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University students' use of digital technology and their attitudes to technological challenges

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Abstract

This article examines the attitudes of university students towards the use of digital technologies in their studies and analyses the extent to which they use these technologies for various academic purposes. The research, which was conducted using a questionnaire among students at the University of Maribor, aimed to assess the frequency and type of use of digital technologies, students' perception of their usefulness and their readiness for technological change in a rapidly digitalizing world. The results show that most students consider themselves to be digitally competent and report that using digital technology is generally not difficult. They frequently use digital tools to prepare assignments, conduct research, take notes, organize study activities and communicate with teachers and classmates. Nevertheless, the use of more specialized digital tools for academic purposes is still limited. The analysis shows that students perceive digital technologies as beneficial in several ways: They improve access to academic resources, support a better understanding of course content, promote creativity and help to solve complex study tasks. In addition, students believe that digital tools help them to organize their studies more efficiently and contribute to the development of additional skills and competences that go beyond the formal requirements of the curriculum. Importantly, students also see digital technology as a valuable resource for their future careers. They feel well prepared for the demands of the digital workplace and do not express any concerns that technology could have a negative impact on their careers. On the contrary, they believe that the digital skills acquired during their studies will benefit their professional development in the long term.

Keywords: digital skills; future of education; learning process; readiness for digitalization; use of ICT in education

1. Introduction

The last decade has witnessed major changes at all levels, as digital technology radically transforms the way we work, communicate, learn and live. In this paper, we will use the term digital technologies to refer to all technological tools, devices, platforms and applications used to support the educational process. This includes online learning platforms, videoconferencing tools, digital presentation and multimedia applications, collaborative working applications, self-learning tools, assessment systems, artificial intelligence in

education, digital libraries and databases, virtual and augmented reality technologies, and planning and organisation applications.

The impact of digital technologies has led to many changes, both socially, politically and economically. All these changes are shaping the many new challenges that are ahead (Gutiérrez-Ángel et al., 2022; Raja & Nagasubramani, 2018; Qureshi et al., 2021). Education is no exception to this process, which is being transformed towards the increasing digitisation of learning environments, tools and pedagogical approaches. While traditionally oriented models of education promoted memorisation as an essential learning skill, today's educational models have changed this considerably. Digital technology plays a key role in this, providing virtually unlimited access to information. This means that knowledge is largely free and easily accessible, as a huge amount of information is found online. This has led to changes in the key skills needed for education and requires the development of new skills and new learning models (Abdullayeva & Maxmudova, 2024; Criollo-C et al., 2021; Gutiérrez-Ángel et al., 2022). The use of digital technologies in the learning process is no longer a matter of choice but is becoming a fundamental requirement of contemporary academic practice, which aims to develop students' skills, knowledge and competences needed to successfully integrate into a dynamic and digitally transformed labour market (Criollo-C et al., 2021). As Jackman et al. (2021) note, the Covid-19 pandemic, which in some respects even delayed the hasty digitisation of education, played a key role in this. Higher education must also adapt to all these changes, demands and challenges, especially given that higher education produces graduates, future professionals about to enter the labour market (Gutiérrez-Ángel et al., 2022).

Digital technology is therefore increasingly making its way into higher education. Overall, the presence of digital technology in the learning process for students has proven to be positive, as it encourages active student participation in the learning process and allows students to adopt a more individualised approach to learning. Digital technologies also enable more individualized access to information, its sharing, and publication (Pinto & Leite, 2020). Recent evidence confirms these benefits. For instance, Quraishi et al. (2024) demonstrated that systematically embedding digital literacy modules into higher education curricula significantly improved students' confidence and digital competences, while also highlighting the importance of continuous support for both students and educators. Similarly, students who find digital technology useful report that it is mainly due to its importance on flexibility of learning, better organisation of studies, easier communication and easier access to information (Henderson et al., 2015). Despite the encouraging aspects of the use of digital technology, it is important to point out that the mere presence of digital technology does not necessarily translate into an improvement in learning outcomes. Indeed, how digital technology is embedded in the educational process is crucial, as digital tools often merely reproduce traditional learning methods in a new form (Henderson et al., 2015). Similarly, Nikou and Aavakare (2021) stress the need to develop the overall competences of both students and higher education teachers, as this is the only way to find optimal ways to fully exploit the benefits of digital technologies in the educational process. A study by Nikou and Aavakare (2021) shows that information literacy has a direct and significant impact on the intention to use digital technology for the study process. Therefore, they suggest that more attention should be paid to the definition of policies and strategies, as this could increase students' willingness to use digital technologies in higher education environments. Digital literacy is also crucial for administrative staff in higher education. Kabakus et al. (2023) found that the digital literacy of administrative personnel significantly shapes their intention to use digital technologies, mainly through effort expectancy and performance expectancy. This indicates that digital competence is a systemic issue affecting the entire higher education

