing once with their eruption in the oral cavity are imperiously necessary.

2. THE STUDY

Objectives:

1. The sight of the starting indices in terms of the growth of the first permanent teeth and of the child's dental health in general (if and how many teeth have cavities, if they need braces or not)
2. The emphasis of aspects that need mending in the children's dentition, the initiation of information and prevention activities in terms of dental health, activities done with the parents and the emphasis of the indicators to follow in overcoming the problems occurred at a dental level.

The hypotheses of the study:

1. The starting indicators in terms of the growth of the first teeth and the evaluation of the dental health levels constitutes a premise to build a prevention and intervention program at the oral hygiene habits level
2. There are significant differences in dental health at the level of the classes studies after the active engagement of parents in parenting activities on this theme

For the realization of the suggested hypothesis, the endeavor initiated in the targeted schools in Arad, in terms of oral health and hygiene is covered in the following stages:

Phase 1 - with an investigative function – function that is created through assembling systematic activities created with the goal to obtain data regarding the growth of the first permanent teeth and the child's dental health in general (if and how many teeth have cavities, if they need braces or not)

Phase 2 – informative function – function that is often done by the counselor together with the dentist that took part in phase 1, but it can also be done by the teacher/headmaster along with the dentist. This function refers to the specific demands of each child and their conveyance to the respective parents. To this, one can also add knowledge on the dental evolution, of the possible solutions, of the possible interventions (an informative meeting).

Phase 3 – the formative/educative function – function that consists of the realization of a set of actions which will result in the formation of healthy habits in terms of dentition (3 meetings – 2 with the parents and one with the children, in which one discusses the types of necessary interventions, their role and the place of the prevention flyers, presenting types of braces, educational actions for a healthy dentition etc.)

Phase 4 – the daily process integration function - the last stage of the dental health preparation and also a way to check the success of the first 3 stages (one meeting to check the results).

The study has been realized in the period between October 2014 and February 2015.

Sample description:

The study comprised the participation of 5 classes of study from a primary school in Arad, 3 third grades and 2 second grades. The children's age is between 7 and 8 years with the age average of 7,88. The total number of children was 143 and, due to the fact that their gender does not influence their dentition, this indicator was not utilized in the study.

Results and Discussions

Hypothesis 1. Starting the study from the analysis, in each class of the starting indicators in terms of the growth of the first permanent teeth and the evaluation of their health state, one can realize a prevention and intervention program at a dental health habits level.

In monitoring the growth of the permanent teeth, we took into account the chronology of their eruption as follows:

- at 6 we grow the first inferior and superior molars and the central inferior incisors
- at 7 we grow the central superior incisors
- at 8 we grow the inferior canines and the first superior premolars
- at 9 we grow the inferior canines and the first superior premolars

"The deflections of 6-12 months from these dates can be considered, as appropriate, in normal limits. The smallest deviations are observed at the teeth that grow between 6-8 years." [3]

After the monitoring process for the observation, at each class of the starting indicators in terms of the growth of the first permanent teeth, one can determine the fact that, at the level studies, the children are in the normal limits in terms of the appearance of the permanent teeth.

The resulted situation, at the end of the dental control in terms of the dental status is:

Total number of students	**143**
Students with cavities	**98**
Students with no cavities	**45**

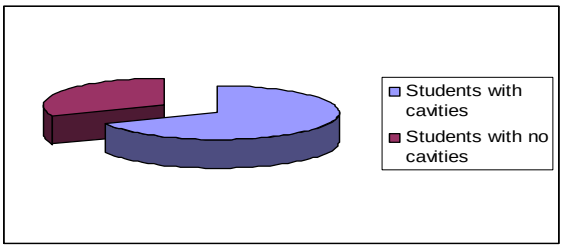


Table 1. Dental status

The distribution of the cavities at the temporary and permanent teeth level is:

Students with cavities	**98**
Temporary tooth cavities	**37**
Permanent tooth cavities	**61**

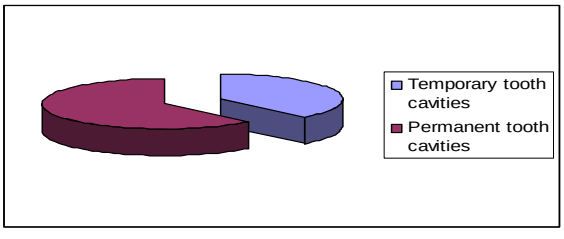


Table 2. Distribution of the cavities at the temporary and permanent teeth

Students with cavities- initial evaluation	**98**
Treated students	**64**
Untreated students	**34**

Moreover, at the same control, several children were found to have dent-maxillary anomalies, which will, in time entail the dentist's intervention, but among these, 5 were presenting mandibular prognatism, thus being urged to take on a dental consultation.

Total number of students	**143**
Students with dent-maxillary anomalies	**81**
Students with no dent-maxillary anomalies	**62**

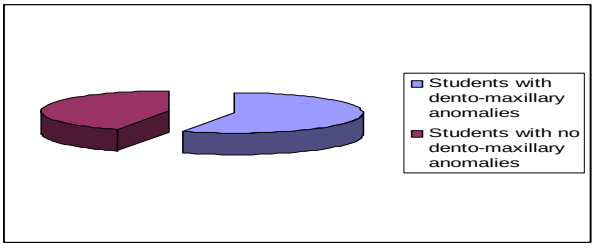


Table 3. Distribution of the dent-maxillary anomalies (December)

At the end of this monitoring process a personalized program was created for each child

Hypothesis 2: these hypothesis targets the results obtained beginning with the starting indicators and creating prompt parenting activities centered on dental health. Moreover, in terms of the hygiene and care of teeth there were activities created for the student classes. The parents' information session on the reality of dental health of each child was centered on bringing to light the reality of each child and on what solutions there are for the given situation. All the children who have problems were given a referral towards a dental consultation. After finalizing the activities, in February 2015, the children from the participant classes were visited once again. The results obtained after the activities in terms of dental health are the following:

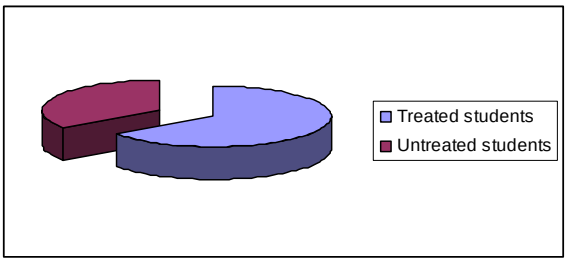


Table 4. Distribution of the dent-maxillary anomalies (February)

We have observed an amelioration of the dental health of all the children who took part in the study. Moreover, among the children who were urged to visit the dentist, 3 were already with mobile braces.

3. CONCLUSIONS & ACKNOWLEDGMENT

The challenge of working with a class of pupils and with their parents is very difficult, and even more difficult to work with several different classes at the same time. Besides this inherent burden there is the joy of managing to attract parents in an authentic partnership, centered on the children's needs and also on their health. The existence of such an endeavor creates a working space which facilitates the access to the child's health, the discovery of a better health model, the understanding of the role each parent has in remedying some health problems, the relationships of the family with the health concept. We also explore the feelings lived in each of the suggested exercises – how important was for the solution to be found in time, how comfortable or not comfortable each of them felt with their role of being an engaged or less engaged parent, how well they understood what health and

prevention mean and how was their discovery. The work patterns were chosen for the children depending on their age and were thus easy to achieve. The dialogue initiated with the parents brought to light the possibility of choosing differently in terms of their children's health. It is good to know that it is much easier to prevent that to treat. Sometimes, though, due to the lack of information or the neglect, parents do not manage to prevent their child's dental problems, and the repercussions on the dental system are of bigger importance as the child grows and develops.

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CREATING A-HA MOMENTS IN TEACHING PRACTICE. ROUTINE VERSUS ADAPTIVE METACOGNITIVE BEHAVIORS IN TEACHERS

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Abstract: *This paper focuses on adaptive metacognition research in Romanian teachers in upper secondary education. The article describes the results of a hybrid quasi-experimental research study conducted on high school teachers. The research was conducted in three phases: profiling teachers regarding their level of metacognitive competence, involving teachers in metacognitive training activities, and investigating the changes in teachers' adaptive behavior. The initial sample of teachers was divided into two groups, namely the control and treatment group. The subjects in treatment condition were engaged in a metacognitive approach based on erotetic techniques. The results of the research express that adaptive metacognition improves by using scaffolding tools such as erotetic matrix. The article discusses the research results and presents two case studies in order to describe the nature of metacognitive behaviors in teachers. We conclude the paper by presenting the A-HA approach, designed to help teachers to improve their metacognitive capabilities.*

Keywords: *adaptive metacognition, regulation, metacognitive strategies, teacher training*

1. INTRODUCTION

Over the passing time, metacognition's relevance in the field of education increased and propelled the concept among the most forceful concepts in educational research area. The term metacognition refers to a general human ability to think about one's own thinking. The object of metacognition is regular thinking. This capacity is thought to reflect a wide range of semi-independent faculties which allow individuals to form representations of their own mental states and the mental states of others [5]. In a traditional way, research has focused more on students' metacognitive capabilities rather than those of teachers. In this article we propose a switch on teachers' metacognition.

Teachers engage in complex mental activity as they monitor and regulate their thinking as they teach [1]. In addition, teachers are strategic as they apply instruction, solve problems that arise in the classroom, and adjust their teaching to individual student differences [2]. Despite this wide accepted idea, little research has specifically examined teachers' metacognition, especially in Romania. Lin, Scwartz, and Hatano [4] point that conventional applications of metacognition must be reanalyzed when researching teachers' metacognition. The rationale behind this affirmation focus on the

complexity and uniqueness of the teaching activity. In the context of teaching, solving problems requires time and profound reflexing. Further, finding a good solution for a specific problem depends on successfully blending competing values [4]. For instance, these values may refer to teacher, students, parents, school culture. Moreover, in traditional approaches of metacognition the object of metacognitive activity are individual thoughts and cognitive processes. In addition, teaching is challenged to adapt to environment and students' requests. Metacognitive literature names this suite of phenomena *adaptive teaching, reflective adaptation or adaptive metacognition*.

Adaptive metacognition involves both the adaptation of one's self and one's environment in response to a wide range of classroom variability, argue Lin and his collaborators [4]. Following a conceptualization proposed by Parsons, Davis, Scales, Williams and Kear [7] in the context of this paper adaptive teaching is defined as a teacher's action that was non-routine, proactive, thoughtful, and invented; included a change in professional knowledge or practice; and was done to meet the needs of instructional environment. These referred representations enable one to form, challenge, and revise ideas of what is believed, felt, dreamt of, learnt or feared in a number of rapidly evolving contexts [5]. Despite all these benefits, metacognition is not easy-to-research phenomenon.

According to Veenman [9], one of the reappearing problems with metacognition research is the "fuzziness" of the concept and its constituents. This fuzziness is not only due to a proliferation of terminologies. Researchers also debate on the constituents of the construct of metacognition and their interrelationships. Starting with Flavell and Brown (in the '70s), many authors often make a distinction between metacognitive knowledge and metacognitive regulation or management. The latter is sometimes referred to as executive or self-regulatory processes. Thus metacognition is not a very new concept in the field of education sciences, there is still a debate on the general or specific nature of metacognitive skills. Kuhn and Dean [3] explain that metacognition designates one's capacity to transfer a particular context-related strategy to another similar but new concept. Schraw [8] describes metacognition as a multidimensional set of general skills rather than domain specific.

The article consists of four sections as follows. The first one was dedicated to a brief review of the metacognitive literature. The second one presents the research design and methodology used to investigate adaptive metacognitive behaviors in high school teachers. We describe routine metacognitive behaviors and their instructional effects in the third section. The fourth section focuses on a set of methods and tools to stimulate adaptive metacognition and improve teacher quality.

2. RESEARCH DESIGN AND METHODOLOGY

2.1 Research problem statement and interrogations. If we assume that metacognitive competence is a core of teaching activity, the author's focus is to evaluate adaptive metacognitive behaviors in order to develop a set of methods and tools to scaffold adaptive instruction in classroom.

The interrogations guiding this study were as follows. I1: To what extend teachers use adaptive metacognitive strategies while teaching and interacting with students; I2: Adaptive metacognition in teachers can be improved through specific methods and activities?

2.2 Research objective. The main goal of the study was to develop a suite of tools to scaffold adaptive metacognition in teachers in upper secondary education.

2.3 Sample. The research sample included 122 Romanian teachers, in upper secondary education, residents both in urban and rural areas, from two counties (Giurgiu and Valcea) and the capital city. The sampling method followed a theoretical and realistic approach based on the criterion of relevance. The teachers were purposefully selected based on their experience in teaching (little or no experience, moderate, and high experience). We fully acknowledge that the sample may not be representative for the whole population of Romanian teachers.

2.4 Data collection procedures. The research was based on a quasi-experimental correlational design, implemented as follows. The pretest phase consisted in surveying the teachers in order to evaluate their initial level of metacognitive competence. A questionnaire was designed to serve this purpose. After the completion of the questionnaire, the subjects were divided randomly into two groups. Due to geographical distribution, the treatment group included 42 teachers, fewer than the control group (n = 45). 35 teachers refused to continue the research project. Both subjects from the treatment and control group (n = 21) participated in in-depth interviews aiming at identifying types of contexts and variables activating metacognitive behaviors.

A number of teachers in treatment group (n = 13) accepted to deliver a class by following a given scenario. The researcher designed different types of lesson plans according to teachers' domain of activity or discipline. One scenario type focused on blending digital educational content and traditional instruction. Another type of scenario was based on problem-based learning strategies and virtual learning environments. The third scenario type focused on collaborative learning in virtual learning environments. Teachers were told to follow the lesson plans and when they feel something is wrong or don't feel comfortable about the lesson's progress they can switch back to their own approach.

All the teachers in treatment and control groups participated in activities were they were asked to analyze a number of teaching situations and to provide solutions for those critical issues in class.

The profiling phase was followed by the training phase. Based on the results of the pretest inquiry, a set of metacognitive tools was designed, named *Tools for thinking.* A following section of the article will focus on these tools.

The last phase of the research project describes the posttest phase were both teachers in treatment and control groups followed the interview protocol and solved critical issues.

2.5. Research instruments. Metacognition can be assessed by many different methods and tools. Metacognitive literature often makes a distinction between on-line and off-line methods, depending on the time they are applied. Due to geographical and other limits, off-line methods were applied namely the COMEGAN-ro questionnaire and situational interview protocols. COMEGAN-ro questionnaire is a self-report questionnaire measuring metacognition on six scales: knowledge about persons, tasks, strategies and metacognitive planning, monitoring and regulation. The questionnaire comprises 36 Likert rated items: 6 items load on each scale. This research instrument was translated into Romanian, adapted and validated on teachers population, having a very good score of the internal consistency (Cronbach's alpha = .89, with positive inter item correlations). The original instrument was designed by Pallascio, Daniel, and Lafortune [6].

Unlike the COMEGAN-ro questionnaire, the interview protocols proposed prospective approaches, where subjects were invited to express their intentional behavior in different situations. In addition, routine and non-routine situations were presented to the teachers. The subjects proposed solutions for those issues or critical events [4].

The first routine situation described apathetic students, who say frequently they don't care about the lesson's subject. Another routine situation depicted disturbing students who are not paying attention to the teacher, talk to each other making noise. A non-routine

issue went on a student's reaction to a case study on human rights (a wide topic ranging multiple disciplines). The student says to the teacher that human rights should not exist because people are not equal and those living in rural areas or poor countries have no chance to succeed anyway. Investing in poor people is a waste of resources, points out the student. The fourth non-routine situation refers to a moment when a student becomes upset because of a poor grade and says to the teacher it is all his or her fault. The student argues that teachers do not explain very well and has a not-easy-to-understand style.

3. RESEARCH RESULTS AND DISCUSSION

This section details the results of the inquiry based on COMEGAN-ro questionnaire and interview protocols. In addition, two case studies are presented based on the lessons that teachers delivered by using the pre-established lessons plans. The author made all the observations during the lessons delivery.

3.1. Distribution of metacognitive competence among teachers. The teachers participating in research reported their selves with medium to high levels of metacognitive competence (see Table 1 and Table 2). Significance tests conclude there is a statistically significant difference between the dimension of metacognitive knowledge and metacognitive regulation or management ($p < .01$).

Table 1 Initial level of metacognitive competence of teachers

Metacognitive competence and its components	
Metacognitive competence *Mean* = 3.55 *St. dev.* = .63 *Min* = 2.22 *Max* = 4.74	Metacognitive knowledge *Mean* = 3.54; *St. dev.1* = .65 *Min* = 2.01; *Max* = 4.75 Metacognitive management *Mean* = 3.47; *St. dev.1* = .78 *Min* = 2.15; *Max* = 4.79

Table 2 synthesizes values of statistical indicators computed for each of the six factors of metacognitive competence. Regulation has the lowest mean, with a statistically significant difference comparing to other factors.

Table 2 Statistical indicators of metacognitive factors in teachers

Factors of metacognition	*Mean*	*St. dev.*	*Min.*	*Max.*
Knowledge about persons	3.49	.72	1.86	5.00
Knowledge about strategies	3.60	.72	1.67	5.00
Knowledge about tasks	3.53	.86	1.33	5.00
Planning ability	3.54	.73	1.83	4.83
Monitoring and control	3.64	.75	1.63	5.00
Regulation	3.47	.78	1.00	5.00

A preliminary conclusion sustains that it is needed to develop adaptive metacognitive behaviors in order to improve teachers' capacity to deal with different types of issues in classroom. Qualitative data provided by interviews and lessons' observation indicates an interesting phenomenology of metacognitive behaviors in teachers. In order to describe these behaviors we will present the case studies.

3.2. Case study 1: blending digital educational content with traditional instruction. The first case study discusses metacognitive adapting behaviors of a geography teacher with 7 years of teaching experience. The lesson plan followed by the teacher was based on blending digital educational content with traditional instruction. The lesson started with a brief routine activity consisting of reviewing the previous lesson and presenting the topic of the new lesson. At one specific moment she tried to use the digital resources to sustain the period of practice. The teacher chose to use low interactivity learning objects instead of highly interactive ones. She played a cue-points movie and asked questions. When a student asked if they are allowed to go through another learning object, the teacher argued that object requires a lot of time and will solve it some other time. The lesson flowed to the moment of the assignment of homework.

