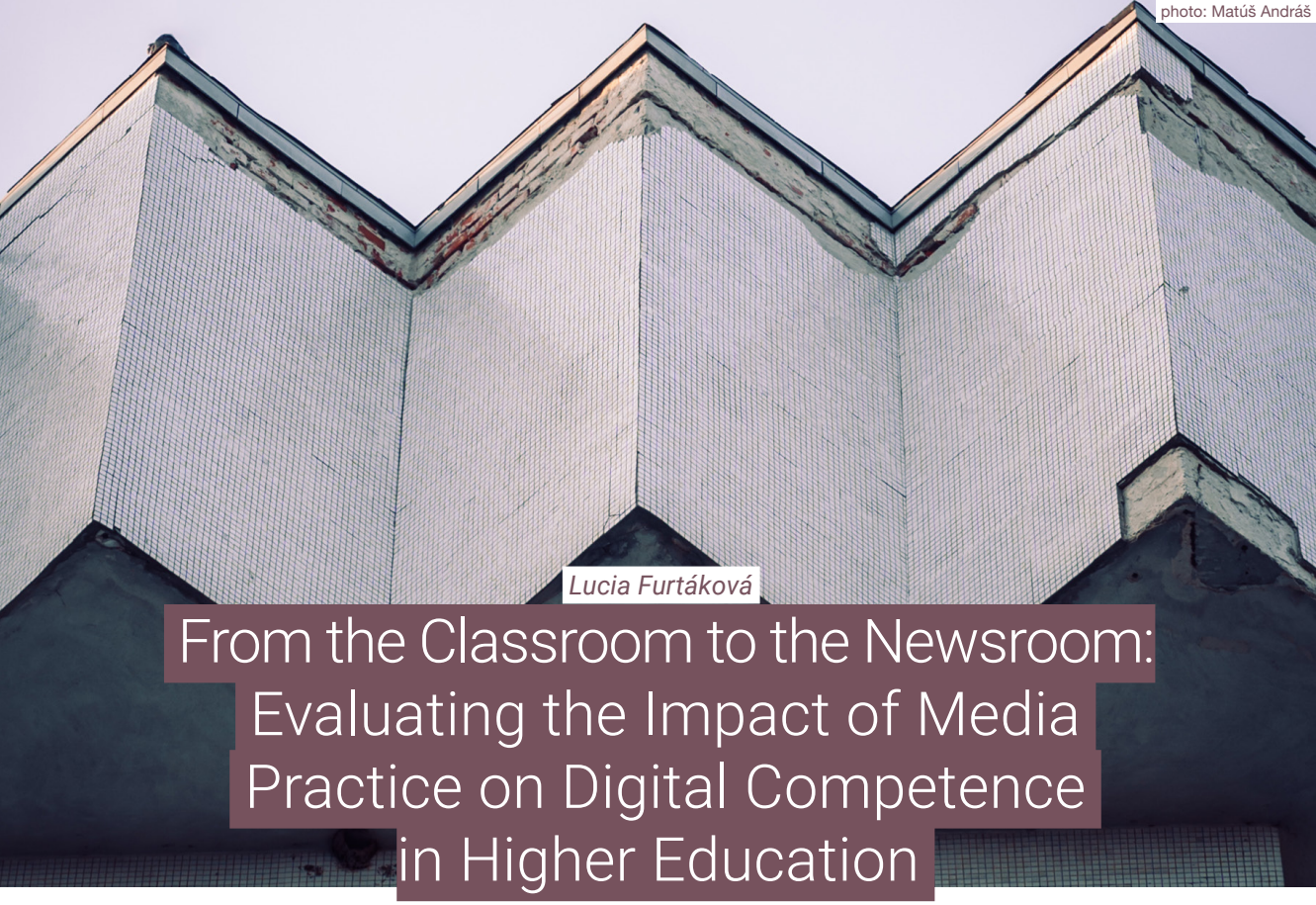
photo: Matúš Andráš

Lucia Furtáková

From the Classroom to the Newsroom: Evaluating the Impact of Media Practice on Digital Competence in Higher Education

DOI: https://doi.org/10.34135/mlar-24-01-04

ABSTRACT

Digital literacy and related digital competences are now an integral part of media work. Changes in technology and audience consumption habits have forced media professionals to acquire a wide range of digital skills. These include not only technical skills, such as mastery of digital tools and platforms, but also the ability to communicate and present content effectively in a digital environment. The aim of this study is to explore the level of digital competences of students who work in university media, compared to those who study at the faculty but are not part of its media. It also focuses on identifying the level of each of the DigComp framework's digital competence areas that future media workers should develop in order to remain competitive. Research has shown that students working in university media have a higher total score in digital competence (75%) than students not working in (university) media (65%). It was also found that the most developed area for both groups of students is Communication and collaboration, followed by Information and data literacy. In contrast, the weakest area for both groups is Digital content creation. In terms of specific competencies, both groups have the same most developed competency, Netiquette, and the least developed competency, Programming. In general, however, students not working in (university) media have a total score in digital competence as well as in individual areas at the same level as the Generation Z average, and students working in university media are above the Generation Z average in all areas, confirming that working in media alongside media studies has a positive impact on raising levels of digital competence.

KEY WORDS

DigComp. Digital Competences. Digital Competence Wheel. Digital Literacy. Journalism Students. Media and Communication Students. Media Workers.

1 Introduction

In the current era of digital transformation, digital competences are becoming essential pillars for the successful integration of individuals into modern social and working life. Digital competences, including the ability to use technology effectively to access information, communicate, create content and solve problems, emphasise critical thinking, online safety and the ethical use of digital tools. The importance of these skills continues to increase as technological innovation transforms all aspects of our lives. Being digitally competent is not just about technical skills; it is a broad understanding of how technology influences culture, communication and politics, enabling individuals to participate in a digitally oriented labour market and social life.

The importance of these skills is clear, as they open doors to new opportunities for personal and professional development, while providing the tools to critically evaluate information and navigate the digital environment safely. In an ever-changing technological environment, where new applications and tools emerge every day, the ability to learn and adapt quickly to new technologies is essential. In this context, it is important that digital competences are continuously developed and adapted to meet the current and future needs of society. Understanding and improving these skills is therefore a priority for educational institutions, policy makers and societies as a whole, to ensure that everyone can contribute effectively and thrive in a digital world.

A literature review on digital competence reveals different perspectives on its definition and components. Some authors emphasise the technical skills required to use digital tools (see, e.g., Bawden, 2001; Virkus, 2003; Buckingham, 2010), while others focus on the cognitive and social skills that enable individuals to use technology effectively in different contexts (see, e.g., Ala-Mutka, 2011; Ng, 2012; Lankshear & Knobel, 2015). Søby (2015) explains that the term *digital competence* has established itself as an umbrella term to understand the complex relationships between individuals, organisations, ICTs and society.

1.1 DigComp Framework

In 2006, the European Parliament and the Council published a recommendation identifying eight key competences for lifelong learning. These competences include literacy competence; multilingual competence; mathematical competence and competence in science, technology and engineering; digital competence; personal, social and learning to learn competence; citizenship competence; entrepreneurship competence; cultural awareness and expression competence. According to this document, digital competence includes the confident and critical use of information society technologies for a variety of purposes (*Recommendation of the European parliament and of the council of 18 December 2006 on key competences for lifelong learning (2006/962/EC)*, 2006). This document has been studied by several theorists, including Ala-Mutka (2011), Janssen and Stoyanov (2012), and Ferrari (2013). They have expanded the concept of digital competence beyond basic tools and computer applications to encompass more advanced knowledge, skills, and attitudes. They also emphasise the significance of reflecting on and integrating these competences to evaluate one's own abilities and environment. The authors stress the importance of responsibility and safety in the use of digital technologies. This was given less attention in the 2006 document. I believe that due to the influence of these studies, the evolution of the technology itself and the increasing demands for competences, the Council of the European Union in 2018 updated the definition of digital competence to its current form:

> Digital competence involves the confident, critical and responsive use of, and engagement with digital technologies for learning, at work, and for participation in society. It includes information and data literacy, communication and collaboration, digital content creation (including programming), safety, (including digital well-being and competences relating to

> cyber security), and problem solving. (*Council recommendation of 22 May 2018 on key competences for lifelong learning (Text with EEA relevance) (2018/C 189/01,* 2018, p. 9)

Based on the above, the author would like to note that digital competence is a 'loose' concept – it is not clearly defined, it is still evolving and its meaning varies according to different approaches. In this context, the European Union and the European Commission have also issued recommendations on digital competences – the *European Digital Competence Framework for Citizens* (DigComp), which is one of the most up-to-date and comprehensive frameworks currently developed in relation to digital competences.

DigComp was initiated by a group from the European Commission's Joint Research Centre and the Institute for Prospective Technological Studies under an agreement with the Directorate-General for Education, Youth, Sport and Culture. The aim of the project was to identify definitions of digital competences and, on the basis of these definitions, to build consensus at European level on the components of digital competence, by developing a conceptual framework. In developing the framework, the working group analysed 15 case studies and held discussions with 17 experts in a workshop. A first draft was then commented on by around 40 stakeholders (Ferrari, 2013).

