# DIGITAL COMPETENCES OF INTERNATIONAL HIGHER EDUCATION STUDENTS

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## 1. Background

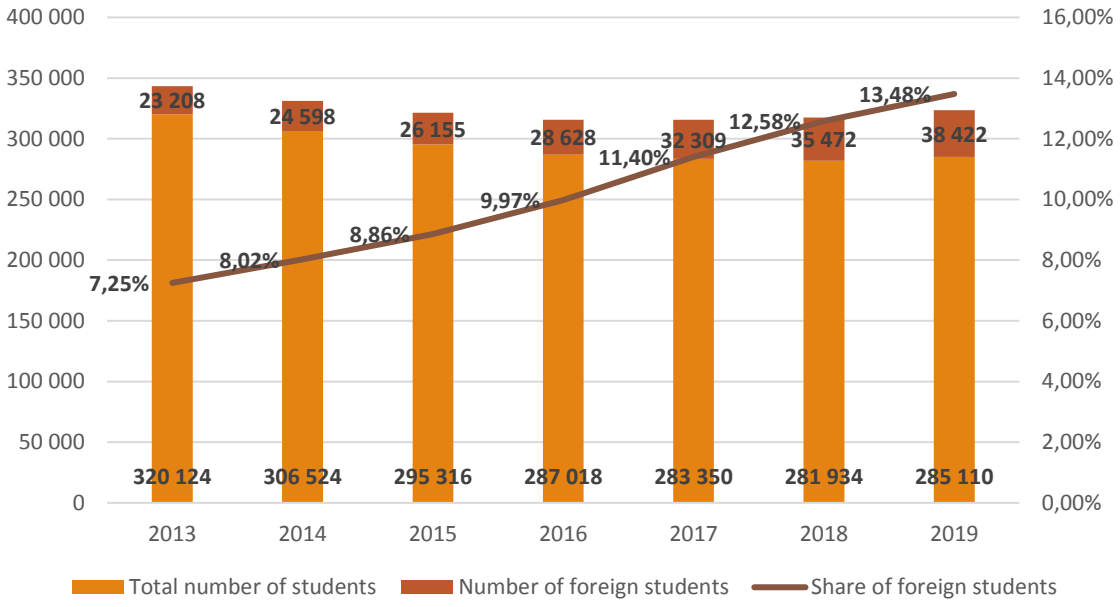
Although the year 2020 have easily seemed to be all about restrictions, travel bans and universities locked down, international student mobility and the internationalization of higher education did not stop. Beyond its undeniable negative effects, the COVID19 pandemic in fact had presented an unprecedented opportunity for universities for self-reflection and the evaluation and exploitation of their resilience and capability and adapt to the challenges and transform their operation in a way that may be beneficial well after the end of the crisis (*Hodges* et al. 2020).

The number of mobile students in higher education has been on the rise in the past two decades. According to OECD, the number of international students in higher education has increased by an average 4.8% annually since 1998, resulting in a total of 5.6 million of tertiary students studying out of their home countries by 2018 (OECD 2020).

Following the outbreak of the pandemic, the sudden lockdown of universities affected more than 3.9 million students studying in OECD countries (UNESCO 2020). The disruption of the continuity of higher education severely impacted the delivery of course materials, and of course had dramatic effects of international student experiences as well.

Although at first glance, the sudden halt in the continuum of student flow might predicted the end of tertiary mobility as we know it, after the first shock of the crisis, it is clear that – although undoubtedly differently - international mobility will remain an integral part of university life. Based on the responses of more 66,000 responses from prospective international students across 198 nationalities and territories, in its research on student mobility planning during the COVID-19 crisis, QS found that although by August 2020, 61% of tertiary students who were originally planning to start their mobility in the next semester claimed that their decision was affected by the pandemic, only 6% of them stated that they no longer wanted to study abroad (QS 2020a).

In Hungary, the international student mobility had developed in a slightly different way, mostly due to the history of the country. From the 1960's, Hungary had always had a significant number of international students in some specific fields of higher education from the "friendly countries". By the 2000s however, after joining the European Higher Education Area, the majority of Hungarian universities had started their journeys towards the global education market, and in the past decade, the ratio of international students have almost doubled.




