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9. DIGITAL TECHNOLOGIES - THE FUTURE WAY OF LEARNING IN HIGHER EDUCATION

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Abstract: *Digitalization trends have moved forward with accelerated steps, surrounding all spheres of our lives with the provision of light services, faster and less expensive communications, more functions, and a great influence on increasing quality of life. In developed countries, digitization of education is seen as one of the priority goals for achieving sustainable development. Higher education is an essential pillar in developing new knowledge economies for the twenty-first century, and Kosovo national authorities are strategically oriented toward the digitalization of higher education. Digitization includes a wide range of activities ranging from lecturers, group work lectures, and inclusion in individual or group study, and exams as an integral part of the revolutionization of higher education. The period of COVID19 has pushed forward the digitization of education in many countries of the world. In Kosovo, this was the period that established the dividing boundaries between the traditional multi-century teaching eras with the new digital era. This period is also characterized by the challenges faced by teaching and learning in the use of efficient digitized methods. This paper explores the impact of digitization on teaching and learning, specifically in medicine and architecture. Also, this work is intended to offer a model of how digital transformation can be used to build competitive advantages for universities. Based on the condition of the accreditation agency and the standards of the International Society for Technology in Education, we can say that the use of software and artistic methods in teaching processes affects the development and advancement of young people.*
Key words: *Digital technologies, virtual learning, higher education, sustainable management*

1. Introduction

National governments should continue to shoulder the bulk of responsibility for their countries' educational and training systems. To better prepare students for success in the workforce and society at large, reforms in education aim to make positive changes to the current educational system. The process of digitizing education has the potential to revolutionize classroom practice by making learning more convenient, effective, individual, interesting, and prepared for the future. Education is facilitated by digitalization, especially for people who have been excluded from more conventional channels of instruction. Today's students no longer must be tied down to a specific classroom or specific time of day to access educational materials and courses, thanks to digital technology.

Improvements in human lives and overall quality of life can have a substantial effect on educational reforms. There is a lot of work and time required to fully digitalize and reform the educational system. It depends on financial assistance, attitudes, values, and expertise; instructors' experience with digital technology in the classroom; administrative and technical support; cultural and societal aspects; and class size. Institutions that want to be change agents in society and compete in their fields must embrace digital transformation (Benavides et al., 2020).

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Furthermore, the digital transformation of higher education institutions is critical to their future success (Šereš et al., 2018) and can contribute to attracting and retaining students.

There are many facets to the intricate web that connects educational reforms, societal prosperity, and quality of life. The quality of life and social well-being is significantly influenced by education. A good education can also have a beneficial effect on a person's social well-being by increasing social mobility and decreasing social inequality. Education has the potential to help break down barriers and promote equal chances by equipping individuals with the knowledge and skills necessary to achieve their goals. In this way, we can work toward the creation of a fairer society in which every person has the opportunity to live up to their full potential. Employment opportunities are one of the most significant ways in which education can influence a society's level of well-being.

A greater level of education often results in a greater number of work opportunities as well as higher-paying jobs. Education, in addition to one's employment status, is another factor that can influence one's health results. Individuals who have completed a greater amount of schooling have a greater chance of enjoying better health outcomes, experiencing lower rates of chronic illness, and having longer life expectancies. This can be attributed to a several causes, including increased knowledge and awareness of healthy practices, improved access to healthcare, and the capability to make educated decisions about their own health.

With the emergence of new types of interactive technologies, formal and informal educational resources and environments are being inundated with opportunities for learners to interact with content in multiple ways through a variety of digital materials and experiences. Newer technologies receiving much attention in recent educational literature include simulation-like environments, virtual reality, and augmented reality (Koszalka T.A. et al., 2019). The delivery of higher education has been radically altered because of the advent of digital technology, which has also become an essential component of contemporary educational settings. Traditional classrooms are no longer necessary for students to acquire knowledge because the internet and an increasing variety of digital tools are becoming increasingly accessible.

Learners are now able to access educational resources from any location in the world thanks to the proliferation of technology-enhanced learning methods such as online learning, blended learning, and other kinds of technology-enhanced learning. The use of digital technology in higher education has become widespread, and these tools present considerable prospects for enhancing college students' access, flexibility, participation, and the overall cost-effectiveness of their education. Digitalization these days is oriented toward reforms in education. Reforms made included improving higher education's accessibility and equity, pedagogical effectiveness, practical utility, innovation and research support, and institutional management and funding. Higher education is an essential pillar in developing new knowledge economies for the twenty-first century.