This situation reveals that teaching may take place in non-routine contexts and teachers need to face them. In this specific context, certain metacognitive knowledge about the tasks oriented the teacher to adopt a *defense metacognitive behavior* by avoiding that task. Students disagreed with teacher's decision. In a very well-planned structure of the lesson, the integration of highly interactive digital content may result difficult. During the training phase

this teacher began the transition to an adaptive teacher based on focusing more on finding the problems, analyzing them and looking for solutions from different points of view.

3.2. Case study 2. Problem-based learning and collaborative work in classroom. This case study presents a non-routine context in which teacher is challenged to adopt different instructional strategies. This case focus on the experience of a biology teacher with 10 years of experience in teaching. He was invited to propose to his students a low-structured problem to be solved in a collaborative manner. The lesson flowed from a routine-based review of previous topics, presenting the new subject (the teacher gave a lecture and the students took notes). At the practice moment, the teacher presented the task (a low-structured problem) and invited the students to solve it without giving any other details or instructions. A moment of confusion followed then, because the students did not have enough intellectual and informational tools to solve the task. They did not have a planning phase and they started directly to argue on different points of view. Other students in the groups adopted a *lurker strategy* saying „is just a school task let's write something down to be done". In this time, the teacher was not involved actively in students' activity. When each group presented its solution, the students engaged in a debate over whose ideas were correct and the teacher had difficulties to manage the class and to assess the solutions.

In this context, the *provoking issue* for the teacher consisted of three different variables to be managed: his own behavior, students' behavior and the learning context. The teacher encountered difficulties in managing those variables. As he mentioned during the debriefing discussion, he did not thought that students will find difficult to work in groups to organize their selves. This teacher began to do off-line metacognitive work right after the lesson delivery by identifying issues in his behavior, in students' behavior and task-related issues. One solution proposed was to suggest to students to use their mobile phones to search for more information about the problem.

3.3. The phenomenology of metacognitive behaviors in teachers. This research study makes a contribution to the understanding of adaptive metacognitive behaviors in order to analyze the impact of their lack and to find ameliorative solutions. These case studies underline that teaching does not involve only routine activities but also *provoking issues.* These issues are built on different variables that are not in complete harmony. The main goal of the *Tools for thinking* training programme was to help teachers to find on-line solutions to solve provoking issues. In order to better understand teachers' needs, narrative data were analyzed. In this section, the author provides a description of teachers' metacognitive behaviors.

The most frequent behaviors focused on *metacognitive movement, metacognitive narrowing, and the bulldozer strategy.*

The first phenomenon we focus on is the *metacognitive narrowing*. From a behavioral point of view, *metacognitive narrowing* describes that teachers solve *provoking issues* by reducing the metacognitive spectrum usually to two factors: implementation and monitoring. More often, planning and regulation are suppressed. In addition, teachers encounter difficulties to integrate actively their knowledge on persons and tasks (see the case of the biology teacher).

Metacognitive movement appears as a consequence of the lack of metacognitive strategies needed to regulate teachers' own cognition and students' intellectual activity. In this case, the teachers will transfer their responsibility to plan, monitor or regulate a solving task process to the students as presented in the case of biology teacher. The results of applying such strategy are mostly negative in the way that teachers translate their responsibility to the students as the last available solution.

The *bulldozer strategy* is another metacognitive strategy, consisting in solving a task or a problem without paying enough attention to the request or monitoring the solving process. As a circular reaction, this strategy conducts to poor academic results and low appreciation of students' work. Both teachers presented in the case studies adopted the *bulldozer strategy* in the sense that they applied the lesson plans without asking any clarification questions even they had the occasion to address them. The teachers did not analyze carefully the tasks and suppressed the planning phase, a crucial moment when facing new situations.

In order to provide teachers with appropriate strategies to promote adaptive instruction the training programme focused on analyzing *provoking issues* and finding flexible solutions. During the intervention, the teachers had been involved in the process of making decisions and giving solutions for their own problems rather than observing other people and commenting.

After the training delivery, both the teachers from the control and treatment group were invited to solve *provoking issues* known form the pretest phase and new ones.

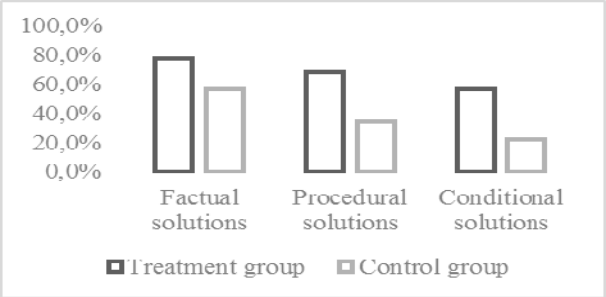
Qualitative and quantitative differences appeared in the posttest phase. Each group generated an equal number of solutions. Based on a coding matrix, the answers were coded into three categories: *factual* solutions, *procedural* solutions, and *conditional* solutions. For all the three types of solutions the participants in the training condition were able to generate a higher number of solutions the subjects in the control group. The results of the coding operation are presented in Fig. 1.

A factual solution was considered an answer saying that: „As far as I know, the teacher should ask the student why he/she thinks in that way (in relation to the nn-routine case of the student who disagrees with human rights). A factual solution designates an answer with no or low involvement of teacher in solving that provoking issue. These solutions have the lowest level of complexity.

The procedural solutions focused on action answers where teachers referred to their selves and provided a medium to high involvement solution: "I shall try to discuss with the student, trying to explain the importance of the human rights and to find good examples to support my point of view".

The conditional solutions are the most complex ones in the sense they link competing variables: group's opinions, teachers' opinions and instructional context: "I shall try to find out other students' opinions and if they agree with the student in discussion I shall animate a debate on this. If the group disagree with him, I shall ask them to bring examples and arguments".

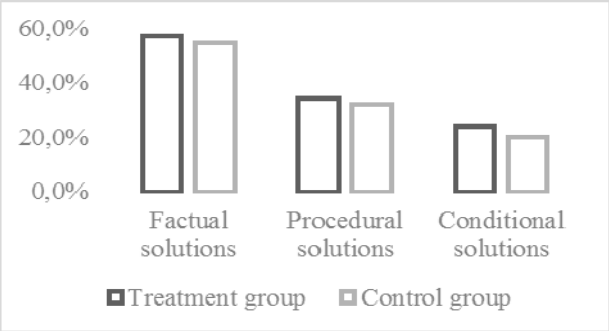
Fig. 1 Percentage of participants who were able to generate solutions for provoking issues in *posttest*



Significant differences can by identified by comparing the number of solutions provided in the pretest (see Fig. 2) and posttest phases. In the case of the treatment group the number of solutions increased quantitatively and qualitatively. A slight difference between pre-test and posttest can be noticed in the control group but we assume there is the effect of retesting the subjects.

The COMEGAN-ro questionnaire was not applied in the posttest phase. We consider that the training programme taking place during 80 hours is not enough to improve all the factors of the metacognitive construct. Thus it was preferred the qualitative approach.

Fig. 2 Percentage of participants who were able to generate solutions for provoking issues in *pretest*



3. A-HA APPROACH. TOOLS TO SCAFFOLD ADAPTIVE METACOGNITION

In this section we describe the *A-HA approach* designed to scaffold adaptive metacognition: provoking issues-based training. This approach is meant to support teachers to evaluate on-line and off-line routine and non-routine situations and to provide positive solutions to cope with those situations. The goal of this approach is to prepare teachers to respond to different situations that can appear in instructional contexts. Furthermore, we aim to provide them with appropriate strategies to analyze and differentiate from routine and non-routine situations. To support this approach we identified a number of frequent situations or recurrent problems in instructional sets (e.g. apathetic students, bad attitudes on school, low motivated students, and disturbing students).

The A-HA approach is based on erotetic techniques, namely asking the right questions in order to solve a specific situation. According to different types of questions, erotetic matrix were designed. The *Start matrix* aims to help subjects to decompose a specific situation in terms of known and needed to know information. The three main questions to ask are: *What do I know about this?, What I need to know about this?, What I would like to know about this?*. These questions drive the subject from a factual solution with low or no involvement to a high-involvement one based on stimulating teacher's curiosity about that situation. After the identification of needed information and variables, the participants provide solutions. These solutions are assessed based on another erotetic matrix described in Table 3.

Table 3 Erotetic matrix to scaffold regulation

	Before activity	During activity	After activity
What did I do right?			
What did I do wrong?			
What I will do again?			
What I won't repeat again?			

In addition, especially for low experienced teachers, an erotetic matrix for off-line evaluation was designed. Teachers are invited to use frequently this matrix in order to become more sensitive to routine situations and to identify the elements of novelty (see Table 4).

Table 4 Erotetic matrix to analyze routine and non-routine situations

	Answers
What did I do?	
Why did I do?	
Which was my reaction?	
What did I learn?	
Goal setting	

A very important element of this matrix is *goal setting*, challenging the subject to adopt prospective behaviors.

4. CONCLUSIONS

We conclude our article by summarizing the findings of the research study in relation to the importance of developing teachers' metacognitive competence. As argued in previous sections of the paper, there is a growing interest for metacognition research in sciences of education. Schools, students, parents, and teachers change. Classroom management strategies are not enough to offer appropriate solutions for specific instructional situations. Provoking situations and events may appear. In other words, *one size does not fit all.* Thus, teacher are challenged to offer solutions to increase the quality of instruction and to promote visible learning. To solve these situations teachers need complex metacognitive competences. The research revealed that teachers self-reported with medium to high levels of metacognition. Unlike the quantitative approach, qualitative data revealed a specific phenomenology of metacognitive behaviors affecting teachers' responses to non-routine situations. To discuss the first interrogation launched in this article, we say teachers are more likely to have routine metacognitive behaviors rather than versatile ones. In this case an ameliorative intervention is needed.

Furthermore, we proposed an approach designed to improve metacognitive capabilities of teachers, namely the A-HA approach, based on erotetic techniques. In relation to this training programme, the second interrogation focused on the impact of the A-HA approach.

Posttest data proved there are significant differences between the two moments of testing. The teachers in the treatment group were able to propose a higher number of solutions to solve provoking issues.

Our intent is that the A-HA approach will help to set up further research in the metacognition field and help teachers to significantly increase their metacognitive capabilities.

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THEORETICAL APPROACHES ON LEARNING FACILITATION IN MENTORING

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Abstract: *Within the professional insertion process of the mentee teacher, an important role is held by the mentor and the professional relation that is established between the former and the latter. The mentor needs to facilitate the beginner's inclusion in the organizational environment (the school) and guide him in the teaching career. Within this context, it is learning facilitation that we refer to, rather than the learning process itself, where the methods used by the mentor are specific to adults' education.*

The paper deals with a theoretical approach on several aspects of learning facilitation in mentoring, specifying the fact that learning facilitation produces changes both in the mentee and the mentor's role. Taking into account the fact that facilitation represents a new learning culture, that involves support, counseling and responsibility, communication has become extremely important within the professional inclusion process. In the present paper I am going to identify the main communication difficulties encountered by the mentee at the beginning of his teaching career. I am also going to present a few recommendations related to providing an effective feedback. Feedback in mentoring needs to be offered as often as possible, in order to guide and orient the mentee, as well as to convince him/her to remain in school after the mentoring period is over.

Keywords: *mentor, mentee, mentoring process, facilitation`s method, communication, feed-back*

1. INTRODUCTION

Mentoring is becoming a more and more widely-used concept in teachers' formation.
There are many definitions of mentoring in the specialized literature. Mentoring can be approached as a complex learning process, by which an experienced person in the field, the mentor, deals with an information transfer, or contributes to the formation of competences of a person at the beginning of his/her career, the mentee.

Mostly associated with the direct, face-to-face contact between individuals, namely those who are experienced in a field and possess certain abilities to convey it- the mentors-and those who need support-the mentees, mentoring represents an extremely important step in the professional inclusion process. Basically speaking, a mentor supports a person, the mentee, all throughout a transition process, in order to cope with new situations similar to the one when the mentee is integrated in the organizational culture of the school.

Mentoring is a process the essence of which consists in conveying abilities and

information from experienced people to beginners [1].

Mentoring is, most often, associated with direct, face-to face contact between individuals, involving mentors - people who are experienced in a certain field and possess certain skills in order to convey these skills, and mentees - people who need the mentors' support. We could say that a mentor supports the mentee in his or her completing a transition process, in order to cope with new situations, such as his or her integration process in a school's organizational culture.

A mentor can be defined as "a person who helps someone to develop himself/herself by learning; more specifically, a professional who works for a person, a group or an organization for the personal or organizational development." [3].

The concept of professional inclusion refers to integrating a young beginner or a new employee in the professional environment for which he/she received specific training. In the context of the necessity of teaching career professionalization, the professional inclusion of mentees entering the educational system has become a must.

As legally stipulated by OMECTS 5485/29.09.2011, any person who possesses certified experience within the educational system at school or high school level, who holds a permanent teaching position, who is a beholder of the first teaching degree, and who continuously attends teaching development courses can become a professional inclusion mentor .

The objectives of this type of mentoring are different from the ones of teaching practice mentoring. A professional inclusion mentor aims at integrating the mentee in the school, his/her preparing for designing, organizing and developing effective didactic activities.

Taking into account the way in which the relation mentor-mentee is accomplished, we can identify two types of professional inclusion mentoring.

1. **Face-to-face mentoring**. Either formal (within organized programs) or informal (by developing a one-to-one relation), this type of mentoring involves direct, face-to-face contact between mentor and mentee.
2. **Online mentoring** performed by means of the e-learning platform, by using information technology. Such a relation is the result of the mentee's observation and counseling from the mentor's (tutor's) part, where communication is moved to the virtual environment and has its specific features.

Irrespective of the mentoring type, the process is based on a series of principles:

- Acknowledging the differences between individuals regarding learning style, motivation, interest.
- Personal and professional development is a matter of personal choice.
- Encouraging people towards self-development.
- Encouraging collaboration, not competition.
- Reflecting on past experiences.
- Developing the ability of transferring and applying the learned lessons to new situations.

In the present paper the main communication difficulties encountered by the mentee at the beginning of his teaching career are identified. Also, a few recommendations related to providing an effective feedback are presented. Feedback in mentoring needs to be offered as often as possible, in order to guide and orient the mentee, as well as to convince him/her to remain in school after the mentoring period is over.

2. FACILITATING AS A LEARNING PROCESS IN MENTORING

In the mentoring activity, an important role is represented by the effective implementation of learning strategies, of mentees' support and monitoring within the professional inclusion process.

Therefore, creating a collaborative learning environment, which is comfortable from the social and affective point of view, has become a condition that leads to successfully completing a mentee's professional inclusion experience.

The whole mentoring process is organized around the mentee. He/she is the one who takes part in making decisions related to what he/she is going to learn, the most suitable learning strategy, within the limits of the learning content.

Within this context, we are talking about learning facilitation, rather than a learning process itself, and the methods used by the mentor are specific to adults' education.

Facilitation has the meaning of "guiding, orienting the person who learns on how to define his/her learning direction, to determine his/her aims and specific objectives, to discover his/her own learning pace and keep control on his/her own learning process." [2]
"Facilitation is the process by which a person supports other people to complete their activity and improve their communication style." (Farrell&Weaver).

Therefore, facilitation **is not** a formation, teaching, assessment, or control process; it involves the following:

- ensuring effective reciprocal communication;
-avoiding intrusion, aggression on the personal space;
- avoiding strict rules and regulations;
- helping the mentee to interact with his peers;
- availability for the mentee's requirements.

From the pedagogical point of view, the person who learns assumes an active role within the facilitation process, a role which is reflected in his/her interest in the mentoring activity. Learning facilitation determines changes in the trainee's role.

Therefore, the mentee becomes an active participant in the learning process:

- Participates in formulating the questions;
- Contributes to finding the answers;
- Gets involved in discussions and debates;
- Solves problems.

At the same time, the mentee produces and shares information and knowledge, but he/she also learns in collaboration with other trainees. It should also be mentioned that learning facilitation also produces changes in the facilitator's/mentor's role.

The mentor becomes a collaborator, a learning partner, who is able to provide the mentee with more options and responsibilities within the professional inclusion process. The facilitator/mentor provides support in learning facilitation, as follows:

- He/she asks questions
- Listens
- Provides constructive feedback;
- Encourages
- Motivates
- Controls

Special attention should be granted to the communication role within the professional inclusion process. Interactive learning relations cannot be built without communicating well.

The main communication difficulties encountered by the mentee during his/her probation period depend on the following factors:

- The style of the relation that is built between the mentee and the mentor, which is to a great extent conditioned by the communication manner between the two. This is the reason why –in order to give real support to the mentee- the mentor needs to convey messages that cover not only the intellectual aspects of communication, but also the affective ones, in a clear and personalized manner, making use of his/her sense of humor,

encouraging the mentee's autonomy, praising him/ her on his/her strong points, and stimulating the mentee to improve the weak points.

- Intonation of the voice and clarity of expression represent another essential aspect of communication between mentor and mentee. The mentor needs to pay attention to the way he/she formulates the questions addressed to the mentee, so that the latter is stimulated and encouraged to communicate in a friendly manner. During the discussions, the mentor can also refer to the mentee's daily activities, the social context within which he/she activates, etc.

In communicating with the mentee, listening represents more than the mentor's passive act of paying attention during a discussion. Listening involves concentrating one's attention on the discussion, the context and the interest that the mentor shows to the person who conveys the message. Active listening involves providing the person who transmits the message with appropriate feedback!

There are several types of listening:

- Listening without paying attention. This is a situation when the mentor behaves as if mentee conveyed no message at all. He/she does not look at the mentee in the eyes when he communicates, is distracted by other activities, which can be demotivating for the mentee. When not offered the appropriate feedback (either verbal or nonverbal), the mentee may interpret the mentor's lack of reaction as: "No one is interested in my contribution", accompanied by the subsequent demotivation.
- Listening followed by passing a judgement. There is listening and feedback in this situation, but it involves just negative judgements, without pointing out the positive aspects and the mentee's effort. This type of listening might inhibit the mentee and lead to his/her shrinking into his self and avoid communicating with the mentor.
- Listening followed by deviating from the topic. In this case, the mentor answers the mentee's message, but he changes the subject. As a result, the mentee may feel confused.

We recommend positive listening, which involves the following:

- Increased interest in the person who speaks and the message he conveys;
- Reflection on what the speaker intended to say;
- Attempt to find out what has not been said.
- Listening followed by questions. It is considered an active form of listening. The mentor confirms the reception of the message, by formulating questions, such as: *Who? Where? How? When?* Special attention should be granted to the question *Why?* We recommend avoiding passing judgement. The mentor should give positive feedback, encourage the mentee to analyze and study thoroughly.
- Empathic listening is considered to be the maximum level that listening can reach. Mentors prove their empathic capacity, by imagining themselves in the mentee's place.