Source: Educational Authority (own edition)

Fig. 1 Foreign students in Hungarian Higher Education 2013-2019

Despite the slight differences in the development path in inbound mobility trends in Hungary, the impact of the pandemic was the same: in March 2020, following the issue of a government decree, higher education institutions were closed for a week, and after that, they could continue the study programs online, meaning that universities were forced to undergo a dramatic transition of their delivery methods literally within days, meaning that distance learning has become the default modus operandi.

Of course, universities worldwide were exploring the opportunities of online, blended and remote learning services; however, these were mainly to ensure their competitiveness in the (domestic and international) education market. In contrast, today, there is a crucial need for offering opportunities for students who are unable to attend the classes physically, and with the students quickly realizing the opportunities that lie in earning their degrees

without the need to travel there is an emerging need for fully online degrees as well.

With the forced transition triggered by the crisis, the increased role of online learning solutions also provide a great opportunity for universities to recruit from an even wider market, and strengthen their positions in the global competition.

In summary, one thing seems to be sure: despite the devastating first hit of the pandemic, the crisis also had brought an opportunity for universities that will change the idea of higher education as we have known it for centuries; and although the emergence of digital solutions will not threaten the existence of traditional campuses, online education is here to stay (*Witze* 2020)

To be able to successfully complete the digital transition, both teachers and students need to transform their approach and upskill their competences to be able to successfully adapt to the new era. As of today, in most universities, the immediate shift to online education simply meant uploading the existing course materials online, or giving traditional lectures using a basic online communication tool like Zoom or Skype. On the other side, despite the common perception of being 'digital natives', students also often fail to successfully adapt to the circumstances of fully online education.

Online courses, virtual and blended mobility have been with us for some time, but from now on, they will play a key role not only in the resilience but also in the competitiveness of universities. In Hungary, universities have experimented with using digital solutions to help create much more personalized, tailored approaches to learning. Few have truly managed. However, with today's transition they have to face an increased need to answer an emerging demand from a new generation of customers with evolving needs and expectations, and also have to bear in mind and that their competitors are developing in new and different ways as well.

In the case of online learning environments – substituting or supporting contact education - the effectiveness and productivity of education is of key importance. As a result of the forced transformation of the delivery of higher education study programs the demands and needs of students have an increasing importance in the long run (*Davidson-Shivers* - *Rasmussen* - *Lowenthal*, 2018.). It is especially true when we consider that international mobility is likely to take place – at least partly – in the digital space. Thus, the personal online environment has become a key factor to take into account whilst creating study programs (*Jung*, 2019), and the digital competences of students is of crucial importance in the process.

In online learning, regardless of the study field in question, the development of the digital competences of participants is one of the most efficient tools for decreasing drop-out rates and strengthening the effectiveness of learning and enhance the learning experience, (*Orr*, et.al. 2020, *Ifenthaler - Gibson*, 2020) all of which are key factors of successful study program delivery.

To support the success of the digital transition, the Institute for Digital Methodologies at the University of Pannonia is designing an online course aiming at the development of digital competences and learning methodologies of tertiary students. To support the successful design of the course, as a first step, a preliminary survey was conducted among the prospective participants of the course. Taking into account that the course – taught in English as a language of instruction – targets a wider audience beyond the institution's students, it seemed necessary to assess the digital competences of future participants, so that the course itself can offer differentiated and tailor-made learning paths for them. When designing and implementing the course, it is important to take into account that beyond the differences of the study fields and levels of the students, an international audience will take part in the learning. This not only means foreign students, but a mixed group of domestic (Hungarian) participants working together with learners from other countries; the aim is to create a learning environment, where the cultural diversity is one of the core values of the course, equally beneficial for all participants (*Lantz-Deaton – Golubeva* 2020).

## 2. Methods

With this in mind, the initial survey – aiming to map the expectations and preliminary digital competences of prospective participants - was advertised in the social media network of the Institution, targeting both domestic and international visitors.