ecosystem, not only students. Moreover, digital literacy is increasingly seen as a prerequisite for employability in a technology-driven labour market. Kayyali (2024) argues that universities should go beyond teaching basic digital skills and actively foster broader capacities such as data analysis, cybersecurity awareness, and ethical technology use. Embedding such competences into curricula is therefore essential for preparing students to meet evolving workforce expectations. In recent years, the notion of digital literacy has evolved significantly, with artificial intelligence increasingly influencing educational environments. Naamati-Schneider and Alt (2024) found that integrating ChatGPT into problem-based learning contexts altered the digital literacy skills students exercised—suggesting that some traditional competencies (e.g., information access and analysis) may become obsolete, while evaluative skills gain prominence. This underscores the emerging need for AI literacy in higher education. Strengthening students' digital literacy is therefore not only important for current academic and professional demands but also a crucial foundation for developing AI literacy, which will increasingly shape learning, employability, and participation in a technology-driven society.

Dynamic changes in the labour market, driven by automation, the emergence and development of artificial intelligence and the constant evolution of digital solutions, require future graduates not only to be technically competent, but also to be adaptable, interdisciplinary thinkers and self-initiated learners. It is therefore essential to coordinate global efforts for education and training in digital skills, which can help graduates to succeed in the digital age, while limiting risks and inequalities (Jackman et al., 2021). Developing digital competences is thus not only a question of the efficiency of the study process but is also becoming one of the most important components of employability and active participation in modern society.

1.1 Research problem and research questions

As mentioned above, digital technology in practically all its forms is increasingly becoming our companion in everyday life. It is therefore reasonable to conclude that the same is happening at all levels of education. As digital technology becomes more and more present and more important, a key question arises as to whether we are keeping pace with the advances in digital technologies and closing the gap between the advances and the use of digital technologies in higher education. A defining moment in the process of technological progress in education was the Covid-19 pandemic, when it became clear that educational institutions had a lack of experience and low digital capacity. This greatly increased gaps, inequalities and learning losses (Timotheou et al., 2022). Moreover, Filho et al. (2023) demonstrate that the pandemic served as a catalyst for digital transformation across higher education institutions worldwide—fostering more resilient and sustainable practices, particularly in areas linked to the sustainable development goals. Their global survey underscores how institutions ramped up digital skills, embraced e-learning and distance learning, and recognized a growing need for continuous digital training. As the potential of technology-supported learning is often not fully evident in the day-to-day use of digital technology in higher education, this further demonstrates the need for a systematic approach to address this issue (Henderson, 2015). As Margaryan et al. (2015) point out, students often use a limited set of technologies available at an educational institution. Therefore, they also use more traditional forms of pedagogies, where the support of digital technology is not as pronounced. Selwyn (2016) even reports that students sometimes perceive digital technologies as useless. As the University of Maribor attaches great importance to digital technologies, we wanted to conduct a survey to examine the actual situation of our students' use of digital technologies. We were interested in whether students use digital technologies for the purpose of their studies, whether they see the use of digital technologies as beneficial

for their studies and their careers, and how prepared they feel for the technological demands of the future society. We also wanted to put the results in an international context by reviewing relevant literature. The following research questions (RQ) were formulated:

- RQ1: Do students use digital technologies for their study?
- RQ2: Do they see the use of digital technologies for study purposes as useful?
- RQ3: Do they feel prepared for the technological demands when they enter the labour market at the end of their studies?
- RQ4: Are there any gender differences in perceptions of the usefulness of digital technology and in readiness for technological demands?