In order to avoid the mentee's demotivation, the mentor can complete a series of actions:

- Answer the mentee's requirements as soon as possible;
- Start communication on an optimistic note; address the mentee in a friendly manner;
- Invite more dynamic people to collaborate and stimulate people who are not so willing to interact;
- Periodically send encouraging/motivation and/or congratulation messages;
- Not discriminate; avoid creating tense atmosphere;
- Frequently send suggestions on the manner the projects should be elaborated;
- Make the mentee aware on the practical importance of what he/she learns;
- Suggest to the mentee that he/she should make notes on his opinions,

things that have not been clarified, comments, encountered difficulties, and mention them to the mentor.

Feedback is vital in the mentoring activity and represents a necessity in guiding the professional inclusion process, in order to motivate the mentee and also to convince him to remain in school after he finishes the mentoring period.

The mentor needs to provide positive feedback, by active listening, which involves listening and formulating questions, and also getting involved affectively, by empathic listening. Apart from the above-mentioned aspects, feedback should be perceived by the mentee as an effective communication relation with the mentor.

Feedback in mentoring should be provided as frequently as possible, in order to orient the mentee and indicate him that he is following the right path.

In order to provide effective feedback, one should take the following recommendations into account:

- Feedback should be focused on positive aspects;
- Feedback should be constructive and not centered on criticism, ironical observations, etc.;
- The aim of feedback is to support the mentee and not assess or judge him;
- Feedback should be descriptive and not evaluative or critical. We recommend to avoid the words "good" , "bad", or similar ones, because they do not say anything about the behavior that the mentee should express/demonstrate;
- Feedback should provide alternatives;
- Feedback should be concrete and specific in order to help the trainee to take progress;
- Feedback should be offered immediately, in order to change/strengthen the mentee's behavior and not after a while!

In conclusion, in the mentoring process, the feedback given by the mentor to the mentee should be constructive for the mentee, very positive and motivating.

3. CONCLUSIONS & ACKNOWLEDGMENT

Mentoring is a dynamic and complex activity that takes place in a sequence of steps. The way in which these steps are taken depends on effective communication between the mentor and the mentee.

In all stages of the mentoring process, the mentor must prove good communication skills to provide guidance and support his younger colleague.

However, the decisive factor in the success of a communication remains the mentor. Throughout the relationship, the mentor is more of a facilitator, he doesn`t give lessons to the mentee, he supports and encourages in order to achieve the objectives.

At present, face-to-face mentoring is becoming an essential step in the Romanian teachers' professional formation, as a result of recent legislative initiatives.

It can be referred to as implementing an activity that represents a process of gradually acquainting the mentees with the typology of communication forms and the types of relations that can be established within the face-to-face or distance activities, as well as the working manners that are specific to the two parties involved, the mentor and the mentee.

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MEDIATIZED WORD. INFORMATION. EDUCATION. MANIPULATION

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Abstract: *The purpose of this article is to propose a twofold approach on the subject matter at hand, namely: a "positive" outlook which seeks to demonstrate that the media in general, and television in particular, are perceived as having a well-defined role in informing and educating the public; and the second one would be a "negative" spin on the situation which would expose the untold purpose of the media – manipulation. The education achieved through mass-media in an informal one, encompassing the totality of influences which exist outside the classic school environment and its adherent extra-curricular activities. In certain situations, this may very well provide a chance, an opportunity to those who lack access to basic information or education, individuals living in secluded areas, disoriented young people, destitute groups, or families living their lives isolation. Mass-media affirms a system of values which advocates for the public right to information. Its educational role is paramount to the proper functioning of a free, civil, and democratic society, as it combats corruption and power abuse. Media is the gatekeeper to our very way of life, promoting a standard of civil defense which guards against the threats of injustice.*

Keywords: *media, education, manipulation, dominance.*

1. INTRODUCTION

The aim of this paper is to provide a twofold approach on the subject matter at hand, namely: a *positive* outlook which seeks to demonstrate that the media in general, and television in particular, are perceived as having a well-defined role in informing and educating the public; and the second one would be a *negative* spin on the situation which would expose the untold purpose of the media – manipulation.

The education achieved through mass-media in an informal one, encompassing the totality of influences which exist outside the classic school environment and its adherent extra-curricular activities. In certain situations, this may very well provide a chance, an opportunity to those who lack access to basic information or education, individuals living in secluded areas, disoriented young people, destitute groups, or families living their lives isolation.

Mass-media affirms a system of values which advocates for the public right to information. Media is the gatekeeper to our very way of life, promoting a standard of civil defense which guards against the threats of injustice.

There are several circumstances under which education and information of young people take place. The media represents that

group of factors of education, called to amplify, create, or diversify knowledge and behavioral experiences of individuals. Press along with other factors: church, school, family, cultural institutions should not work independently or isolated but together by combining their functions. Most importantly, instead of competing against each other, it is crucial to establish and maintain a relationship of mutuality and reliability among these educational environments.

The media today is perceived as an essential component of the modern world, with a universality that is not ascribed to any other type of institution. Written media, radio, and television can act on: individuals, groups, institutions, or even society as a whole. At the same time, it could affect the human personality: on a cognitive level by changing the image of the world, on an affective level by creating or changing attitudes and feelings, and on a behavioral level by disrupting the individuals' way of acting and reacting.

The system of values that media claims to promote: the right to public information, freedom of speech and information, and also the access to information. Its educational role is paramount to the proper functioning of a free, civil, and democratic society, as it combats corruption and power abuse. The facts may be accompanied by reviews and comments involving the journalist's personality provided that he does not distort the events by presenting biased or malicious formulations, all of these aspects constituting the tradition of the old European journalism.

Other times, the media can be criticized for creating worthless cultural products, being considered as a powerful means of mass manipulation and gradual destruction of personality at both individual and collective levels.

From this perspective, the media creates false needs and offers the public artificial pleasures imperceptibly turning that audience into slaves.

The information itself has virtually no value pertinent to the subject of education if it is not intended to judge, interpret different contexts [1]

An uninformed or less informed individual is a citizen who is easy to manipulate by interest groups. The right of citizens to information involves the possibility of a person to have access to all information sources. The meaning given by Article 31 of the Constitution defines the concept of information saying that "citizens only have access to information of public interest, not the state Secret" is clear.

The purpose of education in human values is the accession to independence and professional competence. The media has no power of control, like state institutions, but the impact on society is overwhelming, develops critical spirit, creates currents of opinion, launches, and propels personalities and public figures. But not everything circulated bears the stamp of validity and relevance of value, for example: a slapstick film, a useless product, a drug that proves to be injurious to health etc.

2. MEANS OF INFORMATION AND COMMUNICATION

2.1 A SWOT Analysis of the Media. In the last century, the media has developed an impressive, overwhelming, platform in speech, expression, and communication. "Competition between newspapers, competition between newspapers and television stations stands the test of time. TV journalists are forced, due to the fact that a competing television media covered the flood, to seek to cover items that others have not had" [2].

In past centuries, the media was in its seriousness era, available only to a small circle of initiates, Enlightenment thinkers who discovered it as a necessity to enlightenment, empowering representatives of the popular classes in an effort to develop autonomous thinking training, elevated and even critical analytical prowess.

A SWOT analysis is used to identify and evaluate the following aspects: Strong Points, Weak Points, Opportunities, and Threats

2.2 Weaknesses. We can say that we are dealing with thriving business information pouring plentifully without the possibility of verifying whether the informational material is true or false [11]. Communist legacy media strongly influenced the nature of a current lack of a clearly defined political system, relevant to central control, attitudes of journalists

formed in the fifty years of communist rule contributing to the maintaining of the old system. Mass media today "remains more of a political than an informational tool" [7], according to Peter Gross's observations, "perpetuating the communist enthusiasm for manipulation being unfamiliar with the themes and events of the day, a tool for control rather than education; the repercussions of such misinformation and manipulations thriving in a state of civic and political infantilism" in which most Romanians are maintained [1].

Journalistic manipulation: the opposite hypostasis always aggressive and threatening, we have today envisioned the image of a subject controlled by the power press owners. This phenomenon is defined as a 'Lap-dog', when the dog licks the hands of its master. Limiting the media, manufacturing controlled reports results in loss of credibility.

2.3 Strengths. One of the media's strong points is its ability to act like a 'watchdog', regarding the proper functioning of state powers (legislative, executive and judicial). It is recognized as the fourth state power, monitoring how everything is respected and defended, overseeing the constitutionality of the rule of law and the power it has transferred unto the citizen in order to help him resist the abuses Power.

Through the press the people will always have a voice, and that voice shall be their absolute guarantee for freedom and protection against all types of abuse.

Mass media protects all social categories for one reason or another seeing beyond interests or particular problems in the power structure, acting as a 'watchdog' - always in an aggressive and threatening stance – "acting on behalf of the public drawing attention towards abuses of power" [4].

The programs and the amount of information provided entails forming a common consistent baggage of ideas and images, and the effects may trigger desired or undesired changes in the way different people are defined and in particular the extent to which the information they need is made available to them.

The press is a factor of global solidarity, meeting the needs of individuals: communication, adapting to the community, perpetuating the common values and identifying itself with those models that the community considers to be 'landmarks of action'. Also it is making efforts to change the old identity: combatting ideological indoctrination, endeavoring to mobilize the population, combat the personality cult, acting as a compelling vector of truth, creating a new image, obtaining credibility, the pursuit of unlimited roles for freedom and social evolution: educational, formative, the very consciousness of the free people, voice of the critical spirit.

2.4 Threats. Mihai Coman believes that the classical forms of limitation and influence burdening the mass media might be: a rigid legislative framework and system of regulations, economic pressures, political conventions through hegemony (and neutralizing the imposition of an ideology) denying access to information by manipulating journalists [4].

There is a 'pursuit of profit' in the press today, which is likely to disappear under the economic pressure. Some analysts provide solutions that seem to be at hand: to turn to other institutions in various areas of activity, able to assure the existence of alternative forms of financing.

The problem with wooden language, which seeks not to inform but to impress the receiver through an incantation emptied of content, placing the information submitted at the end of sentences that start with superfluous platitudes also represents a threat to the media as we know it.

Besides this, the danger of low morality in guidance shows an aesthetic detachment in relation to the serious problems of uncollected ways in which veracity tends to blur the boundaries between reality and fiction.

2.5 Opportunities. "A positive step for the future of Romanian journalism if and only if young people will be able to influence the profession and society in more ways than they wish to change their older brethren" [7].

- Freedom – "a free market of ideas" a competitive space, a space balanced only by the logic of supply and demand (intellectual) "may face a space where different streams of opinion can converge" [4]

Changes occur based on innovative visions and progress is made not by respect for traditions but by challenging the beaten path. Hegel used to think that history progresses through the worst of events.

It is important for man to form the personality of the modern individual, facilitating the handling of media messages in order to decrypt the meanings of various information relating to media operative sectors so as to select and appropriate information sources. It is about the sources relating to the issuing of new codes of reading itself, we are connected simultaneously to alternative issuers thus neutralizing false information, activating the skills needed to communicate with peers, behaviours that can perform and process through various exercises and educational practices.

3. MANIPULATION AND DOMINATION

"The effects of (political) changes in the media reinforce attitudes; or even change them altogether. The impact is greater on the undecided, especially if they say the same thing at the same time (= consistency) or when analyzing a small number of problems (= strength). Depending on how the media deals with the political phenomena, the influence can be positive or negative" [10]. Despite the methodological difficulties in solving this problem, one thing is certain for sociologists: "No summary of the effects, however brief, could neglect the role of the media in supporting, strengthening and orientating patterns or in maintaining social control and sometimes in shaping the symbolic legitimacy of a government" [14].

Centuries ago Sun Tzu glorified manipulation by disinformation, deception and division.

"If the code relative to the rewards and punishments is clearly drafted and implemented expeditiously, then you can use the crowd as if it were a handful of people" [13]. Or consider the known guile of Ulysses and the gift offered to the Trojans: a wooden horse inside of which the Greeks were hidden in order to conquer the city - encompassing all modern manipulation techniques. Since the early years of school we learn that even the Dacians were skilled in inventing wiles to mislead opponents on their intentions or the number of fighters available.

In our century, we saw the emergence of specially designed psychological weapons: radio and print media have contributed a lot from this standpoint especially during the two world wars, as precursors to the television media. "The first Gulf War was an overall success in handling all modern media techniques. The images of prisoners had a strong emotional impact on the enemy, like those scenes in which soldiers came out of the underground shelters and kissed the winners' boots, contributed substantially to the demoralization of the enemy and their mass surrender" [12].

The Second Gulf War brought a new formula: the embedding of journalists in teams of fighters, on-site, thus making journalists radiate emotion to the general public whose hearts are 'ticking' with love towards the 'hero' that transmitted, sometimes live, every event with spectacular effect. We are again dealing with the notion of manipulation.

Very convincing, as was the live experience is the media experience of the Revolution of 1989, which generated more feelings of doubt, mental bewilderment

because of manipulated news, false rumors and misinformation.

Modern European society tries to explain, but also to define the need for handling individuals, and for that, we must admit that: if our system of accumulation allows us, then the media domination will undoubtedly occur.

The French, for example, launched the concept of psychological field actions aimed at two levels of organization. The first relates to strengthening its own psycho-moral actions of mental protection. The second level includes actions of demoralization, poisoning and disinformation of the enemy [9].

The concept of manipulation itself leaves freedom for interpretation. Perhaps this unravels all the confusion of terms under which we analyze and comment on the phenomenon. We are talking about manipulation "when a particular social situation is created intentionally to influence the reactions and behavior towards the desired effect of the manipulator" [5].

Another feature of manipulation indirectly concerns itself with the concept of distance, between the one who manipulates the one manipulated. First it acts on the unconscious force of suggestion which is very large and the individual acting under pressure is not aware of this influence.

Therefore, cracking or changing the reference system may be easier as the shock caused by formulas (slogans) can elicit a strongly emotional response. There is talk of grooming and handling information, although both are intertwined.

Among the techniques that illustrate the effectiveness of these effects or events, which are all generative, we can detect "the foot-in-the-door technique", "the door-to-the-nose technique" bait strategies, manipulation protocols achieved through subliminal perception [5].

Informational manipulation is basically the method by which the actual act of domination and media influence extends in order to disseminate modified information throughout the world, aided by the development of communications technologies, diversification of media outlets that broadcast the information contributing to the achievement of this reality.

The term propaganda originally had a neutral sense, which is to spread the faith, then an opinion, a certain doctrine. Propaganda continues to be associated with lying and manipulation. It can be *open*, and would correspond to all modern public relations services, and *covert* (hide its origin), based on libel, slander and defamation.

Black propaganda is the most effective, addressing the most pressing issues and giving the impression that there are sources in the enemy territory. It may use the most perverse means of causing panic, confusion, tension, insecurity, by rumors, false alarms and phone calls, blackmail, imitating the voice of personalities known or psychological pressure on them (threats, seizure).

The grey propaganda, does not specify the source, but openly operates against the opponent, addressing topics that capture public hungry for the sensational. Depending on the method predominantly used propaganda may have emotional support, factual or persuasive [3].

The first aims to provide the deliberate provocation of strong emotional feelings and adhesions using images, verbal formulas and symbols with great emotional gravity. This propaganda manipulates the population vulnerable because of a low level of education,

especially in areas of the world where poverty and illiteracy prevail.

Propaganda with factual support is based on concrete facts and specially chosen criteria generally intertwined with the persuasive, through skillful use of rhetorical rules for capturing the emotional and intellectual audience. It is of great importance to ensure protection because "confrontation occurs on the battlefield of the human psyche, where opinions, beliefs and attitudes, are consistently reinforced or modified in the desired direction" [8].

3.1 Countering Manipulation. The strategy of countering should be aimed at the source (from where manipulation originates), understand the factors that mediate communication, motivation, technical means, the characteristics of targets, always monitor the effects arising due to manipulation, and explore new methods of countering them.

At an individual level, it requires a level of analysis and thorough self-analysis, alternating moments of detachment with involvement [5], the identification of discontinuities, the search for hidden motivations, the use and comparison of independent information sources and even a certain independence from the mainstream mentality.

Eventually, we cannot escape manipulation easily. We are often dominated, but in fact we manipulate ourselves at times, nobody forces us.

If aggression is an attribute of power and power is knowledge, victory shall favor the one who knows more. Everything is manipulation, conscious or not, negative or positive, depending on whose interests are satisfied. The dominator is aware that his domination brings forth an imperceptible influence over the person or group concerned.

Wars come and go, victories and failures are often reversed, history judges and the history is written by the winners. Only manipulation remains eternal, as a weapon of deception and awakening, as a weapon that does not kill, but only poisons and cripples our fragile intellects.

3.2 Recent acts manipulation. In July 2006, a reporter of the newspaper *Adevărul* posed as a representative of the School Inspectorate in Dambovita, and took 40 envelopes belonging to the National Examination and Assessment Service (SNEE). Only a few minutes after the fact, the Ministry of Education was informed about the daily management of employee negligence SNEE. The reporter went to a police station and handed over the sealed envelopes. What were the consequences: The Minister of Education sacked the Director of SNEE and the Romanian Prime Minister announces resignation of the state secretary for school education.

Effects of manipulation: the newspaper *Adevărul* devotes the front page to the story, and almost all other publications take on the subject. But there was no issue of journalistic fairness involved. Following this, conclusions are drawn towards terrible generalizations, political statements are made in haste, and the subject enters the media agenda. Nobody addressed the issue of deception regarding the reporter who had no formal quality regarding the matter. The purpose and consequences are all that matters.

Revista 22, through its editor Bogdan Diaconu, published an article in July 2006, to trigger public awareness into action. Diaconu condemns the newspaper's gesture, stating: "The action of the media escapes from the truth and profession of journalism, legitimizing a morally bankrupt journalistic approach. From now on, everyone will do the same, proving flaws, incompetence, errors, and frauds utilizing incorrect and immoral methodologies. This will encourage: 1) an innovation in investigative journalism, namely, creating events; 2) an old practice, but lawful, undercover investigation by falsifying identity, borrowing an official capacity; and 3) the introduction of new functions in the utility of a free press in a state of law, namely the press controls state institutions. The inventor is the Romanian press as a whole - with its lack of accountability, professionalism, values and self-analysis" [6].

