DISTANCE LEARNING SYSTEM FOR THEORETICAL TRAINING OF PILOTS

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Abstract: This paper describes a new method used in the pilots training program and discusses the details about content of the distance learning package and about the legal framework. It provides an outline of how to structure and conduct effective distance learning training program.

The study revealed the fact that distance learning may be an alternative option to the traditional training. It offers a Learning Management System for communication, administration and monitoring students' progress. The legal framework assesses that at least 10% from the total number of hours of each program should be face-to-face training. The ATOs implement the distance learning training due the high demand of the market and due the low costs of implementation. The distance learning could be effective for self-motivated, self-educated students and they might be able to work with new technologies.

The distance learning systems has to help the students to achieve the necessary SKAs to become a pilot.

The study has concluded that the distance learning used in pilots training is a suitable, a modern and an efficient method of training.

Keywords: distance learning, e-learning, pilots training

1. INTRODUCTION

Information technology has permeated nearly every aspect of people's lives. Technology is changing the way people and companies present, disseminate, and communicate their messages, creating an ever-present learning environment and an accelerating information society. In an information society, achieving a high level of acquisition and management of knowledge will be one of the key competitive advantages.

In order to decide the deployment of a new type of training, the ATOs should carefully conduct an analysis. For the studied ATO was conducted a PESTLE analysis, a balance score card and there were determined the key performance indicators.

The PESTLE analysis (P for Political, E for Economic, S for Social, T for Technological, L for Legal and E for Environmental) for the specified ATO has revealed the fact that internet and terrorism are main factors that are affecting the training activity. The strength of the analyzed ATO is the human capital, meaning the experienced ground instructors. In order to improve the training activity the analysis emphasized the necessity to implement courses using new technologies. The distance learning program will increase the student number and ATO will be able to offer training programs convenient for the new generations.

Throughout the traditional training or using the distance learning system the ATO has to ensure a high level of SKAs for all students, which is measurable using monitoring students' performance, the feedback from the flight instructors and the feedback from the employers.

The balance score card Fig.1. accentuates the opportunity to use the e-learning system as an alternative to the traditional training.
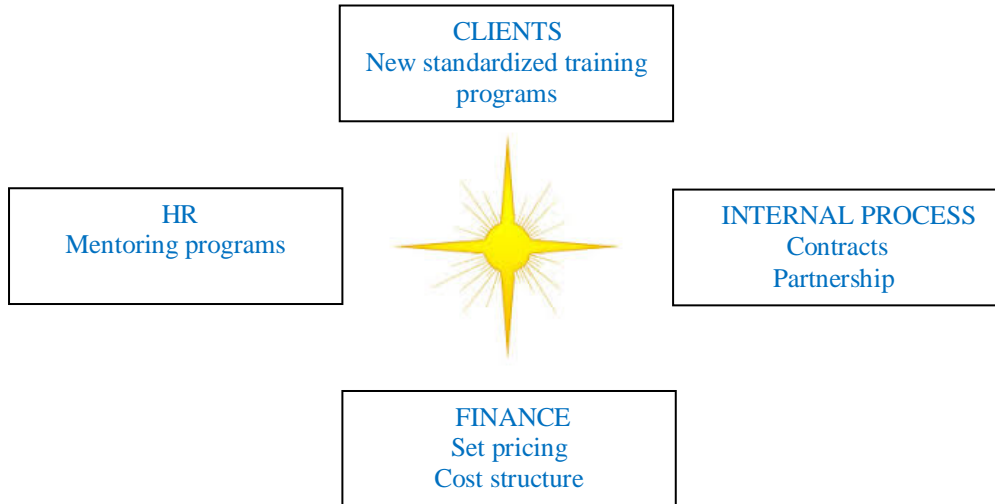
CLIENTS New standardized training programs

| HR Mentoring programs | | INTERNAL PROCESS Contracts Partnership |

| FINANCE Set pricing Cost structure |

FIG. 1. Balance Score Card

From financial point of view the implementation of a distance learning system is low-priced, because the accreditations' cost are about 1000 euro, the implementation costs are 2250 euro and the revenue is about 16,800 euro for 10 students.

