Better online? Efficiency of e-learning courses

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Abstract: *The Generation Z is already living on the Internet, so it is likely that web learning is preferred over traditional classroom courses. E-learning courses can be a solution, because their purpose is to improve the quality of the learning and teaching. The University of Obuda consider it as an objective to advertise many e-learning courses in line with student's need. Unfortunately, in many cases they are not correspond to the expectations, mainly because there is no unified expectation. The main purpose of my research is to inspect the completed courses and to prepare an integrated rating system, asking students what they are making up for such courses and comparing them to the already finished ones, suggesting a review of them, resulting e-learning courses that can help to prepare successfully. At the first phase of my research I made a basic rating system with a focus group, and in the second part I will make it more accurate with the help of my fellow students*

1 Introduction

The Generation Z makes a a significant proportion of higher education students, and in the most cases they have different expectations, not only about their jobs, but about their education as well. Learning interesting and useful things became more important for them than it was for their ancestors. This requires practice-oriented education, which is difficult to achieve with traditional methods. We need to understand young people's new approaches, or at least accept and pay attention to them.

One of the new methods is e-learning, which is used at the University of Obuda, but the course materials' quality are not always adequate. Therefore, the purpose of my research is to compile a system of criteria that helps the instructors in the preparation of the curriculum, thus helping the students to understand it.

This study is about the second part of a 10 months long research, supported by the New National Excellence Program. The first part can be found in FIKUSZ – Symposium for Young Researchers 2019. Proceedings.

2 Generations

The Cambridge Dictionary says generation is all the people of about the same age within a society or a particular family. But the definition and the grouping of the generations are not unitary, because a lot of peple made researches in this topic, and many of them made different sections, based on what things and attributes they thought are important.

I think it is important to mention, that generations are usually separated by the birth dates of the people, but these changes are much more slower, there is no sharp line between two generation. And although usually general characterization can be found in literature, everybody is individual and does not always identify with all the characteristics of the generation.

The table below shows some of the groupings with names and birth dates based on the literature.

Howe & Strauss (1991)	**Lancaster & Stillman (2003)**	**Oblinger & Oblinger (2005)**	**Mccrindle Research (2012)**
Silent Generation (1925-1942)	Traditionalists (1900–1945)	Matures (1900–1946)	Builders (1925-1945)
Baby Boom Generation (1943-1960)	Baby Boomers (1946–1964)	Baby Boomers (1946–1964)	Baby Boomers (1946–1964)
13th Generation (1961-1981)	Generation Xers (1965–1980)	Generation X (1965–1982)	Generation X (1965–1979)
Millennial Generation (1982-2004)	Millennial Generation (1981–1999)	Net Generation (1982–1991)	Generation Y (1980-1994)
-	-	Post-Millennials (1995-)	Generation Z (1995-2010)

Table 1
Generations [1][2][3][4]

The Traditionalists were born before the World War II, there were youngers during the war and as a result of it, they are characterized by confinement due to fear. They are skillful and opportunist, but they first met the online world in their old age, so they often encounter difficulties in this field. [5]

The Baby Boomers were born after the war, They are curious and the respect is important for them. There are differences in the generation, Boomers who were born after 1956 are much more disappointed, they lost their optimism, but they have principles and they are creative. [1]

The Generation X, or is some sutdies the Digital Immigrants were born during the technological breakthrough, so the continuous progress and the digital worls became a part of their life and it is not strange for them. Although they prefer the traditional tools and methods. [6]

The Millenials are the first generation of digital natives. They can easily get through today's fast moving world, they try to be up to date at technical acquis and when they meet something new they try to use it, instead of getting frightened. In many cases, they do not need lexical knowledge, but competence in how to find answers to their questions. [7]

Generation Z is the second generation of digital natives, so they are often called as Digital Generation as well. The members of the generation are between the age of 10 and 24, which means they made a large proportion fo the higher edication students. This is why it is important to ask their point of wiev, when creating the current e-learning courses.