Teachers are faced with the challenge of adapting to a new paradigm in which, if they decide to become involved, they will have to make a considerable effort to

implement the subjects and subsequently focus on the learning platform (Garca-Pealvo, F.J., 2021). When teaching through digital technologies, educators have a responsibility to help students explore the power of these new tools to craft individual and communal stories but also to help them perceive and compensate for their limitations and dangers. When teaching about digital technologies, educators have a responsibility to help students appraise the new tools through technological, pedagogical, social, socio-political, and ecological lenses (Pegrum, M., 2009).

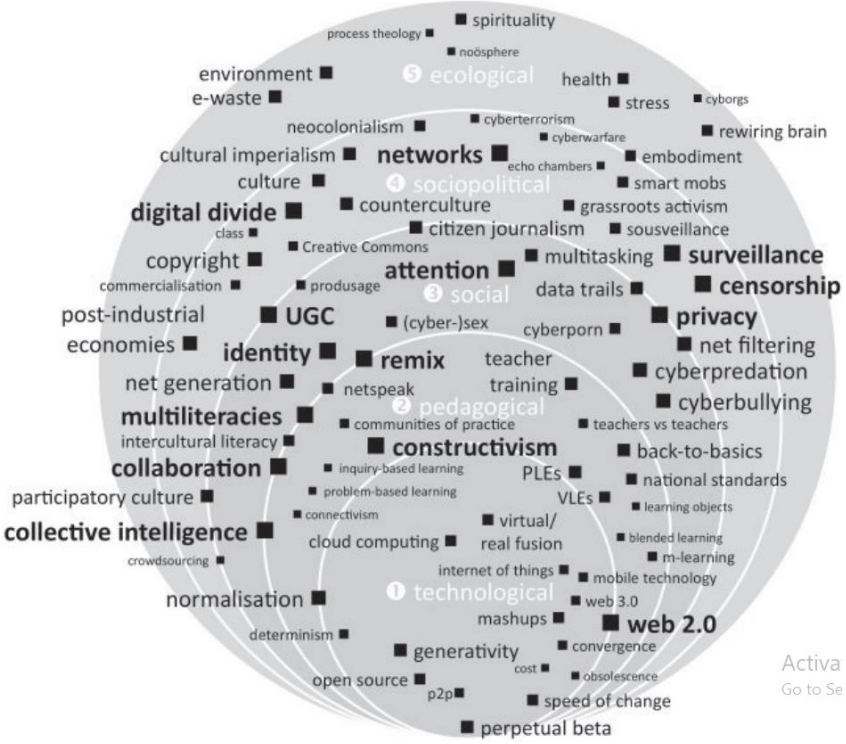


Figure 1. Five lenses on digital technologies in education (Pegrum, M., 2009)

2. Digitalization technology and higher education – materials and methods

Higher education is predicted to undergo reform thanks to digital learning technologies. According to the European Commission's (EC) most recent Digital Education Action Plan (2021–2027), digital education should enable more individual, adaptable, and student-centered instruction (European Commission, 2021). Education, science, and inventions are the three sectors where digital technology has had the biggest impact. As part of its digital transformation, the university is focusing on moving away from traditional classroom settings and toward more casual learning environments. This is being done in part through the implementation of novel approaches to the design of the educational process that make use of state-of-the-art technological and pedagogical solutions to boost the effectiveness of instruction. The purpose of this digital transformation at universities is to facilitate the use of cutting-edge technology that will help foster and sustain innovative pedagogical practices.

Rapid advances in digitalization have pervaded every facet of our lives, enhancing our convenience, facilitating more efficient and cost-effective communication, expanding our capabilities, and generally improving our standard of living. Even the national government of Kosovo is planning for higher education to become more digitized. As an important part of the change in higher education, digitization includes a wide range of activities, such as lectures, group work lectures,

individual or group study, and exams. The global spread of the coronavirus has hastened and, in some cases, mandated the widespread use of digital learning platforms across a wide range of countries. While some universities have had little trouble adjusting to the new digital learning landscape brought on by the coronavirus COVID-19, the vast majority have run into and continue to run into serious problems.