The main advantages of distance learning [5,8] are flexibility, supported study, career changing, low costs and international recognition. This type of training is based on self-study. The study revealed that the compulsory face-to-face training is highly appreciated by the students.
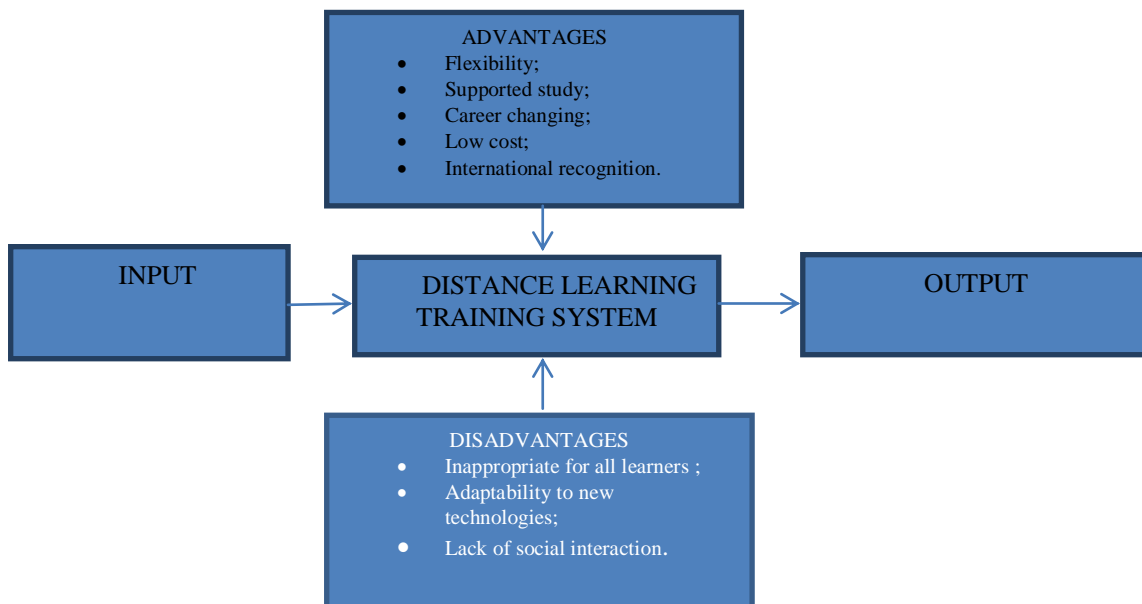
ADVANTAGES
• Flexibility;
• Supported study;
• Career changing;
• Low cost;
• International recognition.

| INPUT | DISTANCE LEARNING TRAINING SYSTEM | OUTPUT |

DISADVANTAGES
• Inappropriate for all learners ;
• Adaptability to new technologies;
• Lack of social interaction.

FIG. 2. Advantages and disadvantages of distance learning training system

In the meantime, the disadvantages of distance learning are lack of social interaction, inappropriate type of training for all learners, and the fact that it demands adaptability to the new technologies. Also there may appear a lag between the students' queries and the feedback from the instructor. The advantages and disadvantages of the distance learning system are resumed in fig.2. and it shows the great influence of these particularities on training results.

The student who choose the e-learning system should be self-motivated, self-educated and he needs a high ability to study using new technologies. Due all of these particularities the distance learning training system should be choose only by future-pilots with the specified characteristics features. Only 10% of the future pilots have succeeded to complete the theoretical   training in the same period as a traditional training. 30% of the students realize during the training process the fact that the distance learning training program is not suitable for them. The main part of the students manage to complete the training course in a higher period of time than the one attached for the traditional training.

2. THE LEGAL FRAMEWORK

The legal framework of distance learning for pilots training is established by EASA trough Acceptable Means of Compliance (AMC) and Guidance Material (GM) to Part-ORA [3,4] and consist two main point. The first one states that a variety of methods is open to ATOs to present the course material. It is, however, necessary for ATOs to maintain comprehensive records in order to ensure that students make satisfactory academic progress and meet the time constraints laid down in PART-FCL for the completion of modular courses. The ATPL modular course from PPL will be discussed further because it offers the highest qualification in the civil aviation and it has the highest demand on the market.

The second establishes the planning guidelines for ATOs. First of all, the assumption that a student will study for at least 15 hours per week will be used. For that reason it is necessary throughout the course material an indication of what constitutes a week's study. Usually, this is done throughout the guidelines. The e-learning package should include the a recommended course structure. Regarding the progress test it is specified that should be a progressive test for each subject for every 15 hours of study, which should be submitted to ATO for assessment. Additional self-assessed progress test should be completed at intervals of five to ten study hours. The e-learning system should include appropriate contact times throughout the course. The student shall have access to an instructor by telephone, fax, email or the internet.

There should be measurement criteria to determine whether a student has satisfactorily completed the appropriate elements of the course to a standard that, in the judgement of the Head of Training, or Chief Theoretical Knowledge Instructor, will enable them to be entered for the PART-FCL theoretical examinations with a high rate of success.