In journalism, according to the teachings of David M. Friedman, "documentation is not theft [...] it is perfectly legitimate to consult, ask to borrow or buy any documents from their rightful owners, but it is dangerous to sneak in without authorization" [6].

Ethical codes prohibit practices such taking formal qualities. According to the Charter of the French journalists' professional duties, "A journalist worthy of the name will not permit the use of securities or qualities that they have to resort to dishonest means to obtain information or to abuse the good faith of someone". The Code of Ethics for Romanian journalists says that "The use of unfair means to procure news shall not be allowed".

3.3 Another blatant example of manipulation. In the September issue of the newspaper *Gardianul* we encountered an article which stated that "The Rroma man Valeriu Nicolae had bamboozled UEFA and through his action he had done his country of Romania a grave disservice".

The article sadly demonstrates that racism in Romania is not only limited to a handful of football hooligans, it is also very much present in mainstream media as well.

The article starts with the following statement: "After Steaua's home pitch was suspended by UEFA, the vice-president of the European Bureau for Rroma Information, Valeriu Nicolae, took credit for this abominable attack against Romanian football". Not only does the article initiate and manipulate feelings of racial hatred, through the expression pattern *Rroma X...*, but the author of the article himself directly commandeers emotional functionalities of racism by referring to the event as an "abominable attack against Romanian football". The article published by the newspaper *Gardianul*, has all the makings of blatant incitement towards racial hatred.

4. CONCLUSION

A message will stream across multiple stages in order to reach its media zenith, from the release of that pertinent information, its subsequent transference inside the pages of a newspaper, until the final conception of intact information.

The obsession with media manipulation exists within a paradoxical functional paradox, as it is often ludicrous and justified at the same time.

On many occasions, The term "manipulation" is wrongly used, launching ridiculous theories that someone is "watching from above", but basically the Romanian press has all too often fostered its own existence between extremes, and luring its audience down this dangerous rabbit hole as a result.

We have debated, analyzed and exemplified this phenomenon, through the thorough understanding of the entire informational chain: influence, persuasion, propaganda, advertising, intoxication, hypnosis, brainwashing, neuro-linguistic communication, misinformation and manipulation,

If the audience is vigilant and duly warned over these phenomena, then he/she shall learn the necessary technique needed to resist media manipulation.

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SEARCHING FOR SHREDS OF ORDER. THE STRUCTURE OF TODAY'S INTERNATIONAL SYSTEM

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Abstract: *After a brief introduction, dedicated to historical desire and philosophy of the international relations (IR) and order or to its specific personalities and their spiritual bridges to contemporary trends, this paper follows the demarche based on three sections. The first section dwells upon different IR schools of thought, the second grapples with the original notion of the alliance capitalism and the third sketches the basic tenets of the grape shaped international system while conclusion outlines direction for future research.*

Key words: *alliance capitalism, international relations (IR), international order, inequalities, polarization*

1. INTRODUCTION

It is not very original to say that today's world remains gripped somewhere between war and peace; between stability and instability. It is not probably threatened by a looming global conflict such as were the XX century cascade of hegemonic clashes (1914-1918; 1939-1945, supplemented by a Cold War- 1945-1990) but still has to respond to numerous crisis of different sorts, from financial recessions, wide spread hunger, the structural impotency of national economies to generate work opportunities for both young and senior people, transnational terrorist networks or pandemics that irradiate seemingly out of nowhere to test the limits of modern medicine. From a more taxonomical perspective, one needs to reassess notions such as nation-state, great/small power, sovereignty.

In an exercise in historical philosophy, Daniel Drezner draws comparative bridges between the age of Saint of Augustin and today. Both now as in the dawn of Middle Ages as reflected in De Civitate Dei:

„*We are at the dawn of a new epoch that may well be as chaotic as that one and that may come upon us more quickly because of the way the electronic and communications revolutions, combined with a population boom, have compressed history. […] In The City of God, St. Augustine revealed that it is the devout — those in search of grace — who have no reason to fear the future. And as the tribes of old now slowly come undone in the unstoppable meat grinder of developing-world urbanization, religion will be more necessary than ever as a replacement. Alas, extremist Islam (as well as evangelical Christianity and Orthodox Judaism in the West) may make perfect sense for our age, even as its nemesis may not be democracy but new forms of military authority. Late Antiquity is useful to*

the degree that it makes us humble about what awaits us. But whatever comes next, the charmed circle of Western elites is decidedly not in control." (Kaplan, Foreign Policy, 19 December 2013)

In order to alleviate some of those methodological problems our article proposes the grape metaphor with predictive potential for short-to-midterm dynamics in the international system. Thus, our suggested model envisaged a picture shaped by both great power rivalry as well as interdependence. More so, even though great power rivalry will not vanish, the risk of direct clash runs low, but at the same time one may notice an increased probability that those great powers become eager to assert their regional hegemony and force themselves upon smaller neighbors.

The reminder of this paper contains three sections. The first dwells upon theoretical shortcomings of different IR schools of thought, the second grapples with the notion of alliance capitalism and the third sketches the basic tenets of the grape shaped international system while outlining direction for future research.

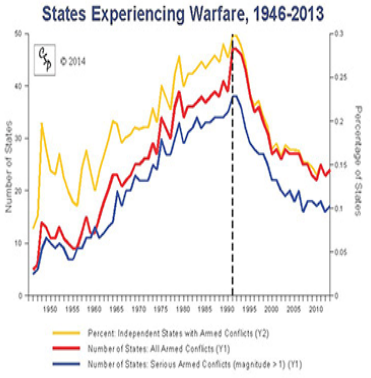
2. THE UNDERUTILIZATION OF NEOCLASSICAL ECONOMICS IN INTERNATIONAL RELATIONS

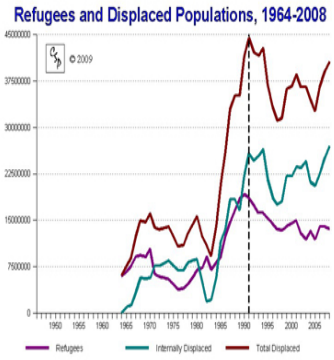
The behavioral revolution helped the systematization of social sciences. Borrowed models from neoclassical economy and cybernetics opened new fertile paths to research and brought closer the perennial ambition of transforming humanities into something more akin to hard science. Especially for the study of International Relations behaviorism strove to move away a still essayistic domain, largely tributary to history into a predictive algorithm.

Thus, Kenneth Waltz argues that states should be considered rational actors behaving according to costs-benefits analysis. Drawing upon that he linked the overall systemic stability with the number of great powers/poles occupying the map. On the same veneer while expanding the Waltzian perspective, ground-breaking theories of Robert Keohane and Joseph Nye maintain the rational actorness of states but describe an international environment where anarchy and security dilemmas are mollified by rules, international organizations, channels of communication, all wrapped up by the economic interdependence that swept away since 1960s till today. Unfortunately, none of those authors did not use to the fullest the potential of economic thinking.

The world that emerged after 1991 did not fully vindicate nor validate any of the major paradigms in IR. It did not entail a global counterbalance against the United States, or the breakdown of the nascent European Union as some realists would have argued. At the other end nor has ushered unbridled pace and open-to-all prosperity as many liberals have wished. As for the victory of market-driven development, it may have proved wrong Socialist dirjisme, but Marxism will have reasons to reveal disequilibrium as long as the gap between the have and the have-nots gushes, North-South divide traps millions in daunting poverty or middle class dwindles in OECD countries as many studies demonstrate.

Concerning global trends in armed conflicts, 1991 marked a turning point with lowering in this sense but at the same time the number of worldwide refugees embarked on a ascendant path:



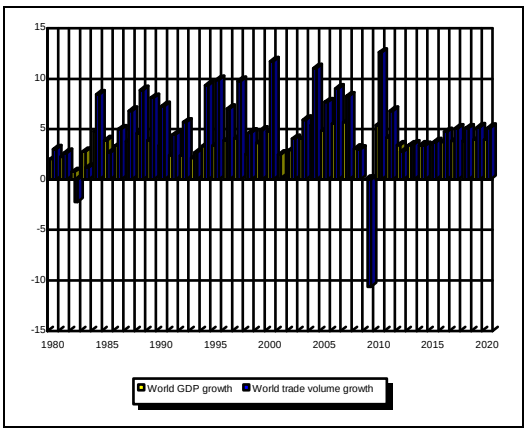


Source: Center for Systemic Peace, 2013

Two other important rates, namely the rates of economic growth and global trade volume growth, reveal the specific gap between these international economic major results, and describe a perennial increase in the domestic macroeconomic interdependences, for the both valid periods of analysis, the first being based on the real facts, during 1980-2014, and the second as a medium-term forecast or prognosis, for the period 2015-2020 (Table no. 1, based on statistical data of *Global economic knowledge at your fingertips, IMF,* Spring Catalog 2015).

The world economic growth and the world trade volume growth, in percentage value

Table no. 1.

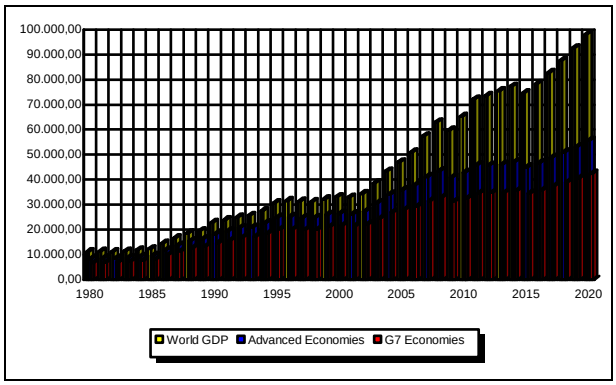


Source of data: Global economic knowledge at your fingertips, IMF, Spring Catalog 2015,[on-line] Available on: http://new-allirs.rhcloud.com/info/Global-economic-knowledge-at-your-fingertips,-IMF,-Spring-Catalog-2015/

The macroeconomic results, through the general trends of the structure of GDP formal or current value in billions US Dollars reflect a contradictory process (Table no. 2), but this is just relative and formal, if the analysis does not apply demographic corrections, using GDP per capita and different tendencies between of the highest wealth's level and the average dimensions of the same indicator:

GDP nominal value, in Billions US. Dollars

Table no. 2



Source of data: Global economic knowledge at your fingertips, IMF, Spring Catalog 2015,[on-line] Available on: http://new-allirs.rhcloud.com/info/Global-economic-knowledge-at-your-fingertips,-IMF,-Spring-Catalog-2015/

The relative decline of the middle class, together with the increasing polarization and inequality, described as the three major contemporary economic and social trends, have been detailed and finally aggregated by Thomas Piketty (Piketty, Postel-Vinay, Rosenthal, 2006, pp.236-25; Piketty, 2014), in his latest regional or global researches, in published papers and books:

"Between 1987 and 2013, the highest global wealth fractiles have grown at 6%-7% per year, vs. 2,1% for average world wealth and 1,4% for average world income. All growth rates are net of inflation (2,3% per year between 1987 and 2013)" (Piketty, Zuchman, 2014, p.93)

What finally resulted instead of expected world cohesion was a hybrid combination that cuts through several methodologies. Thus we may take notice of a multilayered cake where:

- great powers tailor a century style concert and become aware of the necessity to shoulder planetary responsibilities. Hegemonic wars are less probable now due to the existence

of nuclear weapons; (Mandelbaum, Winter 1998-1999, pp.20-38)
- regional blocs formed and continue to mature based on geo-cultural proximity and economic parity;
- nations try to stay connected to international finance albeit with a protectionist twist, courtesy 2008 crisis;
- outsourcing generates a multinational division of labor and rewrites geopolitical alliances.

3. THE ALLIANCE CAPITALISM - A THEORY BUILDING CONCEPT

A new kind of free market economy, or more precisely a new capitalism, is emerging and developing under the eyes of the theorists, and especially of the practitioners concerned with modern relations and realities. The reasons and arguments for that new inceptive process are mainly related with the economic sphere. According to the authors of this article, there are premises, which are amplified through their importance and impact, and also exogenous factors that have accelerated and are still accelerating a process of doubtless crystallization of the new *capitalism of alliances*. First, a functional prerequisite of international relations, built solely on their economic basis, identifies the fact that the modern economy is more and more substantially rewarding all those who managed to fully achieve things, and thus closed the so much needed economic cycle of the existence of mostly balanced international relations, providing energy resources, raw materials and new technology for producers, bringing their products and services to the market and thereby making possible the balance of meeting potential demand by offering real supply, in international markets where the consumer is in fact bounded by the national economies. The phenomenon of incentives and rewards have generated, over time, structured alliances, networks derived from their de facto node, defined by companies or corporations transiting nationality, reverberating and redefining trans-nationality, and the layers of the political fabric, or materialized political power, having become structural and energetic flows, have acquired new regional, national and international trends, being placed in a continuous and contradictory inter-layer dynamics, very much like some physical phenomena in the theory of stationary waves (expansions of regional layers are offset by the contractions of international and global strata). (Săvoiu, Iorga Simăn, Crăciuneanu, 2012, pp.5-27)

By redefining the globalized and structuring context of international relations in the global economy (vertically launching the local company or corporation, in regional, national and transnational or international networks). Each entity is transcendent temporally, and has subsequently managed, through spatial alliances within horizontal networks, to generate specific inter-relational layers, and finally a type of capitalism completely original by excessive concentration. A survey, conducted at the end of 2011 by the Swiss Federal Institute of Technology in Zurich (Glattfelder, Battiston, 2011, online), managed – via processing a database comprising about 37 million companies and investors around the world, as well as the then existing 43,060 transnational corporations (in keeping also with their share of property, which reunited them, as well as customizing their characteristic alliance through network nodes) – to confirm the final setting up of the new kind of capitalism. The major features of alliance capitalism combine the five principles of contemporary globalization and another three axioms of modern alliance.

Thus, the principles of *internationalization* (initiated in trade relationships and completed in political, etc. relationships), *liberalization* (generating more and more open international relations by easing the economic restrictions imposed to governance in interstate dynamics), *universalization* (derived from the process of rapid innovation and technological change, impacting on international relations), *modernization* (extension of the social structures of the classic capitalist world to the flexible ones of modern alliances, etc.) and *deterritorialization of the world* (as a consequence of a new reality, where space tends to no longer include distances and borders, following a set of alliances an increasingly adapted type of capitalism) are

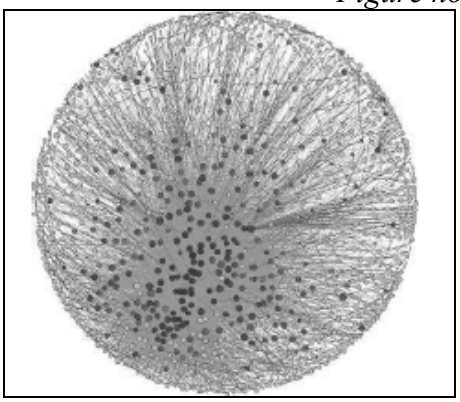
supplemented by the axiom of guaranteed negotiation of the win-win type (for the signatories of the alliance), the axiom of imposed negotiation of the win-lose type with the rest of the companies located outside the alliance, as well as the axiom of the continuous contraction of space or the network external to the alliance.

Globalization has become "the inexorable integration of markets, nation-states and technologies to a degree never witnessed before, and that empowers corporations, countries, and individuals to reach around the world farther, faster, deeper, and cheaper than ever before, and in a way that is enabling the world to reach into corporations, countries, and individuals farther, faster, deeper, and cheaper than ever before" (Friedman, 1999; 2005), but also the more detailed (and deepest) "integration of countries and peoples of the world, due to the severe reduction in transport and communication costs by the bankruptcy of barriers to flows of goods, services, capital, knowledge and human capital" (Stiglitz, 2002); it becomes, from a possible historical process, a practically fulfilled process, especially as a result of alliance capitalism, which dominates contemporary international relations.

Some of the findings of the research conducted by the Swiss Federal Institute of Technology in Zurich, resulting from processing the largest database until then, identified a process of network control of the exploitation revenues, or in other words a control of transnational companies over national companies, of national companies over local companies, and emphasized that at the first level of concentration of transnational companies feature only 147 transnational companies or corporations, which already held 40% of the exploitation revenues, generating a second ring or network of concentration by investigating their control over the regional and national level – including 737 corporations which owned circa 80%.

The scope of the global economy and the network of expansion of alliance capitalism via transnational companies or corporations

Figure no. 1



Source: Vitali, Glattfelder and Battiston, 2011 p. 6

There is also criticism of the *liaisons dangereuses* nature of these new alliances, which appear to be the natural result of the monopolistic character of international life by increased connectivity through risk sharing at the expense of those situated outside the alliances (Battiston, Gatti, Gallegati, Greenwald, & Stiglitz, 2012, pp.1121-1141), and also by constantly influencing the investment processes of mergers and acquisitions, outlining a systemic risk of access in the international relations for those that are not part of the alliance.

Investment, by its component having the greatest involvement in the medium and long term, not hot at all compared to portfolio investments, i.e. foreign direct investment (FDI), represents a 20% share in global GDP and is ranked second among the most important exogenous factors of alliance capitalism. The alliance reinvests in its own economic spaces, or the spaces that are potential signatories of the agreement or

alliance partnership, and never outside it – the essential cause being mainly lack of control over the repatriation of earnings (thus, repatriation becomes an obsolete concept, its meaning becoming closer to returning to the space of the alliance).

What is easily identifiable as the third and last major exogenous factor of alliance capitalism is reshaping partnerships and alliances in the increasingly diverse and complex temporal and spatial contexts of contemporary world. The unions, alliances and consortia supplement and fill all this universe of alliances, focused on monetary principles (the European Monetary Union), on free trade areas, on complementary resources and technologies, dilating the reference spaces to one-continent and even many-continent dimensions, etc.

Summing up, the remarkable investigation undertaken by the Swiss researchers (Vitali, Glattfelder and Battiston, 2011) confirms the maturation of a phenomenon of transformation of modern capitalism into an alliance capitalism, which is actually preparing globalization at its maximum expansion, as the original limit of potential alliances.

4. THE CHALLENGE OF CONSTRUCTING A MODEL OF INTERNATIONAL POLITICS BASED ON THE ALLIANCE CAPITALISM NOTION

In the last section we push forward what we chose to baptize: “the grape-shaped model” of international politics which basically outlines that in the foreseeable future (15-20 years) great powers will choose to cooperate in spite of their continuing rivalries but, at the same time, they are more prone to dominate and even conquer their near abroad.