2. Methods

2.1 Description of the instrument

Relevant literature was reviewed prior to instrument development (Adewole-Odeshi, 2014; Andrew et al., 2018; Ardies et al., 2014). The review of the relevant literature enabled us to determine the objectives of our study, and the literature review also enabled us to fill in the gaps in the research and appropriately design the questionnaire to the objectives and research questions of our planned study.

The questionnaire first contained demographic data of the students. This was followed by a statement asking respondents to rate whether they considered themselves to be digitally literate and, in most cases, comfortable with using technology. The questionnaire was then divided into three sections. The first set consisted of statements relating to the level of use of digital technology. This set contained 9 statements. The statements related to the frequency of use of digital technology for different study tasks, the frequency of use of digital technology for note-taking during studies, the possibilities of using digital technology for communication with professors and other students, the efficiency of organising study tasks with the support of digital technologies, the possibilities of using applications for time and study organisation, the use of specialised software for study and assignment purposes, and the general use of digital technologies for study purposes.

The second set of statements contained 8 statements, which related to the area of students' perceptions of the usefulness of digital technology for their studies. This set included statements related to the degree of accessibility to study literature supported by digital technologies, the ease of understanding learning material supported by digital technologies, the importance of developing creative thinking supported by digital technologies, the importance of solving study assignments efficiently supported by digital technologies and the importance of facilitating the integration of theoretical study content with practice supported by digital technologies.

The third set of statements related to students' readiness for the technological demands of the future society and consisted of 9 statements. The survey asked respondents to respond to statements asking whether they felt they had well-developed digital technology skills to be successful in their career field, whether they felt that their studies adequately prepared them for technological challenges, whether they regularly acquired practical skills in the use of digital tools, whether digital competences will improve their employability, whether they fear that digital technologies could jeopardise their career, whether digital technologies will make it easier for them to adapt to career changes, and whether they would like to see more content or practical exercises on how to use digital technologies in real work situations.

Participants expressed their agreement with the statements on a five-point scale: 1 = not at all agree, 2 = disagree, 3 = undecided, 4 = agree and 5 = strongly agree.

2.2 Sampling and data collection

The invitation to participate in the survey was distributed via institutional mailing lists and published on the official websites of faculties. 140 students from the University of Maribor took part in the research. The questionnaire was completed in full by 100 students, and the same number of responses was considered in the analysis. While the sample is limited in size, it provides a balanced representation of different study fields and levels at the University of Maribor, thus offering a meaningful insight into the digital practices of students.

Data collection took place in November and December of the academic year 2024/2025. The questionnaire we developed was uploaded to the Slovenian open-source survey application 1ka.si. The online questionnaire was completely anonymous, which was made known to the participants prior to completion, and participants were asked to confirm their consent to participate prior to completion.

2.3 Participants

The participants were selected randomly and from different fields of study. Students from all study levels (bachelor's degree programmes, master's degree programmes, single master's degree programmes, doctoral degree programmes and advanced training programmes) participated. In terms of gender, 61 % of the participants were female and 38% were male. 1 % of the participants did not wish to disclose their gender. All age groups of students were covered: 22 % of participants were aged 18-20, 50 % 21-23, 19 % 24-26, 3 % 27-29 and 6 % 30 or older.

2.4 Justification of sample size

Although the study relied on a relatively small sample, the achieved number of participants allows for reliable descriptive analysis and non-parametric statistical testing. According to methodological guidelines, a minimum of 50–100 participants is sufficient for pilot-type survey studies, particularly when exploring exploratory research questions (Creswell & Creswell, 2017). Thus, the sample size can be considered adequate for the purpose of this research.

2.5 Reliability of the instrument

The internal consistency of the questionnaire was assessed using Cronbach’s alpha. The obtained coefficient ($\alpha = .900$) indicates excellent reliability of the scale, suggesting that the items within the instrument consistently measure the underlying constructs. This reinforces the validity of the subsequent statistical analyses and interpretations (Cronbach, 1951).

