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# The Importance of Teacher Training and the Creation of an Appropriate School Infrastructure for the Implementation of Digital Platforms in Pre-University Education

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*Znaczenie szkolenia nauczycieli i tworzenia odpowiedniej infrastruktury w szkole dla wdrażania platform cyfrowych w edukacji przeduniwersyteckiej*

**Abstract:** The study explores the importance of creating the appropriate infrastructure, with digital tools, in schools, as well as the appropriate training in the field of information technology, to efficiently implement modern digital platforms in the pre-university system. The study focuses on the importance of creating a proper digital infrastructure in the school and the efficiency of teachers training in the field of digital technology, as two key factors that enable the efficiency of the implementation of digital platforms in school for the development of online, hybrid or even remote education, as was the case with the use of these scenarios during the COVID-19 pandemic, or while implementing modern digital platforms for quality management of pre-university education, referring to the SMIP platform. The purpose of this study is to investigate the role that these two key factors have in the effectiveness of digital reforms in pre-university education.

**Keywords:** SMIP; digital platform; implementation; training; digital infrastructure

**Abstrakt:** W opracowaniu zbadano znaczenie stworzenia odpowiedniej infrastruktury z narzędziami cyfrowymi w szkole, a także odpowiedniego szkolenia z zakresu technologii informatycznych dla efektywnego wdrażania nowoczesnych platform cyfrowych w systemie przeduniwersyteckim. W badaniu skoncentrowano się na znaczeniu stworzenia odpowiedniej infrastruktury cyfrowej w szkole oraz efektywności kształcenia nauczycieli w zakresie technologii cyfrowych jako dwóch kluczowych czynnikach umożliwiających efektywność wdrażania platform cyfrowych w szkole dla rozwoju nauki online, w połączeniu lub nawet zdalnie, jak miało to miejsce w przypadku wykorzystania tych scenariuszy w okresie pandemii COVID-19 czy też wdrażania nowoczesnych platform cyfrowych do zarządzania jakością edukacji przeduniwersyteckiej, nawiązując do platformy SMIP. Celem było zbadanie roli, jaką te dwa kluczowe czynniki odgrywają w skuteczności reform cyfrowych w edukacji przeduniwersyteckiej.

**Słowa kluczowe:** SMIP; platforma cyfrowa; wdrożenie; szkolenia; infrastruktura cyfrowa

## INTRODUCTION

Rapid technological and information developments observed in Albania after the 1990s dictated the urgent need to adapt to any sector, one of which was education. According to the study *Integration of Information Technology and Communication in Education in Albania (Integrimi i Teknologjisë së... , n.d.)*, at the end of 2009, the “E-school” project was completed. It met several objectives: 1) secondary and 9-year schools were equipped with computer laboratories; 2) providing broadband Internet; 3) ICT training for teachers throughout Albania; 4) improvement of ICT curricula. The main goal of the “E-school” project was to provide nine-year and high public schools with Internet access, to equip them with computer labs, as well as to train teachers to manage them based on a contemporary curriculum. The key objective of this project was to create an environment in which students, both in rural and urban areas, can learn to use ICT. Digitalization in Albanian education was carried out step by step:

- 1) installation of computers in schools,
- 2) introduction of ICT as a subject in pre-university education,
- 3) establishment of ICT laboratories,
- 4) introduction of teaching tablets in pilot classes,
- 5) the use of digital platforms during the COVID-19 pandemic as a need for an uninterrupted learning process,
- 6) introduction of SMIP package for digitalization of education, in 2022.

The pandemic period dictated another approach to education in Albania, i.e. online education, in addition to traditional education. “Online education is electronically supported learning that relies on the Internet for teacher/student interaction and the distribution of class materials” (Bilali, n.d., p. 86). Online education includes: computer training, Web-based training, online training, e-learning. Benson (2002) points out that online learning is a newer or improved version of distance learning, believing that there is a link between distance education and online learning. Characteristics of online learning:

- online learning depends on the development of learning environments, shifting the focus from traditional teaching to support learning, where the teacher has the role of student advisor for knowledge building,
- online learning is active, interactive and collaborative. Online group work makes students more active participants in the learning process. Students are authorized to interact with the course content, the course instructor/ teacher and other students in the course,
- online learning offers flexibility for the student, through the provision of lectures and teaching materials through online platforms, which offers easy access from the comfort of home. For this, online classes are formed with the student's favorite schedule,
- online learning requires discipline and self-sacrifice. Increasing learning flexibility requires students to be highly self-motivated.

