Analysing Web 2.0 Usage of High School Students in the Partium Region before the Covid-19 Pandemic

Zoltan Zakota
Partium Christian University, Romania

Abstract

The rapid pace of technological development has had a significant impact on education. Thanks to it and the widespread use of information and communication technology tools, Web 2.0 has emerged and entered an unpredictable path, as the environment in which students of the present age (members of the Z-generation) learn and are taught and trained. As a result, formal teaching is gradually replaced by open and virtual learning environments, which have made interactive learning environments and user-generated content a prominent issue. It seems obvious that these phenomena and their use in learning are closely intertwined with continuous feedback mechanisms. Their examination is important because by understanding the effects of these processes, since we can gain a more comprehensive picture of their role in education, especially in the case of learning activities using ICT. In the current research, the focus is on the use of Web 2.0 tools by students. Although the research was originally designed as a stand-alone project, we had to re-evaluate our perspectives because of the pandemic that occurred in the meantime. At present, we can rather consider it as a preliminary study, which will be followed by a new query in the autumn.

Introduction

As e-learning becomes more and more widespread, the whole learning environment will change significantly, leading to new opportunities and challenges. The research outlined in this paper examines the use of e-learning tools in education through the presentation and analysis of the challenges of interactive learning environments and user-generated content. Many definitions of the concept of e-learning are stuck at the level of political marketing and technophile futurology, while other interpretations are about the world of mechanical learning and learning software-machines. Although these include comprehensive, inventory-based definitions of economic, social and technical elements, the problem is that they do not provide decision-makers with a clear picture or point of reference, so often no steps are taken beyond the generalization of the program.

The Relevance of the Subject

The relevance of the topic is mostly due to the fact that with the rapid development and spread of technology, - i.e. hardware, software, networks, clouds, content etc. - formal school institutions are increasingly being replaced by virtual environments of open culture, with interactive learning environments and user-generated content becoming prominent issues in education. Their study is also important because by learning about their use and effects in education, we can get a more comprehensive picture of the role of e-learning in education (Benedek, 2008).

The Theoretical Framework

The integration of educational technics, educational technology and technology-based training into e-learning has further expanded the complexity of the forms of distant learning, on the one hand, and programmed learning, on the other (Radácsi & Benedek, 2005)

The strategic dimension of the new interpretation is given by its systemic approach and logical coherence. Its concept can also be applied to the evaluation and development of e-learning programs and curricula by interpreting the relationship between traditional education and e-learning in an integrative and complementary way.

According to the definitions, "developments, programs, curricula that can be summarized in the concept of e-learning are forms of learning organization, learning management and learning support that draws on the following three sources: computer-based learning, web-based learning, and distance learning" (Komenczi, 2006). In general, e-learning may be seen as education based on or implemented with an electronic technology or device. In the broadest sense, this includes all learning activities that take place using an information and communication tool. Its use contributes to the development of the knowledge market by providing new and complementary responses to meet emerging needs. (Kovács, 2011)

"Information literacy is considered by the world's leading international organizations to be a basic culture of the 21st century that is a prerequisite for the realization of lifelong learning and a key component of the digital ecosystem. Information literacy is the highly complex, integrative competence of the individual, encompassing many sub-areas, knowledge elements and practice routines, which is essential in order to be able to adapt in the information and knowledge-based society, to produce information that is the building blocks of this society and to be able to handle it responsibly and intelligently and to produce similar information himself. The general components of information literacy can be identified as follows (Sipos et al., 2015): (i) Precise identification of information needs; (ii) Obtaining the

necessary information efficiently and effectively; (iii) Critical evaluation of information and information sources; (iv) Incorporate selected information into existing knowledge; (vi) Effective use of information for specified purposes; and (vi) Knowledge of the socio-cultural, economic and legal environment of information use, legal and ethical collection and use of information.