2.6 Limitations of the study

The research took place at a time when the university was hit by a large-scale cyber-attack, which led to several services going down. This affected student notification, which meant that many students were not properly invited to participate in the survey. This resulted in a smaller sample on which the survey was ultimately conducted. This study is also limited by the fact that the data are based on self-reported measures, which may not fully reflect actual digital competences. Future research should therefore include objective assessments and comparative analyses across different universities.

2.7 Analyses

The questionnaire data were analysed using descriptive statistical methods. For this purpose, means (M) and standard deviations (SD) were calculated. For the second and third set of statements, we also wanted to check whether these statements show any differences between the genders of the students. Therefore, a non-parametric Mann-Whitney U test was performed on the sample to compare the results between two independent groups at a 95 % confidence level. The conditions of use were tested before the test was carried out. All analyses carried out on the questionnaire data were performed using IBM SPSS statistical software.

3. Results

The students were first asked to rate whether they considered themselves to be digitally literate and, in most cases, comfortable with using technology. 37 % of respondents strongly agreed and 59 % agreed. Only 4 % of respondents disagreed and considered that they are not digitally literate and that using technology is a problem for them (M = 4.32, SD = .584).

Table 1 presents the results of the data analysis for statements related to the use of digital technology during studies. Most students regularly use technology for study tasks such as research, writing seminar papers, etc. (M = 4.54). The same applies to statements relating to the use of digital technology for communication (M = 4.58) and for cloud storage of materials and independent learning on a selected website, such as Moodle (M = 4.48). The data show that most students also use digital technology to take notes during lectures (M = 3.96), but less so to help them manage and plan their time (M = 2.29). Nevertheless, the results show that technology significantly helps them to organize their study obligations more easily (M = 4.28), and that the use of digital technologies is an essential part of the study process (M = 4.26).

Table 1: Students' intentions to use digital technology during their studies

Statement	M	SD
I regularly use technology for my study assignments (for research, writing term papers, etc.).	4.54	.626
During lectures, I often use digital devices to take notes and access study materials.	3.96	1.082
I use digital platforms (email, MS Teams, etc.) to communicate with professors and classmates.	4.58	.589
Digital technology allows me to organise my studies more efficiently.	4.28	.830
I often rely on digital tools (Google Drive, Moodle, etc.) for my studies.	4.48	.611
I use time management and work organisation apps (such as Trello, Asana, etc.).	2.29	1.233
I regularly use specialised digital software related to my field of study.	3.68	1.004
I often use digital technology (notes, apps, etc.) to record and monitor my progress in my studies.	3.31	1.152

Using digital technologies is a necessary part of my daily study process.	4.26	.747

Source: own

Table 2 presents the results of the data analysis relating to students' perceptions of the usefulness of digital technology. Most students perceive that digital technology gives them better access to quality knowledge resources (M = 4.31). Similar results are found for the statements referring to the observation that the use of digital technology during studies helps students to understand the learning material (M = 4. 21), that digital technologies help them to learn more complex topics (M = 4.28), that digital technologies help them to solve study tasks faster and more efficiently (M = 4.22), and that digital technologies largely help them to develop additional skills that are not otherwise part of their studies (M = 4.21). Similarly, the results show that digital technology helps students to learn at their own pace and in a way that is adapted to them and that suits them best (M = 4.11). The importance of digital technology in facilitating the integration of theoretical and practical content is given a slightly lower, but nevertheless quite prominent, importance by students (M = 3.98).

Table 2: Students' perception of the usefulness of digital technology

Statement	M	SD
Digital technology gives me better access to quality sources of knowledge (e-books, research, online courses, etc.).	4.31	.761
Using digital technology in my studies improves my understanding of the material.	4.21	.782
Using digital tools helps me develop creative solutions to my studies.	4.06	.941
Interactive content (videos, quizzes, etc.) makes it easier for me to learn complex topics.	4.28	.792
Digital technology allows me to solve my study tasks faster and more efficiently.	4.22	.848
I have learnt skills that are not part of my studies using digital tools.	4.21	.820
Digital technology allows me to learn at my own pace and tailored to my needs.	4.11	.863
Using digital tools allows me to better integrate theory and practice..	3.98	.876