We have seen in statistics that the contemporary international relations and realities oscillate between imbalance and balance; being placed in a continuum space-time dimension, similar with no man's land in international conflicts, and thus neither war nor peace can dominate.

Now that we have been acquainted with the notion of alliance capitalism, it remains to be examined how one can employ in so as to model the landscape of today’s international politics.

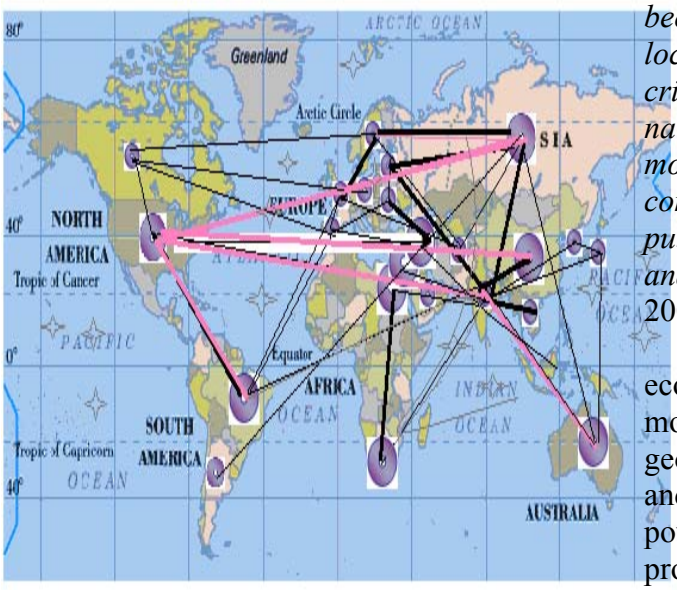
We shall follow the same path of the structuralisms. For both Waltz and Keohane hold the premises that market represents a homogeneous environment bound by like-minded units bound by profit seeking (with the only difference being their seize). However in reality market brings together all kinds of actors, private and governmental, local and transnational with different functions and areas of activity. Michael Gerlach, above mentioned, studied how the Japanese culture harmonized public agencies with keiretsu, banks along other enterprises in generating welfare (Gerlach, 1996). The alliance capitalism model helps us to explain:

1) how market involved actors can be simultaneously rival and still cooperative or bound by certain rules (transparent practices, legality etc);
2) how economy creates division of labour and specialisation (some make goods; other services, and other engage in money lending).

Point 1) has correspondence in international politics where nuclear weapons and multilayered interdependence limit the behavioral exaggeration of all important actors (Mandelbaum, 1998-1999, 20-38).

With respect to the 2) point, we should ask ourselves why nation-states cannot conceived as performing different roles and behaving according to a systemic division of labor? Thus some of them are agro-industrial, other base their economy on tertiary sector, while others act as fiscal havens! Concerning security one can also notice differences between great, regional and smaller powers, or between status-quo entities and revisionist entities. One of the best examples for all said above is the entanglement between the United States and People’s Republic of China. The noun <Chimerica> coined by Niall Ferguson and Morris Schularick described in early 2000s a symbiosis with America cast as the big spender and China as the big lender (Ferguson, Schularick, The Wall Street Journal online, 5 Feb 2007; Ferguson, The Telegraph, 94 Feb 2007; Bernstein, The New York Times, November 4, 2009; Karabell, The Huffington Post, November 13 2009). Another sample,

caught in an ongoing drama is the relationship between NATO/EU and Russian Federation. After 1991, a weakling Russia, still recovering after the Soviet collapse dwell on the brink of failure and was substantially helped by the Western world. At the same time, supranational organizations in the like of NATO and EU pushed their realm closer to Russian borders to the irk of Kremlin (Tsai, 2003, pp.68-69). When Moscow recovered due to oil revenues and a more nationalist elite, it changed the third world money borrower image with a boastful neoimperialist face bent to recover former glow (Perovic in Perovic, Orttung, Wenger, 2009, pp.1-21; Mearsheimer, Foreignn Affairs, September/October, 2014; Petre, CSEEA, May 19, 2014).



Another category that should be taken into consideration by an alliance capitalist based IR theory is the failed states. Hovered by shoddy institutions, massive poverty, non-governance and often safe havens for terrorist networks there are the equivalent of toxic assets which can hamper a solid market.

John Dunning eclectic paradigm which dresses the alliance capitalism notion helps explains how firms invest based on geographical consideration and display eagerness to acquire immobile assets: " *Contemporary economic events are suggesting that the nature and composition of a country or region's comparative advantage, which has been traditionally based on its possession of a unique set of immobile natural resources and capabilities, is now more geared to its ability to offer a distinctive and non-imitable set of location bound created assets, including the presence of indigenous firms with which foreign MNEs might form alliances to complement their own core competencies.* [..] *.. it may be inferred that as the dynamic gains from spatial clustering and network linkages become more pronounced, so will the locational choice of firms become a more critical strategic variable. It also follows that national and regional authorities should pay more attention to the fostering of immobile complementary assets and cluster related public goods as part of their policies to attract and retain mobile investment*." (Dunning, 2000, pp.163-190, esp.178)

In the language of strategy we can translate economics in order to understand why the motives behind the race to pinpoint geographic, mineral and economic locations , and most importantly why several emerging powers are bent to assert themselves in the proximity (see China, Japan, and Vietnam play in South China Sea; Russia's push in Ukraine and Southern Caucasus or Central Asia, Iran involvement in Iraq to shape the course of the country and stop the spread of ISIS). (O Europă sigură într-o lume mai bună. Strategie europeană de securitate, 2003, pp.3-4 ; Friedman, The Atlantic, 24 December 2013 ;

Grumaz, Adevărul, 13 January 2015; Conflict Barometer 2014, 2015, pp.19-20)

The authors of this article argue that an alliance capitalism inspired IR theory has a fertile potential to read the dynamics of a multipolar world where globalism and regionalism will be riddled by probable local conflicts, and where we need a concerted effort to better the future.

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ASPECTS OF PROFESSIONAL BURNOUT AMONG NURSES

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Abstract: *This paper focuses on the job-related burnout among nurses working in Romanian public hospitals. The correlational study conducted on a convenience sample of 106 nurses working in two public hospitals aimed at highlighting aspects related to the perceived intensity of specific burnout emotional and behavioral manifestations among nurses and their relationships with other variables, i.e. age, length of service as nurse, family status, and emotional intelligence – an individual ability that plays an important role in optimal adjustment to specific nursing demands. Even though in the current sample the level of burnout dimensions was moderate, comparative data revealed significant differences between nurses differentiated by the hospital they worked in. For the whole sample the emotional intelligence score was a negative predictor of the sense of professional failure accounting for 12.6% of the variance in this dimension of burnout. This result suggests that nurses who show a lower ability to manage their own emotions are at higher risk to experience a sense of professional failure and dissatisfaction.*

Keywords: *nursing, burnout, emotional intelligence, correlational study*

1. INTRODUCTION

The topic of burnout has emerged in the literature over three decades ago [9, 12, 14]. Job-related burnout was conceptualized as one of the negative consequences of prolonged occupational stress, which occurs when an employee is no longer able to cope with stress at work (Pezet-Langevin, 2001). Job burnout is not a disease and should not be confused with depression.

Burnout and its organizational implications have their roots in people-oriented, helping professions in which workers continuously deal with people and their problems: nurses, doctors, educators, social workers, psychologists, firefighters, policemen, rapid intervention teams etc. Subsequently, the concept was extended to other occupations considered to be demanding and requiring a high level of professional commitment. The most common operational definition of burnout has been suggested by C. Maslach and S. E. Jackson [9] to describe this psychological condition among professionals in fields involving the delivery of immediate aid. According to this definition, burnout is characterized by three related dimensions: a) emotional exhaustion which is the feeling experienced by some employees that they do no longer have any emotional resource to cope with professional demands; from this point of view, emotional exhaustion must be distinguished from physical or mental exhaustion; both physical and emotional exhaustion are facets of chronic fatigue syndrome; b) depersonalization (cynicism) is the negative attitude (i.e., indifference,

coldness) towards the beneficiaries of their professional service; c) sense of professional failure (the employee feels to be unproductive and having a low professional efficacy). *Maslach Burnout Inventory*/MBI [9] is the most widely validated instrument which assesses the frequency and/or intensity of burnout dimensions.

Empirical studies have been focused on the effects of job-related burnout in relation to a number of indicators related to organizational efficiency, employee performance and attitudes towards work [7, 14]. There is also substantial empirical evidence on the relationship between burnout and indicators of physical and mental health in employees [3].

In addition to a number of factors related to certain characteristics of the nursing (e.g., role conflict, role ambiguity, supervision and control, work overload) a very important role in the genesis of burnout among nurses is played by interpersonal factors, i.e. emotional exigencies which are specific to nurse-patient relationship [4]. Thus, feeling emotionally overburden in the relationships with patients seems to play a crucial role in the emergence and intensification of professional burnout among nurses. Other variables found to have consistent relationships with the intensity of specific burnout manifestations among nurses were: the amount of time spent with patients and working with patients with poor survival prognosis [4], frequent exposure to pain experience and patient death [6], age [1, 5] – this factor shows the most consistent relationship with burnout [cf. 7] or emotional intelligence [2, 11, 13].

2. THE PRESENT STUDY

2.1 Aim. Starting from the operational definition proposed by Maslach and Jackson [see 9] and empirical evidence reported in the literature, this study aimed to deal with issues related to: a) perception of the intensity of burnout manifestations among nurses working in various public hospital unit or clinics; b) some variables that are related to burnout among nurses. The current study was both comparative and correlational.

2.2 Participants and procedure. Data were collected through a self-administered standardized protocol. One hundred and six nurses (16 men and 90 women) responded in this study. Of participants, 40 were working at the "Sf. Ioan cel Nou" County Emergency Hospital in Suceava and 66 at the "I. M. Georgescu" Institute of Cardiovascular Diseases (ICVD). The average length of service as a nurse was 12.95 years (SD = 7.86; range: 0.33-39 years). The average length of service in the job held at the time of data collection was 10.74 years (SD = 7.44 years; range: 0.25-36 years). The units or clinics the participants worked in as nurses were: medical therapy for patients with cardiovascular disease (33% of participants), cardiovascular surgery (31.1%), general or pediatric surgery, internal medicine, pediatrics or ophthalmology (2.8% of participants each), other medical specialties (e.g., plastic surgery, diabetology and metabolic syndrome, gastroenterology, orthopedics, obstetrics and gynecology, etc. – 17% of participants). The mean age of participants was 36.91 years (SD = 6.76). Over three quarters of participants were married, the remainder being unmarried (18.9%), divorced (3.8%) or having other relational statuses. Almost a third of respondents (32.1%) had no children in care, while 37.7% had one child, 27.4% - two children, and the remaining - 3 children.

Participants were recruited through convenience sampling of the medical staff at two public hospitals. Nurses completed the protocol with questionnaires at work or at home, after giving a verbal agreement to participate in the study. Responses were anonymous to encourage honesty.

2.3 Measures. For data collection nurses completed three standardized questionnaires. The first questionnaire covered a range of demographic and occupational characteristics. The second questionnaire [MBI; see 9] operationalized the dimensions of burnout. In this study we used a translated and adapted version of the *Maslach Burnout Inventory-General Survey* (MBI-GS). Nurses were asked to respond to a pool of 20 items scored on a seven-point Likert-type scale as follows: 1 – very little intense; 2 – little intense, 3 – quite

little intense, 4 – moderately intense, 5 – quite intense, 6 – intense and 7 – very intense. For each dimension, a total score was computed as the average scores of the corresponding items. High (between 5 and 6.50) or very high (between 6.51 and 7) scores were interpreted as increased subjective feeling of emotional exhaustion, depersonalization, and sense of professional failure. Investigations conducted by Maslach and Jackson [9] showed a good reliability (internal consistency and test-retest correlation), concurrent, discriminant, and criterion-related validity of MBI [see also 8]. For the sample of nurses who participated in this study, the internal consistencies (estimated with Cronbach's alpha coefficient) were: 0.83 (emotional exhaustion), 0.78 (sense of professional failure), and 0.62 (depersonalization).

Emotional intelligence self-assessment was performed by using the *Self-Reported Emotional Intelligence Test*/SREIT [15]. This measure is based on the conceptual model proposed by J. D. Mayer and P. Salovey [see 10] and includes 33 items scaled on a five-point Likert-type scale: 1 – strongly disagree, 2 – disagree, 3 – neutral (neither disagree nor agree), 4 – agree and 5 – strongly agree. For each participant, a total score was computed (by summing the scores for the 33 items) which indicated the level of emotional intelligence (possible range: 33-165). A high score was interpreted as a high level of emotional intelligence. In this study, $\alpha = 0.77$.

2.4 Results and discussion. Considering the possible range for score variation on the questionnaires administered to nurses, we obtained: a) a moderate level of emotional exhaustion (M = 3.56, SD = 1.14; lowest score = 1; highest score = 6.33); b) a low sense of depersonalization (M = 2.29, SD = 1.14; lowest score = 0.75; highest score = 5.25); c) a moderate to low sense of professional failure (M = 3.14, SD = 1.16; lowest score = 1; highest score = 6.57); d) a moderate to high level of emotional intelligence (M = 125.33; SD = 10.55; lowest score = 90; highest score = 150). The distributions of scores on burnout dimensions and emotional intelligence were quasi-normal, because: a) the absolute values of skewness (asymmetry) ranged from 0.27 to 0.57 (they were not significantly deviated from the zero value which is specific to a normal distribution); b) absolute values of kurtosis were between 0.21 and 0.75; c) values for the Kolmogorov-Smirnov (z) test used to estimate the normality of distributions were not statistically significant (range of z: 0.74-1.50; range of associated statistical significance thresholds: 0.052-0.633).

Gender-based comparisons of the study participants were not performed due to the small number of males and significant discrepancy between male and female subsample sizes. However, starting from the premise that, among nurses, to the high-level job duties and strain the family responsibilities are added, resulting in an increased vulnerability to stress symptoms, we compared the scores on burnout dimensions according to marital status and number of children. None of the demographic characteristics had a significant effect on burnout scores. Thus, married nurses (N = 80) had slightly lower mean scores on emotional exhaustion (M = 3.49, SD = 1.20) and depersonalization (M = 2.20, SD = 1.13), and a higher mean score on the sense of professional failure (M = 3.22, SD = 1.22) compared to unmarried nurses (N = 20) – M = 3.90 and SD = 1.01 on emotional exhaustion, M = 2.42 and SD = 1.20 on depersonalization, M = 2.87 and SD = 0.94 on sense of professional failure. However, differences between means were not statistically significant: t = - 1.37 and p = 0.172 on emotional exhaustion; t = - 0.78 and p = 0.435 on depersonalization; t = 1.20 and p = 0.231 on sense of professional failure.

Moreover, the values of one-way ANOVA F-test were not statistically significant (the independent variable was the number of children: N = 34 – no children, N = 40 – one child, and N = 32 – two or three children): F = 0.23 and p = 0.792 on emotional exhaustion, F = 2.57 and p = 0.081 on depersonalization, and F = 0.90 and p = 0.408 on the sense of professional failure.

However, the scores on emotional exhaustion and depersonalization were significantly related to the hospital nurses worked in. Thus, compared with nurses working in Suceava County Hospital, those who were employed at the "I. M. Georgescu" ICVD had significantly higher mean scores on these two burnout dimensions: t = 5.03 and p < 0.001 on emotional exhaustion, t = 3.26 and p < 0.01 on depersonalization. Nurses working in ICVD also had a slightly higher mean score on sense of professional failure, but the difference was not statistically significant (t = 0.69; p = 0.489). In addition of general nursing care, nurses working in cardiovascular surgery and medical treatment units of ICVD (a renowned health care facility that serves a large number of patients in the Moldavia region) also perform other specific activities depending on the nature and level of demands [13]. Thus, the staff working with cardiovascular patients provides preoperative nursing care to patients undergoing cardiac surgery. Specific to these patients is the risk (often potentially fatal) of cardiovascular disease symptoms, requiring permanent vigilance from medical staff and a high level of professional responsibility. The nurses are employed at the "I. M. Georgescu" ICVD have to perform a large volume of medical procedures according to strict clinical protocols, requiring quick reaction, good professional knowledge and an implicit assumption of the consequences of their actions. On the other hand, the clinical sensitivity of cardiovascular patients who are to receive a very strict protocol before surgery may be an additional source of pressure and stress. The peculiarities of nursing-related activities carried out in "I. M. Georgescu" ICVD may partially explain the results we obtained.

For whole sample of nurses, the correlations among scores on burnout dimensions and age and length of service were not statistically significant: r = - 0.02 and p = 0.815 (age), r = 0.02 and p = 0.836 (total length of service as a nurse), r = 0.01 and p = 0.875 (length of service in the current job) – emotional exhaustion; r = 0.05 and p = 0.558 (age), r = 0.003 and p = 0.997 (total length of service as a nurse), r = - 0.03 and p = 0.688 (length of service in the current job) – depersonalization; r = 0.01 and p = 0.922 (age), r = 0.08 and p = 0.387 (total length of service as a nurse), r = 0.07 and p = 0.432 (length of service in the current job) – sense of professional failure.

Of three burnout dimensions, only the sense of professional failure showed a significant correlation (negative, as expected) with emotional intelligence score (r = - 0.35; p < 0.001). For the other two dimensions of burnout, the statistical significance of correlation with emotional intelligence was marginal**.** Data of a bivariate linear regression analysis (which included the constant in the equation) revealed a statistically significant model (R = 0.35; F = 14.96; p < 0.001). Emotional intelligence was a significant predictor of the sense of professional failure score (b = - 0.03; SE = 0.01; β = - 0.35; p < 0.001) accounting for 12.6% of variance in this burnout dimension. Data were convergent with those reported by T. Brand [2] who, in a large sample of nurses, found consistent correlations between the sense of professional failure and three dimensions of emotional intelligence: recognition and expression of emotions, understanding emotions, and managing emotions. In the research conducted by Brand the scores on the dimensions of emotional intelligence explained together 18.1% of the variance in the sense of professional failure.

The result we obtained in this study can be explained by the importance of emotional intelligence in the adjustment to the emotional demands that are specific to nursing work. Thus, many nurses perceive their own work as invisible to others, undervalued and very complex [11]. Often, nurses believe they successfully overcome the negative emotional

states, but they feel emotionally exhausted. Some empirical evidence suggests that nurses with high levels of emotional intelligence more easily adapt to specific occupational stress. Emotional intelligence allows nurses to prevent the specific manifestations of burnout and other negative ideations [11]. Le Blanc et al. [6] showed that oncology nurses with a low level of emotional intelligence are more likely to experience burnout when faced with job-related emotional demands and do not have adequate coping resources. Therefore, nurses need specialized training to develop skills for managing their own emotions and to improve the ability to help patients to cope with their own negative emotions.