 If the ATO provides the distance learning by help of IT solutions (e.g. internet), the theoretical knowledge instructors should monitor students' progress by appropriate means.

The following pre-requisites should be fulfil before acceptance at a modular ATPL distance learning course:
- Academic:
(a) A knowledge of English language proficiency, in accordance with EASA Regulation (Part-FCL 055) or level 4 ICAO Language Proficiency.
(b) The student must demonstrate a sufficient knowledge of mathematics and science.

- Hold a PPL(A) issued by an ICAO member state.
- Hold a class 1 medical certificate before starting the course.

The distance learning flowchart for the theoretical course is represented in Fig.3. After getting over the distance learning program the student should attend the face-to-face training and the schools exams. The program is considered to be compliant with international regulations if the student gets at least 75% for each subject. The students' evaluations have to be written and these will be kept for five years.
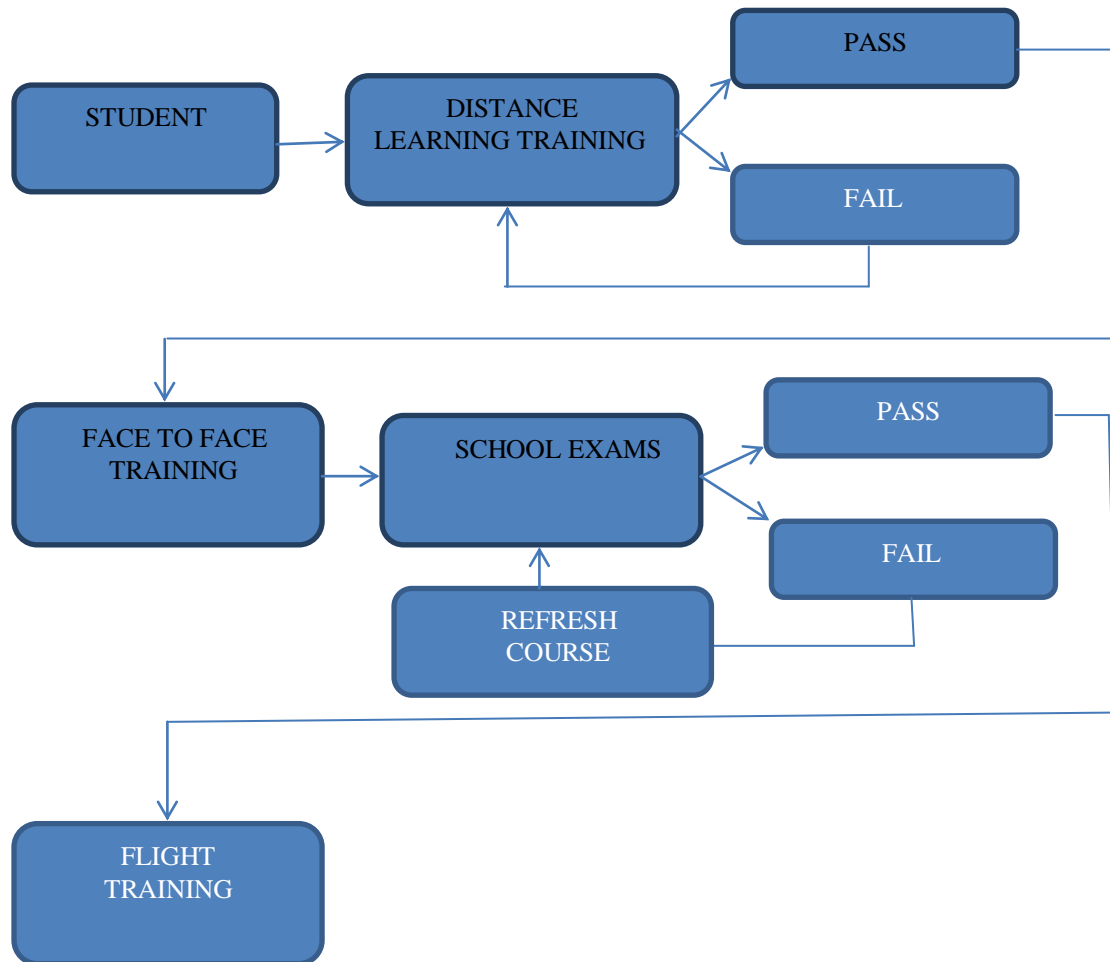