Source: own

The students also answered a set of statements in the questionnaire relating to their readiness or empowerment to meet the technological demands of their career path. The results of the data analysis show that students believe that the knowledge and digital competences they acquire during their studies will help them to improve their job prospects (M = 4.24). They also believe that the modern labour market is changing rapidly due to new technologies, which requires continuous upgrading of knowledge (M = 4.41). The results further show that students believe that they have well-developed digital skills (M = 4.05) and that the digital technology knowledge and competences acquired will help them to adapt to

the labour market after graduation (M = 4.00). The results of the data analysis show a higher level of disagreement for the statements that their studies effectively prepare them for technological challenges (M = 3.75), that they regularly acquire practical knowledge on the use of digital tools related to their field of study (M = 3.69), and for the statement related to awareness of which digital competences are expected of students in their professional field (M = 3.84). However, students would like to see more practical exercises on how to use digital technology in real work situations (M =4.07). One more statement is related to the fear that technological change will jeopardise students' career prospects. The results show that students are generally not afraid of this happening (M = 2.64).

Table 3: Students' readiness for the technological demands of their career paths

Statement	M	SD
I believe I have sufficiently well-developed digital skills to be successful in my future career.	4.05	.845
My studies are effectively preparing me for the technological challenges I will face in the labour market.	3.75	.999
I regularly acquire practical knowledge on the use of digital tools related to my field of study.	3.69	1.012
I believe that digital competences will help me improve my job prospects.	4.24	.793
I fear that technological change (e.g. automation) will jeopardise my career prospects.	2.64	1.275
I believe that digital technology (the knowledge and competences I have acquired in this field) will make it easier for me to adapt to changes in the labour market.	4.00	.804
I am aware of the digital competences expected of me in my professional field.	3.84	.907
During my studies, I would like to see more practical exercises on how to use digital technology in real work situations.	4.07	.856
I believe that the modern labour market is changing rapidly due to new technologies, which requires constant upgrading of skills.	4.41	.712

Source: own

We were also interested in whether there are any statistically significant differences in the gender gap in students' perceptions of the usefulness of digital technology and in their readiness for technological demands. Table 4 presents the results by gender of students' perceptions of the usefulness of digital technology.

Table 4: Gender difference in students' perception of the usefulness of digital technology

Statement	Gender	Mean Rank	Mann-Whitney U Test
Digital technology gives me better access to quality sources of knowledge (e-books, research, online courses, etc.).	female	52.60	U = 1000.5 z = -1.257 p = .209
	male	45.83	
Using digital technology in my studies improves my understanding of the material.	female	54.02	U = 914.0 z = -1.929 p = .054
	male	43.55	
Using digital tools helps me develop creative solutions to my studies.	female	54.48	U = 885.5 z = -2.100 p = .036
	male	42.80	
Interactive content (videos, quizzes, etc.) makes it easier for me to learn complex topics.	female	53.74	U = 931.0 z = -1.795 p = .073
	male	44.00	
Digital technology allows me to solve my study tasks faster and more efficiently.	female	53.30	U = 958.0 z = -1.572 p = .116
	male	44.71	
I have learnt skills that are not part of my studies using digital tools.	female	50.77	U = 1112.0 z = -.366 p = .715
	male	48.76	
Digital technology allows me to learn at my own pace and tailored to my needs.	female	49.16	U = 1108.0 z = -.393 p = .694
	male	51.34	
Using digital tools allows me to better integrate theory and practice.	female	55.07	U = 849.5 z = -2.377 p = .017
	male	41.86	

Source: own

As shown in Table 4, there was a statistically significant difference by gender for the statement ‘Using digital tools helps me develop creative solutions in my studies’ (U = 885.5, z = -2.100, p = .036). Looking more closely, female students have a higher Mean Rank (Mean Rank = 54.48) than male students (Mean Rank = 42.80), which means that female students on average show higher agreement with the statement and consequently feel that digital tools help them develop creative solutions in their studies. In this set of statements, a statistically significant difference was also found for the statement ‘Using digital tools allows me to better integrate theory and practice’ (U = 849.5, z = -2.377, p = .017). Here again,

female students are more likely to agree with this statement (Mean Rank = 55.07) than male students (Man Rank = 41.86).

