CRITICAL SUCCESS PARAMETERS FOR ONLINE AND DISTANCE EDUCATION BEFORE, DURING AND AFTER THE COVID-19 PANDEMIC

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Abstract

Distance education as a notion appeared during the 1970s and over the years has taken many forms. However, it really emerged as viable alternative to traditional education during the Web 2.0 era [1]. The delivery of quality education in a virtual academic environment that fosters student progression, development, and attainment is a fundamental objective of distance learning. Thus, there is a strong awareness that online education needs to become more robust in order to face the immensely complex and interconnected situations that make traditional educational processes harder. The reader could think for example the current pandemic, where the entire tertiary education level of countries was forced to move online, sometimes without the appropriate infrastructure. In other words, for online education to become similar to traditional education, there is the need of not only the appropriate systems that will allow the transfer of the processes to the digital realms, but there is the need to design systems that will exploit the advantages offered by online systems and diminish the limitations of traditional face-to-face teaching. The purpose of the current paper is to identify all those parameters and characteristics that will increase the probabilities of success for online education. To achieve the objective online educational programs were searched in four European countries (Greece, Italy, Romania, Serbia) along with scientific databases spanning a period from 2000 onwards. For example, for Greece initial results indicate that it has by far the EU's highest portion of students in undergraduate programs (86% v EU-27 average of 60%), but at master's level the share is only 10%. Moreover, and especially during the COVID-19 pandemic, Nikiforos, Tzanavaris and Kermanidis [1] revealed that the (sudden) transition to an online/distance mode of education posed great challenges and difficulties as 40.6% of the teachers reported that had no previous experience in distance education. Finally, Reimers and Schleicher [2] reported that almost 20% of Greek students did not have access to a computer, a tool necessary for school work. The problem of insufficient resources is not only individual but affects the overall education system; Despite the efforts to update the digital infrastructure, the country lags behind the other European countries.

Keywords: Distance education, COVID-19 pandemic, Critical Success Parameters.

1 INTRODUCTION

Distance education as a notion appeared during the 1970s and over the years has taken many forms. However, it really emerged as viable alternative to traditional education during the Web 2.0 era [1].

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there is a strong awareness that online education needs to become more robust in order to face the immensely complex and interconnected situations that make traditional educational processes harder. The reader could think for example the current pandemic, where the entire tertiary education level of countries was forced to move online, sometimes without the appropriate infrastructure.

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The rest of the paper is organized as follows: The methodological framework is presented in the next, while initial results are summarized in the section after that. Initial conclusions and a discussion is presented in the last section of the paper.

2   METHODOLOGY

The research methodology included two steps: Firstly, online educational programs were searched in four European countries (Greece, Italy, Romania and Serbia). The authors of the current paper – all originating from those countries- included programs that they were familiar or had an experience with; thus, characteristics that made those programs successful along with their limiting factors could be identified.

In addition to the educational programs, the scientific databases of Google Scholar and Scopus were searched using the following keywords: "distance education", "online courses higher education", "advantages distance/online education", "disadvantages distance/online education", "factors affecting distance/online education".

In the following paragraphs, a subset of the programs and papers will be presented and will be followed by an initial analysis and conclusions.

3   RESULTS

Regarding distance/online educational programs, a subset of those that have been studied is presented in Table 1 below.

Table 1 A sample of online programs.

Country	Program Name	Period that it was active	Characteristics that made it successful	Limiting Factors	Additional information
Greece	Management of ageing and chronic diseases/ Hellenic Open University	There were several years that the program was active/accessible to students	Inter-institutional, Interdisciplinary, Postgraduate thesis, Range of specialities concerned, Applied/clinical applications	Basic knowledge of psychology and scientific writing are needed	Tuition fees required. It is a Master's degree programme

Greece	Sustainable design of buildings/EKPA e-learning programs	-2020	Asynchronous program that offered courses on the sustainable energy design for building specifically designed for engineers Each module was accompanied by exercises Offers ECTS Specific platform dedicated to the course	The course was asynchronous which allowed the participants to take the course at their own pace, however, it could benefit from more synchronous, live interactions between students and teachers Differences in quality among the different modules	Paid by the students. A lot of payment options were offered Usually attended between 15-20 participants in each cycle
Greece	Data Analyst / EKPA e-learning modules	Ongoing	Asynchronous program that offered courses on the data analysis through MS Excel and R The course is not specifically designed for any category of students Offers ECTS Each module was accompanied by exercises Specific platform dedicated to the course	The course was asynchronous which allowed the participants to take the course at their own pace, however, it could benefit from more synchronous, live interactions between students and teachers Relatively expensive No interaction among the students	Relatively expensive but with a lot of paying options that offer a discount