As for the rate of initial interest and the actual participation in the survey reflect a phenomenon typical for massive open online courses (MOOCs): initially, more than 1 500 people had shown interest by clicking on the available link, 998 of whom actually opened the survey; however, the number of fully completed questionnaire was 140. This attrition rate reflects a phenomenon widely known about free online courses: free courses with an interesting topic tend to attract a large number of visitors, but once they realize that getting involved would require some time and/or effort – even if this means that the course itself would be more tailored to their needs -, the willingness to participate quickly deteriorates. This also means that advertising online courses in the social media might seem like an effective way of attracting a large number of students but in reality, the attrition rate

of applicants is extremely high, both at the advertising stage and in the case pf the courses themselves (*Gupta* et al. 2020). Nevertheless, the reinforcement of this 'MOOC-effect' has its advantages in the case of a pilot project in preparation, suggesting the need of advertising the finalized course through other channels as well.

The questionnaire – consisting of 23 questions and 47 items - targeted both Hungarian and foreign respondents and therefore was designed with two branches: foreign respondents were asked additional questions regarding their host country, their current location, scholarship type, the answers contributing to the more detailed profiling of the future participants.

Beyond the background questions about the characteristics of the respondents, survey focuses on digital identity, the use of digital environments, the characteristics of online interactivity, information safety, e-etiquette, digital content management and content creation, based on the relevant core competences described in the European Union's Digital Competence Framework 2.0 (*Carretero* et al. 2017).

## 3. Results

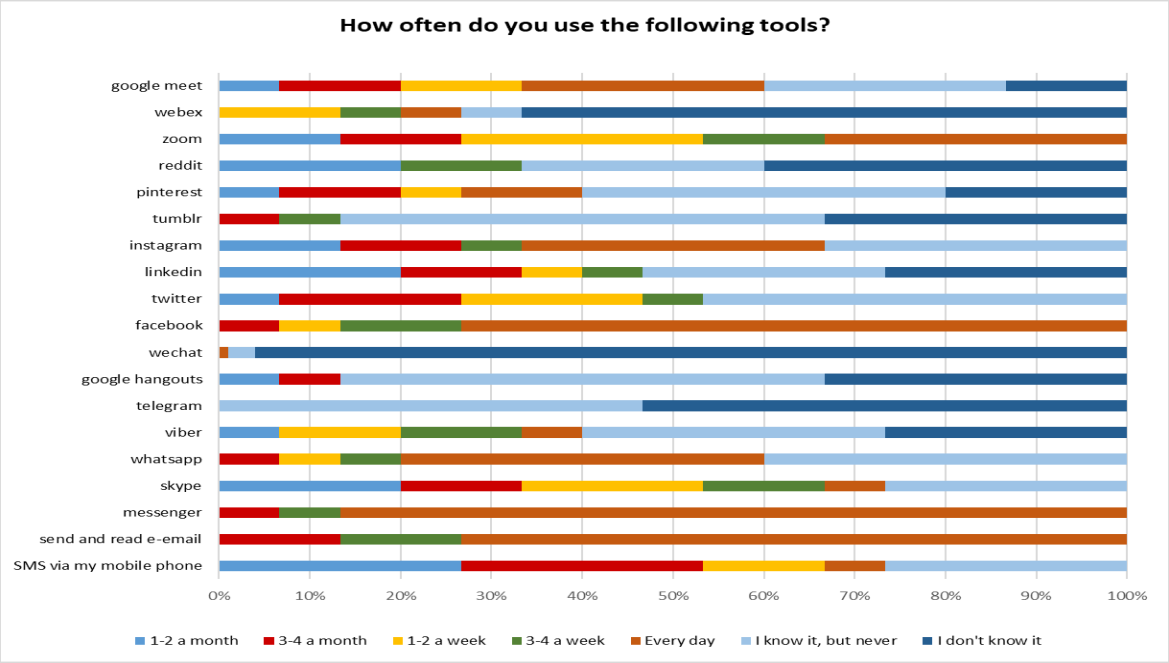
The age of respondents ranged from 20 to 44 years, with an average of 31.2 years. The gender distribution showed a significant majority of female participants with 78%. As for their highest level of finished education, the vast majority was involved in tertiary education: 43% had finished their BA and 50% of their MA studies, with only 7% with a finished secondary education. This high level of involvement in higher education is likely to be due to the fact that the course was advertised in relation with a university, hence attracting visitors related to or interested in higher education.

As the proposed course mainly aims at tertiary students, the questionnaire also asked about the respondents' major study program – regarding this, the answers were highly versatile, mostly falling into the field of Arts and Humanities, with 28% of the answers from Linguistics and/or Pedagogy.

