WHEN DOES THE USE OF TECHNOLOGY IN THE EDUCATIONAL PROCESS BECOME TOO MUCH?

Ramona **DEMARCSEK**, Luminița **TODEA,** Anamaria **FĂLĂUȘ**
Technical University of Cluj-Napoca, North University Centre of Baia Mare
ramona.demarcsek@fsc.utcluj.ro, luminitatodea@yahoo.com, anamaria.falaus@fsc.utcluj.ro

Keywords: (smart) technology, electronic devices, online learning.

Abstract*: The current global situation brought about by the recent pandemic, has wreaked havoc through educational systems worldwide. From the traditional face-to-face interaction during the educational process, we were all suddenly faced with the daunting task of teaching online, and we all had to learn on the go. So, we adapted, teachers and students alike, and in this process, we unexpectedly found ourselves bombarded with various videoconferencing platforms, eLearning platforms, applications meant to make the teaching-learning process easier and smoother, and a wide range of devices on which all these platforms and apps could run. In this article we are analysing the results of a survey taken by a sample of 202 students from our university in an attempt to provide an answer to the question of when technology in the educational process becomes too much.*

1. CONTEXT

In March 2020 the entire world was shaken by the realization that a new pandemic was threatening its very existence. Countries went into lockdown; businesses shut down; schools closed, and the entire educational process went online. Education as we had known it until that moment came to a griding halt. The concept of online education was not foreign or novel to most cultures. Yet it was an educational approach implemented by choice and not forced by external circumstances. And that was probably the daunting aspect of the matter! Not the fact that it was online, but the fact that it was an issue that we, as educators and instructors, could not decide upon, it was something forced upon the entire educational system – all educational systems throughout the world, as a matter of fact – and nobody had the opportunity to get accustomed to the situation, there was no time, we plunged directly into it

and had to learn things on the go. It was not easier for students either. They are more technology oriented indeed, they use technology more extensively and for long increments of time during a day, yet that still did not prepare them for the impact of online education.

What seemed, at the beginning, to be a blessing in that it offered people living at great distances from the university, or people with jobs, the possibility to access and participate in the course or seminar from the comfort of their homes or from their offices, ended up being a nuisance and a source of stress in that it alienated people from one another. It impacted the educational process in the most unexpected manner: it eliminated the direct interaction between teachers and students, and thus the exchange of ideas, the challenging debating and questioning – all of which generate growth and development in any field of research.

As if with the turn of a switch, teachers and students alike were displaced: the familiar environment of the classroom was no longer available to anyone, the educational facilities once swarming with life became "ghost cities", silent, empty, futile. The change was sudden and radical, yet the psychological impact was something to be acknowledged in the long run for, at that moment, the thrill of being able to attend (or deliver) a lecture from the comfort of one's living-room overshadowed the danger of social alienation, as well as the negative impact of prolonged screen time on one's health (both physical and mental). Three semesters later, both teachers and students became aware of the need for direct interaction inside a classroom, as well as of the fact that the only major advantage of online education was the feeling of safety. Being online meant staying safe, and that was the only real benefit.

Faced with a technology-infused educational process, the question this paper attempts to answer is: when indeed does technology become too much? We understand that education has been employing technology for decades. Projectors and televisions seem to be ubiquitous and are still being used in the classroom as they have been for many years, even if the former can now fit into a purse and the latter has been replaced by Smart TVs. Yet, at this point, the question of whether education has become too dependent on technology is haunting teachers throughout the world [1].

Education has constantly moved further, and so has its worship of technology. Classrooms are now invaded by laptops, hand-held devices, electronic whiteboards, sophisticated word processing apps, 3-D printing, and much more [1]. At the current state of technological evolution, people in general, and schools in particular can barely keep up with all the gadgets and electronic devices available to the large public. The question is: should they? Should schools give in to the pressure of tech companies and keep purchasing their products in the hope that the quality of education would increase, all at the expense of teachers, who are faced with decreasing respect on the part of the students, increasing pressure from the parents, poor payment, growing requirements from the management, lack of personal time, and all to the detriment of actual quality education?

Dr. Nicholas Kardars, in his article *Screens In Schools Are a $60 Billion Hoax* [2], provides quite a harrowing answer to this question and points out the reasons why schools

should “not fall for the Siren song of the tech companies—and all of their hypnotic screens” [2]. In his article he speaks about the screen revolution and the seismic shift in pedagogy brought about by technology which now “dominates the educational landscape”. Classrooms are invaded by electronic devices and one can “find some type of screen in almost every classroom” [2]. It is nevertheless true that some of these devices enhance the educational experience and engage students in ways that were unimaginable not long time ago, while it is also true that they can become a distraction, for “no matter how animated or engaging the teacher, it’s tough to compete with” [3] all the distractions available at a click on a smartphone, for instance.

This article approaches the use of electronic devices during the educational process from the perspective of the actors impacted directly, namely the students. Thus we delivered a 13-question-long questionnaire to a sample of 202 student from the Technical University of Cluj-Napoca, North University Centre of Baia Mare (TUCN-NUCBM), and analyzed their responses. The relevance of the study may be greater than anticipated considering the current global situation caused by the recent pandemic. In the light of the Covid-19 pandemic and its impact on the educational process, technology can be both a support and a hindrance. This is what we are attempting to discover and provide an answer to in this study.