During the pandemic caused by COVID-19, a few of different strategies for the transition to digital education were developed. Meanwhile, the COVID-19 pandemic has resulted in a steep technological learning curve among higher education teachers. Overnight, university teachers were forced to adapt their teaching to a digital, online format to meet the needs of more than 1.5 billion students across the globe who have been affected by COVID-19 restrictions (UNESCO, 2021). Online learning, distance learning, and hybrid learning are three pedagogical approaches that the EC action plan specifically highlights as being part of digital education (European Commission, 2021).

The negative phenomena caused by COVID-19 have influenced the increase of awareness among the citizens of the entire globe. In Kosovo, COVID-19 (lockdown and quarantine) has influenced the acceleration of the development of the digitalization of technology in education. During the learning process in the period of COVID-19, dentistry students in Kosovo mainly have deficiencies during the development of the learning process. In fact, the lack of practical work for patients has created a big gap during the pandemic. As well as on the other side of COVID-19, architecture students have improved their effectiveness through distance learning in digital classrooms and maintained regular communication.

This was the period that established the dividing boundaries between the traditional multi-century teaching eras and the new digital era. In fact, the digitization of higher education during COVID-19 has had a positive impact on the progress of the teaching and learning process despite many technological challenges. This study's methods, including the processes of the literature review, were backed by the protocol established to ensure comprehensiveness, objectivity, and dependability. The search was conducted through electronic databases because these are the most pertinent platforms for scientific information, allowing access to scientific databases as well as the most significant publications pertaining to the many fields of expertise. Especially with regard to concerns over the adoption of digital technology in institutions of higher education.

The digitization of technology in higher education is pushing the development of a new generation of educators as well as students who are more and more demanding, creating advantages for the future. However, the complete digitalization of technology in higher education does not exclude classroom learning; on the contrary, research has shown that based on the type of studies, learning should be developed in a combined or hybrid manner with the aim of producing educated generations for sustainable development. In the end but not least, digitalization technology in education will reduce environmental pollution and degradation. In the 1970s of the last century, technology in medicine, with particular emphasis on dentistry, began to develop rapidly. In medicine, digital technology facilitates high-

quality services, communication, continuous care, and patient health management (Aliu, N., 2022).

The practice of orthodontics has also been significantly altered as a result of the introduction of digitalization, with implications for both the planning and execution of orthodontic treatments. The practice of orthodontics has been revolutionized by digitalization, which has resulted in more effective treatments that are also more comfortable for patients. Intraoral scanners, 3D printing, CAD/CAM, virtual treatment planning, and cone beam computed tomography (CBCT) are some examples of digital technologies that have altered the way orthodontic treatments are planned and administered, resulting in improved outcomes for patients. Today, manufacturing orthodontic appliances, such as aligners and retainers, can be accomplished with the use of 3D printing. The digital models of the patient's mouth are utilized in the process of generating the files for the patient's 3D printer, which are ultimately put to use in the process of printing the orthodontic appliances. The production of orthodontic appliances has been completely transformed by a new technology that has made the procedure far more efficient, accurate, and cost-effective.

The orthodontic appliances — brackets, wires, and bands — are all designed with the use of CAD/CAM technology, which is then employed in the manufacturing process. The digital models of the patient's mouth are employed in the design process of the orthodontic appliances, and the production process is mechanized with the help of computer-controlled machinery. Because of this technology, the fabrication of orthodontic appliances may now be done in a more accurate and time-saving manner. To assess the accuracy of the calculation, digital measurements must be performed by an orthodontist who is precisely trained in the field of digitization for measurements of marked points (Aliu, N. et al. 2022).

Figure 1. Digital intraoral scanner (Aliu, N., 2022)

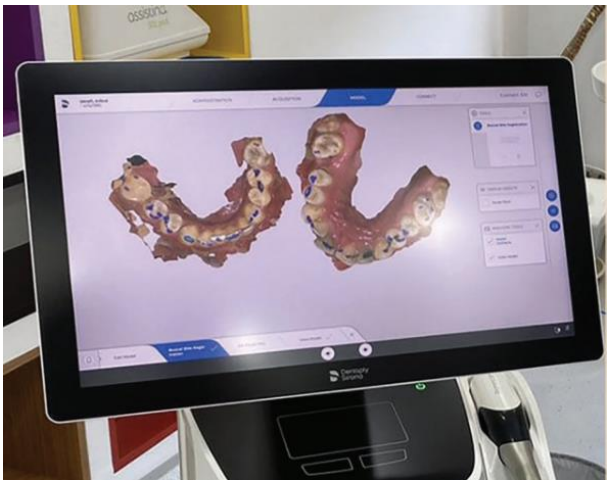


Figure 2. Extra oral digital scanner (Aliu, N., 2022)