With regards to the nationality of the participants, 50% of them were Hungarians, followed by 16% of Jordan and 14% Russian as foreign majorities, with the rest coming from a wide variety of host countries like Mexico, Indonesia, Syria and China.

These characteristics would ideally create an optimal basis for a truly international group where the diversity of foreign and domestic participants could be exploited; however, taking into account the above mentioned typical high rate of attrition, the real composition of the course still remains to be seen.

The background questions of the survey were followed by the of the assessment of the preferred online communication tools of the participants by asking them to indicate how often they use the tools listed, with their answers summarized in Fig.2.




Source: own edition

Fig. 2 Frequency of use of online communication tools

The answers showed that regardless of the national diversity of the group, the daily use of online communication tools follows the pattern of that in Hungary with the dominance of daily use of Messenger (85.7%) and Facebook (71.1%) and with the low popularity of WeChat (7.7%), WebEx (7.4), and Telegram, which none of the respondents claimed to use on a daily basis. Interestingly, Viber (7%) and Google Meet (21.4%) are less used daily than the Hungarian average, and the use of Tumblr –although not used daily - seems to be significantly more popular among the respondents than it is usually used in the higher education sector in Hungary.

The high rate of daily use of e-mails (71.6%) is also interesting and is most likely due to the fact that the vast majority of the respondents are active tertiary students, where e-mails are the most common official way of daily communication. As for ways of informal communication, it is interesting to note that – except for Facebook -, communication applications like Viber, Skype or WhatsApp seem to be far more popular than social media

platforms like LinkedIn or Twitter, where direct and public communication would also be possible.

Regarding the management of their online identity the respondents were asked to self-reflect on their attitudes towards the statements shown in Fig.3.

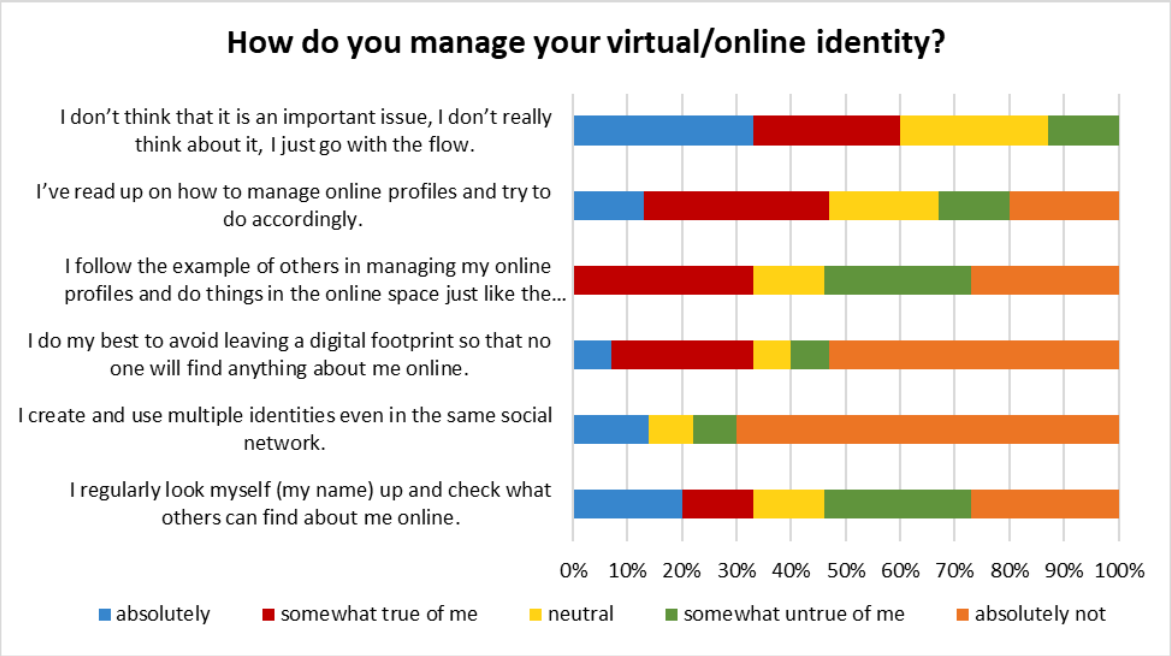



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Fig. 3 Management of online identity

According to the EU's Digital Competence Framework, the management of digital identity refers to the competences related to "To create and manage one or multiple digital identities, to be able to protect one's own reputation, to deal with the data that one produces through several digital tools, environments and services" (*Vuorikari* et al. 2016, p.8).

