

Quality Assurance Review for Higher Education

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Quality Assurance Review for Higher Education, Vol. 12, No. 1 – 2, 2022, pp. 85 – 97

Published by: The Romanian Agency for Quality Assurance in Higher Education - ARACIS

Place of publication: Bucharest, Romania

Publication type: printed, online

ISSN: 2066 - 9119, 2069 - 2188 (online)

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Quality Assurance Review for Higher Education is edited from ARACIS own funds and, at this stage, also contributes to the sustainability of the project “The development and the consolidation of quality culture at Romanian higher education system – QUALITAS”, POSDRU Agreement 155/1.2/S/141894.

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“The difficulty lies not so much in developing new ideas as in escaping from old ones...”

Preface to *The General Theory of Employment, Interest and Money*,
John Maynard Keynes,
1936, p. viii

Online Higher Education during the COVID-19 Pandemic: an Analysis Based on Students' Perception

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Abstract: *The COVID-19 pandemic shifted the usual way in which teaching, learning, and research were done in universities, suddenly integrating digitalization, decisions having to be made quickly, and adaptation becoming an ongoing process. The purpose of our study was to determine the perception of students from two Romanian universities (a public and a private one) about online learning during the COVID-19 pandemic period. To meet our goals, we used two surveys conducted in the virtual environment. The results of this paper show that students received well digital technologies integration into the learning experience during this period from both universities and online education create particular well-being for students, who benefit from the more efficient organization of activity and resources in the virtual learning environment. Furthermore, our findings indicate that online learning environments implemented during the COVID-19 pandemic should be replicated on a larger scale for full-time learning programs in a hybrid dimension.*
Keywords: *online education, digital technologies, hybrid learning, COVID-19 pandemic, student perception*

Introduction

The beginning of the COVID-19 pandemic in March 2020 initially blocked society's traditional engines (social, health, economic, etc.) by imposing certain forms of lockdown measures in different countries. This also led to the search for solutions to adapt quickly to the new "normal." However, the moment also represented, beyond the overwhelmingly adverse effects, a real boost for specific areas, such

as university education, which became thus more inclusive, more resilient, more innovative, and more digitally transformed by incorporating new technologies. However, the future of education needs to perceive new technologies as means that support the learning process, along with other classical resources, rather than as a purpose in itself (in the sense of creating tools by ignoring the content). "While digitalization will continue to expand, and digitally enhanced provision will be integrated into university education, physical presence on campus will remain a core feature at most institutions."(EUA, 2021).

Generally, online education, accomplished by dedicated specific platforms and tools (Moore & Kearsley, 2012), has become an increasingly popular option. More and more adults who want to pursue university studies work or have families choose to complete their studies, develop their skills, or reorient themselves professionally, in other words, to reskill and upskill to remain competitive in online environments. According to Eurostat (2022), in 2021, "27% of people aged 16 to 74 in the EU reported that they did an online course or used online learning material", which means a 4% increase compared to 2020. The highest share was reported in Finland and Sweden, while Romania remains last in the ranking. Furthermore, considering the Romanian official statistics (Ministry of Education, 2021) regarding the previous three academic years, there is a slight increase in the number of students enrolled in distance learning study programs, from 6.1% of the total number of students enrolled in undergraduate studies in 2018-2019, to 6.8% in 2020- 2021.

At the European level (IAU, 2022), in 2020, "85% of HEIs in Europe were able to move to teach and learn online quickly". In 2021, "92% of European HEIs offered remote teaching and learning, and 86% of students could access remote teaching and learning offered" globally. Digital technologies became, during the COVID-19 pandemic, almost the unique way universities could operate, and the shift had to be done urgently, which demonstrated resilience and a fantastic ability of educational institutions to continue to operate in the new framework, creating a proper digital education ecosystem.

Two aspects are essential in thoroughly presenting online learning. First, we differentiate between the inclusion of online activities at the school level and the appeal of online education at the university level. Online activities that increase student involvement and stimulate educational activities or create virtual spaces for studying various topics can significantly benefit students and teachers. While trying to provide education through electronic means to the detriment of the direct interaction between the participants in the education process can generate losses on multiple levels, like knowledge transfer, emotional, social, etc.