2. THEORETICAL APPROACH

The issue of technology in the classroom has been approached before, from various perspectives. It is not a novel issue since technology has always been present in the classroom in one way or the other. Though with the recent shift to online teaching over the past couple of years, it has nevertheless become prevalent. It is a fact that “students are enthusiastic about using smart devices and the latest technology” [4], and the transition to online learning, as sudden as it might have been, was welcomed quite enthusiastically by most players involved. Yet after a while, the entire process became tiresome, and just like anything else, technology was starting to lose its appeal due to overexposure and overuse. And these days it has become even more obvious that “moderation should be the norm” [4], especially when it comes to the employment of technology in the educational process.

In previous research we approached the issue of the use of technology in class with the aim of improving the quality of the teaching-learning experience [5], as well as about taking advantage of the students’ technical abilities with the exact same purpose [6]. The outcomes of our research proved that technology does indeed have a positive impact on the educational experience and that students are eager to use it in all wakes of live. Yet in this article we are challenging this statement to a certain extent because we consider that the current situation of the global pandemic has brought a shift in the educational paradigm and consequently technology has been abused.

Numerous articles [8-13] approach this issue of excessive use of technology in the classroom. While some present the advantages and disadvantages of the use of technology for educational purposes [8], with the number one disadvantage being the fact that it can be distracting, others focus on the negative impact technology has on humans, from addiction, to bullying, to changes in our communication style, socializing, travelling behaviour, and even the way we research (approaching books less frequently and using the internet extensively) [9]. There seems to be a lot of focus on the addictive aspect of technology, generating novel types of mental disorders with odd names, issues which maybe a couple of decades ago were inexistent, for instance gaming addiction, FOMO (Fear of Missing Out) which is an addiction to social media, all following the same pattern and with alteration in the chemicals in the brain similar to drug addiction [10]. We are not qualified to approach the issue of addiction, yet in our study we do touch on the issue to some extent, since overuse of technology in the classroom can contribute to the general harmful effect of excessive reliance on technology. We do focus though on the perception of students, as well as their preferences in terms of technology and education, and how interwoven these are, so much so that they have become inseparable.

In earlier research [7], where the studied group was also students from the TUCN-NUCBM, we approached the issue of smart devices being used by the students during the educational activities for issues unrelated to the lesson, and thus these devices were considered at that point a disturbance, and the use of these devices by the students was considered a challenge that had to be overcome. The suggested solution at the time was the employment of these devices for actual educational purposes [7]. Since then, smart technologies have become so common-place and so ingrained in virtually all educational environments and processes that we cannot conceive of the teaching-learning process without them. And thus in [4] we described the first steps we had taken towards online education at a time when humanity was oblivious to the possibility of the outbreak of a pandemic. These referred to the use of a Moodle platform implemented within NUCBM, and about which we will speak more extensively hereafter (i.e. Knowledge Base). The main purpose for piloting this platform within the NUCBM was to reduce the consumption and waste of paper, while at the same time provide ease of access to educational materials to all our students, inside and outside the classroom, as well as a more challenging environment than the traditional (in-class) one. Little did we know that the eLearning platform would become indispensable during the pandemic, yet the fact that the platform had already been piloted for a couple of years before the pandemic made the transition to online education less traumatic.

This paper analyzes the use of various educational platforms within the NUCBM and the student's perception on online education, as well as the use of technology during the educational process at two years after the onset of the pandemic which brought about the current shist in how education is approached and the extent to which smart technology impacts it.

3. CASE STUDY. THE SURVEY

In order to assess the students' perception with regard to the use of technology during the educational process, we designed a thirteen-question survey and delivered it to 202 students from the three faculties of the NUCBM, a smaller campus within the TUCN. The three faculties in question are the Faculty of Sciences, the Faculty of Humanities, and the Faculty of Engineering. The students who took the survey were students at bachelor level in the fields of Mechanical Engineering, Environmental Engineering, Business Administration, and Romanian Language and Literature. Thus, we made sure we covered quite a wide range of domains, ensuring a substantial diversity of opinions and perceptions on the issue of the use of technology in class.

The questionnaire was designed to assess the use of technology during the educational process in general, not focusing on a certain class or a certain type of activity (e.g.: course or seminar), yet it was applied during the English classes, and the focus of this analysis is on the use of technology during the English classes in particular.

The questionnaire included both general questions, with multiple response options, and questions to which students had to input their viewpoint. Thus, the first question, referring to the type of electronic devices owned by the respondents, provided a list of seven very common devices from which students could choose one, several or all (desktop computer, laptop, smartphone, tablet/notepad, eBook reader, smart watch, smart TV), while also providing the option to mention other devices (if any). The purpose of this question was to find out what the most common devices were amongst students.

In *figure 1* you can find a visual representation of the answers provided by the respondents to the first question.

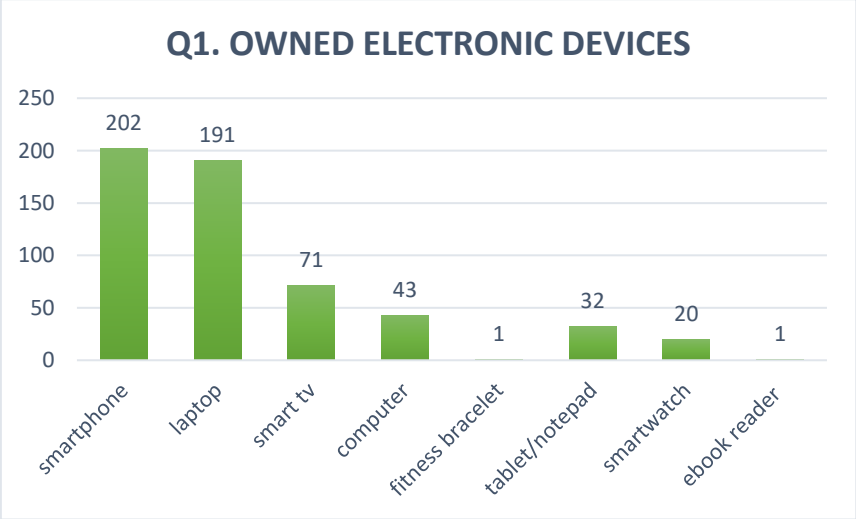

Fig. 1. Question 1 - What internet connected electronic devices do you own?