The Partium Region

We opted, as target region of our research, for the North-Western part of Romania, the counties of Bihor and Satu Mare, which lie along the Romanian-Hungarian border and mainly cover the historical region of Partium. We chose these two counties because they are very similar and we can talk about a common regional consciousness in their case, which is also indicated by the re-use of the name Partium. The population of the region is mixed, mainly Romanians and Hungarians, but there is also a significant presence of Romani (Gipsies) and Swabians (Germans). It is characterized by multilingualism and religious diversity. There are several churches and confessions present in the region, such as follows: Orthodox, Roman Catholic, Greek Catholic, Reformed, Baptist, Pentecostal etc. All these characteristics leave plenty of room for comparative analysis in terms of research.

Potential Usefulness of the Research

Although the global pandemic induced some unpredictable changes in the whole project, we still consider the research useful for at least two reasons: *(i)* as a description of the pre-pandemic period: the results document ICT-usage habits in a time period that is over because Covid-19 has changed them forever through remote, home and online education; and (ii) as preliminary research of a new project that aims to map the changes induced by the pandemic in our topic and their effect on education.

Methodology

The aim of the present research is to map the use of e-learning in education. In the first approach, it would have been limited to the presentation of interactive learning environments and their role in education. However, it soon became clear that this approach would have unduly narrowed the scope of the study and made it impossible to learn how the content was embedded in the educational and technological environment, thus, I expanded the scope of the research. To this end, I examine not only the interactive but also the entire e-learning environment, according to the different component categories, along with the following structure: (i) hardware devices: computers, mobile devices; (ii) internet: place and method of access; (iii) software tools: system software, user software packages; (iv) community platforms: chat rooms, platforms, virtual rooms; (v) user content: learning materials, messages.

I mapped these determinants of e-learning and their role in education by examining the following dimensions: (i) characteristics: characteristics of the tools available or used by the respondents; (ii) general use: the ways and characteristics of the general-purpose use of the devices; and (iii) use in education/learning: ways and characteristics of the specific use of tools for learning purposes.

In order to get the opinion of the students, I preferred the questionnaire survey. One of the arguments in favour of a questionnaire survey is that it allows obtaining relevant information from a large sample, in a short time. Another advantage is that thanks to pre-recorded questions, we get more reliable, consistent and easier-to-process answers. However, they also have some major drawbacks, such as the

researcher structuring the responses. Querying through online channels is even more practical, as it greatly facilitates data recording, processing and analysis. Its disadvantage, however, is that it may contain incomplete fillings or misunderstood questions. It is much more difficult to find out if the respondent does not give honest answers to the questions or whether someone outside the target group is not completing the questionnaire. Finally, we do not lose sight of the fact that the completion rate of online questionnaires is very low, as proved in the case of our query. The target group consisted of students from 36 *high* schools in the two counties, Bihor and Satu Mare (the so-called Partium) with different languages of instruction. Their distribution is summarized in Table 1:

Table 1
Distribution of schools by the language of instruction

County	Hungarian	Romanian	German	Mixed (Hu-Ro)	Total
Bihor	5	13		5	23
Satu Mare	4	3	1	5	13
Total	9	16	1	10	36

Source: Author's work

We selected students from grades 9 and 12 to compare how their e-learning tool usage habits change over the 4 years they spent in high school. This is a very important period in this respect, as it is during this time that the correct and purposeful use of information and communication technology tools is being learned, or at least should be learned, and e-learning tools can also be of great help in this. It is also during this time that they can acquire the ICT skills that will underpin and strengthen their attitude towards technology for the rest of their lives.