According to a study, one of their most important habbit is that they live their social life online, at a faster pace than their parents, grandparents. They are brave and they often like to push boundaries. [8]

They are often characterized by multitasking and task-switching, which means that they can perform up to 3-4 activities at the same time (such as listening to music, talking to friends, and learning) and they can easily switch between them frequently. As a result of this, many more stimuli are needed to capture their attention. They are expected to make as much of the necessary information available online as possible, because they handle those surfaces professionally. [9]

They use digital tools at every part of their lives, which is not surprising, even if they were not born into it, the online world has been an integral part of their lives since childhood. As a result, they have gained a huge advantage over other generations in this regard. They are native speakers of a new language that previous generations can speak only with an "accent". This is the digital language of computers, video games and the Internet. Many times this difference makes the communication more difficult between generations, this effect is called generation gap. It also appears in their education, as most of their teachers belong to Generations X and Y, who are less fluent in using the digital tools that students would need. In addition, instructors often believe that students have not changed, they are the same as they used to be, so the previous methods are also perfectly appropriate. [6]

Older people often think they can't pay attention to one thing for a long time, but that's not entirely true. Several studies show that they can concentrate for hours on a game or a movie, but not everything. Because of the opportunities offered by games, movies, and technology, they have become accustomed to a fast-reacting, multitasking, fun, imaginative, connected, fast-feedback environment that has

developed new abilities and skills (such as parallel processing and graphic awareness) that are sometimes not appreciated or ignored by older people. [6]

It is important to emphasize they prefer visual representation to long unstructured texts, and it is also important that the particular curriculum should arouses the interest of the students. [10] However, this requires a rethinking of curriculums and teaching methods. “The process has already begun – I know college professors inventing games for teaching subjects ranging from math to engineering to the Spanish Inquisition. We need to find ways of publicizing and spreading their successes.” [6]

3 E-learning

E-learning is the digital technologies effectively used for educating, but as this form of education has only existed for 30-40 years there is no uniform definition for it. One of the literature says: “The e-learning is instruction delivered on a digital device that is intended to support learning. In e-learning the delivery hardware can range from desktop or laptop computers to tablets or smart phones, but the instructional goal is to support individual learning or organizational performance goals.” [11]

Its benefits include being available anywhere, anytime, allowing students to process the curriculum at an individual pace, with a choice of multiple methods, and progress can be tracked and monitored for both students and teacher. The downside, however, is that communication and information flow can be more difficult and slower than the traditional classes.

3.1 Evolution and current forms of e-learning

One of the first, rudimentary form of e-learning was CBT (Computer Based Training) where the curriculum was delivered on portable data storage devices, floppy disks, and later on CDs. [12] One of the benefits is that students received not only texts, but videos or audio files that they could listen to or watch anywhere, anytime. However, the disadvantage is that the communication is one-way, there is no connection between the student and the teacher, as the data storage only transmits the curriculum. [13]

The next milestone that took a huge step forward in e-learning education was WBT (Web Based Training) which was started at Universty of Hagen in 2000. [12] The computers were connected with networks, which help to overcome distances as students and teachers could communicate with each other more easily than before. [13]

The next step was the e-learning, where the internet has taken over the role of the networks. Nowadays, there are many forms of e-learning, I would like to present the two most common. The first type is blended learning, which means that there are traditional classroom classes, but some of the classes take place in the form of

e-learning. This method takes advantage of both technologies as students can learn with their own methods and at their own pace, but can easily communicate with their teachers. [14] The other type is e-learning, where, unlike blended learning, there is no (or rarely) personal consultation that can make learning difficult for students. There are several types of e-learning that can be grouped based on the relationship between teacher and students. [13]

3.2 E-learning at University of Obuda

The University of Obuda considers it its goal to advertise as many e-learning subjects as possible in response to student needs. This is currently possible on 2 interfaces: Moodle and KMOOC. To complement these Microsoft Teams is used for online consultations and lessons.

Moodle is an educational platform designed to provide a secure and integrated system for creating personalized learning environments for students, teachers, and administrators. Its advantage is that it has an easy-to-use, clear interface and what is also important for Generation Z, it can also be accessed from a mobile application. [15]

KMOOC (Kárpát-Medencei Online Oktatási Centrum) is operated by the University of Obuda, which offers free online training in Hungarian on the model of MOOC-type online courses for students of Hungarian-speaking higher education institutions in Hungary and abroad. [16]

4 The research

For the research I made a Google questionnaire, which I tried to convey as many students as possible, across different platforms.

In the first part of the questionnaire, I collected general data necessary for grouping, such as the faculty and the major in which the students are studying and the number of e-learning courses they completed. In the second part, I ask the students about the most important elements, which parts a good curriculum should contain, and in what proportion.

The questionnaire was filled in by 113 people, 109 of them are students of the University of Obuda, so I will further process their answers. The graph below shows the distribution of fillers by faculty. The number of students of the Keleti Faculty of Business and Management stands out significantly compared to the other faculties, which may be due to the fact that I am studying at this faculty, so I reached the students there more easily.