Not surprisingly, all 202 respondents own a smartphone, the second most frequently owned device by the participants in the survey being a laptop, and the third in terms of frequency being the smart TV. What was nevertheless disappointing, yet not entirely unexpected, considering the trend in reading, was the fact that only one respondent said they owned an eBook reader, thus only confirming the decreasing interest in reading amongst the younger generation.

The second question was meant to assess the frequency with which these devices were employed by the students. The same list of devices as for the first question was provided, as well as the option to include other ones. The responses provided by the students to this question were quite predictable and in strong connection to the responses provided to the first question. Since the smartphone was the one device owned by all respondents, the device most frequently employed was unsurprisingly the same, followed by the laptop in second position and the smart TV in the third, as can be seen in *figure 2* below.

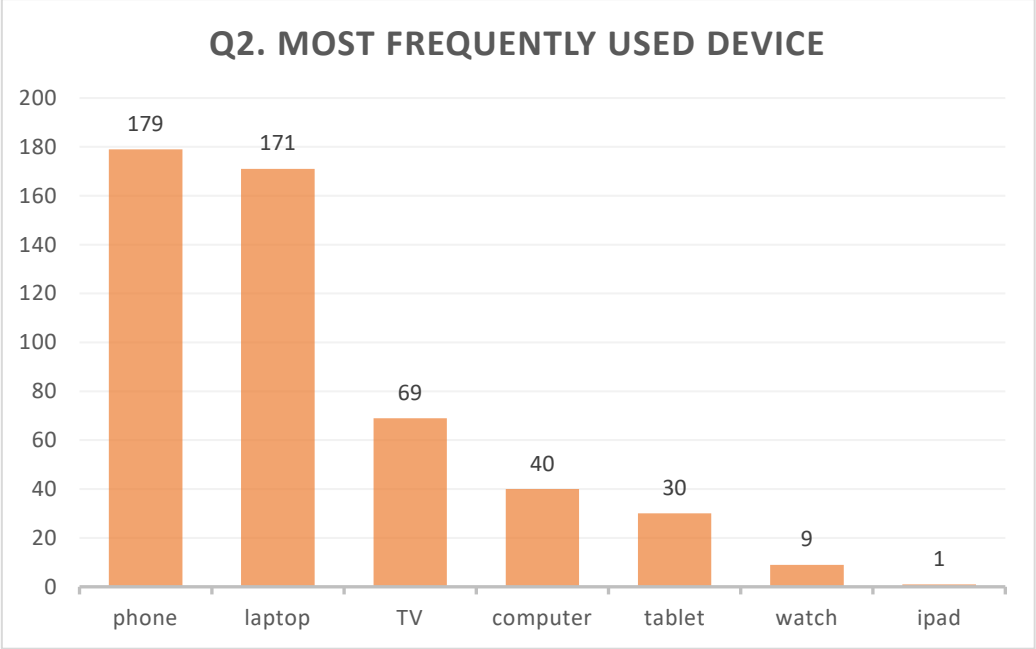

Fig. 2. Question 2 – Which 3 do you use most frequently?

The third question referred to the average amount of time students spent daily on these devices. The response options provided were: 1-2 hours, 3-4 hours, 5-6 hours, and more than 6 hours. As seen in *figure 3*, the percentages are somewhat balanced, especially regarding the timeframes 3-4 hours and 5-6 hours. Unsurprisingly, the lowest percentage of students (15%) reflects the choice in terms of the shortest period of time, i.e. 1-2 hours, while the highest percentage (36%) was scored for the timeframe "more than 6 hours a day". This only confirms the trend regarding the increasing amount of time people spend on electronic devices.

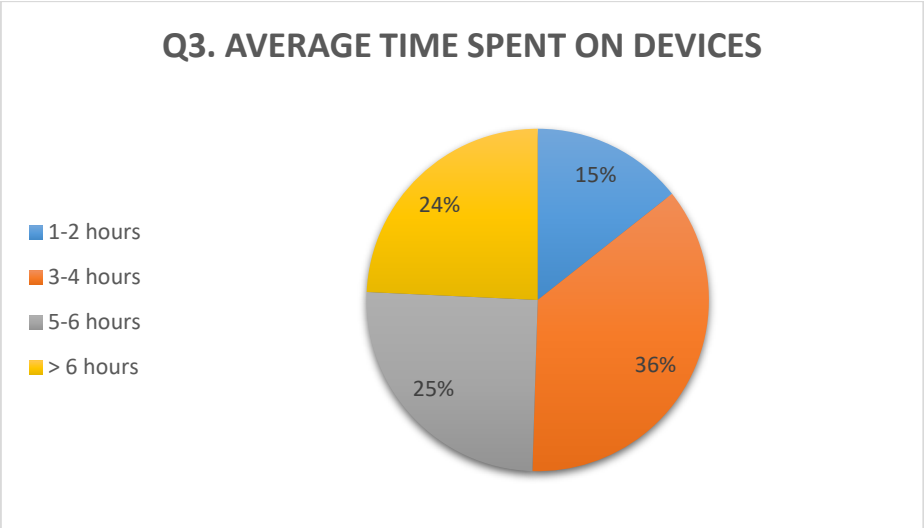

Fig. 3. Question 3 – On average, how much time do you spend daily on your preferred device?