Secondly, finding an optimal way to combine online activities (synchronous and asynchronous) with face-to-face activities for each field is essential. Thus, students involved in the education process can acquire the skills necessary to adapt to the constantly changing requirements of the labour market and technological evolution/revolution. Nevertheless, this can be done only by concentrating the efforts of

all stakeholders (public decision-makers, teachers, students, employers, etc.) to guarantee access to quality and more inclusive education in the future.

This technological-pedagogical duality must be considered even in the teacher's training process. It is vital to balance teachers' technical training (using eLearning platform tools or other software, apps, and innovative hardware) with proper pedagogical practices for online training. Bailey & Card (2009) in their study focused on three pedagogical theories and principles: *andragogy* (seen as self-directed learning focused on four learning components: needs, goals, resources, and outcomes, citing Fidishun, (2000)), *constructivism* (by encouraging students to be receptive to multiple perspectives in performing active learning and assessment, citing Merriam & Baumgartner, (2020)), and *transformative learning* (based on critical thinking skills, meaning-making frameworks that allow students to reflect, to research and to develop in online asynchronous discussion environment, citing Mezirow, (2000), Baglione & Nastanski, (2007)). After reviewing seven principles for good practices identified in the literature, the researchers also presented the taxonomy of teacher roles: "social role, pedagogical role, management role, and technological role." Furthermore, the analysis of Bailey & Card (2009) emphasized eight effective pedagogical practices for effective online teaching, which refer to fostering relationships, engagement, timeliness, good communication, organization, the effective utilization of technology, flexibility, and fair expectations.

In Table 1, we highlighted some of the positive elements and also barriers to optimal online education that various studies have summarized:

Table 1. *Online education straights and weaknesses*

Straights	Weaknesses
Course design consistency	Technical problems
Students' interaction with course instructors	Higher student attrition rates
The interactivity of tasks	The need for greater discipline and self-motivation of students
Flexibility and accessibility of web-based instructions	Isolation from community
Competencies required to use the technology	Problems in collaborating with the co-learners
Immediate feedback and clear instructions	Delay in feedback offered to students
	Teacher time is "more fragmented in nature."
	Poor infrastructure and poor digital skills

Source: our one compilation using Muthuprasad et al., 2021; Bailey & Card, 2009, Onyema et al., 2020.0.

Our paper aims to assess the students' perceptions of online education during the COVID-19 pandemic, using two surveys conducted within two universities in Romania. The findings of our study are expected to be helpful in the current preparation of policymakers to adapt the higher education regulations towards including a specific level of online learning environments in the classical model of higher education. Although quality standards must be met equally by public higher education institutions and private ones, it is worth investigating if there are differences in perceptions between students who choose to study in a private university and those who choose to study in a public university. For the segment of small and medium universities from the national higher education system consisting of state and private universities (Petrescu, 2015), the two universities selected to carry out this study are representative, both being comprehensive and carrying out a long-term activity, including through mature eLearning platforms. Also, some studies and analyzes have been undertaken on the case of large universities. However, there needs to be more research for this level of the university, especially regarding the impact of the COVID-19 pandemic on the university environment.

Literature Review

The COVID-19 pandemic has accelerated the university education environment's adaptation to new technologies, integrating digital learning tools into the current activities of teachers and students and the administrative process. This is an irreversible process, especially from the point of view of the current students' generations profile, more connected to technologies and intensive users/consumers of virtual communities.

In addition to the well-known challenges of the eLearning process (Muresan & Gogu, 2013; Morrison-Smith & Ruiz, 2020), the recent period was subjected to new challenges generated by the movement and socialization restrictions of the lockdown period. Universities thus had to adopt new tools or adapt the tools at their disposal to provide students with a flexible, accessible, inclusive virtual learning environment, maintaining quality teaching and learning, both from a pedagogical and a technical perspective. On the other hand, the increase in interest in online technology-based learning environments at higher education levels was also pointed out in the literature before the COVID-19 pandemic. (Mihai et al., 2011).

Several studies (Lin & Gao, 2020; Basri et al., 2021; Hurajova et al., 2022) highlighted the positive effects on teachers' and learners' experiences generated by online synchronous and asynchronous learning activities during the COVID-19 pandemic. In addition, Hurajova et al. (2022), using a survey of university teachers' opinions, argue that "modern online technologies contribute to the sustainability of the educational process during an emergency" and have the potential to "become an integral part of university education even after the end of the pandemic situation." In a theoretical model proposed by Han et al. (2022), the authors analyze the competition between a combination of online and offline universities in a market of

N, concluding that this combination can be socially beneficial and the presence of both education providers must be kept in the knowledge transfer process.