Results

Low Completion Rate of Questionnaires
Although the questionnaires were sent out before the epidemic worsened, they were already completed after the introduction of quarantine and this was strongly reflected in the low number of responses. From all the 9th and 12th-grade students of the 36 targeted high-schools, only 134 (not even 10%) completed the full questionnaire. The reasons for the low completion rate can be summarized, as follows:

- the respondents are adolescents who do not attach any particular importance to the request of foreign teachers from other institutions;
- they also do not see the relevance of scientific research;
- they are reluctant to take on any extra activity beyond the compulsory ones or for any other reasons than those they consider important (such as preparing for further education);
- some 9th graders have changed schools this school year, which is still causing integration difficulties and this goes at the expense of effective learning;
- the majority of the 12th graders are preparing for graduation or further education and are not taking on any extra activities;
- the Covid-19 pandemic and the consequent quarantine and online learning obligation have confused many, to some extent they have lost their sense of reality;
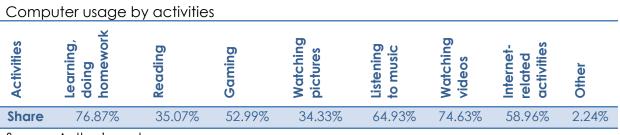
- during the quarantine, most of them were forced to stay together with their parents, this fact leading to tensions between them;
- due to the lack of teacher-student frontal contact, education lost from its weight in the eyes of many students and some kind of "relaxation" occurred; many teachers complained that their students considered that period as a kind of vacation;
- a large number of institutions and researchers sent questionnaires to students: ministry, school inspectorate, own school, universities;
- the employees of the schools (managers, secretaries) often do not read all the letters due to inattention, indifference, overload, lack of time, or if they have read them, they have not forwarded them.

Use of Hardware and Software Tools

Regarding the hardware devices, according to the responses, about 3/4 (76.12%) of the students do use mobile phones, more than 2/3 (70.15%) laptops, notebooks or netbooks and some more than 1/3 (35.82%) of them have access to personal computers at home.

As expected, more than half (58.21%) of the students use computers on a daily and almost a quarter (23.88%) of them every week. 3 students (2.24%) stated that they never use computers, a hard-to-believe assertion. The share of activities in which computers are involved is shown in Table 2.

Table 2
Computer usage by activities

Activities	Learning, doing homework	Reading	Gaming	Watching pictures	Listening to music	Watching videos	Internet-related activities	Other
Share	76.87%	35.07%	52.99%	34.33%	64.93%	74.63%	58.96%	2.24%

Source: Author's work

Two-thirds of students consider that they have adequate computer and communication equipment (hardware and software) to learn and solve school tasks. Their proportion is the same as of those who think that they possess enough specific ICT-skills in order to solve their school tasks. The proportion of those who are satisfied with the ICT equipment of their school is slightly higher than half and the proportion of those who are satisfied with the ICT readiness of their teachers is just slightly lower. Students attach great importance to computer science education. More than a third say the most important thing they can learn in school is how to use computing and communication tools. Half of the students are neutral on the issue, meaning they do not oppose it.

Use of the Internet

As expected, almost all students (96.27%) have Internet access at home and two-thirds of them (66.42%) at school too. 88.81% do use a mobile Internet connection. An overwhelming majority (98.51%) uses the Internet daily and the remaining 1.49% at least once per week. The share of Internet-based activities in which our students are involved is shown in Table 3.

Table 3
Internet usage by activities

Activities	Browsing	Mailing	Chatting	Blogging	Vlogging	Gaming	Watching pictures	Listening to music	Watching Videos	Dating	Shopping	Downloading
Share	85.82%	23.13%	88.81%	4.48%	3.73%	62.69%	56.72%	68.66%	71.64%	20.15%	59.70%	61.94%

Source: Author's work

More than three-quarters of the students (76%) believe that they can find all the information they need to solve their tasks on the Internet and 61% of them thinks that the Internet, supplemented with their manuals would suffice. Only 19% agree that the library is also necessary in order to fulfil their tasks. Concerning the information available on the Internet, it can be a matter of serious concern that about half of the respondents consider it to be generally reliable (46%) and free to download, share and use (57%).