For the fourth question the students had to decide upon the three most frequent uses of that particular device, the six response options provided being categorized into personal interests (communicating with friends and family, playing games, shopping) and educational purposes (reading, studying, solving school-related tasks), while also being provided with the option of mentioning other purposes. Unlike the previous two questions for which this option was provided, i.e. questions 1 and 2, where respondents chose to stick to the suggested devices and not mention others, for this specific question there were several employments of these devices mentioned by the respondents, which meant than for them, there were other, more important usages for the devices than those listed. Amongst these other usages, some mentioned watching films or videos on YouTube or performing job-related tasks.

As regards the answers where respondents only chose from the provided list, the classification in terms of most frequent employment of these devices provided no surprises, as can be seen in *figure 4.* Thus, the fact that *communication with friends and family* was the number one purpose for using a smart device (164 respondents mentioned it), only confirmed that (1) students were referring mainly to the smart phones, and thus the answer was in correlation with the answers provided for questions 1 and 2, where the device owned by most students and the one employed by most was the smartphone, and (2) since it is a phone that respondents were referencing, it only made sense that communication would be the main purpose for using it.

In terms of the second and third most frequently mentioned employments of the electronic devices, namely for *studying* or *solving school-related tasks*, mentioned by 132 and 121 students respectively, since the entire sample of 202 respondents were students, these numbers actually speak about the predominant activities in which the respondents are involved.

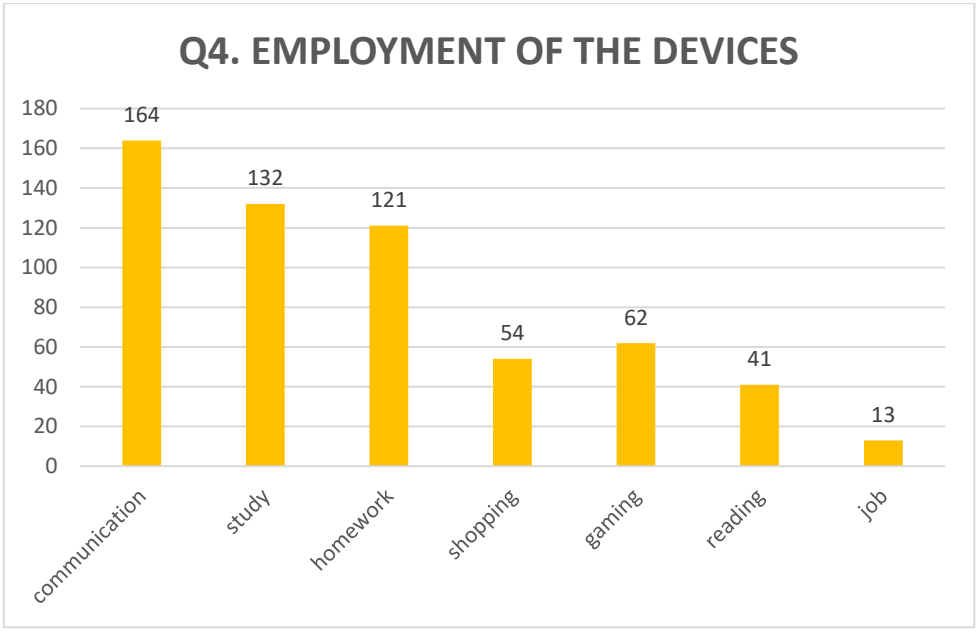

Fig. 4. Question 4 – What are the 3 main purposes for using those devices?

The second part of the questionnaire was dedicated to the actual use of electronic devices in education, and the students' perception of the issue. Thus question no. 5 inquired about their preference regarding online or face-to-face teaching, and the responses were almost at a perfect tie, with 104 students choosing online education and 98 opting for the traditional on-site or face-to-face education, i.e. a mere 6 responses difference. *Figure 5* below presents the situation in percentages.

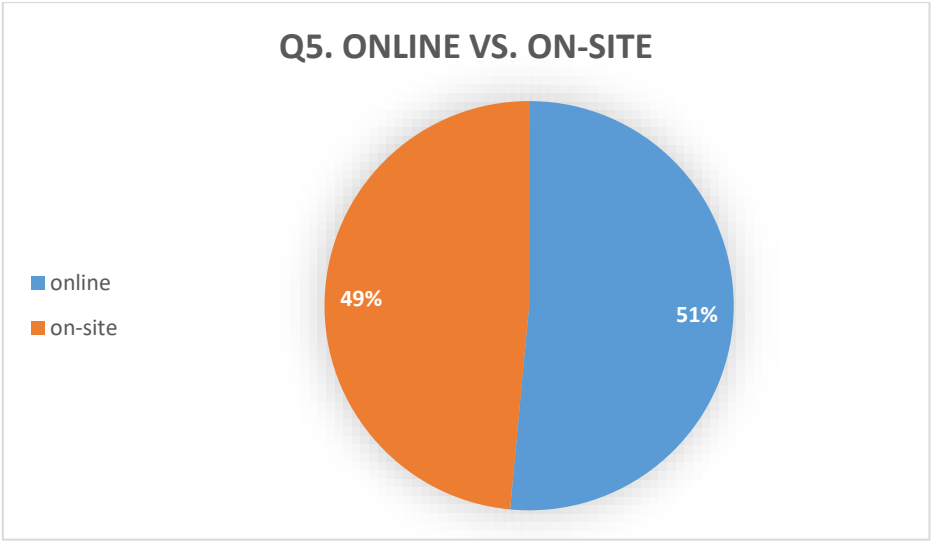

Fig. 5. Question 5 – What do you prefer: online or on-site education?