The European Commission first published the *European Framework of Digital Competences for Citizens* in 2013 under the name DigComp (Ferrari, 2013), later referred to as DigComp 1.0. In 2016, a revised version of DigComp, called DigComp 2.0 (Vuorikari et al., 2016) was published. A year later, version 2.1 was released (Carretero et al., 2017), and the most recent version, DigComp 2.2, was published in 2022 (Vuorikari et al., 2022). DigComp provides a comprehensive framework for describing digital literacy today. It defines digital competence as the set of knowledge, skills, and attitudes needed to use digital technologies effectively, critically, and safely (Vuorikari et al., 2022).

DigComp serves as a basis for national learning frameworks, assists in the development of professional courses and provides a 'guide' for the assessment and recognition of digital competences. Its detailed structure allows organisations and individuals to identify specific areas for development or improvement. It is based on 21 competence descriptors grouped into 5 key areas:

Competence areas	Competence descriptors
Information and data literacy	Browsing, searching and filtering data, information and digital content.
	Evaluating data, information and digital content.
	Managing data, information and digital content.
Communication and collaboration	Interacting through digital technologies.
	Sharing through digital technologies.
	Engaging citizenship through digital technologies.
	Collaborating through digital technologies.
	Netiquette.
	Managing digital identity.
Digital content creation	Developing digital content.
	Integrating and re-elaborating digital content.
	Copyright and licences.
	Programming.
Safety	Protecting devices.
	Protecting personal data and privacy.
	Protecting health and well-being.
	Protecting the environment.

Problem solving	Solving technical problems.
	Identifying needs and technological responses.
	Creatively using digital technology.
	Identifying digital competence gaps.

TABLE 1: *List of digital competencies grouped into key areas*

Source: own processing, 2024

The DigComp framework has also established skill levels for these competences, which are used to define and measure the progression of an individual's digital skills. They help to identify what individuals should know and be able to do at different stages of their digital learning. The model provides clear objectives for training programmes, allows curricula to be personalised according to individual needs, and also serves as a tool for employers to assess the digital skills of job seekers. The levels thus ensure consistent measurement and comparison of digital skills in different contexts, from education to the workplace.

The most recent version of the framework defines four overall levels – foundation, intermediate, advanced and highly specialised, which are then graded into eight granular levels according to their cognitive difficulty, the complexity of the tasks and the individual's autonomy in completing the tasks (see Table 2). Carretero et al. (2017) explain that the overall levels are inspired by the structure and vocabulary of the *European Qualifications Framework* and are written as a combination of learning outcomes, using one active verb per learning outcome.

Overall levels	Granular levels	Complexity of tasks	Autonomy	Cognitive domain
Foundation	level 1	simple tasks	with guidance	remembering
	level 2	simple tasks	autonomy and with guidance where needed	remembering
Intermediate	level 3	well-defined and routine tasks, and straightforward problems	on my own	understanding
	level 4	tasks, and well-defined and non-routine problems	independent and according to my needs	understanding
Advanced	level 5	different tasks and problems	guiding others	applying
	level 6	most appropriate tasks	able to adapt to others in a complex context	evaluating
Highly specialised	level 7	resolve complex problems with limited solutions	integrate to contribute to the professional practice and to guide others	creating
	level 8	resolve complex problems with many interacting factors	propose new ideas and processes to the field	creating

TABLE 2: *Levels for measuring an individual's digital competences*

Source: Carretero et al. (2017), own processing, 2024

Černý (2019) explains that the "complexity of tasks" dimension talks about how problems range from simple with a clear solution to complex with an open solution. Digital competence is presented in this context as something that one must be able to apply to real-world problems. Its difficulty also increases with a person's role in society. The higher the position one occupies, the higher the level of social responsibility one is expected to have. Another dimension is the "level of autonomy". Levels 1 and 2 rely on the help of others, while levels 3 and 4 involve working independently. From level 5, the individual becomes a helper or guide for others. At the highest level, level 8, the person is expected to lead others in a given competence and contribute to the transformation of their own field of interest or science. Competence is manifested not

only in what one knows or understands, but also in concern for the common good. The third dimension is the "cognitive domain", i.e. how cognitively demanding the activity is. Just as in the case of autonomy, the granular levels 1 to 4 focus on the individual themself and 5 to 8 on his or her role in society, in the case of cognitive demandingness, the bottom four levels relate to remembering and understanding, and the top ones to creativity.

1.2 Level of Digital Competence in the World and in Slovakia

In 2021, the European Commission published a survey on the level of digital skills of people aged 16-74, which is called the Digital Skills Indicator. The proportion of people in European Union countries who have basic or above basic overall digital skills was at 53.92%. Looking at individual European countries, this proportion was highest in Iceland (80.99%), followed by Finland (79.18%) and the Netherlands (78.94%). The lowest proportion was found in Albania (23.8%), followed by Romania (27.82%) and Turkey (30.12%). The level of digital skills of individuals in Slovakia was just above the European Union average of 55.18%. Among the countries surrounding Slovakia, the highest level of digital competence was found in Austria (63.33%), followed by the Czech Republic (59.69%), Hungary (49.09%) and Poland (42.93%) (Eurostat, n.d.-a).

In 2023, the percentage of digital skills at European Union level increased to 55.51%. An increase was also observed for the Central European countries: Czech Republic 69.11%, Austria 64.68%, and Hungary 58.89%. The exceptions are Poland (44.3%) and Slovakia (51.31%), where the level of digital competence has decreased compared to 2021 (Eurostat, n.d.-b), with Slovakia currently below the average of European Union countries. The author believes that this is partly related to the fact that in 2021, during the COVID-19 pandemic, people were forced to use digital technologies to a greater extent, which was also reflected in the survey results. The results of this indicator also show that in 2021, the average digital competence of students in EU countries was 76.83%, but it decreased to 75.25% in 2023. As for Slovak students, the level of their competence was 75.38% in 2021 and increased to 78.79% in 2023 (Eurostat, n.d.-c). However, it should be noted that these results only refer to the above basic level, so it is not entirely clear what the level of Slovak students is in relation to the DigComp framework.

Khan and Vuopala (2019) investigated the level of digital competence (based on the DigComp framework) of different generations in Finland. Their research shows that Generation Z (in their research, individuals born between 1995 and 2003) had an average digital competence level score of 64%, corresponding to a granular level of 4 and an overall level of intermediate. In terms of the individual areas of the framework, Information and data literacy was the second highest scoring Generation Z area, with an average score of 73%. The Communication and collaboration area was the highest rated Generation Z area, with an average score of 74%, the Digital content creation area had a score of 59%, the Safety area was at 54%, and the Problem solving area came out as the lowest rated Generation Z area, at 53%.

1.3 Digital Competence and Media Professionals

As well as having a huge impact on our daily lives, new technologies are also having a huge impact on the way we work. Devices and software used in the workplace are constantly evolving to make them more efficient and easier to use. These changes require the increased use of information and communication technologies in the workplace. Research by Matić and Perković showed that most Serbian journalists are aware of the importance and impact of digitalisation on the functioning of the media, but training for new professional roles has been slow, sporadic and unorganised. The research found that journalists are most proficient in

digital competencies related to working with information, communicating digitally with other people, browsing websites, searching for and organizing the information they find, and critically evaluating the reliability of Internet sources and information. However, they also found that digital skills specific to journalistic work, such as creating stories for different platforms and using mobile technology to produce news, ranked lower on the list of mastered competencies. The skills of fact-checking and photo authentication, which are crucial for combating misinformation, were the least developed competencies in this group (Matić & Perković, 2021). Today, journalists face many challenges, such as misinformation and fake news (see, e.g., Francistyová & Višňovský, 2023), and digital competencies are key to effectively combating these challenges. Journalists must be able to identify and verify the veracity of the information they receive, and be able to use digital tools to check sources and facts.

Similarly, Černý (2019) points out that digital competencies are now essential for journalists and journalism in general, as it is digital technologies and online tools that enable journalists to gather information, communicate with audiences and publish their work quickly and efficiently. At the same time, journalists can use new technologies and platforms to present their work in innovative ways; for example, the use of virtual reality or interactive graphics can help journalists bring their stories closer to the audience and enhance the reading experience. However, this rapidly changing dynamic of the journalism profession creates a question: How are journalists keeping up with the digital revolution?