| Serbia | Distance Learning Professional Study Programme in Finance and Banking, Novi Sad School of Business | November 2019 - | Teaching takes place via the online platform Moodle. Students who are enrolled in the program get their personal account through which they access the platform and the courses they take. Professors upload materials on the platform in the form of pdf, Word, Power Point documents, electronic books, videos, tests, etc. Through the Moodle platform, students access materials, solve assigned tasks and online tests, send term papers, comments, etc. In addition, professors organize real-time discussions through forums or Chat options, or schedule video broadcasts or meetings through platforms such as Skype and Zoom. | The final exam is done at the school headquarters, it is not done online. Limited interaction among students. | All students who are enrolled in distance learning are eligible to continue their studies in the corresponding program that is conducted in the classical way, and vice versa. |
| Serbia | Business economics - distance learning, Educons University | December 2020 - | Combination of various topics covered during the lectures through Moodle platform. | Limited number of students per year (80), Relatively high tuition fee, Limited interaction among students | |

| Serbia | Engineering and Operations Management – distance learning, Undergraduate Academic Studies, Metropolitan University | March 2023 - | The program emphasizes the acquisition of practical and applicable knowledge and skills through courses on a dedicated platform for online education. Practical projects and a large number of tasks are done in each subject. Upon completion of studies, the student is fully qualified for successful work in commercial enterprises | Limited number of students per year (14), Relatively high tuition fee, Limited interaction among students | |

As it can be observed, in recent years there has been a variety of Higher Educational programs at all levels and subject matters. Initial results indicate that the programs focus on the acquisition of practical skills and connection with the market in order to attract and retain students, while fees and the provision (or not) of ECTS continue to be limiting factors in their success.

In addition, for Greece initial results indicate that it has by far the EU's highest portion of students in undergraduate programs (86% v EU-27 average of 60%) , but at master's level the share is only 10%. Moreover, and especially during the COVID-19 pandemic, Nikiforos, Tzanavaris and Kermanidis [1] revealed that the (sudden) transition to an online/distance mode of education posed great challenges and difficulties as 40.6% of the teachers reported that had no previous experience in distance education.

Finally, Reimers and Schleicher [2] reported that almost 20% of Greek students did not have access to a computer, a tool necessary for school work. The problem of insufficient resources is not only individual but affects the overall education system; Despite the efforts to update the digital infrastructure, the country lags behind the other European countries.

Regarding the literature review, it was deemed important to investigate and analyze scientific papers at various points in time and gain insights into how the perception and research on distance education has changed over time.

For publications before 2000, Boticario and Gaudioso [3] in their research initiative presented that personalized interaction with users/students can be successful in a transparent and efficient manner through the Web. However, they concluded that personalization capacity of the system relies on the effectiveness of the design of the learning tasks.

With the start of the new century, Volery and Lord [4] attempted to identify and understand the critical success factors affecting the online delivery of education. Three critical success factors were identified:

(1) technology (ease of access and navigation, interface design and level of interaction)

(2) the instructor (attitudes towards students, instructor technical competence and classroom interaction)

(3) the previous use of the technology from a student's perspective.

However, Welsh et al. [5] identified that the use of e-learning is moving faster than our empirical understanding of e-learning. The practitioner and research literatures together suggest that technology can be used effectively and efficiently to facilitate learning. To do so, however, an organization must carefully consider issues of training design, IT infrastructure, and change management.

Zhao et al. [6] in their study identified two factors that affect the effectiveness of distance education:

(1) The results show that although the aggregated data of available studies show no significant difference in outcomes between distance education and face-to-face education

(2) the outcome of distance education is associated with a number of pedagogical and technological factors

Additionally, it was found that students experience difficulties in self regulation, particularly time management, self management, memory, test preparation and completion [7]. Moreover, one aspect, which has so far managed to improve only very slowly, is to increase the percentage of successful students, especially in the beginning of the study [8]. In addition, for the effective use of technology in auditoriums it is deemed important that instructors or educators learn how to use technology and this should be a major motivating factor for virtual schools to increase their pedagogical effectiveness given their existing and acquired technology to facilitate teaching and learning [9].

Finally, the years after 2020, the research has focused on the effects that the COVID-19 pandemic had on educational institutions of all levels around the world. For example, Galdieri et al. [10] argued that didactic use of technologies in the COVID-19 period highlighted that it is not enough to transpose elements from presence to distance mode and that teachers' skills are central in order to make full use of technology's potential. The lockdown brought to the surface the complexity of making didactic adaptations that take into account different communication methods for students and the difficulty of making equally inclusive assistive technologies that support students with complex educational needs (eye communicators, alphabetical and symbolic communicators with voice output, communication software, etc.).

4   CONCLUSIONS

The purpose of the current paper was to communicate some initial results on a research regarding the success factors of online education. To achieve this objective, the research methodology was based on two pillars: identifying existing online educational programs and investigating what made them successful and what were their limits; secondly, reviewing the scientific literature.

Initial analysis of the results indicated that interdisciplinary nature of online programs and provision of ECTS can be important factors for their success, while fees are still considered a limitation of online education.

Regarding the literature, it has been shown that problems and opportunities for online education have been identified even before 2000. Over the years, researchers identified that familiarity with technology and opportunities for the acquisition of digital skills is important for both students and instructors if online education is to succeed. Of course, the literature identified that the COVID-19 pandemic acted as a major disruptor in all aspects of education and its ramifications are still studied.

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