Question no. 6 was the first open-ended question of the survey, asking students to name one advantage and one disadvantage for each of the teaching variants, no matter their preferences. It was clearly easier to identify an advantage for their preferred variant since that

only justified their initial choice. Yet when it came to mentioning a disadvantage, students found it more difficult to identify one, and many ignored that part completely. The question was meant to assess their critical thinking at a basic level, as well as their ability to make a decision based on objective arguments. This may not have been entirely in correlation with the initial purpose of the survey and will therefore not be analyzed here, yet it may constitute ground for further research. Responses to this question did nevertheless bring an insight into the students' perception of the online teaching process with which teachers and students had been faced for the past two years. Thus, the argument of those who were in favour of face-to-face teaching was the fact that they could focus much better in class and understand much better the topic being taught. It was not the only argument though, lack of socialization and lack of teacher-student interaction were some other, quite frequently mentioned arguments in favour of face-to-face education. Yet online education had, as already seen, its share of support, with respondents arguing that it provided ease of access to educational resources to those living far from the university, thus eliminating expenses incurred by the commute, or to those with jobs for whom online education provided the otherwise unavailable opportunity of attending classes from various locations outside the university, from virtually anywhere.

As of question no. 7, which referred to videoconferencing platforms used during classes, the focus was on the actual educational experience. This question required students to choose from a list of six videoconferencing platforms (Zoom, Cisco Webex, Google Meet, Skype, Microsoft Teams, BigBlueButton) the one(s) they were familiar with from their courses and seminars, as well as providing the option of mentioning any other videoconferencing platform they may use.

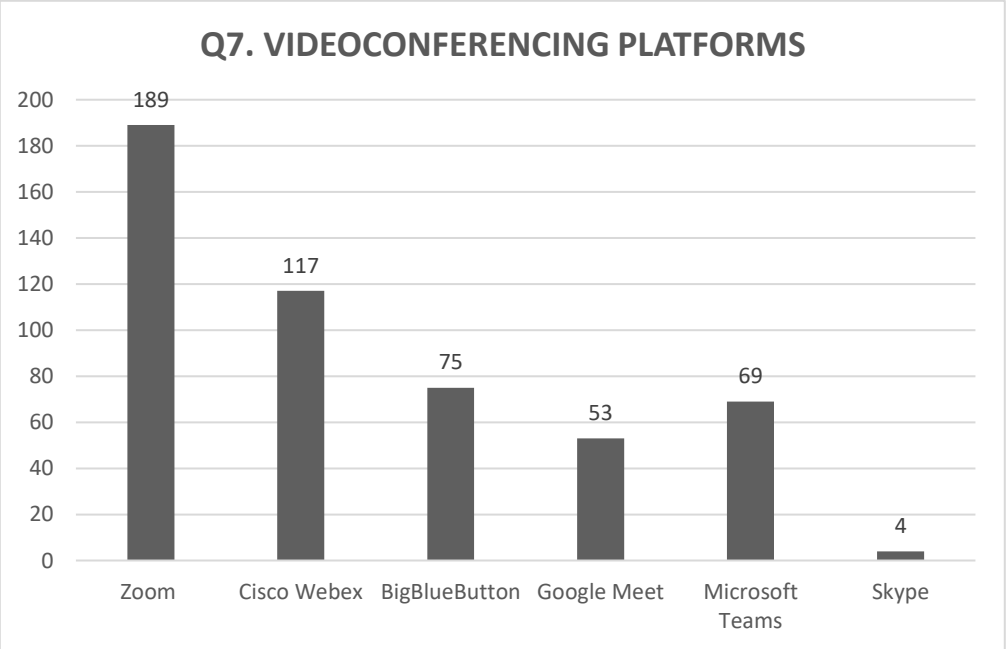

Fig. 6. Question 7 – What videoconferencing platforms do you use during the educational activities

Question no. 8 addressed the issue of educational platforms, more specifically eLearning platforms used during classes, providing four response options: Knowledge Base (a Moodle platform developed for employment at the NUCBM, and which was used quite extensively for various educational activities especially with students in Computer Science and/or Informatics or ICT's in general, yet not restricted to these, even before the pandemic), Google Classroom, Microsoft Teams, and Didatec (another eLearning platform developed within the Technical University of Cluj-Napoca as an output of a project, dedicated mainly to the students and staff of technical orientation). With the onset of the pandemic, when all educational activities moved online, Knowledge Base, having already been used for a couple of years, became the prevalent platform for educational activities in the NUCBM, fact confirmed by the results of the survey presented in figure 8. Microsoft Teams, on the other hand, is predominantly used within the engineering milieu of the university, the second position in terms of usage within the NUCBM being thus justified, considering the ratio of engineering versus non-engineering students on campus, as well as those who took the survey.