To answer this question, the International Center for Journalists (ICFJ), in collaboration with the Communication, Culture, and Technology program at Georgetown University, launched a survey on the adoption of digital technologies in newsrooms around the world. More than 2,700 newsroom staff and managers from 130 countries were surveyed as part of the State of Technology in Global Newsrooms Survey (ICFJ, 2017a). General findings from the survey showed that newsrooms still face a deep technology divide, with only 2% of newsrooms employing technical specialists and 1% employing analytical editors. Another finding was that of the 23 digital skills listed in the survey questions, journalists use a limited range of digital skills, with the majority of newsrooms primarily using five: posting stories and commenting on social media (72%), taking digital photos (61%), engaging audiences on social media (58%), distributing content across multiple platforms (56%), and using analytics and web statistics to measure audience engagement (50%). Less than a third of newsrooms are using advanced digital skills such as data journalism (32%), live video (32%), using analytics and web statistics to drive the news agenda (31%), cybersecurity (29%), creating or adapting digital tools/apps for use in the newsroom (26%), or creating podcasts (21%). A notable finding is that more than half of journalists globally had no experience with digital media when they started their jobs. Surprisingly, although 71% of journalists use social media to find story ideas, only 11% use tools to verify this data. It is also interesting to point out that in most regions of the world, traditional media outperform newsrooms using only digital and hybrid technologies. The leader in newsrooms working only with digital technologies is Eurasia (or the countries of the former USSR), where 55% of newsrooms fall into this category (ICFJ, 2017a, 2017b).

This research also shows that while the classic qualities of “good journalism” such as research, writing and reporting skills are still highly valued in newsrooms, journalists are now expected to bring a diverse set of skills to the newsroom. Of all newsroom staff worldwide, 53.8% said they knew how to work with digital media when they joined the newsroom. Publishing across platforms was known by 48.8%, using data analytics by 23.3%, transforming data into visual form by 19.4% and 15.5% admitted to having none of the skills listed (ICFJ, n.d.). These data vary according to profession, part of the world and type of education.

In 2019, the ICFJ updated and expanded the study to 14 languages, based on the responses of 4,111 respondents from 149 countries around the world. The results show that newsrooms are still not investing in sufficient technical staff or in adequate training for their staff. Only 4% of newsroom staff are technical experts, up from 2% in 2017. The report also found that

while the number of newsrooms using a mix of traditional and digital formats is on the rise, the growth in the number of newly established digital newsrooms has remained steady (with the exception of East and Southeast Asia), suggesting that fewer online newsrooms are starting to emerge. The biggest declines in the number of digital-only newsrooms were in North America (from 33% to 22%) and Eurasia/former USSR (from 55% to 45%). At the same time, there were changes in the most used digital skills of journalists: posting stories and commenting on social media increased to 77%, researching competitors came in second (from 64% to 73%), and engaging audiences on social media increased to 68%. In addition to these skills, newsrooms have increasingly started to use fact-checking tools, and many newsrooms have increased the security of their communications. When it comes to using digital tools to secure communications and ensure the accuracy of information, the results show that more than two-thirds of journalists and newsrooms secure their communications, up from less than 50% two years ago. Europe leads the way in securing communications with 92%. More than half of the journalists said they regularly use digital tools to check facts. While only 11% used tools to check information on social media in 2017, this has more than doubled in 2019, with a quarter of journalists saying they use these tools at least once a week. A third of news organisations have dedicated fact-checkers on their staff. In addition, 44% of newsrooms and 37% of journalists have increased their fact-checking activities in the past year. Interestingly, journalists and their employers disagree on the specialised training needed in newsrooms. While newsrooms mostly offer training in video and audio production, journalists want more training on topics such as cybersecurity, podcasting, fact-checking tools and social media job promotion. The gap between demand and availability is greatest for the use and understanding of artificial intelligence (AI): 42% of journalists want AI training, but only 5% of newsrooms offer it (ICFJ, 2017b, 2019). In terms of the challenges that remain, the report states that:

> As the global news landscape continues its relentless transformation, journalists and their newsrooms are stepping up. Of course, there's still a ways to go. But if the improvements of the last two years are any indication, the trend is positive, despite the formidable challenges facing the industry. (ICFJ, 2019, p. IV)

It is clear from the above data that newsrooms have several gaps in digital competences, which not only affects the professional work of newsroom staff, but can also affect their employment prospects. Although journalists and their newsrooms are constantly striving to strengthen their position in the changing global (news) environment while improving their digital skills and adapting to new professional roles, it would be preferable for them to have these digital skills when they join the newsroom. Research by Hart Research Associates (2015, in Bauman & Lucy, 2019) has shown that there is a significant gap between students' perceptions of their job readiness and employers' assessment of recent graduates. For example, 59% of graduates believe they can apply their knowledge and skills in a real-world situation, while only 23% of employers agree with this self-assessment. When it comes to analysing and/or solving a complex problem, 59% of students think they can, but only 24% of employers agree. Another gap is observed in the area of information retrieval: while 64% of students surveyed said they can find, organise and evaluate information, only 29% of employers agree.

Therefore, it is necessary for (media communication and journalism) students to increase their awareness of (their) digital competences. For this reason, Slovak educational institutions should adopt a new approach to educating our future media professionals. The traditional model based on knowledge transfer and memorisation needs to be replaced by other methods that enable students to acquire knowledge, skills and attitudes that are applicable and relevant to them in the new digital working environment. The development of digital competencies in media and communication studies students is essential to the success of the educational process, as it will help them to progress in academic, personal and professional environments. An example is the Faculty of Mass Media Communication of the University of Ss. Cyril and

Methodius in Trnava, whose students work in the university's media – Atteliér magazine, Radio Aetter and FMK TV. Since the newsrooms of these media operate on the same principle as "real" newsrooms, students of the faculty acquire not only the necessary digital competencies, but also all the skills needed to work in the media.

2 Methodology

The aim of this study is to explore the level of digital competence of students who work in university media (Atteliér magazine, Radio Aetter and FMK TV), compared to those who study at the faculty but are not part of its media. The research sample consists of full-time students of the Faculty of Mass Media Communication at the University of Ss. Cyril and Methodius, study programme Mass Media Communication. I measured the level of digital competence of 70 students, and this number is based on the total number of students who work in the university media (35), which we complemented with an equal number of students who do not work in any media (more precisely, do not participate in the university or other media outside the university), while studying in the same year.

My research is based on quantitative analysis. It was chosen because such research can tell us about large units and provide generalisable findings that represent the whole population (Sedláková, 2014) or, as in our case, a specific group. The research is based on the DigComp framework, as several experts emphasise that DigComp provides a common language and terminology for talking about and designing new digital competence projects in all kinds of areas. The framework has introduced a generic, some call it "soft" or "cross-cutting" definition of digital competence that is complementary and compatible with other more specific, sectoral or "hard" definitions (Kluzer & Priego, 2018).

The core research tool is a competency model called *The Digital Competence Wheel* (n.d.). This model was developed by The Center of Digital Dannelse, which has been working on digitalisation and digital learning since 2009. Its purpose is to identify an individual's level of digital competence (Henseruk et al., 2021). It was originally created to enable Danish residents, employees and students to better assess their own level of digital competence and their advantages and disadvantages in this regard. DigComp served as the theoretical inspiration for the creation of this online tool. The starting point for the development of *The Digital Competence Wheel* consisted of 300 different aspects of digital competence originally taken from the DigComp framework. The team working on its development included 54 aspects of digital competence that can be measured in the final version of the tool (Kluzer & Priego, 2018). Essentially, it is a polar diagram that visually represents the strength of digital competence, with each element examined being represented from 0% to 100%. The higher the score, the stronger the mastery of that competency. The Digital Competence Wheel is made up of 63 scale-type questions, using a Likert scale for scoring. This scaling is based on the division of granular levels specified in DigComp 2.1. Respondents indicate their level: (I have mastered the competence) 1 – *to a very small degree*, 2 – *to a small degree*, 3 – *to a lesser extent*, 4 – *partially*, 5 – *to some extent*, 6 – *to a large extent*, 7 – *to a very large extent*.

Based on the responses, the research tool then assesses the overall level of digital competence of the students surveyed, as well as the level of each competence area and the level of each competency:

- Level 1 (Foundation) – 0-37%;
- Level 2 (Foundation) – 38-51%;
- Level 3 (Intermediate) – 52-59%;
- Level 4 (Intermediate) – 60-68%;
- Level 5 (Advanced) – 69-76%;
- Level 6 (Advanced) – 77-82%;

- Level 7 (Highly specialised) – 83-90%;
- Level 8 (Highly specialised) – 91-100%.

Acknowledging the aim and purpose of the study, the author seeks answers to the following research questions:

RQ_1: What is the level of digital competence of students working in university media?
RQ_2: Which areas of digital competence are most and least developed in students working in university media?
RQ_3: What is the most and least developed digital competency of students working in university media?
RQ_4: What is the level of digital competence of students who are not part of university media or working in other media?
RQ_5: Which areas of digital competence are most and least developed in students not working in university media?
RQ_6: What is the most and least developed digital competency of students not working in university media?

3 Results

The research was carried out in March and April 2024. 70 students were involved, 35 working in university media and 35 not working in any media. Regarding the distribution across years: 12 students are from the 1st year of a Bachelor's degree, 22 students are from the 2nd year of a Bachelor's degree, 16 students are from the 3rd year of a Bachelor's degree, 18 students are from the 1st year of a Master's degree and 2 students are from the 2nd year of a Master's degree. The individual numbers are based on the distribution of students who work in university media (6, 11, 8, 9, and 1) and were then matched with an equal number of students from each year who do not work in media.