Additionally, aiming to determine the effectiveness of learning in a hybrid learning environment compared to traditional lecture instruction, some authors (Vernadakis et al., 2011) have identified that the hybrid lecture instruction approach is a superior option in carrying out activities with undergraduate students.

Another study (Dalipi et al., 2022), conducted in a Swedish university, provides essential insights into emergency remote education during the COVID-19 pandemic, generating a “set of lessons-learned experiences regarding the learning design approaches” also recommending some lines of action for similar contexts.

Furthermore, in a recent study (Mahabubu&Parvin, 2021), the authors find some interesting conclusions about the impact of traditional education (based on face-to-face teaching) and online education in the broader context of different views regarding the ability of distance education to achieve its purpose similar to the quality level of traditional university education.

Thus, the study's findings confirm a lower academic level of students in the group tested before the pandemic, but they obtained better job-readiness scores than the during-pandemic students; also, the two elements of the analysis are not necessarily related.

On the contrary, according to Usher et al. (2021) findings in examining higher education students' innovation for an engineering course, face-to-face and online students reported similar levels of innovative behaviour.

On this basis, it is clear that the expansion of online learning at the university level (Daniel, 2020) will be more and more intense, especially in some fields (less practical-oriented ones), which will allow the continuous improvement of technology-based learning, and will become a constant in the organization of education at the tertiary level. However, from another perspective, some authors emphasize that online education is a poor substitute for face-to-face education (García-Peñalvo et al., 2021). Also, a study (Ambika Selvaraj et al., 2021) about the influence and impact of online classes compared to regular classes in India (the country where traditional learning is the standard variant of providing education) was conducted at the schools and colleges level during three months from 2020. The majority of the respondents were in favour of regular classes (mainly due to the reasons related to the infrastructure and the forced organization specific to the lockdown period), but emphasized, however, two crucial pros aspects of online classes, namely the flexibility and convenience.

Methodology

Our research highlights how students enrolled in full-time and distance learning undergraduate programs from two different universities in Romania (1078 students from “1 Decembrie 1918” the University of Alba Iulia and 757 students from “Danubius” University from Galati) perceive online learning and digital technologies during the COVID-19 pandemic. The samples represent the analyzed populations, with a margin of error of 5%.

"1 Decembrie 1918" University of Alba Iulia (UAB) was established in 1991 as a publicly accredited higher education institution. "1 Decembrie 1918" the University of Alba Iulia is currently organized into five faculties: Faculty of History and Philology, Faculty of Economics, Faculty of Sciences and Engineering, Faculty of Law and Social Sciences and Faculty of Orthodox Theology. "Danubius" University from Galati (UDG) was established in 1992 and, at the time of this study, includes four faculties, namely the Faculty of Law, Faculty of Economics and Business Administration, Faculty of Communication and International Relations, and Faculty of ICT and Applied Sciences.

The two surveys implemented are based on five questions extracted from two academic quality evaluation questionnaires offered to be filled in by students regarding the pandemic period (the survey was conducted on 3-15 January 2022 in UAB and on 7-29 January 2022 in UDG). The students were asked to assess their level of satisfaction regarding the following:

- the functioning of the eLearning platform during the pandemic;
- the use of ICT in the teaching process by academic staff;
- the promptness of the feedback provided through the eLearning platform;
- the role of digital tools in facilitating communication between students and academic staff or between students;
- online access to the resources and information necessary for the study.

The scale response options of the applied questionnaire include five steps: Very satisfied, Moderately satisfied, Slightly satisfied, Not at all satisfied, and Unsure. The questionnaires were transmitted to students using Google Forms, and the responses were collected in excel sheets. Filling in the two questionnaires took into account the principles of volunteering and anonymity.

We should also mention the fact that the universities use two different eLearning platforms: Moodle ("1 Decembrie 1918" University of Alba Iulia-UAB) and Sakai ("Danubius" University from Galati-UDG).

Results and Discussion

This study's main objective was to assess students' perception of online learning during the COVID-19 pandemic. The responses were collected and analyzed considering four main aspects, namely: *the virtual learning environment* (how digital tools are used in the teaching and learning process and the platform functionality), *communication/interaction between teachers and students or between students*, *prompt feedback*, and *accessibility of learning resources and online information*.