FIG. 3. Distance learning flowchart for theoretical pilots training

3. E-LEARNING PACKAGE CONTENT

There are different types of platforms dedicated to pilots training. Usually, an e-learning package consist of a set of books/e-books in accordance with EASA, Computer Based Training, animations to enhance the learning process, links to relevant web sites and student study guides. For students' evaluation part the e-learning system consists on-line self-assessment tests for each 3 hours of study, on line progress tests after approximately every 15 hours of study, exam reference material (CAP's). The content of an e-learning training package is graphic represented in Fig. 4. The package also includes an online question bank with a few thousands questions. Each theoretical knowledge instructor may add materials and tests for each subject.
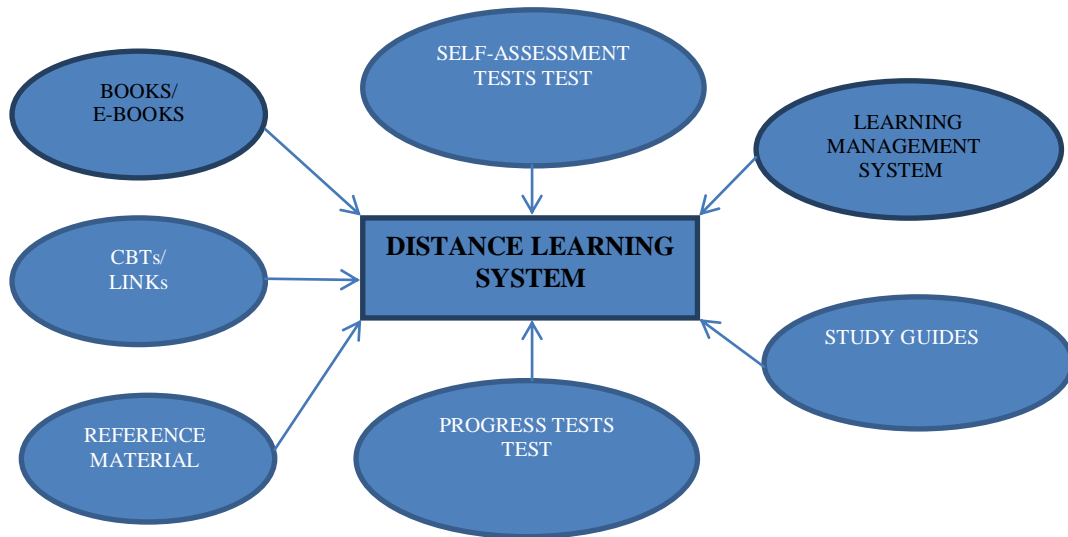
FIG. 4. Distance learning package content

The e-learning system also offer access of ATO management and theoretical knowledge instructors to a Learning Management System for all communication / administration and for monitoring of students' progress, students' access to the electronic content, internal email-system and to additional resources and course material that are added by ATO. A Learning Management System is extremely useful both civil and military training schools for pilots[1,2].

The Learning Management System is highly recommended and useful being the key factor used for monitoring students' progress[4,8]. Also it offers to the theoretical knowledge instructors the possibility to initiate corrective actions as soon as they may consider appropriate. The Learning Management System offers a wide range of reports (e.g. individual reports, class reports, assessment records, assignment reports).

Sometimes there is a supplementary content for the standard e-learning package which may contain an electronic version of the illustration, which will be available for the use of ATO instructors and the student chart manual.

The distance learning system offers an effective management. It helps ATO to improve performance, quality of learning and increases the efficiency of training. Furthermore[6,7], it is cost-effective, it offers a geographical and temporal flexibility, immediate learner feedback and it creates a culture of learning.

CONCLUSIONS

The studied ATO decided to introduce the distance learning system as an alternative option to the traditional training in order to increase the number of courses, students, and revenue. The key performance indicators are students' performance, feedback from the flight instructors and from their employers. The access to a Learning Management System for communication, administration and monitor the students' progress is fully compliant with EASA Regulations. The implementation of the distance learning is low-priced and revenue is high.

The distance learning system is not a suitable training program for all future pilots. The distance learning training program is suitable only for students with a specified profile. The students should follow such a learning program only if they are self-motivated, self-educated and they have the ability to work with new technologies.

At the studied ATO in the last year only 25%-30% of the students have chosen the distance learning training. The time assigned for completing the distance learning course is usually double compared to the time assigned for traditional face-to face training. Only a small percent of the future pilots are able to complete the distance learning training program in the minimum specified period of time.

The Learning Management System forms an important part of the e-learning system which ensure the administration part of the training process and it helps the theoretical ground instructors to monitor the students' progress. The Learning Management System gives the status of all assignments in a course.

Theoretical training for pilots may be nowadays delivered using a distance learning system, but this type of training is recommended only for trainees with a specific profile.

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