Table 5 also presents the results by gender of students' preparedness for technological demands. No statistically significant differences by gender were found in this analysis, so it cannot be said with statistical significance that there are any differences in students' preparedness for technological demands.

Table 5: Gender difference in students' preparedness for technological demands

Statement	Gender	Mean Rank	Mann-Whitney U Test
I believe I have sufficiently well-developed digital skills to be successful in my future career.	female	51.48	U = 1069.0 z = -.715 p = .475
	male	47.63	
My studies are effectively preparing me for the technological challenges I will face in the labour market.	female	48.78	U = 1084.5 z = -.568 p = .570
	male	51.96	
I regularly acquire practical knowledge on the use of digital tools related to my field of study.	female	51.47	U = 1069.5 z = -.680 p = .497
	male	47.64	
I believe that digital competences will help me improve my job prospects.	female	50.55	U = 1125.5 z = -.266 p = .790
	male	49.12	
I fear that technological change (e.g. automation) will jeopardise my career prospects.	female	51.84	U = 1047.0 z = -.830 p = .407
	male	47.05	
I believe that digital technology (the knowledge and competences I have acquired in this field) will make it easier for me to adapt to changes in the labour market.	female	52.12	U = 1029.5 z = -1.017 p = .309
	male	46.59	
I am aware of the digital competences expected of me in my professional field.	female	53.24	U = 061.5 z = -1.531 p = .126
	male	44.80	
During my studies, I would like to see more practical exercises on how to use digital technology in real work situations.	female	51.94	U = 1095.5 z = -.486 p = .627
	male	48.33	
I believe that the modern labour market is changing rapidly due to new technologies, which requires constant upgrading of skills.	female	48.09	U = 1042.5 z = -.938
	male	53.07	

			p = .348

Source: own

4. Discussion

The results show that most students consider themselves digitally literate. They also report that using digital technology is generally not a problem for them. This is the opinion of 96% of respondents, of whom 37% are completely confident, while 59% report being confident. Only 4 % of students rated themselves as not digitally literate and that using technology is not a problem for them. The results are certainly encouraging, as they show an extremely high assessment of students' digital literacy. Of course, this is the students' own assessment, so it would be interesting to conduct further surveys with students to show the actual digital literacy of the students. This would probably differ slightly from the students' assessment, as it may be that students overestimate their own abilities. The results thus suggest that we can expect students at the University of Maribor to be effective and efficient in their study process, as Shopova (2014) states that the development of students' literacy levels is key to improving their efficiency and the success of their study process. Despite encouraging results, we still need to strengthen students' competences related to digital literacy, database use, digital content creation and online editing and sharing skills. It is also worth promoting those competences related to the use of the Internet, social networks and other applications, which are an important part of digital literacy. The potential risks should not be neglected (Gutiérrez-Ángel et al., 2022).

With respect to RQ1 (use of digital technologies in study), the results provide a clear answer. The results in the first set of statements show that students use digital technology extensively for the study process. They use it mainly for research and literature study, but also for writing term papers. Digital technologies are also used extensively by students to take notes and to communicate with professors and students. In essence, it can be concluded that the use of digital technology is mainly for participation in the learning process, which is also supported by the study by Henderson et al. (2015), which found that students mainly use digital technology to search and retrieve literature electronically, to submit assignments, to find information relevant to their studies, such as reviewing the content of courses and reviewing timetables, and they also use digital technology to take notes in lectures. Furthermore, in our survey, students also report that the use of digital technology significantly helps them to organise their studies more easily, which is to be expected as students are encouraged to use digital technology in the first place. This is also reflected in students' reports that the use of digital technology is an integral part of their study process. The results thus show that students use digital technologies for the purposes of the study process, and it can be concluded that they are self-initiated in this. This means that they can search for appropriate digital technologies on their own, which they believe will benefit them and that they will be successful in their use. Henderson et al. (2015) reach similar conclusions. Margaryan et al. (2010) report that students tend to use a limited set of technologies that are already more widely adopted. The findings are certainly encouraging, as increased and successful use of digital technology encourages students to actively participate in the learning process, engage more collaboratively, and support a more individualised approach to learning and access to information (Pinto & Leite, 2020). However, some research reports that the use of digital technologies also boosts their motivation (Faridah et al., 2020; Fidan & Gencel, 2022; Katz & Yablon, 2011). Some studies (Kvavik, 2005, Noskova et al., 2021) similarly emphasise that students rely on digital tools for communication and organisation but still rarely explore specialised tools, which aligns with our findings. In the introduction, we asked the research question whether students use digital