3.1 Students Working in University Media

The total score of digital competence of the students working in the university media at FMK UCM is **75%**, which corresponds to a granular level of **5** and an overall level of **advanced**. This means that these students are able to perform many different tasks and guide others in doing the same. They can also solve most problems on their own. In terms of individual students' scores at each level (Figure 1), the total score of the majority (39%) corresponds to this result, but there were students who scored above average – 30% at level 6, 13% at level 7; as well as below average – 13% at level 4, 4% at level 3. At the same time, we can see that none of the students working in media have digital competence at levels 1 and 2, i.e. foundation, although none of them have reached the highest possible level, i.e. 8.

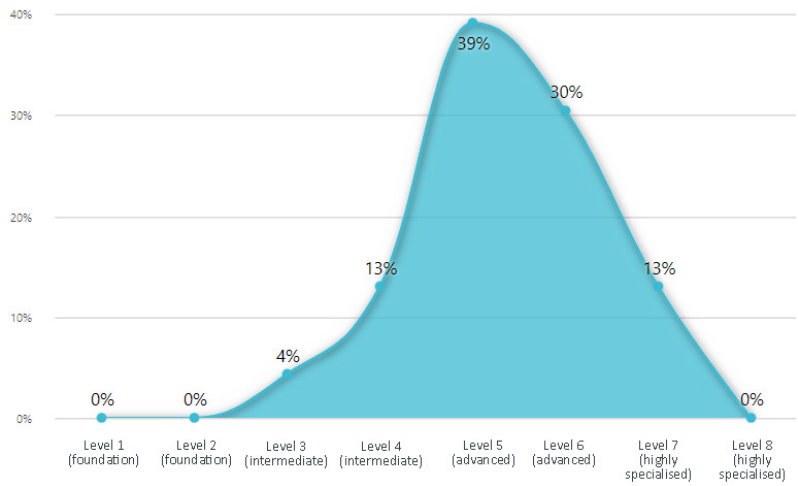

FIGURE 1: *Total score of digital competence of students working in university media – by levels*

Source: own processing, 2024

Regarding the individual areas of competence, I have to say that these students have them at a relatively high level, while e.g. the Communication and collaboration area is 9 percentage points above this result. In the area of Information and data literacy, they scored 81%, which corresponds to a granular level of 6 and an overall level of advanced. As can be seen in Figure 2, most students have competence in this area at level 8 (30%), which is probably due to the fact that they are constantly searching for and processing information, whether in written, audio or audiovisual form.

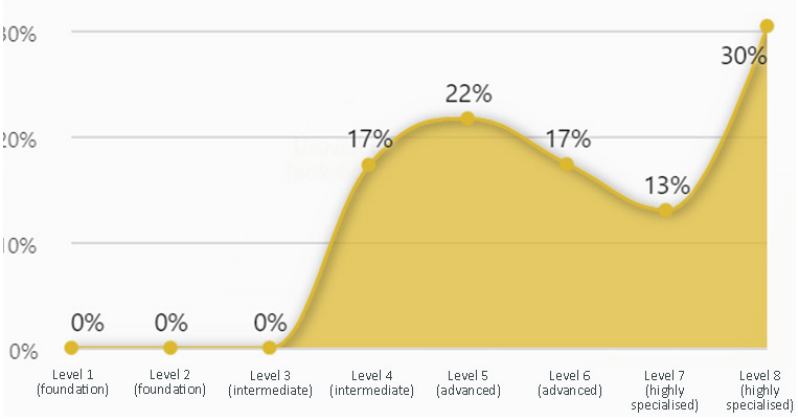

FIGURE 2: *Digital competence of students working in university media in area information and data literacy by levels*

Source: own processing, 2024

In the area of Communication and collaboration they scored 84%, which corresponds to a granular level of 7 and an overall level of highly specialised. The levels achieved by individuals show a more or less balanced distribution in the higher levels: 26% of students have this area at level 5, a consistent 22% each at levels 6 and 7, and the majority, 30%, have achieved level 8.

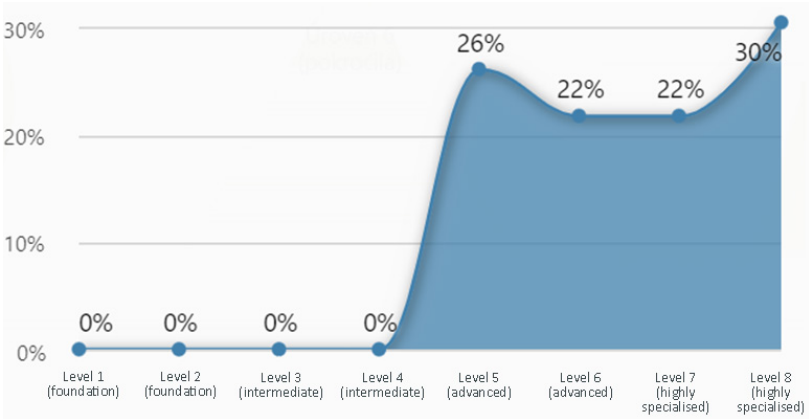

FIGURE 3: *Digital competence of students working in university media in area communication and collaboration by levels*

Source: own processing, 2024

In the area of Communication and collaboration they scored 67%, which corresponds to a granular level of 4 and an overall level of intermediate. The results for individual students show that the "middle" levels dominate and this gradually decreases towards the edges.

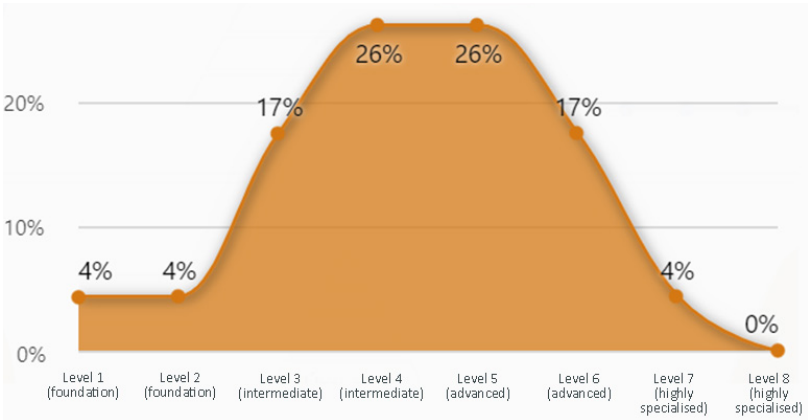

FIGURE 4: *Digital competence of students working in university media in area digital content creation by levels*

Source: own processing, 2024

For Safety, the students scored 68%, which corresponds to a granular level of 4 and an overall level of intermediate. Note that this result is only one percentage point away from level 5, the final level of total score. As far as the individual results are concerned, we can see a sinusoidal character of the levels achieved. Most of the students surveyed (30%) are at level 5, 17% are at levels 2 and 7, 9% are at level 6 and 4% have reached level 4.

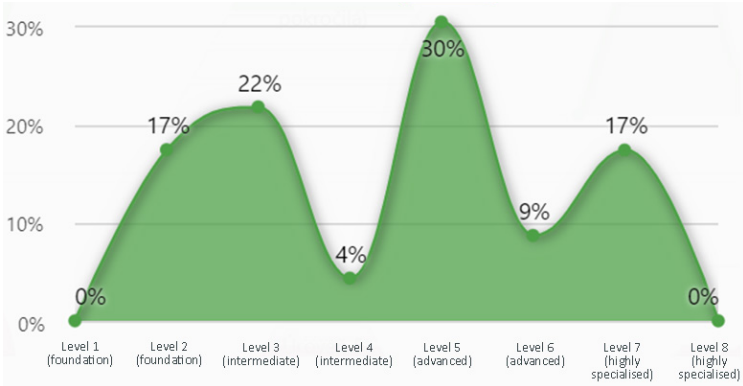

FIGURE 5: *Digital competence of students working in university media in area safety by levels*
Source: own processing, 2024

Lastly, in the area of Problem solving, students scored 72%, which corresponds to a granular level of 5 and an overall level of advanced, as well as the total score of this group of students. In this area, students are represented at every level (see Figure 6).