Based on the definition above, the questions in the survey focused on the management of protecting one's identity and privacy in the online environment, and inquired about the protective measures of the participants.

The distribution of answers for the first question about the importance of identity protection resulted in rather concerning findings: more than one third of the respondents claimed that it is not important for them at all, and in total, 60% of the answers fell into categories that reflect that the respondent does not see identity protection as important when being online.

Similarly, more than half of the answers (60%) showed that the participants do not consider the management of their digital footprint as a priority, and 74% refused to use multiple identities in social networks; even when this (i.e. having a public and private profile with the same account) is a common feature offered by most social media platforms.

Regarding the most commonly used communication tools for learning, communicating with friends and work, the answers clearly showed the dominance of instant & synchronous communication platforms like Google Meets, Zoom, Skype, etc.

It is especially interesting that the same applies for the most commonly used communication tools for learning purposes; in this case, except for the Google ecosystem, no online learning environment or e-learning system was mentioned, meaning that when it comes to online learning, the participants tend to think of instant messaging applications as suitable tools of education. Of course, to a certain degree, this phenomenon can be owing to the sudden and forced shift to online education due to the outbreak of the pandemic; nevertheless, the overall result indicates a serious criticism of the social spaces of currently used e-learning frameworks, and is worthy of further examination.

When it comes to communication with friends, the dominance of instant messaging applications is much less surprising. It is interesting to note, that when compared to learning purposes, the only difference in the preferred communication method is basically the less use of video calls, indicating that the participants consider chat and messaging the most effective way of communication; something that might be useful to take into account whilst designing an online learning environment.

As for communication for work-related purposes or for solving a task as a team, the formerly mentioned tools are complemented with e-mails – this seems to be considered as 'the most professional' communication form. Aside from e-mails, the respondents claimed to prefer the previously mentioned instant tools; as similarly to learning, where no specific education-related tools were mentioned, the respondents seem to ignore the use of targeted task management or teamwork supporting applications or tools.

In summary, the answers clearly indicate the dominance of simple, easily accessible instant messaging and video communication, which clearly poses many challenges whilst preparing a complex environment for learning purposes.

Information overload - a term coined by economist Bertram Gross in 1964 – refers to situations when "the amount of input to a system exceeds its processing capacity. (…) Consequently, when information overload occurs,

it is likely that a reduction in decision quality will occur." (*Gross* 1964) Information overload quite understandably one of the most serious negative effect of digitization and being able to mitigate its effects is a significant factor in the development of digital competences. The survey inquired about the use of most typical protective measures against information overload, and based on the answers, it seems that the vast majority of the respondents handle the issue quite consciously. With only 4% claiming that they are not able to handle the situation, almost half of them (46%) answered that they tackle the issue in a conscious manner instead of "simply" limiting their time in the online space (25%) or ignoring some part of the information received.