Negative effects of online learning include:

- online learning leads to isolation,
- online learning leads to a lack of practical skills,
- if time between home, work and study is not managed, then online learning can be disadvantageous,
- online learning can affect health. As the computer is the basis of the online learning process, its use can affect posture and can lead to eye strain.

According to Carroll et al. (2003, pp. 65–79), teachers need to have confidence in their ability and have knowledge and skills in inclusive education, to meet the challenges they face in the current school climate. These needs were also reflected in distance learning.

Within a few years, computer technology for educational uses has taken on an extraordinary extension. Likewise, opportunities for computer-aided teaching are increasing (Williams, 2000). During the pandemic period, online learning in Albania highlighted the urgent need to create a digital infrastructure in schools, as well as the need to train teachers in the use of digital teaching platforms in pre-university education (one of them was *academi.al* – an online platform for teaching in Albanian, created in August 2019, all offered for free). The platform (*www1*) offers mathematics, physics, chemistry, biology, information technology, the Albanian language, natural science, geography, history lessons dedicated for students from the age of three to eighteen. The platform works closely with the Ministry of Education, Youth and Sports and maintains its status as its official platform for the creation of virtual classrooms.

In order to improve the educational process in the Albanian pre-university system, in the school year 2021/2022, the digital educational management system called “SMIP” was implemented (*www2*). SMIP is a pre-university information management system, already launched by the Albanian government. It is directly

related to the improvement of the education system, collecting and processing all pre-university education information, increasing the level of digital interactivity of schools, as well as encouraging users to use new technologies in education within the system. The project covers the pre-university education system (including elementary, secondary and high school) within the meaning of Act 69/2012 “On pre-university education in the Republic of Albania”. Through this system, the teacher adds to the electronic register the teaching topics, student evaluations with relevant comments, as well as student absences. So the teacher, through detailed information about the learning process at school, informs parents in real time about the student’s daily preparation.

The SMIP platform gives each student the opportunity to view the subjects that are developed in his/her class, teaching topics developed in accordance with the teaching schedule, and any additional material provided by teachers. With the platform, parents are informed about the academic progress of their children, their attendance at lessons, and the tasks given by teachers. Thanks to the platform, parents know when the child skips school without the parents’ knowledge. It helps to prevent dangerous situations, e.g. drug or alcohol use and other illegal activities. Through this platform it is possible to receive school documents with an electronic stamp, e.g. school certificates.

According to the Albanian educational legal framework, the continuous professional development of teachers aims to update their knowledge and develop their competencies, in order to provide all students with high-quality educational services. Pursuant to the instruction no. 16, 2021, “On the organization and functioning of the system of continuous professional development of educational employees” (Udhëzim Nr. 16...”, 2021), the forms of professional development of educational employees include:

- internal professional development,
- training,
- professional networks (group of teachers of a subject),
- counseling,
- short- and long-term courses.

## METHODOLOGY

The study is based on the importance of creating the appropriate school infrastructure as well as adequate teacher training in the field of information technology in order to efficiently implement modern digital platforms in the pre-university system. The research approach applied in the study is quantitative. The sample of the study includes teachers of pre-university education in Elbasan, Albania.

## PURPOSE OF THE STUDY

The aims of the study are the following:

- to research (through teachers' perceptions) the importance of creating the appropriate digital infrastructure in the school in the implementation of the SMIP system,
- to study (through teachers' perceptions) the importance of teacher training in the digital field, in the implementation of the SMIP system.

The study is based on the research question: What is the role of the preliminary training of teachers in the field of technologies in education and of the creation of the appropriate digital infrastructure in the efficiency of the implementation of digital platforms in the Albanian education system? To answer the main question, we have formulated the following hypothesis: The preliminary training of teachers in the field of technologies in education and the creation of the appropriate digital infrastructure are fundamental conditions in the efficiency of the implementation of digital platforms in the Albanian education system, referred to as the SMIP system.

## Variables

**Independent variable:** 1. Preliminary training of teachers in the field of technologies in education; 2. Creating the appropriate digital school infrastructure.