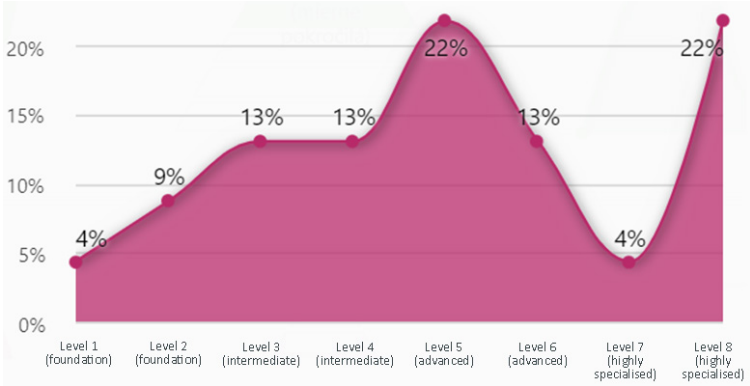

FIGURE 6: *Digital competence of students working in university media in area problem solving by levels*
Source: own processing, 2024

In terms of each competency, students working in university media are most competent in Netiquette, followed by Collaborating through digital technologies and Integrating and re-elaborating digital content (Figure 7). In Netiquette they scored 93%, which corresponds to a granular level of 8 and an overall level of highly specialised. Interestingly, 61% of the 35 students surveyed scored a level 8, 35% a level 7 and only 4% scored a level 5. None of the students were rated at any other level. In Collaborating through digital technologies they scored 87%, which corresponds to a granular level of 7 and an overall level of highly specialised. In the assessment of this competency, most students are ranked at level 8 (52%), 17% each at levels 4 and 7, 9% of students are ranked at level 5 and 4% are at level 6. It should be noted that both competencies – Netiquette and Collaborating through digital technologies – belong to the area of Communication and collaboration, which is also the area in which these students have the most developed or highest scores. The third highest rated competency is Integrating and re-elaborating digital content, in which they scored 85%, corresponding to a granular level of 7 and an overall level of highly specialised. Also in this case the range of individual assessments is wider, as 43% of students have level 8, 30% level 7, 9% have reached level 5, 13% level 4 and 4% is at level 3. We find it (almost) paradoxical that this competency was ranked third, given that it falls within the area of Digital content creation, which is the lowest

ranked of all. On the other hand, this may be related to the fact that in each medium, students edit and integrate new information and content into existing ones to a high degree, thus creating new and relevant content.

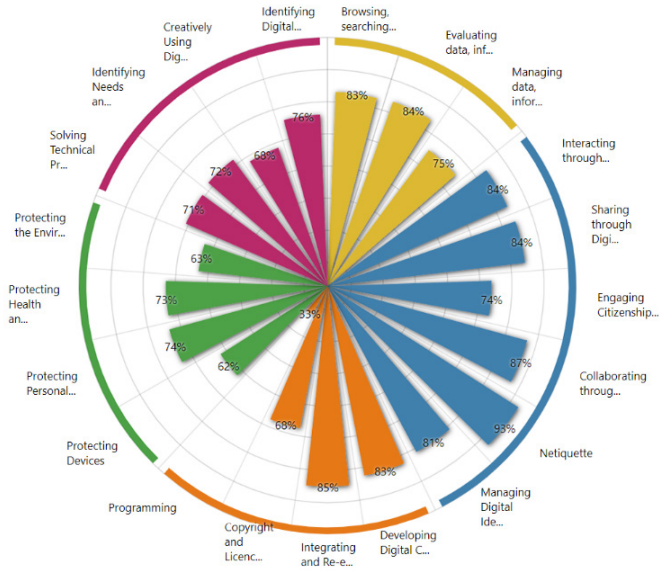

FIGURE 7: *Digital competence level of students working in university media – by competencies*

Source: own processing, 2024

On the other hand, the weakest ratings were obtained in Programming, followed by Protecting devices and Protecting the environment (Figure 7). In Programming they scored 33%, which corresponds to a granular level of 1 and an overall level of foundation. 52% of student scored at level 1, 35% at level 2 and a matching 4% of students reached levels 4, 5 a 7. The second lowest scoring competency is Protecting devices, in which surveyed students score 62%, which corresponds to a granular level of 4 and an overall level of intermediate. In general, a score of 62% is not low, but 60% of students score in the bottom range (17% – level 1, 13% – level 2, 4% – level 3, 26% – level 4), which may create a risk in safeguarding devices from threats and unauthorized access. Protecting the environment is the next lowest competency by one percentage point. Students scored 63% in it, which corresponds to a granular level of 4 and an overall level of intermediate. Within this competency, the scores are almost the same for all levels at 9%, with the exception of level 2, where 30% of the students scored, and levels 5 and 6, where 13% of the students scored. Based on these results, it can be concluded that students are generally aware of the environmental impact of digital technologies and their use, but are less likely to adopt practices that would mitigate this impact.

3.2 Students Not Working in (University) Media

The total score of digital competences of the students not working in the (university) media at FMK UCM is **65%**, which corresponds to a granular level of **4** and an overall level of **intermediate**. This means that these students are able to perform well-defined tasks independently and they can solve non-routine problems on their own. When looking at the individual results you may notice that the majority of this group of students also has an individual result of total score at level 4, and the remaining scored one level lower or higher (see Figure 8).

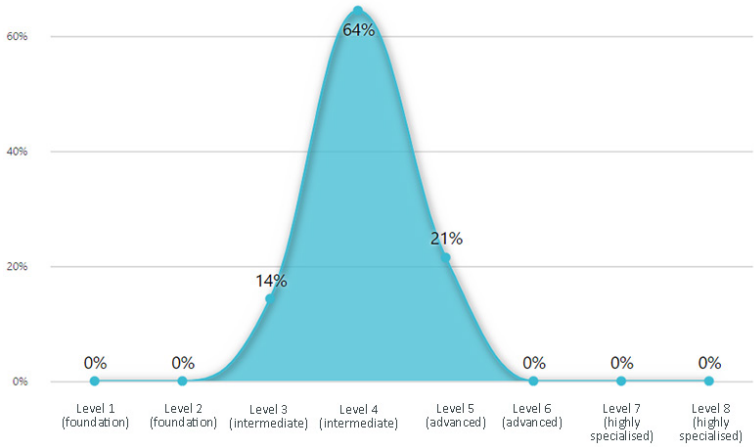

FIGURE 8: *Total score of digital competence of students not working in (university) media – by levels*

Source: own processing, 2024

With regard to the levels achieved in the individual areas, it should be noted that these results are also either in line with the total score or just above or below average. In the area of Information and data literacy, they scored 69%, which corresponds to a granular level of 5 and an overall level of advanced. It is worth noting that a score of 69% is the lower limit of this level, which means that the final score is quite close to the total score. In terms of individual performance, half of the students surveyed recorded level 4, which corresponds to the total score of this group of students, but most of the remaining half scored above average in this area (see Figure 9). Only 7% scored below average, but only by one level.

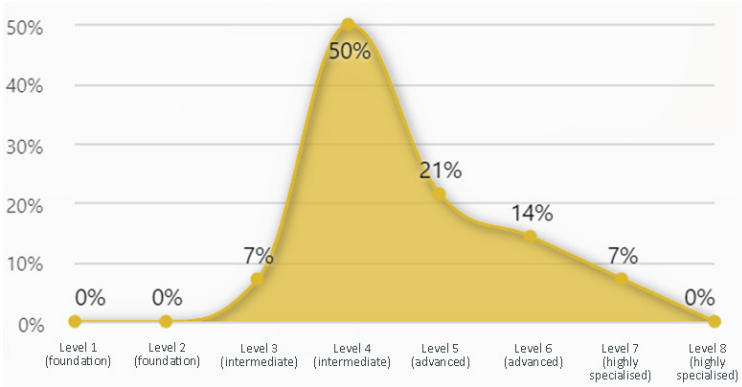

FIGURE 9: *Digital competence of students not working in (university) media in area information and data literacy by levels*

Source: own processing, 2024

In the Communication and collaboration area, students scored the same as in the previous area – 69% (granular level 5, overall level advanced). Looking at Figure 10, we can see that the range of individual scores is between levels 2 and 6, with most students scoring at level 5, followed by level 6, 21% at level 4, and levels 2 and 3 at 7% each. As the largest representation of individuals is at levels 4 to 6, I am leaning towards the view that the total score in this area is more towards level 5 and the corresponding skills.

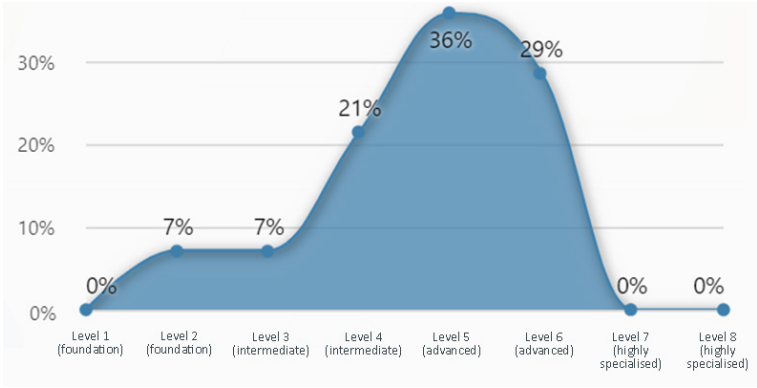

FIGURE 10: *Digital competence of students not working in (university) media in area communication and collaboration by levels*

Source: own processing, 2024

For Digital content creation, the students scored 53%, which corresponds to a granular level of 3 and an overall level of intermediate. The scores achieved by individuals also show a relatively low mastery of digital competence within this area, being at the lower end of the range of levels.