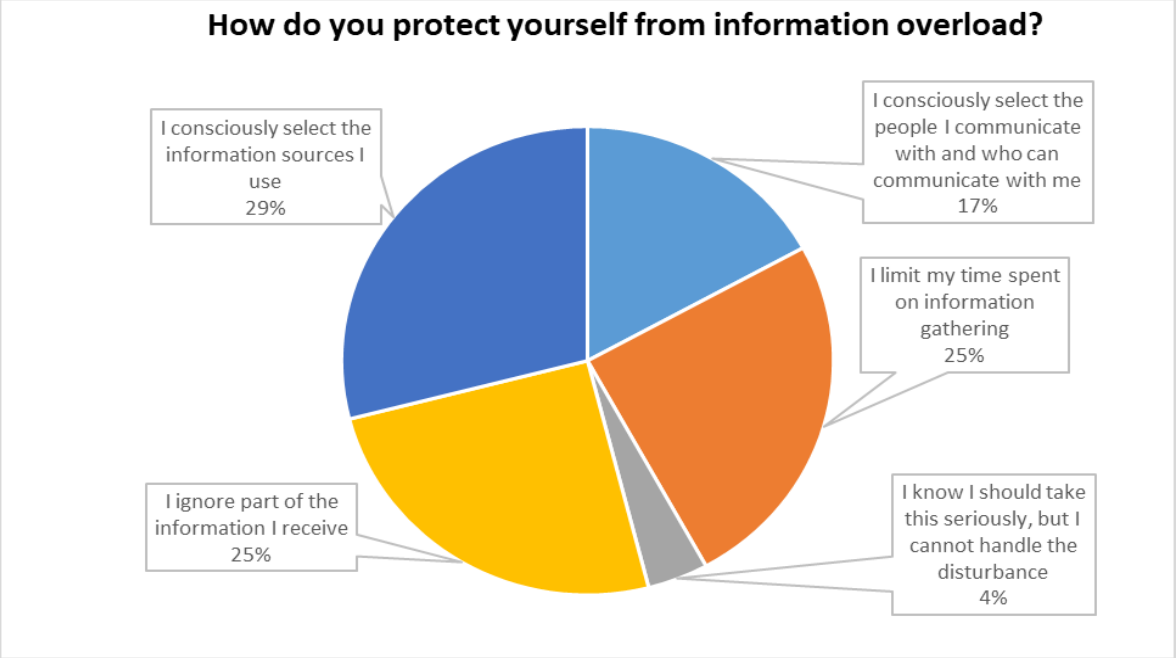


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Fig. 4 Mitigating information overload

Due to the vast amount of information available, information overload is only one of the challenges: being able to authenticate the information received is just as important. Verification is especially important in an age where most people use the online world as their main source of information (*Jahng* et al. 2021). When asked about how they check the authenticity of the information found online, more than third (34%) of the answers fell into the categories that refer to assumption that if something can be found in a lot of sources than it evidently must be true; and although only 10% claimed that they simply hope that what they find is true, only 24% of the respondents said that they look up the sources cited in the information they receive.

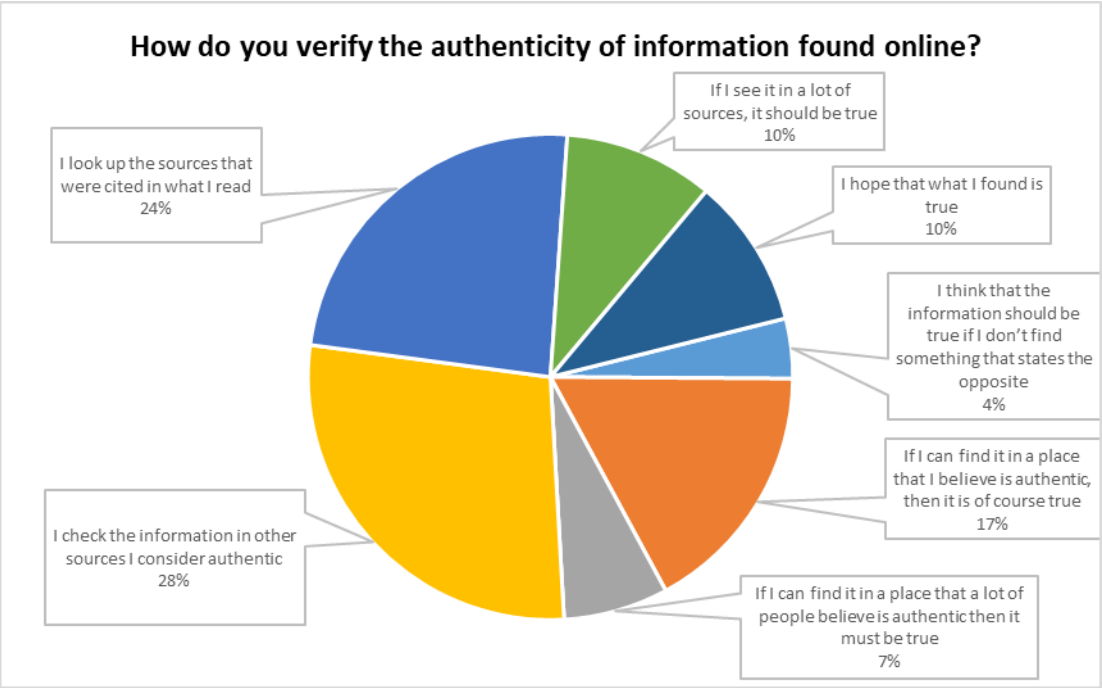


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Fig. 5 Information authenticity verification

When asked about information sharing ("If you had a significant thought or important information you wanted to share with the most possible people, how would you do that?"), the dominance of Facebook is undeniable, followed by the most popular social media accounts like Twitter or Instagram, and although the question did not limit the answers to online options, out of all respondents only one gave an answer that referred to offline interaction: "That's a good question, until now, I told my friends and coworkers, but maybe I would do it on social media." However, it is interesting to note that none pf the participants mentioned that they would in any way differentiate between their prospective audiences and chose their information channels accordingly.