**Dependent variable:** The efficiency of the implementation of digital platforms in the education system.

## Sampling

The study sample covered 145 teachers of pre-university education in the region of Elbasan. Of these, 32 teachers have 5 years' experience in education, 42 teachers – 10 years' experience, 41 teachers – 20 years' experience and 30 teachers have over 20 years' experience.

## DISCUSSION

As regards the question "Which platform did you use in online teaching?", we can notice that 28% of the surveyed teachers say that they have used the communication network WhatsApp; 54% of the teachers used the online Google Classroom platform, while 18% of the teachers used the online platform academi.al (Figure 1). As we can see, there is a connection between the work experience of teachers

and the platform used during online teaching. The WhatsApp social network is used more often by older teachers. Of the 28% of teachers who have used this form of communication in online teaching, 13% are teachers with over 20 years of work experience. New online communication platforms are used more frequently by young teachers. 34% of teachers with up to 10 years' experience have used the Google Classroom platform (out of 54% of the total who have used this work platform). 14% of teachers with up to 10 years' experience have used the akademi.al platform (out of 18% of teachers who have used this work platform in total).

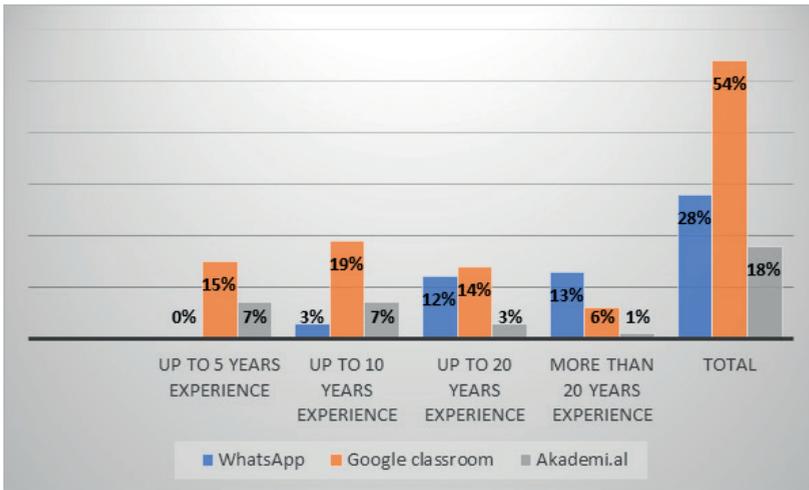


Figure 1. “Which platform did you use in online teaching?”

Source: Authors' own study.

With regard to the question “Did you encounter any difficulties in using the electronic platform that your school used in online learning?”, it can be noticed that 42% of the teachers encountered some difficulties; 42% had to face many difficulties and 16% – few difficulties in using online platforms. So, 84% of teachers have encountered difficulties in using these tools. The greatest difficulty in using new platforms, such as akademi.al and Google Classroom, has been encountered by teachers who have more work experience. This is because teachers with less work experience are younger teachers, who due to age, possess higher digital skills than their older colleagues (Figure 2).

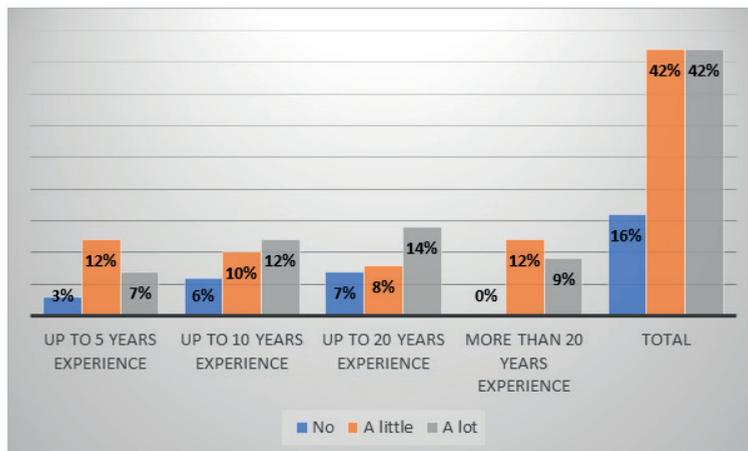


Figure 2. “Did you encounter any difficulties in using the electronic platform?”

Source: Authors’ own study.