technologies to study. The answer is yes, as students report that they use digital technology for studying and that they use it for a variety of purposes.

In relation to RQ2 (perceived usefulness of digital technologies), the results again provide a clear confirmation. The results of our survey show that students perceive digital technology as an important support for their studies. The high averages for the claims that it provides better access to quality resources, facilitates understanding of learning material and learning of more complex topics confirm the perceived benefits of using digital technologies. The emergence of artificial intelligence tools has only reinforced this (Ngo, 2023). Also important is the impact of digital technology on the development of additional skills not directly related to studies, which is crucial in the context of 21st century competences. Students also emphasise the opportunity to learn at their own pace and in a personalised way, which contributes to increased motivation and autonomy in learning. The slightly lower average agreement rating for the statement on linking theory and practice suggests room for improvement in the integration of digital technologies into applied learning. Overall, the results confirm students' positive attitudes towards the use of digital technology in education, which is also supported by the study by Štemberger and Čotar Konrad (2021), which was conducted on a larger sample of students in Slovenia. These findings resonate with international research showing that students value digital tools for flexibility, autonomy, and creativity (Pinto and Leite, 2020; Wagino et al., 2024; Zuhairi et al., 2024). However, the lower scores for theory–practice integration suggest that curricula may not yet fully exploit the potential of digital tools for applied learning, which remains an area for improvement. The second research question asked whether students see the use of digital technologies for study purposes as beneficial. The results showed quite clearly that students see digital technology as an important support during their studies and that they see many benefits in using it.

With respect to RQ3 (students' readiness for technological demands), the results show both strengths and weaknesses. The results of our survey show that the University of Maribor is successful in enhancing digital competences among students, as they believe that the knowledge and digital competences, they have acquired will help them improve their employment prospects. Students are largely aware of the importance of digital competences and their impact on employability. Students understand the link between the skills needed and competitiveness in the labour market, as the statement that the acquired competences will help students when entering the labour market had a high average score. At the same time, the results show that students are aware of the need for continuous learning and adaptation. Even though students rate themselves as having well-developed digital skills, they express some scepticism in claiming that their studies effectively prepare them for technological challenges. The gap between students' self-perception of digital competences and the effectiveness of the learning process points to potential gaps in pedagogical approaches and the emphasis on practical content. The results also show that students miss a more direct link between learning content and actual labour market needs. There is therefore an urgent need to align education and training efforts in digital skills (Jackman et al., 2021). Similar concerns have been raised in study, conducted by Kayyali (2024), which argue that higher education must adapt more quickly to fast-changing labour market demands by integrating advanced competences such as AI and data literacy. The results also suggest that students would like to see more practical exercises that focus on the use of digital technology in real work situations. The latter suggests a possible need to redesign study programmes with a stronger focus on applied skills, including in the context of digital technology skills. The emergence of digital technologies may lead to a fear of their use and presence (Šajt Duh & Bračič, 2022). But the results showed that students generally reject the fear of the possible threat of

technological change to the future of their jobs. This may be a sign of their confidence or naivety, as they have not yet directly experienced the dynamics of the labour market. Given that the results indicate a high level of motivation and willingness on the part of students to face technological challenges, it would make sense to take advantage of this and adapt educational approaches accordingly. Study programmes should thus integrate more current and practical knowledge, encourage critical reflection on technological trends and give students a more concrete insight into the requirements of their future career fields. In the introduction, we asked the research question whether students feel prepared for the technological demands after graduation when they enter the labour market. We believe the answer is yes, as the results of the survey showed that students are aware of the importance of digital competences for their future careers.