Again, the dominance of social media is overwhelming when asked about a possible teaching situation: "Somebody asks for your help in teaching them something, but you cannot meet in person, and the only option for you is online communication. How do you solve this situation?"

Judging from the answers, it seems that the participants – almost exclusively tertiary students – think about basic communication tools like Zoom, Skype or Google Meet when it comes to education, and none of the

answers referred to any specific e-learning solutions or tools that would not require synchronous presence of the users. Also, none of the respondents claimed that they would produce any learning material that could be used without the need of direct contact.

## 4. Summary

The research introduced above aimed to provide a snapshot of some aspects of the digital competences of prospective students of an online course by conducting a preliminary survey exploring the demands and expectations of the future participants. At a glimpse, it seems that regardless of the nationality, study level or study field of the respondents, social media-related applications and instant communication tools have a dominance in all fields of their online activities. This, partly can be due to the effects of the 2020 COVID-19 pandemic that had forced education into digitization suddenly, resulting in an online education where most of the participants had to react quickly and reach out for solutions that were the easiest available. Nevertheless, the almost complete lack of mentioning specifically designed and implemented online education systems and frameworks clearly indicate that turning a forced emergency response to the crisis into a consciously developed online education system that is sustainable in the long run still remains a challenge that needs to be tackled in order to achieve the real digital transition of higher education.

## References

COVID-19 Impact on Education. (2021): https://en.unesco.org/covid19/educationresponse

Davidson-Shivers, G., Rasmussen, K. L., & Lowenthal, P. R. (2017). Web-Based Learning: Design, Implementation and Evaluation (2nd ed.). Springer.

Gross, B. M. (1964): The Managing of Organizations. Free Press of Glencoe.

Gupta, V., Chauhan, D. S., & Hanne, T. (2019): MOOC Learning Platform Development (1st ed.). Auerbach Publications.

Hodges, C., Moore, S., Lockee, B., Trust, T., & Bond, A. (2020, March 27): The Difference Between Emergency Remote Teaching and Online Learning. https://er.educause.edu/articles/2020/3/the-difference-between-emergency-remote-teaching-and-online-learning

Ifenthaler, D., & Gibson, D. (2020): Adoption of Data Analytics in Higher Education Learning and Teaching (Advances in Analytics for Learning and Teaching) (1st ed. 2020 ed.). Springer.

Jahng, M. R., Stoycheff, E., & Rochadiat, A. (2021): They said it's 'fake': Effects of discounting cues in online comments on information quality judgments and

information authentication. Mass Communication and Society, 108. https://doi.org/10.1080/15205436.2020.1870143

Lantz-Deaton, C., & I.G. (2020): Intercultural Competences for College and University Students. Springer Nature Switzerland. https://doi.org/10.1007/978-3-030-57446-8

Orr, D., Luebcke, M., Schmidt, P. J., Ebner, M., Wannemacher, K., Ebner, M., & Dohmen, D. (2020): Higher Education Landscape 2030: A Trend Analysis Based on the AHEAD International Horizon Scanning (SpringerBriefs in Education) (1st ed. 2020 ed.). Springer.

Pricewater Cooper LLP. (2020): Transforming Higher Education – The Digital University. https://www.pwc.co.uk/government-public-sector/education/assets/transforming-higher-education.pdf

QS. (2020, August): The Coronavirus Crisis and the Future of Higher Education. https://info.qs.com/rs/335-VIN-535/images/the-coronavirus-crisis-and-the-future-of-higher-education.pdf

Witze, A. (2020): Universities will never be the same after the coronavirus crisis. Nature, 582(7811), 162–164. https://doi.org/10.1038/d41586-020-01518-y