Regarding the question “Has the SMIP system started to be used in your school?”, 63% of the respondents claim that the SMIP educational management system started to be implemented in the schools where they teach, while 8% of the teachers state that the implementation of the SMIP system in their schools has not started yet. As this education management system is being implemented for the first time in Albania, not all teachers are required to enter school records. 29% of the surveyed teachers do not have information whether the SMIP system is being implemented in the school where they teach (Figure 3).

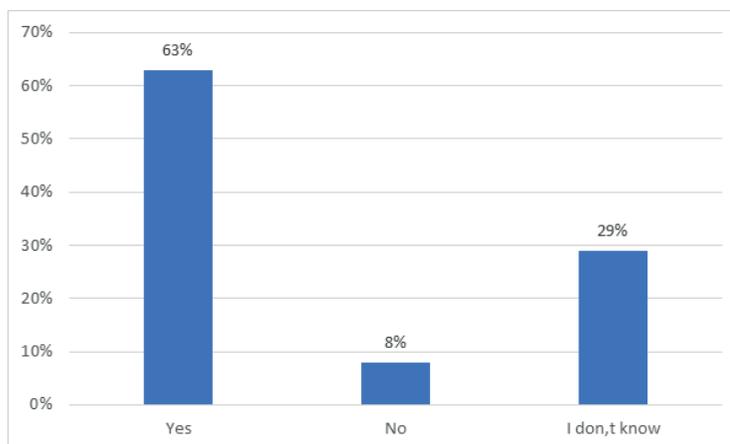


Figure 3. “Has the SMIP system started to be used in your school?”

Source: Authors’ own study.

As for the question “Have you been trained to use the SMIP system?”, we see that only 41% of the respondents claim they have been trained to use the SMIP educational management system (Figure 4). By comparing the data from Figure 4 with the data in Figure 3, it can be concluded that the percentage of teachers who have not been trained in using the SMIP system includes teachers who claim that their schools do not use the SMIP system (8%) or teachers who declare a lack of knowledge even if their schools use the SMIP system (29%).

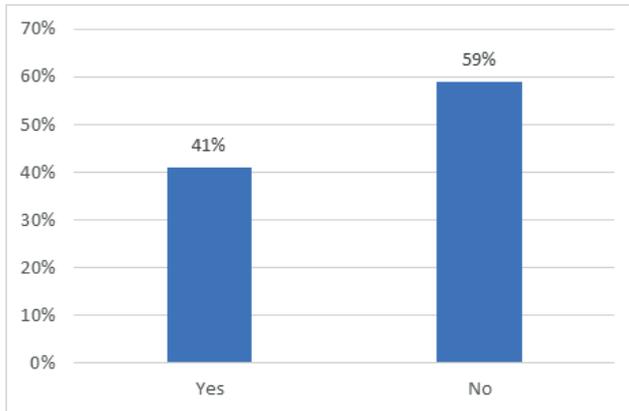


Figure 4. “Have you been trained to use the SMIP system?”

Source: Authors’ own study.

As far as the question about the method used to train teachers in the SMIP system is concerned, it can be seen that 81% of teachers have been trained as part of in-school training, while 19% of teachers claim that they have been self-taught properly (Figure 5). Also, there have been no teachers that have been trained from training agencies. A very interesting finding regarding self-training can be noticed if we refer to two components: work experience and self-training. 19% of teachers belonging to the group with 10–20 years of work experience state that they have been self-trained in terms of using the SMIP education management system.

As mentioned before, the goal cannot be achieved and the use of the SMIP education management system cannot be sufficiently effective without the appropriate digital infrastructure in the school (each classroom should have computers connected to the Internet). When looking at Figure 6, we can notice that classrooms are not equipped with computers connected to the Internet, which makes it difficult to achieve effective use of the digital education management system.