The representation of the percentage of students' responses is highlighted in Figure 1. The students responded with an impressive ratio in favour of the use of ICT in learning activities (over 90% of UAB and UDG students appreciated the use of ICT tools, as we can see in Fig. 1.) regarding their opinions about the virtual learning environment and how platform facilities and digital tools are used in teaching-learning activities.

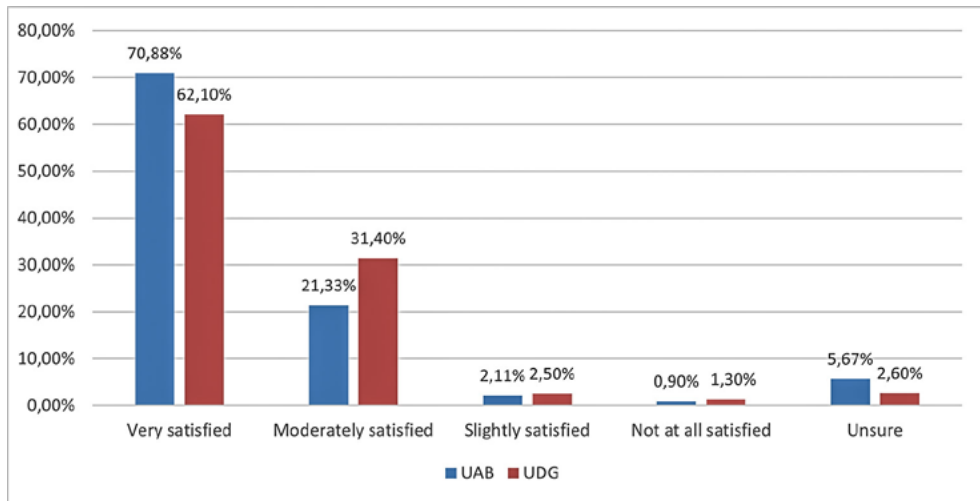


Fig.1. Using ITC in teaching

The results are in line with the literature related to the subject (Mihai et al., 2011; Mishra et al., 2020) and indicate the need for the actual generation of students to use digital tools in their process of learning taking into consideration their habits of using electronic devices in everyday life. In addition, the extent to which the teachers managed to personalize the learning process for each student in the online environment led to a higher level of appreciation from the surveyed students. This aspect is an important one in the perspective of the preparation and training of teachers in online education technologies, and special attention must be paid to the level of each university.

Further, according to the survey results, more than 90% of the students appreciated how the eLearning platform facilitated learning during this period, as seen in Fig.2.

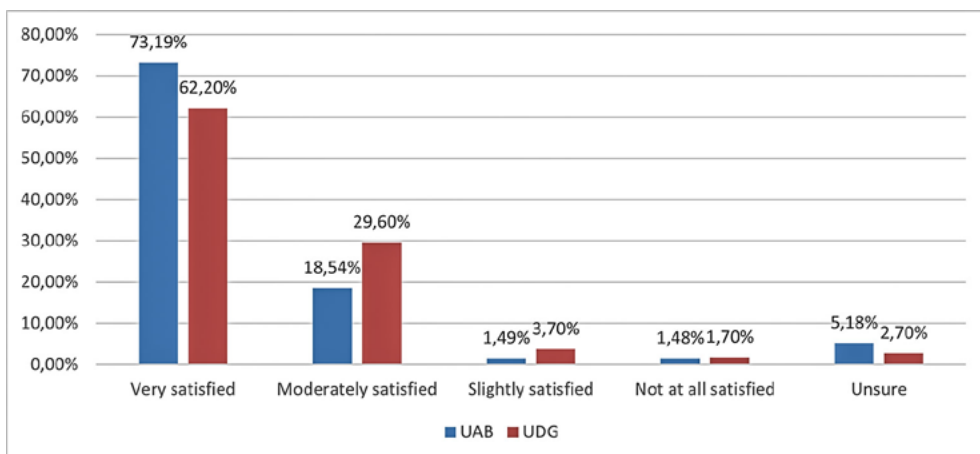


Fig.2. eLearning platform functioning

Regarding the percentage of students that answered "unsure" to the first two questions, we conclude that they could not access the eLearning platform during the

pandemic for many reasons, which refer to their abilities to use digital tools or the inability to own digital tools or internet connectivity that would allow them access to education during this period.