The digitization of the database has had a positive impact on the development of dentistry because these data have been distributed to professionals around the world, to which even students have access. In this context, digitalization has advantages and disadvantages. The advantages are:

- Facilitating the student's work because of the reducing the patient's discomfort
- Increasing efficiency and simplifying clinical procedures in the student's work during studies
- Diagnoses during the student's work are the product of fast and accurate data.

- Analysing data through fast online exchange with other students, professors, or professionals from around the world

The disadvantages are:

- Equipment and maintenance with digital technology have high costs.
- Lack of technological knowledge or the use of different software by students.
- Lack of protection of sensitive patient data from their deletion or various cyber-attacks.

On the other hand, in architecture, digital technology has greatly influenced access to professional data and information while reducing the number of plagiarisms. Access to learning processes from every place in the world has significantly facilitated the growth of interest and quality in education. Offering various online educational programs has enabled students to complete their studies as well as renew their ambitions for continuing post-graduation studies. The professional competition among students has increased significantly, and this has had a positive impact on the results of the assignments. During the period of COVID-19, architecture students through distance learning in digital classrooms have improved their effectiveness and maintained regular communication. They were more organized, while during the discussion with the professors or even among the students, the conversations were developed in an interactive way, based on arguments and counterarguments.

However, some defects were evident, which had to do with the nature of the student. In fact, the students who were more closed to themselves during the face-to-face studies were now even more closed to themselves, increasing the fear of communication with the professor or with the other students in the digital class. The results of the students' group work were more productive than during the face-to-face studies because the consultation of the task was done in the digital classroom. However, during the lesson, the professors do not have the opportunity to evaluate the work and commitment of each student in the working group. In recent years, architecture has advanced in the use of digital tools in its creation without changing the design processes and methods in architecture but simply by changing the application method.

The use of digital technology has brought about widespread and far-reaching changes in the realms of design and construction. These days, architects and engineers can design, model, and simulate the performance of building structures with an unprecedented level of accuracy and efficacy because of the proliferation of new technology. Including generative methods of creating and automating the creation of architecture through algorithms and computer logic, manufacturing through digital manufacturing tools, and analysing and optimizing form through digital analytical tools. The new equipment enables an easier approach to clarification and understanding for students, as well as architectural training with innovative equipment.

Digital architecture such as BIM, virtual reality and augmented reality, the Internet of Things, CNC machines, etc. The use of automation and robotics in architecture has also been made easier because of the rise of digitalization. In general, the advent of digitalization has had a profound impact on the field of architecture. This has made it possible for architects and engineers to design and

construct buildings in ways that are more cost-effective, environmentally friendly, precise, and sophisticated than ever before.

3. Conclusions

Education in both the field of orthodontics and the field of architecture has been profoundly influenced by technology in recent years. In orthodontics, the diagnosis and treatment of dental disorders have become more efficient and precise because of technological advancements such as 3D printing, digital scanning, and simulation software. This has led to improved patient results. The design and construction processes in the field of architecture have been revolutionized by technological advancements such as BIM software, VR/AR, 3D printing, and automation, which have made these processes more sustainable, cost-effective, and sophisticated. Students and professionals alike now have access to online courses, simulations, and virtual environments, all of which enable them to improve their skills and knowledge in novel ways.

This is a result of the fact that technology has generated new opportunities for learning and training in both of spheres. Although these industries have unquestionably benefited greatly from the introduction of new technologies, it is essential to keep in mind that technological advancement is not a silver bullet. There are still some restrictions and difficulties connected with the implementation of technology in educational settings, such as the requirement for sufficient infrastructure, training, and maintenance. To make sure that students and professionals in orthodontics and architecture continue to benefit from the use of technology in education, it is crucial to take a considered and responsible approach to its implementation. Finally it is important to remember that the all-around progress of technology has allowed us to save time in recent years.

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