3. CONCLUSIONS

One of the most important result of our study is the negative relationship between the sense of professional failure and emotional intelligence. According to Mayer and Salovey, emotional intelligence is an individual ability that involves both cognitive as well as emotional domains [10]. Emotional intelligence is composed of four abilities that are dynamically interconnected in the daily human functioning: a) the ability to perceive and identify emotions in oneself and others; the ability to express emotions in different interpersonal contexts; b) integration of emotions into the cognitive system and of their influences on knowledge that an individual has already gained through experience; c) the ability to understand the significance of emotions, the relationships among various emotions, and their implications in personal and interpersonal functioning, and d) the ability to manage the emotions in different interaction situations, in solving various life-related problems or in coping with stressful demands. Mayer and Salovey suggest that the four facets of emotional intelligence operate in an integrative manner. Thus, the perception and identification of emotions require the emotional information processing, while the emotional facet implies the use of emotions to improve cognitive processes. The fourth facet implies the self-regulation of emotions according to the specific tasks which the individual has to solve or life situations he/she goes through. By its integrative nature, emotional intelligence contributes to cognitive and emotional adjustment as well as to personal development. In nurses experiencing high levels of cognitive, social and emotional strains, emotional intelligence can be of important instrumental value.

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FIGHTING SCHOOL FAILURE IN MATHEMATICS

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Abstract: *In the present work, we present examples of several methods to fight school failure in mathematics. In the first paragraph, we define the notion of school failure. In the second paragraph, we deal with the fight against school failure using differentiation and individualization with the help of group interactive methods: Cube, R.A.I., Jigsaw, Brainstorming, Quadrant, Reciprocal learning and teaching. The associated working tools are presented and exemplified with differentiated and individualized teaching activity. In the last paragraph, we analyze and illustrate the role of the ameliorative methods in the fight against school failure in mathematics. Other ways of reducing school failure are being listed and exemplified: interdisciplinary, teaching math games, the use of appropriate teaching materials and e-learning tools.*

Keywords: *e-learning tools, learning difficulties, mathematics, student assessment, teaching methods.*
***MSC2010*:** *97C60, 97C70, 97D40, 97D70.*

1. THE SCHOOL FAILURE IN MATHEMATICS

The Romanian society develops itself primarily through the educational system. In the educational process, its efficiency is of major interest, i.e. school success or failure. It is therefore important to prevent school failure. School failure at mathematics occurs at classes and even at some educational levels. It can lead to a series of future failures in the student's life, while passing through the educational steps successfully will help stimulating and giving him self-confidence.

School failure indicates backwardness in school, un-fulfillment of the mandatory requirements of the educational process, it reflects the discrepancy between the requirements, possibilities and results [3].

School failure is a negative alternative, an un-favorability of school performance [1].

Knowing the individuality of students is an important factor in the prevention, discovery and fight against school failure.

2. FIGHTING SCHOOL FAILURE IN MATHEMATICS USING DIFFERENTIATION AND INDIVIDUALIZATION

A cause of school failure in mathematics is the occurrence of learning difficulties at this subject. One way to reduce or even eliminate these learning difficulties is the differentiation and individualization of work, creating working groups or teamwork.

Differentiated work with students during math lessons, in groups or teams, can be done using some interactive group methods.

Examples:

At the CUBE method, the sides Apply and Describe will contain items of low difficulty, the sides Compare and Associate will contain items of medium difficulty and the sides Analyze and Argue will contain items of increasing difficulty.

At the R.A.I method, the difficulty of the stated question will be directly proportional to the mathematical knowledge of the student who is being asked.

The expert sheet of the JIGSAW method will contain two subthemes having items of reduced difficulty, other two subthemes with items of medium difficulty and the last two subthemes having items of high difficulty.

Using the BRAINSTORMING method, the spontaneity of the given answers will stimulate the creativity of all the students from the classroom.

At the QUADRANT method, the worksheets distributed among the groups of students will be designed differently.

At the RECIPROCAL TEACHING AND LEARNING method, in each group of four: the Questioner will ask clarifying questions for himself, the Summarizer will make a brief summary of the theory read, which will refer to the previous questions, the Clarifier will be required to have an overview and try to answer these questions, while the Predictor will imagine a generalization, or the subsequent course of the theory studied.

Differentiated teaching activity during the mathematics class can be organized using the following appropriate tools: individual worksheets with progressive levels of difficulty: recovery - for students who have difficulties in accumulating knowledge, development - for students with a level higher than average. Also, the homework has to be differentiated, in order to encourage all the students**.**

Example of differentiated treatment

Sheets of exercises with increasing difficulties, seventh grade –„ Rectangles"

The first sheet includes easier problems, the second consists of medium level problems and the third contains more difficult ones. The teacher guides and helps more the students with fewer opportunities in solving the problems.

Sheet no.1 (Simple problems of calculation)

1. If AB=5cm, AC=6cm, BC=4 cm, then the perimeter of the ABC triangle is.....cm

2. If a field is a square with a side length of 25 m, then the land area is:

a) 625m2 b) 100m2 c) 50m2 d) 62,5m2

Sheet no.2 (Complex computational problems)

1. A section of the roof in the shape of a trapezoid with bases of 12 m and 6 m and with a height of 4.5 m is covered with tile.

a) Calculate the surface area of the roof section;

b) If for 1 m^2 of roof are needed 8 tiles, how many tiles are needed to cover the roof section?

2. In a triangle with a perimeter of 90 cm, with sides directly proportional to the numbers 3, 5, 6, calculate the triangle side lengths.

Sheet no.3 (The problems of computing which require creativity)

1.The non-parallel sides AB and CD of the trapezoid ABCD intersect in point P. Knowing that AB=8, AD=12, DC=15, BC=9, calculate the lengths of PA, PB, PC, PD.

2. In triangle MNP, MN=10, NP=12, PM=8. Calculate the lengths of the segments determined by the inner bisectors of the opposite sides.

Examples of group-level worksheets (recovery sheet A, development sheet B) - eleventh grade

Topic of the lesson: Applications of determinants in analytic geometry

A

1) Write the equation of the line AB as a determinant and as a general Cartesian form if a) A(1,3); B(- 2,5); b) A(2, -3); B(- 1,5); c) A(2,0); B(0, 3).

2) Specify which of the points A, B, C are collinear, where: a) A(- 2,5), B(2,3), C(-1,4); b) A (1,1), B(3,3), C(5,5); c) A(- 3,2), B(1,2), C(8,2).

3) Calculate the area of the ABC triangle where: a) A(2,1), B(1,5), C(-2,4); b) A(1,1), B(2,2),C(3,4); c) A (3, 2), B (6, 4), C (9, 10).

4) Specify which of the points: A(- 3, - 3), B(3,6), C(- 2,1), belong to the line: 3x -2y + 3 = 0.

B

1) Calculate the area of the quadrilateral, with edges: A(1,2), B(- 3,4), C(- 1, - 2), D(3,2).
2) Demonstrate that ABCD, where: A(0,7), B(6,5), C(5,2), D(- 1, 4), is a rectangle and then calculate its area.
3) Consider ABC triangle, with: A (2, 3), B (4, - 1), C (5, 2) and D (1, 2). Demonstrate that the projections of D on the sides of the ABC triangle are three collinear points.
4) Consider ABC triangle, with edges: A(- 1, - 2), B(2, 3), C(-1, 4). Determine the M point inside the triangle, for which: $S_{AMB} = S_{BMC} = S_{AMC}$.

Also in order to fight school failure in mathematics, individualized activities are very useful and must be carried out with students who have a low level of intellectual development, in order to help them acquire the minimum knowledge required under the program. This type of activity involves adjusting the volume of information and teaching methods to the capabilities of each student.

3. FIGHTING SCHOOL FAILURE IN MATHEMATICS THROUGH AMELIORATIVE MEASURES

Of particular importance in the fight against school failure in mathematics is the taking of ameliorative measures by the teacher, mainly aimed at the correction of essential mistakes for each student, as well as of those typical for the whole class. It is recommended to analyze the mistakes and their ways of reparation in the classroom. It can be suggested to the students to carry out exercises containing typical misconceptions which must be identified.

Examples of misconceptions in mathematics:

Primary school

- there are confusions between the triangle and rectangle or between the inside and outside of a geometrical figure;
- during the transition from oral calculation (in which the numbers to be added up or subtracted are written in line) to written calculation, the students do not correctly arrange the terms/factors in order to perform that operation;
- students make mistakes at the algorithm of calculation of the unknown term;
- students make mistakes at the composing and decomposing of natural numbers, in the recognition of tens digit and the units digit;
- students do not know the neighbors of even and odd numbers;
- students do not command the correct ordering of numbers from least to greatest;
- frequent errors occur at the exercises of addition and subtraction with crossing tens barrier;
- the months of seasons or the own date of birth are not known etc.
- there are difficulties in associating the terminology higher, lower, with the corresponding operation;
- the data of the problem is not being consciously read or analyzed and therefore it is not correctly solved;
- the assignment of the exercise is not carefully read and therefore its requirement is being confused;
- mistakes occur in identifying the first factor of multiplication and in writing the products;
- the expression: "with....more" is confused with „by... times higher"
- mistakes occur in identifying the factors when the product is known;

- difficulties arise at transposing the problem's statement into exercise;
- the association between the name and operation (product, addition, subtraction, ratio) is not correctly made;
- due to inattentive reading of the statement, there are common mistakes at dual - choice items;
- difficulties arise at using the signs <, >, = in simple inequalities;
- mistakes occur in enunciating a problem according to a literal formula.

Secondary school

- mistakes occur in divisibility problems;
- mistakes occur in exercises with directly and inversely proportional measures;
- difficulties occur at the triangle and circle geometries;
- mistakes occur in applying the short calculation formulas;
- there is not a good command of the rationalization of a fraction;
- there are difficulties in applying the theorem of the three perpendiculars.

High school education

- mistakes occur in exercises with radicals of a degree greater than two;
- mistakes occur in operations with vectors;
- difficulties arise at the demonstration P (k) => P (k+1) for the mathematical induction;
- mistakes occur in calculating the derivatives of composite functions;
-there is not a good command of the application of the Darboux's theorem;
- difficulties arise at problems with recurrent sequences;
- the limits in which the **"plier's"** theorem is being used are not recognised;
- mistakes occur in the calculation of primitives which use variable change methods;
- mistakes occur in the demonstration of some inequalities using the properties of sequences.

Examples of ameliorative methods in mathematics:

1. At the simulation exam from the eighth grade, half of the pupils pertaining to a class achieved grades below 5. Possible methods to repair this situation are indicated below:

Option no.1*- to remedy the observed situation*

Summative evaluation is usually applied at the end of April. Until the national assessment date, there is usually an interval of 6-7 weeks. The remediation of the situation described can be achieved in several ways, but a maximum efficiency is given by an intensive additional training program, held at the school outside the class hours. The basic elements of this program are:

1. organizing daily additional training sessions (one hour maximum) on the fundamental topics of algebra and geometry for students who obtained low test grades;
2. each topic of training is accompanied by a short test with 2-3 exercises from the area related to the topic being addressed;
3. each topic must contain a small amount of theory and many examples; it is preferable that the topics which are currently given one or two hours in the class schedule to be divided into smaller sub-themes at the preparatory meetings.
4. the preparation of low-achieving students in mathematics should be done with small steps, and the suggested exercises must be addressed in turn at the blackboard by all the students of the training group;
5. at the end of the week, a summative assessment is applied, consisting of the topics tackled in the current week;
6. at the end of the month, a two-hour test can be applied, consisting of the topics covered in the current month, but, after the completion of the intensive training, a final test is mandatorily applied;
7. all the applied tests are afterwards being punctually discussed with the students; all the problems are being solved on the blackboard by involving those students for whom the solving of those problems was proved difficult or impossible.

Option no.2*- to remedy the observed situation*

1 Investigation through carrying out discussions with students and/or their parents in order to identify their opinion of the poor results obtained.

2. Questionnaires that will include short and clear questions related to the outcome. As all students will answer the same questions, an objective image of the causes which led to the poor results can be created;

3. Systematic observation of student behavior through notation and processing of this data;

4 Self-assessment tests, in order to evaluate their own level of training.
5. The teacher carries out a remediation plan by identifying common weaknesses in the preparation of students (worksheet with the eventual mistakes; presenting exercises with wrong "solution" and obviously false conclusion and identifying the mistake along with the students; recapitulation and fathoming of notions for the categories of problems and exercises where mistakes have been observed; students need to practice solving different types of tests with various types of items);
6. The teacher discusses with the students all their uncertainties and clarifies what they did not understand.
7. The application of modern methods of teaching and learning such as computer training. Being a very attractive tool, it can help students both at increasing their interest in mathematics and at enhancing their understanding of its contents. Computer assisted learning can contribute to the development of reasoning, imagination and creativity, as well as the ability of self-assessment.
8. Evaluation by computer. Unlike traditional evaluation methods, computer-aided assessment is objective.
9. The use of evaluation sheets. These will include various exercises and problems to be solved by students during the lesson. The evaluation sheet is useful also for the teacher to obtain feedback, upon which he can make suggestions and addenda.

2. The organization mode of the class is explained and the designed tasks are exemplified for a teaching sequence which is aimed at differential treatment, knowing that approximately half of the eighth graders being evaluated do not master the plotting of a first degree function:

- The class is divided into two groups, the group who has assimilated the representation of the function (group I) and the group who has to be assisted in order to represent the function (group II).
- The basic notions related to the first degree function are being repeated: domain, co-domain, representation of a point in the Cartesian system xOy.
- The students from group I are asked to give examples of direct proportionality: distance made-duration, amount-total price etc.
-Students are divided into sub-groups of 3-4 persons Ia, Ib,...., respectively IIa , IIb, ... each subgroup Ia is associated to a subgroup IIa. Those in the first "value" group will have to compose simple exercises for those in group II: axis representation of positive and negative numbers, calculating f(x) for different values of x, representing the pairs of values (x, f(x)) in Cartesian system.
-Students in subgroups II have a plenary presentation of solving one of the exercises suggested by group I.
- The level of difficulty increases if there is progress: it moves on to graphical representations of functions, the fields of definition modify or diversify, values of functions are being calculated using graphical methods.

Interdisciplinary work has also triggered good results in the fight against school failure in mathematics, as well as using mathematical teaching games, since they can be used differentially.

Example: (fifth grade) 4 groups are being established: geographers, historians, literates, biologists. Each group receives one sheet with workloads, as follows:

Group 1: Geographers

Alin and Mihai make a trip by following the route Brasov - Bucharest- Constanta. Alin

travels by train and Mihai travels by coach. Using the table of distances, calculate:
a) How many kilometers did Alin make by train;
b) How many kilometers did Mihai make by coach;
c) Draw the route map of the two boys.

Group 2: Historians

Stefan the Great ruled Moldavia between 1457-1504, while Mircea the Elder ruled Walachia between 1386 -1418.
a) For how many years did each of them rule?
b) With how many years more than Mircea the Elder did Stefan the Great rule?
c) Post on the map the photos of the two rulers in their region of reign.

Group 3: Literates

Using the table, calculate:
a) In what year was Mihai Eminescu born?
b) In what year was Ion Creangă born?
c) If Mihai Eminescu and Ion Creangă died in the same year, by using the data previously discovered, for how many years did each live?

Group 4: Biologists

By calculating the additions and subtractions, you'll find out:
a) How many insects can a frog swallow in 24 hours; 458 028 – 457 728 =
b) How much does the largest frog in the world weigh; 865 738 -165 734=
c) The frog reproduces by laying eggs. Find out how many eggs can a frog release.
a -6 748 = 5 474

Also, the systematic use of associated teaching materials will lead to the improvement of outcomes related to mathematics.

Hence, the use of educational software, interactive tables and e-learning platforms train also the low-achieving students in mathematics, and the handling of teaching materials helps them understand the concepts faster.

4. E-LEARNING TOOLS AND THE SCHOOL FAILURE IN MATHEMATICS

Using an e-learning platform for the teaching-learning-testing process has become a modern didactic means nowadays.

If in the mathematics class the professor is using e-learning tools, this will lead to a increase in students „sympathy" towards this subject, and also to the efficient lesson achievements, this way obtaining progress in mathematics for students with learning difficulties.

Thereby, using the e-learning ***AeL Educational*** platform as a support for teaching and learning, for testing and assessment, or other interactive blackboards, educational softs, didactic games, assisted by computers, tutorials, as complementary tools instead of using alternative classics methods for teaching will stimulate the interest, the self-confidence and the creativity of students in mathematics. All of this will lead to the removal of backwardness, minimizing the typical mistakes, even obtaining progress at this subject.

5. CONCLUSIONS

By differentiation and individualization, the quality of learning at the mathematics classes is rising. The multitude and variety of the sheets which the students are independently resolving is educating their attention, their capacity of memorizing, this creative imagination and their thinking flexibility. By intensifying individual and differentiate work, weak students obtain satisfaction in tasks accomplishment, gaining confidence in their own strength, and the good ones manifest desire in working additional exercises and increasingly harder problems.

Interactive methods enhance the attention and the interest of students, these ones becoming from spectators, actors. The involvement of the students in resolving group tasks is improving communication and determines development in the group cohesion grade.

Not all the methods are applicable, but the professor needs to learn to adapt and to perfect his theoretical methods depending on the scholar necessities, therefore the creativity of the professor is needed in the lessons success.

All the methods presented in this paper, used separately or altogether, lead to the progress of students who have difficulties in learning mathematics, as they managed to meet the performance standards specified in the curriculum and also to gain self-

confidence. The joy of success will increase their motivation for learning and effort toward self-improvement, as well as increase their independence in solving the problems, rhythm of work and pleasure to solve additional exercises and problems.

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ETHICS ON THE HORIZON. TOWARDS A COMPLEX ASSUMPTION OF A SECURITY CULTURE

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Abstract: *Military professionals face complex moral and ethical problems: not the garden-variety questions about whether one may lie, cheat, or steal, but rather sophisticated problems arising from conflicting legal and moral duties-and with a focus on important national security interests. In that sense, there could be great utility in codes of ethics that assist practitioners in addressing unique problems. The codes must not be an umbrella, a protection for the hierarchy and politicians. The codes must be a guide and a help. The soldier must be supported by his nation and must receive extensive education and training on military ethics.*

Keywords: *military ethics, code of ethics, ethics dilemmas, statement of core values*

1. INTRODUCTION

Armed forces will not be respected by their own populations, media and public opinion, if their behavior is not proper.