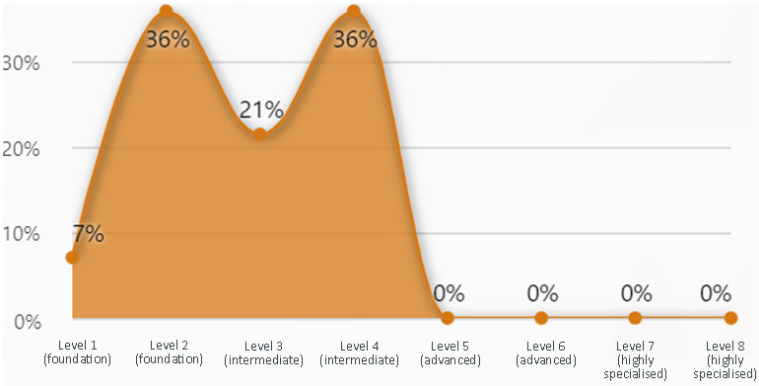

FIGURE 11: *Digital competence of students not working in (university) media in area digital content creation by levels*

Source: own processing, 2024

In the Safety area, the students scored 66%. Interestingly, while in the previous areas there were quite large differences in scores between groups of students (between 12 and 15 percentage points), but in this area the difference is only 2 percentage points. Thus, both groups are at a granular level of 4 and an overall level of intermediate. Looking at the results for individuals, we see a strong concentration of results in the middle part of the scale (see Figure 12), which is also in line with the average for this area. The exception is the 7% of students who score at level 7, which is considerably higher than the group average.

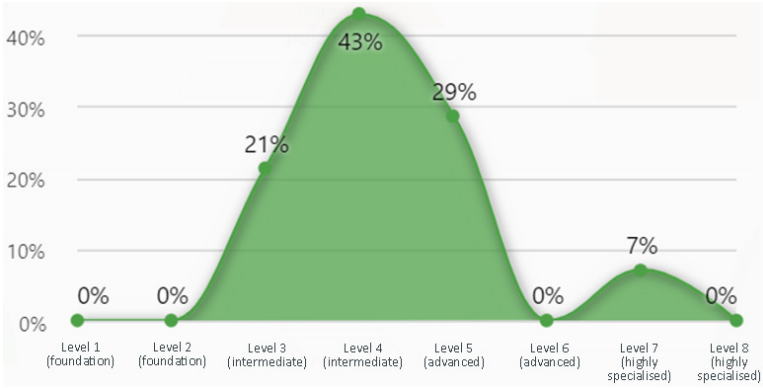

FIGURE 12: *Digital competence of students not working in (university) media in area safety by levels*
Source: own processing, 2024

Finally, in the Problem solving area this group scored 65%, which is only one percentage point lower than the previous area. This result corresponds to a granular level of 4 and an overall level of intermediate. Contrary to the previous group, where students were represented at all levels, in this case we can see a dominance of results at the middle bottom of the scale, with half of the students having competencies at level 4, which corresponds to the average for the whole area. This is followed by level 5, which 29% of the students have, 14% have level 3 and 17% have level 2.

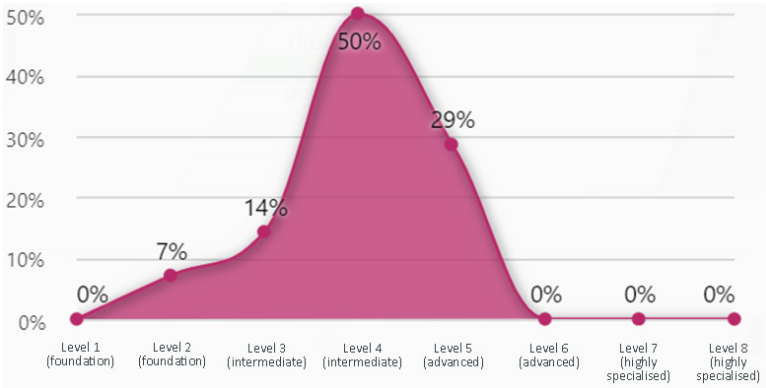

FIGURE 13: *Digital competence of students not working in (university) media in area problem solving by levels*
Source: own processing, 2024

In terms of each competency, students not working in media (at university or otherwise) are most competent in Netiquette, followed by Protecting health and well-being and Developing digital content (Figure 14). In Netiquette they scored 88%, which corresponds to a granular level of 7 and an overall level of highly specialised. It should be added that this score is well above the total score, with individual respondents scoring at levels 5 to 8 (14% at levels 5 and 6, 29% at level 7, 43% at level 8), i.e. all above average. The second highest rated competency is Protecting health and well-being, in which they scored 80% (granular level 6, overall level advanced). This is a relatively high score compared to the overall score in this area (66%), as well as the scores for the remaining competencies in this area (see Figure 14). On the basis of these data and the individual scores (36% at level 7, 21% at level 4, 14% at levels 5, 6 and 8), this group of students has a high level of awareness of how to avoid and protect themselves from risks to their health and physical and psychological well-being when using digital technologies. In Developing digital content the surveyed students scored 78% (granular level 6, overall level

advanced). Similarly to the previous group of students, the competency from the lowest ranked area – Digital content creation (53%) – made it into the top three, with most of the group (36%) having it as high as level 7. This is something we can only guess at, but I think it is due to the fact that young people nowadays are creating content on social media (Tiktok, Instagram, etc.) which may explain why this competence is at such a high level.

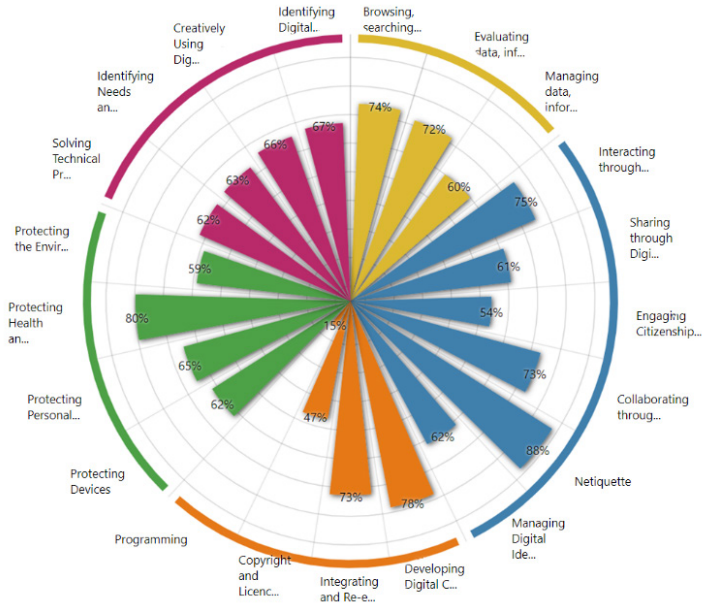

FIGURE 14: *Digital competence level of students not working in (university) media – by competencies*
Source: own processing, 2024

Programming is again the lowest ranked competency, followed by Copyright and licences and Engaging citizenship through digital technologies. In Programming, the surveyed students scored 15%, which corresponds to a granular level of 1 and an overall level of foundation, with up to 71% scoring this competency at level 1. In second place is Copyright and licences, where students scored 47% (granular level 2, overall level foundation). Here we can see a major difference between students who work in the media and those who do not, as the first group has this competence at an average level (68%, granular level 4, overall level intermediate), while students who do not work in the media have it at a low level (47%). This result confirms the fact that, as a result of theoretical education, students can identify simple rules of copyright and licences, but also that students working in the media can apply them. The next lowest rated competency is Engaging citizenship through digital technologies, where they scored 54%, which corresponds to a granular level of 3 and an overall level of intermediate. When we compare this with the result of the previous group (74%), we can see that working in the media also has an impact on such an atypical digital competency linked to participation in society and strengthening participatory citizenship. Part of this may also be influenced by the actual production of media content, because in order to fill airtime/produce articles, they need to be connected to society (especially when we are talking about a university environment).

4 Discussion

The need to use information and media sources competently is fundamental for future media professionals. As a result of globalisation, we are inundated with information on a daily basis, and media professionals need to be able to process this amount of data critically, objectively, ethically, and most importantly, quickly. To do this, they need to acquire a set of digital skills, as it is digital technology and internet tools that enable journalists to gather information, communicate with audiences and publish their work quickly and efficiently. However, several studies show (see, e.g., Matić & Perković, 2021; ICFJ, 2017b, 2019) that newsrooms have several gaps in digital competence, while training within newsrooms is, according to journalists, slow, sporadic and disorganised. And although journalists and their newsrooms are constantly striving to empower themselves in a changing global (news) environment, while working on improving their digital skills and adapting to new professional roles, it would be preferable for them to already have mastered given digital competencies when they join the newsroom – in other words, to have acquired them during their education in the field. It is important to note, however, that this learning should not only be theoretical but also practical. Research by Hart Research Associates (2015, in Bauman & Lucy, 2019) has shown that there is a significant gap between university students' perceptions of their work readiness and employers' assessments of recent graduates: 59% of graduates believe they can apply their knowledge and skills in a real-life situation, while only 23% of employers agree with this self-assessment.