Finally, regarding RQ4 (gender differences), the results provide nuanced insights. Possible differences in students' perceptions of the usefulness of digital technology and their willingness to engage with technological demands were analysed. The results show statistically significant gender differences in how students perceive the impact of digital tools on creativity and the integration of theory and practice. Female students are more likely than male students to believe that digital tools help them develop creative solutions and enable them to integrate theoretical and practical knowledge more effectively. These findings may reflect gender differences in the way technology is used or in expectations of learning approaches. On the other hand, no statistically significant gender differences were found in perceived readiness for technological demands, suggesting that male and female students rate themselves similarly in this respect. This aligns with more recent cross-national findings showing that gender differences in digital knowledge and attitudes remain significant across many countries (Campos & Scherer, 2024). Overall, the results confirm that gender plays a role in shaping perceptions of creativity and applied learning, while readiness for technological demands appears to be perceived equally across genders.

Taken together, the findings demonstrate that students are digitally confident and motivated, yet current curricula do not fully support them in preparing for technological challenges. The study highlights the importance of aligning university programmes more closely with labour market expectations, integrating advanced digital competences, and acknowledging diversity in students' experiences and perceptions. These implications directly inform the need for curriculum renewal and provide a basis for the practical recommendations outlined in the conclusion.

5. Conclusion

The research showed that students at the University of Maribor use digital technologies widely and recognise them as an important factor in their studies and career readiness. High scores in most of the statements indicate that students are highly motivated to use digital technology. However, the gap between the perceived readiness and the actual effectiveness of study programmes suggests the need for their renewal. Future efforts in higher education should therefore focus on systematically integrating digital competences into the teaching process and aligning curricula more closely with the demands of the digital labour market.

The findings of this study have several important implications for higher education institutions and policymakers. First, it is not enough for universities to simply provide students with access to digital tools; the real added value lies in integrating these tools into teaching practices in a way that reflects real-world professional contexts. Project-based learning, simulations of work challenges, and collaboration with industry partners can bridge the gap between theoretical study and practical implementation. Such approaches not only

improve students' employability, but also foster critical thinking, adaptability, and problem-solving skills that are essential in the digital labour market.

Second, the results highlight the need to develop curricula that go beyond general digital literacy and include advanced competencies such as data literacy, the use of artificial intelligence, digital ethics, and cybersecurity. Employers are increasingly demanding these skills, and their systematic inclusion in university programs would ensure that graduates are not only prepared for current technological trends but also resilient to future changes. In addition, the inclusion of modules that encourage students to think critically about the social, ethical, and environmental impacts of digitalization would support the development of responsible and well-rounded professionals.

Thirdly, students expressed a clear interest in more opportunities to engage with digital technologies in a practical way. Universities should therefore design curricula that provide practical experience with relevant tools, platforms, and applications. This could be achieved through internships, joint projects with employers, or case-based assignments in which students must apply their digital skills to solve real-world problems. In addition, the introduction of objective tools for assessing students' digital competences at the beginning and end of their studies would enable institutions to monitor progress, identify gaps, and adapt their support accordingly. Such tools would also provide valuable feedback to employers and policymakers on the readiness of graduates.

Another key implication relates to the role of educators. The sustainable integration of digital technologies into higher education depends largely on the competencies, attitudes, and motivation of teaching staff. Therefore, continuing professional development programs should be introduced to provide educators with the latest knowledge on digital pedagogy and emerging technologies. Encouraging innovation in teaching, for example through recognition or funding programs, could further motivate educators to experiment with new approaches.

Finally, the study shows that collaborative and interdisciplinary approaches are particularly valuable. Establishing development groups that bring together faculty members, students, and industry representatives can stimulate innovation in pedagogy and create a more dynamic learning environment. These groups could pilot new forms of digital learning, test the use of advanced technologies, and ensure that study programs remain responsive to both academic standards and labour market demands. By directly involving students in these initiatives, universities would also promote digital autonomy, responsibility, and active participation, qualities that are increasingly important for lifelong learning in a digital society.

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