In sum, military ethics is at its core practical and professional. It is meant to be the handmaid of the profession of arms. It exists to assist thoughtful professionals to think through their real-world problems and issues. As in any other field of applied professional ethics, only those who have taken the time to understand the sphere of professional activity belonging to the profession are really in a position to be of much assistance. That requires learning the profession's vocabulary. It necessitates a deep understanding of the constraints under which the profession carries out its duties. It even requires an understanding of the internal structure and dynamics of the military profession, for example, the role of rank, promotion, division of military specialties, etc.

2. THE IMPORTANCE OF MILITARY ETHICS CODES

What is required of soldiers is however considerable. It is one among many reasons why the war should remain the last resort, because it places the combatants in tremendous dilemmas and difficulties. The codes must not be an umbrella, a protection for the hierarchy and politicians. The codes must be a guide and a help. The soldier must be supported by his nation and must receive extensive education and training on military ethics.

Here are the meaningful conclusions of the editors on a very important journal in ethics domain, Martin L. Cook and Henrik Syse, editors of Journal of Military Ethics. After years of managing scientific contributions about military ethics, in a preview presentation of their journal issue, they conclude that „it might be helpful to explicitly articulate our

core understanding of what military ethics is and ought to be"[1]:

Firstly and most importantly, military ethics is a species of the genus "professional ethics". That is to say, it exists to be of service to professionals who are not themselves specialists in ethics but who have to carry out the tasks entrusted to the profession as honorably and correctly as possible.

Secondly, critical assessment is a fundamental component of military ethics, understood as professional ethics. Most true professions have a body of law, giving both permissions and restraints to the profession distinct from those of ordinary citizens. So explorations of the limits of current legal guidance, and proposals for modification of law to be relevant to changing patterns of military practice, make a practical contribution to the body of professional military ethics.

Thirdly, historical contributions that present the contributions to critical thinking about war and the military profession are an essential piece of a comprehensive understanding of professional military ethics.

Fourthly, we have the contribution of religion to professional ethics. This is a complex field. Certainly for many individuals, the connection between their religious convictions and their professional activity may be deep and integral. However, confessional specific beliefs cannot serve as the basis of a general professional ethic in a pluralistic society.

Lastly, in a profession which requires courage and spirit, non-rational appeals that motivate have a role in encouraging those very attitudes and behaviors.

The follow lines brings us a challenging perspective of analyze the roots of conduct codes in military domain around the world. The study started in 2011 in the framework of a partnership between the French association Civisme Défense Armée Nation (CiDAN), and the foundation Charles Léopold Mayer for the Progress of Mankind, and came to some interesting conclusions, common creeds and behaviors, but some local specificity also [2].

The author says that all documents have studied around the world [3] identifies many common points, generally stressing the followings duties of a good soldier: fulfillment of the mission; spirited research of victory and/or refusal of the defeat; service of the Nation, Fatherland, State, People, Party; physical bravery and moral courage, up to the sacrifice of one's own life; sense of honor; discipline and respect for hierarchy; comradeship and contribution to unit cohesion; professionalism and exemplary behavior; neutrality, restraint; respect for traditions; honesty, unselfishness and frankness; discretion, no disclosure of secret information; an ethical (moral) behavior.

In all studied cases, the soldier has to fulfill his mission, serving his fatherland, State or Nation, putting his life at risk. It is not the soldier's aim to kill an adversary, on delegation of his State, but it is sometimes the result of his actions, when he uses lethal force, in the last resort, in fulfilling the mission.

It is evident that these documents must not be only statements of good intentions. Their content has to be taught, known, checked, applied, and the faults must be punished. The situations are thus very different, regarding the presentations and the contents, depending on the countries and their various histories, cultures, traditions, legal backgrounds.

Most of the codes ask in fact the soldier, who is now in most countries a professional, to be firstly a good human being and citizen, applying values such as patriotism, professionalism, honesty, integrity, solidarity.

In an integrated approach of a possible future unique European army, it has been questioning this new role that European citizenship empowers the multiethnic troops. So, here are proposals made by student cadets of French Military Academy (Ecole Coëtquidan), Saint-Cyr [4]:

Art. 1: True to his country and defender of the European Identity, the soldier serves with loyalty and honor respecting cultural differences and the desire to keep national independences.

Art. 2: Attached to the history and culture of the continent, the European soldier lives in accordance with the European democratic values and traditions which he commits for.

Art. 3: Professional Soldier, able to take initiatives, he must maintain his physical and

intellectual capacity to adapt to any circumstance.

Art. 4: Trusting in discipline and integrity, he obeys orders, respects laws, customs of war and international conventions.

Art. 5: With dignity, the European soldier lives in the respect of the military and political hierarchy; he shall safeguard national interests and security of the people and of Europe.

Art. 6: Member of a group of fraternal solidarity and struggle, and proud of his commitment, he acts with dedication, humor and candor; and work on cohesion, esprit de corps and the dynamism of its unity.

Art. 7: Aware that he may be required to take the life of his opponents, he seeks to fulfill his mission to the end, sometimes at the risk of his own life and that of his comrades, superiors and subordinates , with the will to win or defeat.

Art.8: The victory and future peace as his objectives in the long term, the European soldier controls his strength and respects opponent or enemy without ideological discrimination.

Art.9: He protects the poorest, and strives to promote justice and dignity by his example and his modesty; he does his best to offer a noble image of the armed forces and his unit.

Art.10: Fully-fledged citizen, the European soldier is a key player in the society to which he fully belongs and in which he must act for the common good.

3. MILITARY ETHICS IN EDUCATION

The experience in military education of some researchers is welcome to underlined for the case of ethics issue. In their opinion, to teach military ethics is to ensure the existence/to strive for meeting (some) of the following prerequisites [5]:

1. The military becomes a second family of the cadets. That means teaching ethics needs to be part of the overall organization behavior.

2. For ethics education and training to be effective in the military, valuing the ancestors and traditions despite the contemporary trend towards relativism and fragmentation at the level of national symbols should be a focus in the military.

3. Given the two-fold role of cadets and employees of the Ministry of Defense (i.e. both a military representative and a citizen), ethics must underpin educational endeavors. In addition, difficult as its outcomes may be to assess, ethics education and training should be approached in an integrated manner. Thus, the values, competencies necessary to uphold them should be carefully formulated and planned for every career step a military takes in terms of education and training. Last but not the least, one should not forget that education in general and ethics education in particular is about developing formal competences.

4. Ethics education and training must take into account the cultural and national features. At the moment, most of the case studies presented in ethics classes are developed based on the characteristics of cultures different from the Romanian one.

5. The goal of introducing ethics in an integrated manner into the curricula of the higher education defense institutions in Romania is to enable undergraduates, graduates and postgraduates to make informed, educated decisions in order to reduce the risk of misdeeds and faulty steps. Thus, by involving those attending career courses and who, most likely, will fill in high ranking positions in the Ministry of Defense several goals can be achieved: inculcating/instilling into the mind of future decision makers the arguments in favor of approaching ethics education and training in an integrated manner; using their knowledge in a relevant manner in order to bridge the gap between the

'old guard' and the 'new guard', elaborating materials related to ethical issues that can be used as future reference for educational and training purposes.

Another study is inspired from the Romanians combat experience, with soldiers and commanders who acquired different competencies along years of communication with the field [6].

The observations and lessons learned from the theatres of operations are a good indicator for those in charge with designing, delivering and evaluating military education and training courses/programs that new behavioral standards are imposed by environment and, hence, wise innovative and knowledgeable techniques need to be swiftly put in place. In this respect, as with any effort towards adaptation, we believe that one of the untapped ingredients of success is meta-knowledge and, given the area of our research and interest, military ethical meta-knowledge. However, for this ingredient to be properly dosed in the education and training processes aiming at building upon/instilling/encouraging discovery or reflection upon the ethical values of oneself or of others the researchers/educators/ trainers need to become fully aware of the untapped knowledge pool of those who have already participated in one or more missions abroad.

Thus, through the marriage of the knowledge and expertise of academic professionals and the meta-knowledge gained by the military the issue of how to better approach ethical education and training from a didactical viewpoint may be partially addressed. However, one more ingredient is required for the recipe to come out right. In this respect, our source of inspiration is civil life and, more specifically, indoor team building games as action learning techniques employed by companies to develop the talent and skills of their employees.

4. WHAT ABOUT INTELLIGENCE? ANY CODES AND ETHICS DILEMMAS?

On February 16, 2012, the National Intelligence University (NIU) hosted a first-of-its-kind conference, "Intelligence Professionalism: Ethical Basics, Codes of Ethics and the Way Ahead." The goal of this first conference was to discuss the importance of instituting ethical codes to assist intelligence professionals as they encounter morally ambiguous situations.

In a way this conference, together with other affiliation think-tanks and intelligence community gave birth to the very new National Intelligence Strategy of USA, lunched in autumn of 2014.

For the first time in the largest democracy of the world, as a result of events uncontrolled leakage of classified information there's the question of deep evaluation to a set of professional ethics values which should be undertaken by intelligence operators.

These principles are stated below, and reflect the standard of ethical conduct expected of all Intelligence Community personnel, regardless of individual role or agency affiliation and to set forth in a single statement the fundamental ethical principles that unite and distinguish intelligence professionals.

Here are the proposals for an Intelligence Community Codes of Ethics, after a tour of participants [7]:

1. Service. Our shared commitment to our national security mission must have priority, taking precedence over parochial interests, organizational as well as personal. We have an uncommon mission, and it requires selfless dedication to our nation and its citizens.

2. Integrity. We must have the courage to seek and speak the truth to power . . . to our leaders and policymakers, our superiors and subordinates, our colleagues and co-workers, accepting the consequences of doing so even in the face of personal or professional adversity.

3. Accountability. We must hold ourselves personally accountable for achieving results, as well as for adherence to all the laws and rules that govern how our most sensitive missions are to be accomplished.

4. Professionalism. We must always foster a competitive, highly trained, and proficient workforce. The value of intelligence starts with our people. Professionals in the intelligence field protect their sources and

methods and disclose both corruption and questionable activities pursuant to law, rule, regulation, and executive order.

5. Duty. We must stand ready to deploy, engage against, and *destroy* the enemies of the United States of America, both foreign and domestic. *Duty to our country comes before individual desires.*

6. Agility. We must be adaptive to our rapidly changing world using mission-driven professionals who embrace innovation and initiative.

7. Tradition. "You can't move forward if you don't understand your past." The IC is the result of much more than the National Security Act of 1949. We cannot afford to make the same mistakes again ... the legacy we leave behind is directly related to the work we do today.

The same conference have released also a cover of fundamental military behavior, specific to organizations and personnel that comprise the IC, so here is the *Statement of Core Values*:

1. Integrity. We will be honest, fair, impartial, and unbiased as we collect, report, analyze, and disseminate information. We will be true to the law and report wrongdoing if it is encountered. Professionals protect their sources and methods, and they disclose both corruption and questionable activities pursuant to law, rule, regulation, and executive order.

2. Excellence. We will perform our duties in a manner that fosters a culture of excellence and high quality in everything we do. Our work ethic must reflect this goal.

3. Accountability. We firmly believe that our mission is a public trust. We will live up to this trust through safeguarding our resources and being good stewards of the American tax dollar.

4. Respect for Others. We recognize the inherent dignity and rights of every person, and we will do our utmost to fulfill our responsibility to treat each person with fairness, compassion, and decency.

5. Loyalty. We will serve the American people, be true to the U.S. Constitution, be consistent with the law, and obey the leaders of the U.S. government. We hold the protection of the American way of life a sacred duty.

6. Diversity. We are committed to diversity because a wider range of backgrounds and experiences makes us a stronger learning organization and more effective in meeting our mission. Our employment policies prohibit discrimination.

7. Collaboration. We strive to share and disseminate our work to the widest possible audience. Members of the IC will cooperate with each other for the betterment of the country.

8. Courage. The defense of the nation requires both moral and physical valor. We aim to exhibit both.

9. Trustworthiness. We recognize that the work we do is inconsistent with openness and transparent government. We will mitigate this by sharing as much as possible and declassifying records. The inherent secrecy of the IC requires extra vigilance to adhere to this code of ethics.

During this period of the ethical code's birth, other professional voices call to be discussed the issue of the "jurisdiction" of the intelligence profession. So, the participants discussed, but did not agree on, the jurisdiction of the profession: Does the "profession" include collectors, analysts, and others defined by our unique mission? Or, does the "profession" also include administrative and support personnel not necessarily unique to the intelligence community? What does it mean to be intelligence professional?

In the meantime, a well known American expert on intelligence, Michael Andregg, story

us how “surveys a dozen U.S. intelligence agencies in early 2012” [8].

So Mr. Andregg tells us about Dr. Jan Goldman, de founder of International Journal of Intelligence Ethics, few details from his research work for ethics in intelligence. During years, dr. Goldman were the highest promoter of intelligence ethics around the western IC: “he provides much more detail on agency "ethics" codes than I will here in his Appendix A (pp. 379-93) on "Principles, Creeds, Codes and Values". He had to work like a dog to get those, even though he was employed by the Joint Military Intelligence College, had security clearance, and was working on an ethics PhD. Jan still had to pull teeth from chicken's lips because the bureaucracies truly are afraid of ethics. Many U.S. agencies would not respond to his requests for text on ethics no matter what assurances he gave. Knowing this background, I decided to do a simple survey in 2012 to see if things had moved forward during the last decade. Maybe, but the bureaucracies were more reticent with me and I was less persistent than Goldman.”

Now, M. Andregg try to prove the resistance of system to the ethics issue: “So I called and/or emailed when calling was not encouraged the following components of our U.S. intelligence community on or very near January 19, 2012: ODNI, CIA, NSA, FBI, DHS, NGIA, National Reconnaissance Office (NRO), DEA, Department of State's INR, Treasury, Energy, and the DIA. I spared the uniformed services on the theory that DIA and ODNI would do it for them. To each, after a call I sent a standard email request for any information they could provide, with three specific questions: 1) Does your agency have a code of ethics specific to it? 2) If so, may I get a copy? 3) And if so, how does your agency try to teach ethics to its employees? “

Here are the answers Andregg received: “The most substantive response came from a public affairs officer in the usually extra-secretive NRO. He did this because 1) he was a human being with a conscience, and 2) in conversation with his partner in the office (who suggested blowing me off) he offered that they did not want people thinking that the NRO was "afraid of ethics." A prescient person, that one, and a better public affairs officer than most. One contrast would be the NSA whose unnamed public affairs officer sent me these exact words: "Good Afternoon, Thank you for your email and your interest in the National Security Agency. Due to the current ops tempo, we are unable to assist you at this time. Please visit our web site, www.nsa.gov, for information regarding the Agency. Have a great day." Of course, ops tempos are high everywhere; we thoroughly understand that. But this is also a perennial excuse to avoid ethical issues in many bureaucracies. They are just too busy to be bothered with ethical issues.”

5. CONCLUSION

Military professionals face complex moral and ethical problems: not the garden-variety questions about whether one may lie, cheat, or steal, but rather sophisticated problems arising from conflicting legal and moral duties-and with a focus on important national security interests. Moreover, practitioners are often called upon to make decisions in a time-sensitive uncertain environment, with varying context depending upon mission (practice) areas. In that sense, there could be great utility in codes of ethics that assist practitioners in addressing unique problems.

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CRITICAL THINKING IN DEVELOPMENT OF CREATIVITY

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Abstract: *Deep democratic transformations in Romanian society, its natural tendency to integrate in the structural assembly of the contemporary world, requires the development of science, culture and improvement of the whole education and training system. Considering the increasingly acute need for natural resources, prestigious analysts of the contemporary society argue the need for a higher exploitation of people's creative potential. The fullest exploitation at national level of the human intelligence and creation is therefore required. Educational ideal of Romanian school is the free, full and harmonious development of human individuality, the autonomous and creative personality formation. The ability to think critically is acquired over time, allowing children to manifest spontaneously, without limitation, whenever there is a learning situation. They should not feel out of their element, should not be afraid of the reaction of others to their views, they learn to trust their power of analysis, of reflection. The thinking and creativity potential develops in a framework which requires independence, investigation, originality. The fundamental purpose of child psychological counseling is his/her optimal psychosocial functioning. The counselor is meant to help with the harmonious development of the child by applying cognitive, motivational, emotional and behavioral intervention strategies, both at individual and group level. In terms of learning, knowledge by the preschooler of the changes occurred along with completing the curriculum, the development of critical thinking and creativity in group, the counselor dealing with general and specific learning problems at individual and group level, considers, on the issue of intervention.*

Keywords: *critically, creativity potential, critical thinking*

1. INTRODUCTION

Critical thinking is a way of approaching and solving problems based on convincing, logical and rational arguments, which involve verifying, evaluating and choosing the right response for a given task and reasoned rejection of the other alternative solutions.

At the same time, critical thinking is the learning to interact with information actively, to bring the pros and cons, evaluate them to determine the truth value, to transform information and generate new ideas. Critical thinking is an active, coordinated, complex process, like reading and writing, speaking and listening, which involve thought processes, beginning with the active accumulation of information and ending with taking well-reasoned decisions.

Although some believe that the development of critical thinking is a process too difficult for preschool children due to child intelligence development stages (described by

L Piaget), this is possible using intuitive support.

There will never be such consequences, and children will certainly reason better, but it will not be to their detriment, as the use of interactive methods, procedures and work techniques increases confidence in their own powers, in the performances obtained, contributing to the intellectual, moral development and their socialization. Thus children actually participate in the act of learning, increasing their responsibility and level of involvement. It is not the early practice of critical thinking that brings harm, but its inadequate or partial practice can lead to the development of a typical behavior, of a passive child who expects everything for granted, and the effect will not be negligible but, morally, it will be harmful and educationally counterproductive.

2. THEORETICAL APPROACH

Effective thinking is developed through collaborative work, which means working in pairs, in groups. Collaborative working is effective if there is a transition from the respect for the ideas of others to self-confidence, the transition from concrete to abstract, from intuitive thinking based on the expression of opinions without reflecting on them to logical thinking which supports some conclusions based on assumptions, approaching things from many perspectives. The methods for developing critical thinking, applied to the group, can develop a set of attitudes and behaviors by forming interpersonal relations between children:

- communication skills,
- ability to understand,
- transfer of information,
- interdisciplinarity and transdisciplinarity

The polyvalence of these methods has proven effective from the earliest age because, by practicing these methods, the child became a small researcher, willing to continuously explore everything around him/her.