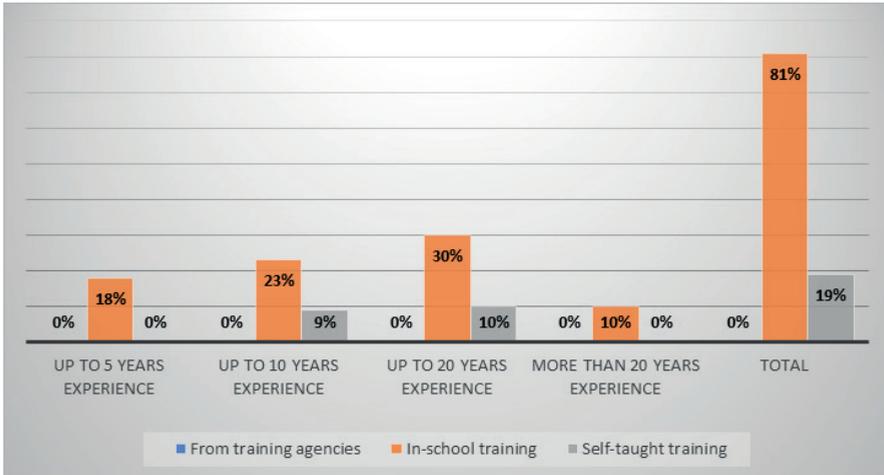


Figure 5. Methods used to train teachers in the SMIP system

Source: Authors' own study.

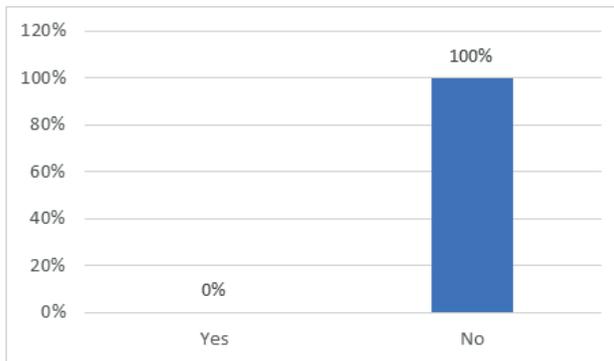


Figure 6. "Is there a computer in every classroom where teachers use the SMIP system?"

Source: Authors' own study.

When it comes to the question that aims to measure teachers' opinions about the effectiveness of the implementation of the SMIP system into the pre-university education system without adequate infrastructure and training, we can see that 89% of teachers say that the use of the SMIP system is inefficient when there is a lack of proper digital infrastructure and when there is a lack of prior teacher training. Only 11% of the surveyed teachers say that some efficiency of using this system can be achieved without proper digital logistics and without teacher training. No teacher is enthusiastic about the efficiency of using this system without proper digital infrastructure and without teacher training (Figure 7).

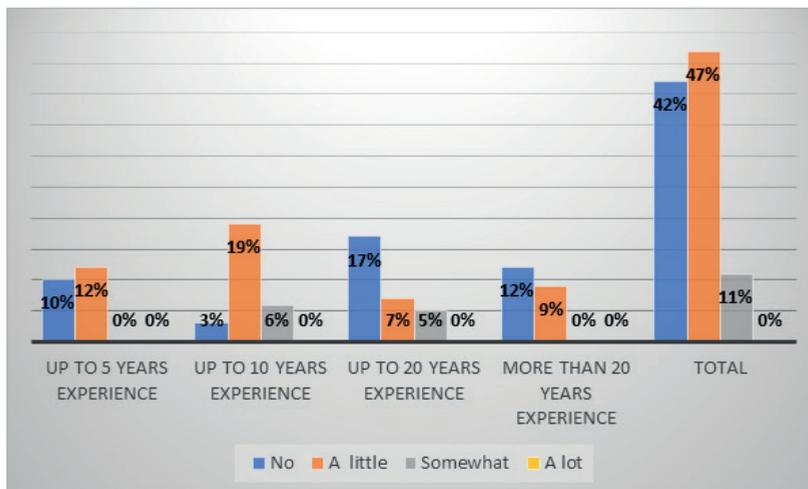


Figure 7. “How effective is the implementation of the SMIP system into the pre-university education system without adequate infrastructure and training?”

Source: Authors’ own study.

## CONCLUSIONS

From the study conducted with pre-university education teachers on the importance of creating a digital school infrastructure and digital teacher training for the effectiveness of the implementation of the digital education management system in Albania, it can be concluded that:

- during the COVID-19 pandemic, teachers encountered some difficulties in using digital school platforms when teaching online, because they lacked digital tools and because they were not trained to work with such digital platforms,
- lack of adequate digital logistics for the implementation of the digital education management system (SMIP) (lack of computers connected to the Internet).
- teachers are not trained in advance, which creates confusion and difficulties for them during the implementation of the SMIP system in schools.

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