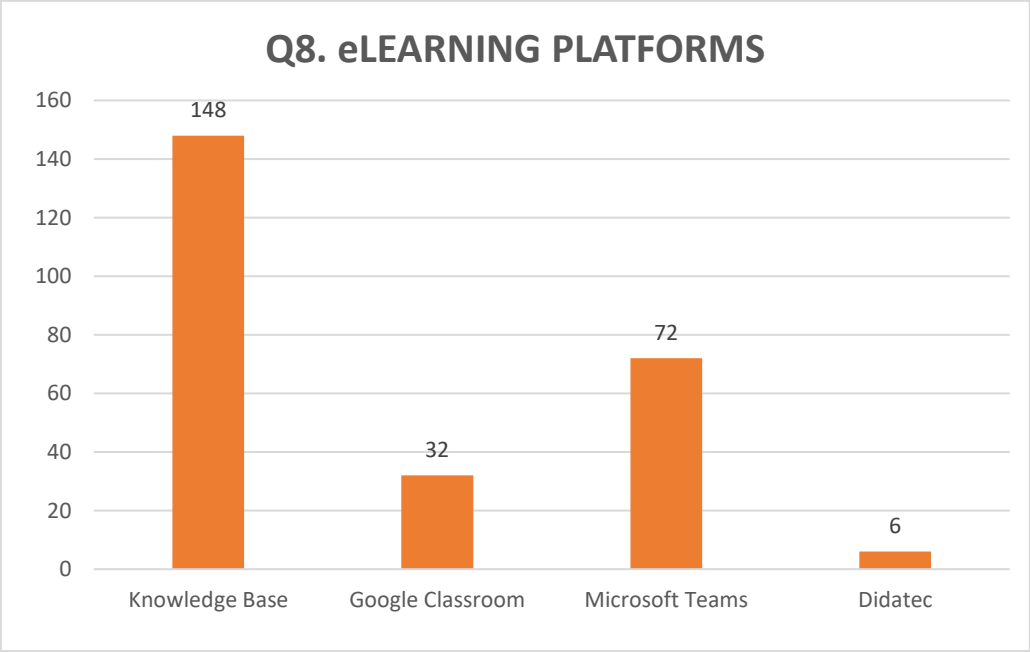

Fig. 7. Question 8 – What educational platforms do you use during the educational activities

Question no. 9 addressed the issue of educational platforms and applications used by the students for tasks and assignments they had to work on individually, outside the timeframe of the courses and/or seminars. The question provided a list of six options (Knowledge Base, Google-provided applications – such as Classroom, Docs, Sheets Forms – Microsoft Teams, Didatec, Microsoft 365, the classical Office package – Word, Excel, PowerPoint etc.), plus the extra option of mentioning any other platform or application they may use, the platforms mentioned being all used during the educational activities within all faculties of the TUCN.

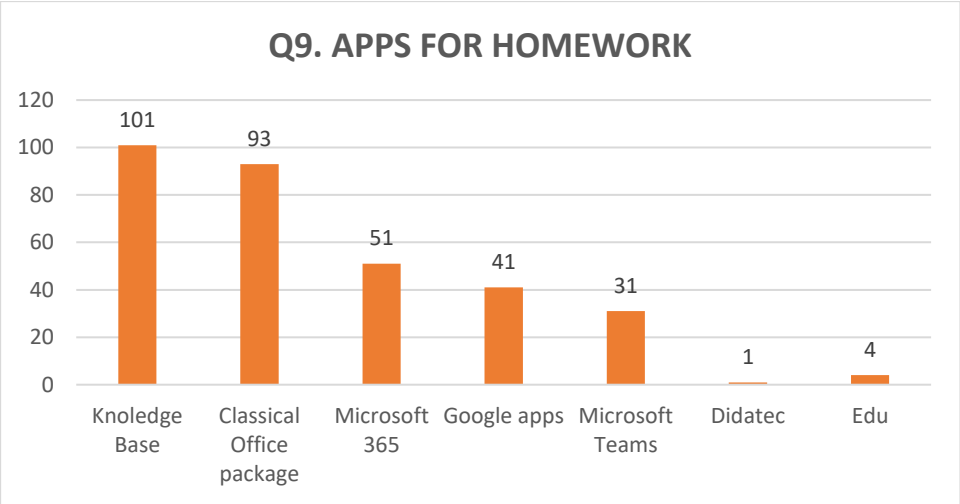

Fig. 8. Question no. 9 – What platforms and/or applications do you use for assignments and homework?

With question no. 10 the focus shifted again on the students' preferences, this time asking them to choose their preferred educational medium, i.e. electronic devices or the classical pen-and-paper option. *Figure 10* shows that the respondents' preference clearly leans towards electronic devices, with two thirds, or 66%, of them expressing preference for these (134 students), and only one third, or 34%, going for the classical pen-and-paper (68 students). In a world overcome by technology changing at a pace unseen before, with people emersed in electronic screens for the most part of the day (for work, study, or pleasure), it is unsurprising that people prefer them. Besides, the common marketing discourse refers to them as environmentally friendly, in that by saving paper we protect the trees, and thus the environment, with total disregard for the enormous amount of waste we generate due the speed at which technology evolves, and the aggressive marketing campaigns urging buyers to change their devices every six months. Yet that is an entirely different issue, meant for further research.

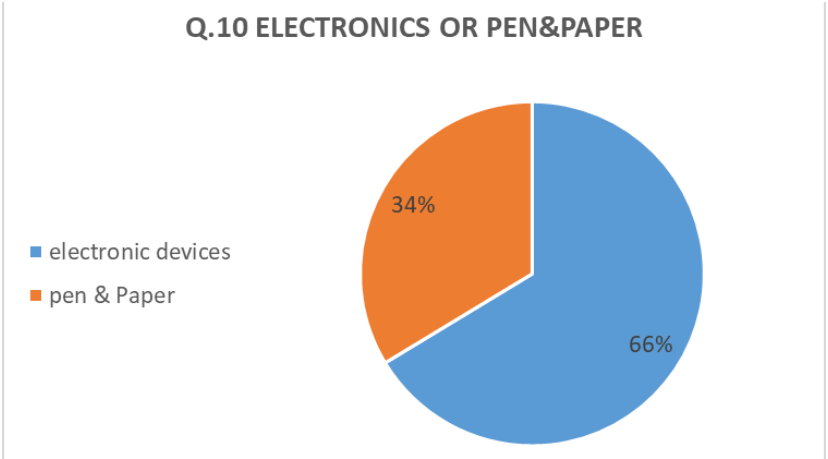

Fig. 9. Question no. 10 – In the educational process, what would you prefer: the use of electronic devices or of the traditional pen-and-paper?