Living in a rapidly changing society, the student will have to critically, creatively and productively give a meaning to the informational universe met. Educational instruction and formative action aims at producing cognitive, affective-motivational, attitudinal and behavioral changes in the student's personality, the one always subject to training. To handle information well, the child will have to apply a set of thinking skills that would give him the ability to sort information efficiently. To do this, he/she will have to go through a systematic process of analysis and critical reflection. The teacher must equally offer him/her learning and thinking framework. This framework provided must give the child the opportunity to realize where he/she is in terms of thinking so that he/she can pursue and monitor his/her own thinking processes when learning independently.

Education has gained new contents over the past decades, covering an enlarged area and new finalities, based on democratic values and modern aspirations of individuals, coupled with innovation and reform in education. Thus, the role of kindergarten has become more complex, departing from its initial, formal essence of transmission of knowledge, and actively focusing on the formation of attitudes and behaviors, on building capacities. Among other things, this complex role aims at:

- achieving education to adapt to changes (every child is helped to develop his/her own potential, to be creative, motivated to learn throughout life, to be able to solve problems, to communicate and collaborate with others;
- promoting the values of an open society (with emphasis on valuing diversity, development of cooperation skills, participation in decision making, tolerance, critical thinking);
- equalization of opportunities (children who are at risk, for various reasons, are helped to succeed in terms of education and social integration, kindergartens significantly contributing in this way to the equalization of opportunities by practicing inclusive education);

The following are important for the formation of children as performing adults:

- emotional intelligence - the ability to motivate yourself and persevere in the face of frustration, to adjust your moods, to be earnest and to hope;

- practical intelligence - the ability to be attentive to what is happening and choose the viable out of several action options.

From this perspective, it is considered that:

- every child is able to learn, and the purpose of education is to develop the potential of each and every one of them;
- children's skills may be changed through effective training;
- intelligence is not distributed differently (some children are more intelligent, others less intelligent, but there are several types of intelligence to be identified, developed and valorized for each child);
- the role of education is not to select those able, but to develop the potential of each child.

The role of modern teaching methods is to create a situational context, so that the learner is engaged and participates actively in achieving the objectives of teaching, it is characterized by constant opening to renewal, innovation.

The main trends of renewal and modernization of training methodology would be:

- making full use of methods for the activation of preschoolers, their effective participation in the acquisition of knowledge, skills, abilities;
- acceleration of formative character of all training methods used in teaching and learning activity;
- implementation, as a matter of priority, of child-centered active-participatory methods.

Increasing the share of active-participatory methods does not mean giving up the traditional methods of learning, of transmission and assimilation of information.

Modern methodology operates changes related to weight, especially valuing, increasing the formative potential of classical methods by emphasizing their heuristic and active-participatory character.

Modern education promotes active learning methods, learning based on the acquisition of conceptualized experience of mankind, but also on its own investigation of reality and the formation of knowledge and experiences through personal effort. Training no longer means determining the preschooler to store knowledge in his/her mind, but to learn to take part in the production of new knowledge.

3. RESEARCH DATA

In the context of the new education reform, a strong focus is, naturally, on developing creativity in the group and critical thinking in preschoolers, a sequence of "extensions" being attached for each class, a way in which the teacher can develop this aspect of human personality.

Purpose: - highlighting work techniques and methods within the instructional - educational process and their effectiveness in developing creativity in the group, by psycho-pedagogical experimental research.

The following are established as *research objectives*:

- the use of teaching strategies designed to develop creative abilities in the group, and critical thinking in preschoolers;
- training the intellectual resources of preschoolers, the application of which may lead to superior results in the instructional – educational activity.

The research was conducted on a sample of 25 subjects, children in the middle preschool group.

Since we worked with a single group, the structure of the subjects sample was performed by gender, and the sample contains 11girls and 14 boys, their age ranging between 4-5 years.

Starting from the constant that the instructional-educational level of the family of origin would be a variable with information possible in the subsequent psychological evolution and development of children, it is shown below the structure of the sample by the instructional-educational level of the family.

Families with middle school education: 4

Families with secondary education: 17

Families with higher education: 4

Another constant in which the psychological evolution and development of children is favored or disfavored is the family climate, as well as the environment in which they grow and which have a great influence in terms of their further development, is shown

Organized family 19

Disorganized family 6

The type of research used was formative. Formative research aims at introducing in the investigated group several progress factors of some ways and means of cognitive-intellectual capacity development from the point of view of critical thinking in preschoolers, as well as of creativity in the group, for the purpose of discovering and developing critical thinking in preschoolers, these being discovered and exploited by comparing the initial situation to the final one. By comparing the performances of preschool children before introducing new teaching methods against those obtained after using them, we will know whether the methods used are effective or not.

Research has also a constructive component, because they sought the observation and recording of the effects of applying an instructional, individualized, child-centered process, regarding cognitive-intellectual manifestations within instructional-educational activities.

Knowledge tests were chosen as investigative tools, consisting of a series of tests developed to record the presence or absence of a skill, and also the knowledge level of preschoolers, the level of development of the thinking ability, intelligence, and memory.

- Independent variables - are the changes introduced to influence the evolution of the educational facts in order to study their effects. These were: teaching and learning strategies, active-participative methods that encourage preschoolers to put into play their imagination, understanding, their power of anticipation and provide an opportunity for affirmation and exploitation of creativity in the group.
- Dependent variables - include the changes occurred as a result of the application of experimental measures, are those to be measured and explained. As a dependent variable of the experiment performed, we can nominate the preschool performance, emphasizing the creative factor.

The research was conducted in three stages: initial stage (pretest), formative stage and final stage (posttest).

During data collection on children at the beginning of the school year, we can observe very large training differences between children: some come from family environments with a broad culture, others from modest or even poor cultural environments.

The initial test consisted of oral and practical tests applied on each category of compulsory activity from kindergarten: language education, mathematics activity, environmental education, education for society, practical activities, music education, visual arts, and physical education. Analyzing the responses of subjects after applying the initial tests, it is found that the students have critical thinking. It can be said that every child thinks critically, and the creativity in the group is monitored and developed during preschool.

In the second stage of the research, within the instructional-educational activities, work with subjects is performed using ways and means of developing cognitive-intellectual capacities, given that the active-participative methods transform the preschooler from object to subject of learning, he/she taking part in his/her own training, the preschooler intensely engages all efforts, as well as the motivation for knowledge, develops his/her intelligences and motivation for learning. Within the research, the development of intelligence and creativity of children involves stimulating in

them the courage to expose their ideas, to develop a working strategy and not to expect solutions from the teacher.

Interactive methods used during the research have been successfully applied in all categories of activities, with the purpose of developing thinking flexibility, developing the originality of preschoolers' responses; enables free spontaneous manifestation of the imagination of children. The methods and procedures used develop the critical thinking of preschoolers, skills specific to creativity in the group.

The formation and development of critical thinking and creativity in groups was sought by using these methods.

In the third stage, the posttest, subjects participating in the experiment, respectively middle preschool group, were given final tests, with a number equal to the tests in the initial stage. The tests were given in order to determine the critical thinking existing in preschoolers, as well as the development level of creativity in the group of each subject. These tests were given following the implementation of both modern and traditional methods, within integrated and traditional activities.

4. CONCLUSIONS

In terms of learning, knowledge by the preschooler of the changes occurred along with completing the curriculum, the development of critical thinking and creativity in group, the counselor dealing with general and specific learning problems at individual and group level, considers, on the issue of intervention, the following:

- construction and functionality of general learning tools: abilities, skills and general and particular capacities;
- focusing, interrelations and social and emotional issues, learning pace (slow or wrong);
- use and exercise of logic and mathematical structures (arguments, algorithms, thinking operability),
- decision-making,
- conflict management and complex communication process, etc.;

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EDUCATIONAL ASPECTS OF ASSESSMENT

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Abstract: *In terms of education, the evaluation acquires certain specificity, given that the whole educational activity is directed and reported to a system of values of culture, science, literature and art, philosophy and morality, of human and social quality. While it is desirable, finding new, truly original evaluation methods and techniques is more difficult. The current ones, with their air of modernity are only transformations of the traditional methods, but their use is more relevant and accurate. The analysis of the educational aspects of the evaluation using a variety of evaluation methods, the proposed actual investigations were not only a prerequisite, a starting point in the construction of the work, but gradually crystallized as one of its general conclusions: the success of reform depends on the extent it ensures the junction of the restructuring process of the evaluation with specific pedagogical process. School practice confirmed how important the use of all forms of evaluation is - initial, formative, summative, knowing the training level of students, improvement of the teaching approach by applying several evaluation methods and techniques. The final conclusion was that an objective evaluation of school results in terms of extracurricular valuation criteria should be considered because the school of the future must not prepare information duplicators but full and socially integrated personalities, capable of autonomous construction of life and social and useful participation to the modernization of education and of the society in particular.*

Keywords: *evaluation methods, personality, education*

1. INTRODUCTION

The evolution of a society is based on the experience of past generations who have left their mark on values and principles that guide human and social activity. People who represent the current/present generation actively contribute to this evolution by completing the human experience with new values, knowledge and ideals. The responsibility of the next/future generation is represented by the continuous refining, shaping, improvement and enrichment action of this experience so that the society may evolve, prosper and develop continuously.

To identify and illustrate the need for evaluative process in the educational contexts we can address, in general, the relationship between teaching - learning – evaluation using the spiral illustrated above. However, the implications of the evaluation are not limited to a single perspective but aim at capturing as many lines / levels where it proves its usefulness and effectiveness. Among these, the following can be identified:

- the students personal level
- the teacher's level

- the training-educative process level
- the level of the group the student belongs to
- the education system
- the macro-social level.

2. THEORETICAL AND PRACTICAL APPROACH

2.1 Theoretical approach. Regarding the first level, the student's one, the school evaluation should not aim only at verifying the student and his/her positioning in a particular school hierarchy but to highlight the positive aspects that he/she has, the success in some areas, the gaps that should be "covered" etc. In the context of the education system (and especially the Romanian one) that proposes to form and to develop certain skills, school evaluation should be in the same direction to identify the extent to which these skills were formed. Moreover, it is necessary for this process not to stop here, but to contribute effectively to exploit those skills in different school, educational or professional contexts.

One of the essential dimensions of school evaluation is represented by the student's awareness of the results obtained in his/her school activity, related to those expected by the school, by the system, by the parents or by the society. Going further with this idea, the student must be guided in this awareness process, but also on identifying the efforts necessary to reach those projected performances through educational objectives.

School evaluation also has implications on a particular aspect of the student's personality, namely his/her self-image because, especially at young ages, the student builds his/her image of himself/herself also through the reactions of others to him/her, on the opinions of others in what concerns him/her. At the instructive - educational process level, the evaluation serves at highlighting the strengths and weaknesses of educational activities (taken together) in order to improve this process. Thus, it is about:

- evaluation of the procedures for the selection of scientific contents based on established educational objectives;
- evaluation of processing and adjustment procedures of scientific contents to age and individual peculiarities of students;
- evaluation of educational strategies designed, organized and implemented by the teacher;
- evaluation of educational partnership activity (student - student, student - teacher, teacher - teacher);
- evaluation of the effectiveness of the relationship teaching - learning - evaluation;
- evaluation of the quality of the educational program etc.

From the education system perspective, the evaluation target on the one hand the institutional system and its operation, and on the other hand the legal regulations relating thereto: school curriculum, educational programs, courses, curriculum, graduation, school manager activity etc. All these are intended "*to provide information on the system status based on which decisions are taken to adjust it. (...) The evaluation is a process of gathering information and assessing the condition of evaluated phenomena that help decision makers to make a rational choice"*(I.T. Radu, pg.20-21).

The instructive and educational activity primarily involves the designing action depending on the proposed educational objectives. Similarly, the evaluation activity must be designed to identify the evaluation objectives, the necessary methods and tools, and the favorable educational context for this activity. According to Cucoş (Cucoş, pg.398), the main questions to be addressed by the teacher during the design are:

- What are the framework objectives and the reference objectives in the curriculum to be achieved in the instructive and educational process?
- What are the minimum, medium and high performances the students can reach?
- When and for what are they evaluated?
- What are the types of evaluation to be approached?
- What are the age and individual peculiarities of students?
- What is the appropriate evaluation method in order to respect the principle of objectivity?
- What are the tools with which I will achieve the actual evaluation process?

- How can the data obtained from the evaluation be used in order to improve the instructive and educational process?

The evaluation design is a difficult process that results in efficient instructive - educational process by identifying the results and performances obtained by the students during the process, and the ways, in which it can be improved, reformed or corrected.

The recurrent verification of students and informing them operatively on their progress in learning, contribute to the educational effects of the evaluation and to their motivation for learning.

2.2 Research data. The purpose of the research was to highlight that a quality learning (through various and attractive methods and techniques, through educational games) and a properly designed evaluation, lead to significant improvement of learning outcomes.

Hypothesis**:** the evaluation methods and techniques by proper use and integration into mathematics and environmental education lessons lead to an increase of the efficiency of learning the studied concepts and thereby increase school performance of primary school pupils.

In order to demonstrate this hypothesis the intention was to initiate a pedagogical research aimed to prove the efficiency of evaluation methods and techniques in mathematics and environmental education classes.

The research was organized on samples of pupils of small school age (8-9 years). Two second year classes have been targeted, the experimental class (progress sample) and on which we applied the experimental factor (progress factor), and the control class (control sample) on which no intervention was performed.

The instruments used during the psycho-pedagogical research were the observation book and the psycho-pedagogical sheet and the methods used were: observation, experiment, case study, analysis of work products test, and to systematize and measure the results obtained the statistical - mathematical methods were used.

During frontal activity and during independent work, observation was used. The analysis of student work products was used to evaluate the preparedness of students, carried out by checking homework books and class notebooks, of independent work sheets, examinations.

The experiment was the main method of investigation. The pedagogical experiment involves creating new situations by introducing changes in the course of educational action with the purpose of verifying the hypothesis that initiated these innovations.

From the comparative analysis of the results obtained by the two samples at the initial test it was found that the results are similar in both classes (78% for the experimental sample and 81% for the control sample). In terms of scores, it was found that the experimental sample obtained a higher percentage in "Very good" (4 pupils) than the control sample (3 pupils), in "Good" the experimental sample obtained a higher percentage (7 pupils) and the control sample obtained a lower percentage (6 students), in "Sufficient" the experimental sample (3 pupils), and the control sample (4 students) obtained a higher percentage.

The first step in reorganizing learning was the application of active methods, the use of game exercises and games with a higher degree of complexity in the communication and updating mathematical concepts and

solving a greater number of exercises and problems to ensure understanding for each pupil the tasks required and their easy solving.

During the training process, the evaluation of the preparedness level of students is essential, as it is an objective method of highlighting their school progress and school performance in various learning disciplines and represents a means of regulating and self-regulating both the learning and the teaching activity.

The ameliorative intervention stage had a strong formative character, consisting of the application of various teaching methods in any type/variant of lesson.

This second stage of the experiment aimed to increase school performance by using evaluation methods that can take the form of interactive games. Attractive evaluation sheets were used (for both oral and written evaluation) to make up for the gaps and difficulties the children had.

The experimental sample results improved by 10% in "Good" (45% vs. 30%), and what is encouraging is the decrease of "unsatisfactory" results by half the initial percentage (10% vs. 22%).

The control sample changed the percentage only in "Good" (45% versus 30%) and "Sufficient" (15% versus 25%), the proportion of the number of "Insufficient" scores remained unchanged.

To achieve an effective formative evaluation, during the teaching unit, an evaluation test was developed for the *environmental education* class, which was applied on second grade pupils.

The angle from which we tried to approach in this research the subject of evaluation was that of the specific educational process.

An evaluation act is not a final action, but the beginning of a new action. The evaluation does not conclude an educational effort, but it opens the way to efforts to improve the knowledge and behaviors of the partner (student).

2.3. Findings. Evaluation helps man to progress, to rethink its conduct, to self-program. It is not a seal, a label. To evaluate means to see ahead, to engage in action to improve, to become a co-partner in the effort of the person subject to evaluation. It means to believe in the person, in the human potential of development.

The analysis of the educational aspects of the evaluation using a variety of evaluation methods, the proposed specific investigations were not only a prerequisite, a starting point in the construction of the research, but gradually crystallized as one of its general findings: the success of reform depends on the extent it ensures the junction of the evaluation restructuring process with specific pedagogical process.

Thus, both the proposed objectives and the assumptions that using various evaluation methods and techniques of school results contribute to increased school performance with stimulating learning motivation were validated (of course, beside other factors such as: development of thinking, intelligence, assimilation of new knowledge, will, use of certain teaching-learning methods or forms of organization etc.)

School practice confirmed how important the use of all forms of evaluation is - initial, formative, summative, knowing the students' training level, improving the teaching approach by applying several evaluation methods and techniques.

Evaluation has provided evidence on students' training, acquiring taught knowledge, their practical application, formed competences and skills.

Systematic examination and evaluation using several methods have highlighted the difficulties faced by students in their training, enabling the teacher to organize future activities specifically to prevent falling behind in learning.

Thus, we have noted the importance of new directions imposed by the evaluation reform in the education process: the use of all forms of evaluation, combining traditional and alternative methods, involving docimological tests combined with evaluation through investigation, assays, reports, portfolios, evaluation by scores based on performance descriptors, all of which support the students, helping them to form their active, creative personalities, able to integrate into new societies.

The improvement of examination and grading actions of students' training can be performed in several main directions:

- during the examination action, the teacher must formulate work tasks so as to encourage the students to think, to ask them not only to reproduce the information, but to select and process it;
- diversity of evaluation forms and methods;
- improvement of the examination tools and techniques;
- recurrence of verification of knowledge and granting scores based on performance descriptors.

3. CONCLUSIONS

The experiment conducted confirms the superiority of the evaluation and assessment method of school performance using various evaluation methods and techniques.

In conclusion, one can say that the evaluation methods, especially the alternative ones, favor the identity of student uniqueness, nurturing creativity.

The final conclusion that we reached was that the objective evaluation of a school result in terms of extracurricular valuation criteria also should be considered because the school of the future must train not information replicators but full and socially integrated personalities, capable of autonomous construction of life and social and useful participation to the modernization of education and society in particular.

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