The Faculty of Mass Media Communication at Ss. Cyril and Methodius University offers its students the opportunity to work in the university media alongside their studies. This concept of learning-by-doing (see, e.g., Vrabec & Bôtošová, 2020) allows students not only to increase their digital knowledge, skills and abilities, but also to learn what it is like to work in real media. Therefore, the aim of this study was to examine the level of digital competence of students who work in university media, compared to those who study at the faculty but do not work in its (or any other) media. It also focused on identifying the level of each of the digital competence areas of the DigComp framework that future media workers should develop. Acknowledging the aim and purpose of the study, the author has posed a set of research questions, the answers to which will fulfil the main aim of the study.

RQ_1: What is the level of digital competence of students working in university media?
RQ_4: What is the level of digital competence of students who are not part of university media or working in other media?

The total score in digital competence of the students working in the university media is 75%, which corresponds to a granular level of 5 and an overall level of advanced. This means that these students are able to perform **many different tasks** and **guide others in doing the same** and they can also **solve most problems on their own**. On the other hand, the total score in digital competence of the students not working in the (university) media is 65%, which corresponds to a granular level of 4 and an overall level of intermediate. This means that these students are able to perform **well-defined tasks independently** and they can **solve non-routine problems on their own**.

According to Khan and Vuopala (2019) the average total digital competence score of Gen Z is 64%, which means that FMK UCM students who do not work in media correspond to the standard level of digital competence for their generation. On the other hand, students who work in the media at the university have a significantly higher total score (by 11 percentage points), which means that the combination of theoretical education and practice has a positive effect on increasing the level of digital competence.

RQ_2: Which areas of digital competence are most and least developed in students working in university media?

RQ_5: Which areas of digital competence are most and least developed in students not working in university media?

LivePerson research has shown that the majority of interactions between 18-34 year olds are moving from "real life" to the "digital world", with 65% interacting more digitally than in person (LivePerson Team, 2021). By 2023, according to Webex research, this figure has risen to 70% (Chat Marketing, 2023). The rise of digital communication was confirmed in my research, with Communication and collaboration being the highest ranked area in both groups. At the same time, in Khan and Vuopala's (2019) research, this area was also the highest ranked area for Generation Z, with an average score of 74% (granular level 5, overall level advanced). In terms of levels, students who do not work in (university) media also match the average for Generation Z in this case, with a score of 69% (granular level 5, overall level advanced). On the other hand, this is the lower limit of this level, which may be due to the fact that they have a low level of competence in Engaging citizenship through digital technologies (see Figure 16). As for students working in university media, their level in this area is 84% (granular level 7, overall level highly specialised), which reflects the high need and use of competences such as interaction, communication and collaboration through digital technologies, as well as participation in society and citizenship in the newsrooms.

Students not working in (university) media also had the highest score for Information and data literacy at 69% (granular level 5, overall level advanced). The author expected this result to be higher, as students are constantly searching for and processing information as part of their education and daily lives. However, even in this case, the result is in line with the average score of Generation Z (73%, granular level 5, overall level advanced) (Khan & Vuopala, 2019). Students working in university media scored 81% (granular level 6, overall level advanced) in this area, reaffirming the positive impact of working in media on increasing digital competence.

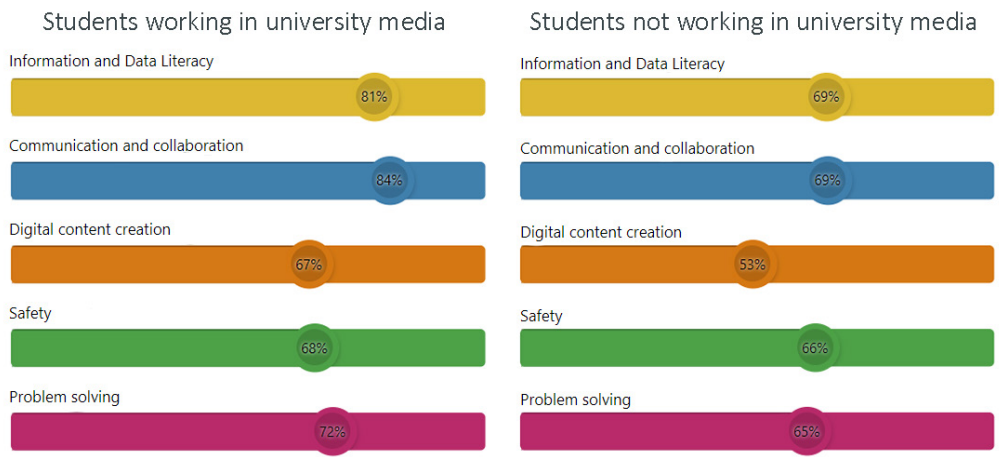

FIGURE 15: *Level of digital competence areas of surveyed students – by groups*

Source: own processing, 2024

The area with the lowest score for both groups of students is Digital content creation: 67% (granular level 4, overall level intermediate) students working in university media and 53% (granular level 3, overall level intermediate) students not working in (university) media. I have to say that this result is unexpected, as 1.3 billion people from Generation Z worldwide use social media (Yaqub M., 2023) and most of them also create digital content, but the achieved level of both groups is quite low. On the other hand, Khan and Vuopala's (2019) study recorded

a level of 59% for Generation Z in this area, which means that students who do not work in (university) media remain at the average and students who work in university media are again above the average of Generation Z in this case.

RQ_3: What is the most and least developed digital competency of students working in university media?

RQ_6: What is the most and least developed digital competency of students not working in university media?

The highest scoring competency for both groups is Netiquette, with students working in university media scoring 93% (granular level 8, overall level highly specialised) and students not working in (university) media scoring 88% (granular level 7, overall level highly specialised). This indicates that both groups of students are aware of the norms of behaviour and know-how when using digital technologies and interacting in digital environments, and are able to adapt their communication strategies to specific audiences. It also means that these students can create solutions to complex problems with limited definition (88%)/problems with many interacting factors (93%) which are related to digital etiquette that respects different audiences and cultural and generational diversity.

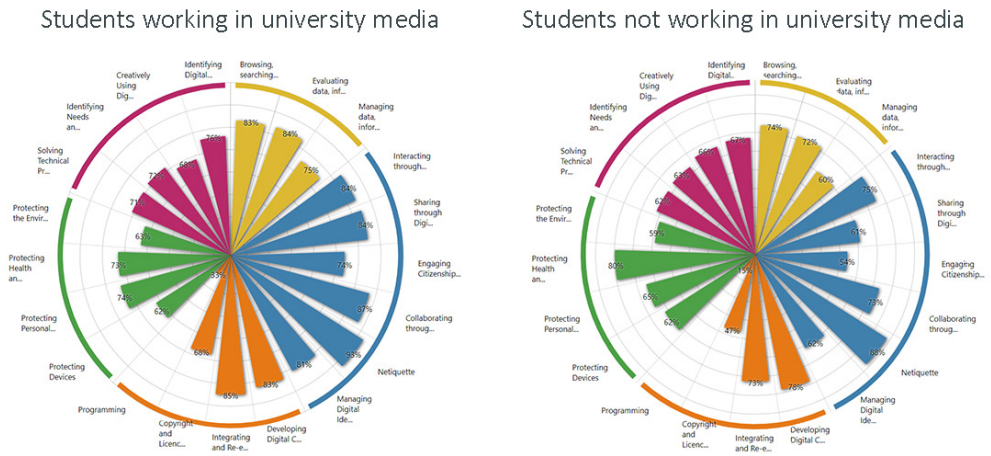

FIGURE 16: *Level of digital competencies of surveyed students – by groups*

Source: own processing, 2024

As for the lowest ranked competency, it is the same for both groups: Programming, with 33% (granular level 1, overall level foundation) of students working in university media and 15% (granular level 1, overall level foundation) of students not working in (university) media. Experts agree that Programming is the most controversial competency. They ask the question: Why should a person know how to programme? Černý (2019) explains that it is the development of algorithmic and computational thinking, i.e. the ability to identify a problem, break it down into smaller discrete parts and design a procedure to process these smaller parts. As an example, he refers to the profession of a data journalist, who needs to work with data in an automated way. At the same time, he points out that it is necessary to distinguish between programming and coding. While coding, i.e. writing a specific code using a specific programming language, is not universally needed by a media worker, knowledge of thought structures (i.e. programming) is stable and unchanging.

5 Conclusion

The aim of this study was to investigate whether working in university media, in addition to theoretical media studies, has an impact on the level of digital competence of future media professionals. The results show that these students achieve higher total scores in digital competence than their classmates who do not work in (university) media. This difference highlights the benefits of practice-based learning, where students can apply their theoretical knowledge in real-world contexts, thereby enhancing their overall digital skills.