Communication during the pandemic period was also affected and transferred into the virtual framework, totally or partially (using the hybrid learning system). Also, we asked students about the means of communication and academic and social interaction, especially using the tools offered by eLearning platforms (messages, forums, chat, and video-conferencing). They were mainly delighted with the communication tools provided by the two universities, as we can see in Fig.3. The results are in slight contradiction with part of the specialized literature (Usher et al., 2021), which considers the aspects of maintaining or facilitating communication as some of the challenges of online education, considering the lack of direct interaction between teachers and students.

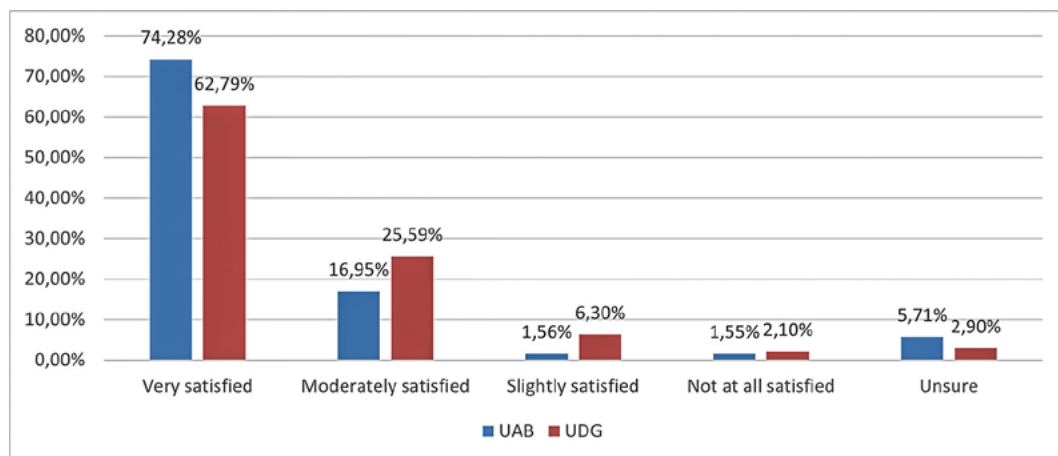


Fig.3. Facilitating communication

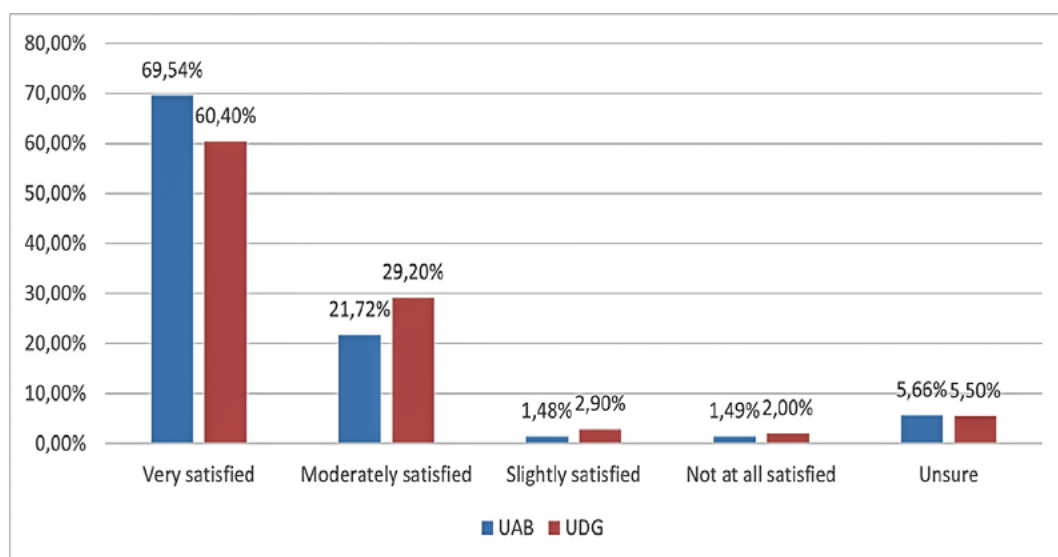


Fig. 4. Prompt feedback

Another critical aspect analyzed was how students receive immediate and proper feedback from their instructors and teachers, in line with their development requirements and the achievement of learning objectives. Online classes could bring some obstacles to teacher-student communication. However, students involved in the survey were delighted with the feedback they got from professors, even if we notice a slight difference between the level of satisfaction of UAB students compared to that of UDG, as shown in Fig. 4.

eLearning platforms represent a crucial informational node in the management and organization of student learning activities, which integrate modules that represent real virtual libraries and can gather information needed to organize the study and meetings between stakeholders.