A follow-up of their responses provided for question no. 10 was question no. 11 where respondents were once again faced with an open-ended question for which they had to provide an advantage and a disadvantage of each of the two options. Just as above, in question no. 6, the answers collected were mainly justifications of their choice, rather than clear arguments for and against one option or the other. The ensuing overall perspective on the issue was nevertheless based on clear reasoning. Thus the major advantages of electronic devices were ease of use and fast access to information, while the most frequently mentioned disadvantages were the negative impact on the users' eyes, the lack of speed when taking notes (especially because regular users do not have training in typing – if we are considering laptops, and if we are considering phones, their size makes them quite uncomfortable for note-taking), and limited battery life. The main advantage of the use of the traditional pen-and-paper identified by the respondents was the fact that information is retained with more ease through the process of handwriting, while the disadvantages mainly referred to the environmental impact of the cutting of trees required for the production of paper.

In the final part of the survey (the last two questions) the students were faced with an exercise of imagination: question no. 12 was a simple yes/no question which required them to express their opinion on whether education *could* become completely paper-free, while question no. 13 challenged them to think about the possibility of paper-free education, requiring them to express their viewpoint on whether education *should* become paper-free, as well as support their response with a short argument.

Responses to question no. 12 showed a quite clear inclination towards traditionalism, despite the students' preference for electronic devices which resulted from question no. 10. The percentages generated and presented in figure 12 seem to be almost a mirror-view of the percentages in figure 10. Thus only one third of the respondents (35%, i.e. 71 students) considers that education can become paper-free, while the other two thirds (65%, i.e. 131 students) take the opposite stand.

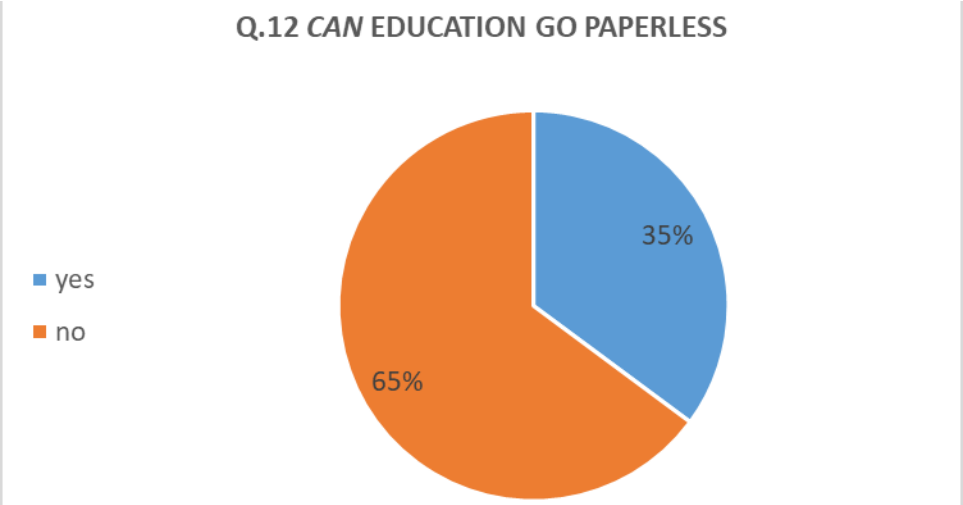

Fig. 10. Question no. 12 – Do you think education can go paperless?

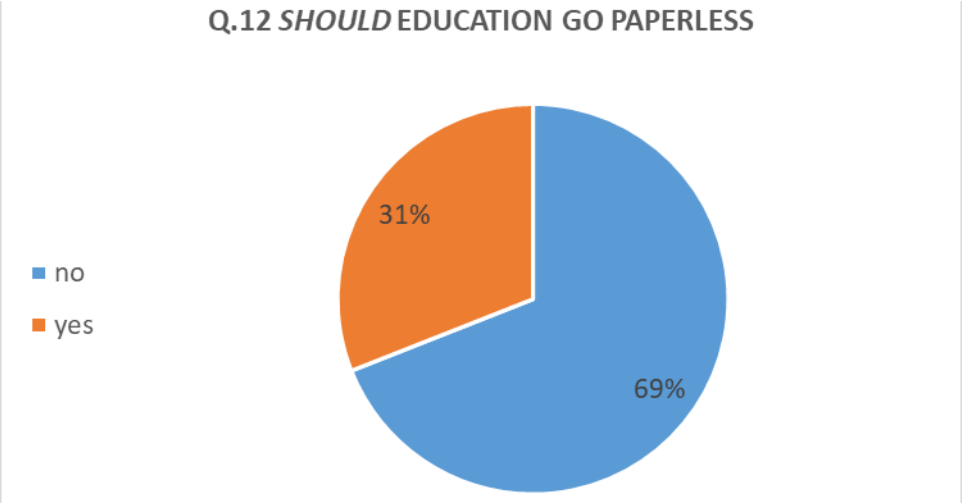

Fig. 11. Question no. 13 – Do you think education should go paperless?