The research also showed that as well as having higher overall digital competence, students working in university media also have more specific skills. Areas such as Communication and collaboration and Information and data literacy were significantly more developed in these students, suggesting that working in the media while studying media contributes to a deeper understanding and mastery of the digital competencies that fall under these areas.

For this reason, educational institutions should adopt a new approach to educating future media professionals. The traditional model based on knowledge transfer and memorisation needs to be replaced by other methodologies that enable students to acquire knowledge, skills and attitudes that are applicable and relevant to them in the new digital working environment. The development of digital competence in media and communication students is essential to the success of the educational process, as it will help them to progress in academic, personal and professional environments.

Acknowledgement: This paper was elaborated within the research project supported by the Recovery and Resilience Plan for Slovakia No. FPPV-40-2024, titled 'Research on the Digital Competences in the Context of Educating Future Media Professionals'.

Bibliography

Ala-Mutka, K. (2011). *Mapping digital competence: Towards a conceptual understanding*. Office for Official Publications of the European Communities.

Bauman, A., & Lucy, C. (2019). Enhancing entrepreneurial education: Developing competencies for success. *The International Journal of Management Education*, *19*(1), 100293. https://doi.org/10.1016/j.ijme.2019.03.005

Bawden, D. (2001). Information and digital literacies: A review of concepts. *Journal of Documentation*, *57*(2), 218-259. https://doi.org/10.1108/EUM0000000007083

Buckingham, D. (2010). The future of media literacy in the digital age: Same challenges for policy and practice. *Media Education Journal*, *47*, 3-10.

Carretero, S., Vuorikari, R., & Punie, Y. (2017). *DigComp 2.1: The digital competence framework for citizens with eight proficiency levels and examples of use*. Office for Official Publications of the European Communities. https://doi.org/10.2760/38842

Chat marketing. (2023, September 19). *The rise of messaging: How Gen Z and Millennials prefer to communicate*. https://chitchatagency.com/the-rise-of-messaging-how-gen-z-and-millennials-prefer-to-communicate/

Černý, M. (2019). *Digitální kompetence v transdisciplinárním nahlédnutí: Mezi filozofií, sociologií, pedagogikou a informační vědou* [*Digital competence in transdisciplinary insight: Between philosophy, sociology, pedagogy and information science*]. Masaryk University.

Council recommendation of 22 May 2018 on key competences for lifelong learning (Text with EEA relevance) (2018/C 189/01) (2018). https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018H0604(01)

The Digital Competence Wheel. (n.d.). *DigComp 2.2*. https://digitalekompetencer.dk/survey-259/en/

Eurostat. (n.d.-a). *Individuals' level of digital skills (from 2021 onwards) – 2021*. https://ec.europa.eu/eurostat/databrowser/view/ISOC_SK_DSKL_I21__custom_9134615/default/table?lang=en

Eurostat. (n.d.-b). *Individuals' level of digital skills (from 2021 onwards) – 2023*. https://ec.europa.eu/eurostat/databrowser/view/ISOC_SK_DSKL_I21__custom_9135253/default/table?lang=en

Eurostat. (n.d.-c). *Individuals' level of digital skills (from 2021 onwards) – students*. https://ec.europa.eu/eurostat/databrowser/view/ISOC_SK_DSKL_I21__custom_9135452/default/table?lang=en&page=time:2021

Ferrari, A. (2013). *DIGCOMP: A framework for developing and understanding digital competence in Europe* (Punie, Y., & B. N. Brečko, Eds.). Office for Official Publications of the European Communities. https://doi.org/10.2788/52966

Francistyová, B., & Višňovský, J. (2023). Journalism in Slovakia five years after the murder of Ján Kuciak. *Media Literacy and Academic Research*, *6*(2), 126-138. https://doi.org/10.34135/mlar-23-02-07

Henseruk, H., Boyko, M., Tsepeniuk, T., Buyak, B., & Martyniuk, S. (2021). Communication in developing digital competence of future professionals. In Strielkowski, W., Black, J. M., Butterfield, S. A., Chang, Ch.-Ch., Cheng, J., Perlas Dumanig, F., Al-Mabuk, R., Urban, M., & S. Webb (Eds.), *Advances in social science, education and humanities research* (pp. 158-165). https://doi.org/10.2991/assehr.k.210525.020

ICFJ. (2017a). *First-ever global survey of news tech reveals perilous digital skills gap*. https://www.icfj.org/news/first-ever-global-survey-news-tech-reveals-perilous-digital-skills-gap

ICFJ. (2017b). *ICFJ survey: The state of technology in global newsrooms*. International Center for Journalists. https://www.icfj.org/sites/default/files/2018-04/ICFJTechSurveyFINAL.pdf

ICFJ. (2019). *ICFJ survey: The state of technology in global newsrooms*. International Center for Journalists. https://www.icfj.org/sites/default/files/2019-10/2019%20Final%20Report.pdf

ICFJ. (n.d.). *The digital skill set of journalists*. https://googletrends.github.io/icfj/#skills

Janssen, J., & Stoyanov, S. (2012). *Online consultation on experts' views on digital competence* (Ferrari, A., & Y. Punie, Eds.). Office for Official Publications of the European Communities. https://publications.jrc.ec.europa.eu/repository/handle/JRC73694

Khan, F., & Vuopala, E. (2019). Digital competence assessment across generations: A Finnish sample using the DigComp framework. *International Journal of Digital Literacy and Digital Competence*, *10*(2), 15-28. https://doi.org/10.4018/IJDLDC.2019040102

Kluzer, S., & Priego, L. P. (2018). *DigComp into action – Get inspired, make it happen* (Carretero, S., Punie, Y., Vuorikari, R., Cabrera, M., & W. O'Keeffe, Eds.). Office for Official Publications of the European Communities. https://doi.org/10.2760/112945

Lankshear, C., & Knobel, M. (2015). Digital literacy and digital literacies: Policy, pedagogy and research considerations for education. In Søby, M. (Ed.), *Nordic journal of digital literacy special issue 2006-2016* (pp. 8-20). Norwegian Centre for ICT in Education, Scandinavian University Press. https://doi.org/10.18261/ISSN1891-943X-2015-Jubileumsnummer-02

LivePerson Team. (2021, March 3). *The digital lives of Millennials and Gen Z*. https://www.liveperson.com/blog/digital-lives-of-millennials-and-gen-z/

Matić, J., & Perković, S. M. (2021). *Digital competences of journalists*. Organization for Security and Co-operation in Europe Mission to Serbia.

Ng, W. (2012). Can we teach digital natives digital literacy? *Computers & Education*, *59*(3), 1065-1078. https://doi.org/10.1016/j.compedu.2012.04.016

Recommendation of the European parliament and of the Council of 18 December 2006 on key competences for lifelong learning (2006/962/EC) (2006). https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2006:394:0010:0018:en:PDF

Sedláková, R. (2014). *Výzkum médií. Nejužívanější metody a techniky* [*Media research. The most used methods and techniques*]. Grada publishing.

Søby, M. (2015). Digital competence – a password to a new interdisciplinary field. In Søby, M. (Ed.), *Nordic journal of digital literacy special issue 2006-2016* (pp. 4-7). Norwegian Centre for ICT in Education, Scandinavian University Press. https://doi.org/10.18261/ISSN1891-943X-2015-Jubileumsnummer-01

Virkus, S. (2003). Information literacy in Europe: A literature review. *Information Research*, *8*(4), paper no. 159. https://informationr.net/ir/8-4/paper159.html

Vrabec, N., & Bôtošová, Ľ. (2020). The concept of learning-by-doing in the context of media education and school quality assessment. *Communication Today*, *11*(1), 140-149. https://communicationtoday.sk/wp-content/uploads/08_VRABEC_BOTOSOVA_CT-1-2020.pdf

Vuorikari, R., Punie, Y., Carretero, S., & Van den Brande, L. (2016). *DigComp 2.0: The digital competence framework for citizens*. Office for Official Publications of the European Communities. https://doi.org/10.2791/11517

Vuorikari, R., Kluzer, S., & Punie, Y. (2022). *DigComp 2.2: The digital competence framework for citizens with new examples of knowledge, skills and attitudes*. Office for Official Publications of the European Communities. https://doi.org/10.2760/115376

Yaqub M. (2023, May 16). *Gen Z social media usage 2023: The state of Gen Z and social media [new data]*. https://www.businessdit.com/gen-z-and-social-media/

Author

Mgr. Lucia Furtáková
University of Ss. Cyril and Methodius in Trnava
Faculty of Mass Media Communication
Nám. J. Herdu 2,
917 01 Trnava
SLOVAK REPUBLIC
furtakova1@ucm.sk
ORCID ID: 0000-0002-7893-1919

Lucia Furtáková is currently pursuing a doctorate degree at the Faculty of Mass Media Communication at the University of Ss. Cyril and Methodius in Trnava. She completed her bachelor's and master's degrees at the university. In 2022, she joined FMK as a full-time PhD student. Her previous research activities have focused on the topics of radio production, radio reporting and education of radio reporters. The topic of education of future media professionals, especially in terms of their digital literacy and competence, is also the topic of her dissertation thesis.