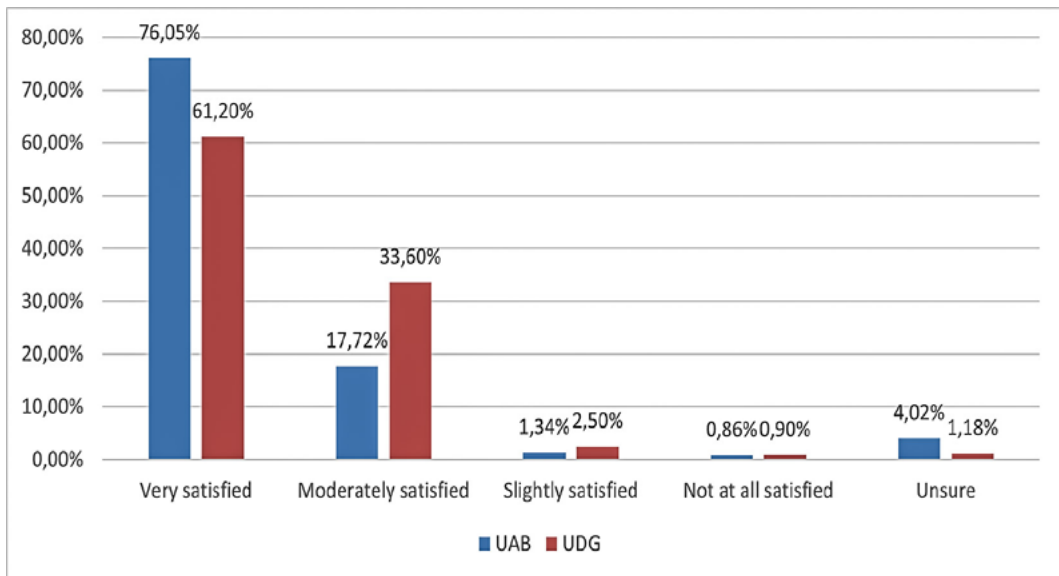


Fig. 5. Accessing online resources and information

Most of the students (95% of the respondents) are satisfied with the way the eLearning platform allows them to quickly find online resources and discover helpful information, as shown in Fig. 5. The results following the recommendations of national and international public decision-makers and the literature (Brandon, 2020) which support the need for the virtual learning environment to ensure access to learning resources.

Conclusion

The case study assessed how online learning during the COVID-19 pandemic was perceived in two universities in Romania. The responses were analyzed considering four main aspects regarding the eLearning platform's capability of supporting real learning experiences during the pandemic, the level of interaction and feedback between academia and students, and the role of the virtual environment as a unique informational node that keeps all the students and professors well informed.

The student's opinion was collected through two surveys. After analyzing their responses, we conclude that using online technologies in higher education more intensively, starting with the COVID-19 pandemic, will be crucial for the normality already installed.

Our study highlights the positive perception of students included in the survey on online learning activities organized in both universities, UAB and UDG. The analyzed universities managed during the pandemic to fulfil their purpose, making the efforts that all other universities have made so that the beneficiaries of education services, learners, suffer as little as possible. It is essential that for the learning activities mediated by online tools not to generate even more passivity, the initial ad-hoc adaptation had to be recalibrated along the way. So, by planning learning and study activities and combining them with those to assess progress and personalization of the training, by integrating various types of activities in order to keep the student connected to the educational content and learning objectives, and, of course, by ensuring the long-term connection of students with each other or connecting students with teachers, as well as staff training and infrastructure settings are necessary to ensure continuous involvement of students in the educational environment.

It became clear that digital tools can no longer be ignored or inhibited in the teaching-learning process as ITC tools become more and more part of our lives. As EUA has stated (EUA, 2021), "the nature and structure of universities will be hybrid," combining the physical campus with the virtual campus in flexible and innovative learning and research environments in fulfilling their mission. The degree of the optimal online component of the university full-time education path in Romania remains to be determined. The decision has to be taken at the university level, based on national quality standards and recommendations.

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