Clearly the important aspect in question no. 13 is not how many students answered in the affirmative and how many in the negative – the percentage are very similar, as seen in figure 12 – but how the respondents argued in favour of their response. Thus, the arguments of those in favour of paperless education were in the same line of thinking as the answers provided to question no. 11 where respondents had to point out one advantage and one disadvantage for each of the choices in question no. 10, i.e. electronic devices or pen-and-paper. Consequently, those you said that education should go paperless considered the environmental impact of paper production, the negative impact on human eyesight, and energy consumption, while those who were against paperless education argued that writing information on paper aids in the retention of information, that children need to start in pen-and-paper and exposure to electronic devices should be delayed as much as possible, as well as the fact that writing develops creativity. Another aspect mentioned in opposition to paperless education was an economic factor, namely the fact that not all students can afford to make the switch from pen-and-paper to electronic devices, this risking to become a major issue of inequality in schools. And yet another aspect referred to the infrastructure required for the proper functioning of paperless education, viz. internet connection or even access to the power grid. Yet some respondents saw compromise as a solution, suggesting that preschoolers and primary school pupils still study traditionally, using pen and paper, and that education should only shift to electronic devices in secondary school or later.

4. CONCLUSIONS

In the light of the information collected through the survey, we can conclude that, despite the fact that the sample of students who answered the questionnaire own various electronic devices, favour them in educational activities (see question no. 10) and use them

extensively (see question no. 3) in their everyday lives (at the job, at school, for entertainment purposes, at home etc.), they would not support a complete transition to paperless education. Oddly enough, when it came to online education, the opinions were slip almost evenly (see question no. 5), with almost an equal number of respondents preferring online education and those preferring the classical, face-to-face interaction between teachers and students, in the traditional environment of the classroom. Why this is so is probably an issue for further research and strays a bit from the issue approached in the current paper. Here we attempted to provide an answer to the question of *when* education becomes overwhelmed by technology. Thus, considering all the aspects in the theoretical part of our paper, corroborated with the outcome of the survey, we draw the conclusion that there is a fine line between technology aiding the educational process and hindering it, between being useful and being a nuisance and a distraction in the classroom.

When teacher-student interaction is impaired by the abundance of electronic devices in the classroom, when communication is disrupted and attention diverted from the actual lesson to irrelevant content that is permanently available on the internet – that is when technology becomes *too much.* When the actors partaking in the act of teaching-learning lose sight of themselves, when they forget that *teaching is not the filling of a pail, but the lighting of a fire,* when the hands-on experience of a school trip is replaced with the virtual tour of a museum, when schools invest more in inanimate objects, i.e. gadgets, (being convinced that they are buying these devices to aid teachers in the educational process, while teachers themselves would trust these devices with their own lives – metaphorically speaking), rather than in humans – that is when technology becomes overbearing.

Technology in the classroom is an amazing tool, but it is exactly that: a tool. It depends on us, teachers and students alike, whether this tool is used to the advantage of the educational process and in the best interest of the players. Technology can provide great help and generate extraordinary outcomes, and it has done so for ages. We cannot imagine education without it, because it is not just about electronic devices connected to the internet; it is so much more than that, and it could not have been created without education. Education and technology are interconnected and usually work in harmony towards the brighter future of generation after generation of students. It is when *we let it* that it becomes a nuisance and a hindrance. Technology can become harmful if we allow it.

REFERENCES

[1] https://www.ednewsdaily.com/are-classrooms-becoming-too-dependent-on-technology/ first accessed 12.01.2022, 18:22 p.m.

[2] https://time.com/4474496/screens-schools-hoax/, first accessed 12.01.2022, 19:25 p.m.

[3] https://www.boredteachers.com/post/too-much-technology-students-learning, first accessed

12.01.2022, 18:25 p.m.

[4] R. Demarcsek, *A Personal Approach to the Employment of Technology during the English Course*, Buletin Științific, Seria A, Fascicula Filologie, Seria A, vol. XXVIII, pp. 29-36, Baia Mare 2019.

[5] R. Demarcsek, L. Todea, A. Fălăuș, *Using the Students' Technical Abilities for the Improvement of the Teaching-Learning Process during the English Course*, Tehnici și strategii novatoare în dinamica limbajelor de specialitate, pp. 130-139, Casa Cărții de Știință, Cluj-Napoca, 2017.

[6] R. Demarcsek, L. Todea, *Using Technology as a Tool for Improving the Quality of the Teaching-Learning Experience During the English Class*, Acta Technica Napocensis, Series: Languages for Specific Purposes, vol. 16, nr.3, pp. 39-48, Cluj-Napoca, 2016.

[7] R. Demarcsek, L. Todea, *Some of the challenges of teaching multilevel classes and suggestions for how to deal with the situation*, IOP Conference Series: Materials Science and Engineering, Volume 144, conference 1, International Conference on Innovative Ideas in Science, Baia Mare, pp.1-9, 2015.

[8] https://study.com/academy/popular/is-there-too-much-technology-in-the-classroom.html, first accessed on 04.01.2022, 1:15 p.m.

[9] https://www.uopeople.edu/blog/society-too-dependent-on-technology-2/, first accessed on 04.01.2022, 2.02 p.m.

[10] https://interestingengineering.com/technology-addiction-when-is-technology-too-much, first accessed on 04.01.2022, 1:47 p.m.

[11] https://www.boredteachers.com/post/do-students-really-need-more-screen-time-during-the-academic-day, first accessed 12.01.2022, 19:42 p.m.

[12] https://www.technologyreview.com/2019/12/19/131155/classroom-technology-holding-students-back-edtech-kids-education/, first accessed 12.01.2022, 20:12 p.m.

[13] https://www.technologyreview.com/2021/12/27/1043161/why-being-online-felt-bad-2021-political-polarization-social-media/,first accessed 12.01.2022, 20:21 p.m.