Use of Social Platforms

Nothing is surprising in the fact that almost everybody, i.e. more than 95% of the students use social platforms at least once a day. About 55% of them use Facebook to chat, more than 22% to watch and share pictures and only 9% to search and gather information. Surprisingly, more than 7% of them declared that they never use it. Google+ is used by about half of the students to search for and collect information. Pinterest, as expected, is mainly used for image sharing (by about 55%). The same is true of Instagram – about 57% of the students use it for image sharing and, besides, about 22% of them for chatting. Of the most popular platforms, Twitter, Reddit, WeChat are almost unused. About two-thirds of them (63.43%) use WhatsApp to chat. The other highly popular platform is YouTube used for watching videos (32%) and listening to music (about 60%). When choosing between platforms, the students use three main criteria: user-friendliness, ease of service and design.

Participating in Online Study Groups and Generating Content

Online study groups (OSG) were meant to exchange learning-related information between students, on the one hand, and between students and teachers, on the other. They were important already before the outbreak of the Covid-19 pandemic, as means of information-exchange. Usually, students were members of at least two online groups: one for keeping in touch with each other and one for being in contact with their teachers. Of course, after establishing the quarantine online learning groups became *de facto* classrooms. The following data refers to the pre-pandemic period.

About 80% of the students were members of at least one OSG, groups organized mainly on Facebook (60.45%), WhatsApp (33.58%), Instagram (19.40%), Google+ (16.42%) and YouTube (13.43%). More than half (57.46%) and more than one fifth (22.39%) of them used to visit their groups on a daily, respectively every week. Only one-tenth (10.45%) of the students admitted, that they never visited their OSG. The

materials shared within the group are largely related to school activities, such as reading, homework, and so on.

Two-thirds of the students agree upon the assertion that an online group is the best tool for keeping in touch with classmates and about 70% considers that its most important role is communication and information dissemination. More than half of them (55.97%) believe that online study groups are also important in building and maintaining student communities.

As for the content they create themselves, a quarter does not think that it may be often incorrect and/or inaccurate and only a fifth believe that this is indeed the case. One-fifth of students think that the content they create is not enough alone to accomplish their tasks, while almost a third (29.85%) doubt that this is indeed the case.

Conclusion

In conclusion, we can assert that the students in the Partium region are accustomed to the continuous use of ICT means in education, i.e. computers (both hard- and software), Internet and mobile technology. They can easily handle social platforms and apply them in their daily learning activities. Students enjoy using online groups to communicate with each other and their teachers and they have no difficulty generating their content.

As I have mentioned it earlier, most results of the study are now obsolete due to the outbreak of the Covid-19 pandemic, but they can serve as starting base for new research aiming to analyse the actual situation and the changes that have occurred since then. This new research could also provide some solutions to the issues raised by the new, radically changed situation that both students and teachers have to face now.

References

1. Benedek, A. (Ed.). (2008), Digitális Pedagógia: Tanulás IKT környezetben (Digital Pedagogy: Learning in an ICT Environment), Typotex, Budapest.
2. Komenczi, B. (2006), "Az E-learning lehetséges szerepe a magyarországi felnőttképzésben" (The possible role of e-learning in adult education in Hungary), Nemzeti Felnőttképzési Intézet, Budapest.
3. Kovács, I. (2011), Az elektronikus tanulásról a 21. század első éveiben (On digital learning in the first years of the 21st century), Magánkiadás, Budapest.
4. Radácsi, I., Benedek, A. D. (2005), "Az e-learning a felnõttképzésben (trendek, perspektívák, európai környezet) (E-learning in Adult Education (Trends, Perspectives, European Context), Nemzeti Felnőttképzési Intézet, Budapest.
5. Sipos, A. M., Varga, K., Egervári, D. (2015), Net! Mindenekfelett? (Net! Above all?) Pécsi Tudományegyetem, Pécs.

About the author

Zoltan Zakota is a lecturer at the Partium Christian University, in Oradea, Romania. He is a co-founder of the departments of Management and that of Finance. At present, he lectures computer science, application of informatics in economics and society, decision theory. His main fields of interest are information and knowledge-based society, the effects of ICT on society, economics and education. He is involved in two main projects: one of them dealing with the European higher education and the other concerning the effects of the Romanian-Hungarian trans-frontier cooperation on regional development. The author can be contacted at **zzakota@gmail.com.**