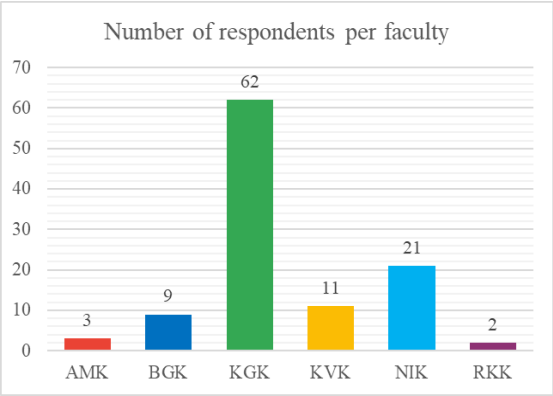

Figure 1
Number of respondents per faculty

The majority of the respondents (91 people) have so far completed a maximum of 10 e-learning courses, and the most of them (74 people) completed 1-5 subjects. In terms of satisfaction, more than half of the students, exactly 57%, are satisfied with the current online curriculums. However, I think this is not enough because although there is no curriculum that suits everyone, the ideal rate would be around 70-80%. This is also why I consider this research important, as it is expected to increase this ratio.

Based on the answers to the open-ended questions that require longer explanation, a total of 81 students say that video and online consultation is necessary, as it is important for them to replace personal contact and visual and audiovisual effects can make learning more effective for them. Regarding their length and proportion, it was generally agreed that they should be a maximum of 20-40 minutes in length, depending on the topic and the amount of important information. If a topic requires a longer video than this, it's a good idea to split it into several shorter units. Compared to the entire curriculum, videos should be maximum 30-50%. Depending on the subject, these videos may include lectures, practice or lab tasks and their solutions.

For online consultations, it is important that the instructor is actually available at the previously discussed time and is able to answer questions about the curriculum. In addition, it is worth creating a forum-type interface where students can ask questions or communicate with each other outside of consultation time.

The second unit mentioned by many was the slideshow or presentation, which was noted by a total of 52 people. An important criterion that it be short and concise, but at the same time clear. It is roughly 20-40 slides in length, which can be combined with the rest of the curriculum, such as the video mentioned earlier.

The third important unit is the sample tasks as well as their solution, of course in case the subject includes tasks as well. This was mentioned by a total of 83 students. According to them, detailed and accurate deduction is important, because it helps with understanding. Several of them suggested solving the tasks in video format, as this makes it easier to explain the individual steps and subtasks. Typically, 2-3 solved tasks from every type and 4-5 tasks for practicing are required for students to check whether they have really understood the examples.

The fourth important element for several students are the tests, but only 18 people suggested this. As the tasks, they also serve to measure the progress and the knowledge-level. The advantage is that not only the students but also the teacher can see the results of these, so they can get a better picture of the current knowledge of the group. These can supplement the curriculum in the form of short series of questions containing 10-20 questions.

The figure below shows the summarization of the above mentioned elements.

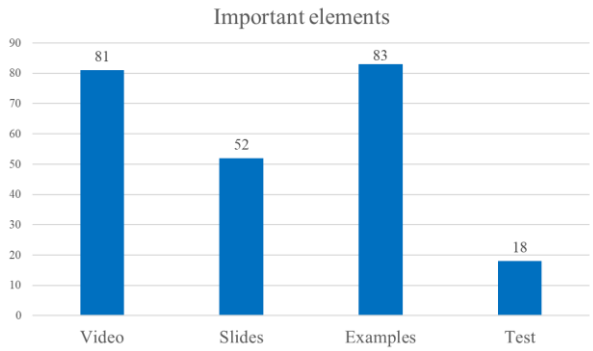

Figure 2

The most important elements

In addition to these elements, it is important for students to have a structured curriculum, preferably separated by weeks. Another important aspect is the fulfillment of the requirements and the continuous updating of the online study materials, if necessary.

4.1 Rating system

Based on the students' opinions and my own knowledge and literature, an e-learning curriculum is considered appropriate if:

- Divided into weekly units
- Includes instructor’s contact information
- Contains video, which is maximum 30 minutes, up to 50% of the curriculum
- Includes a presentation and the explanation of it, maximum 20-40 slides

- Contains solved tasks, 2-3 detailed, step-by-step examples per type
- Contains practice tasks, 4-5 tasks with solution
- Contains test at every 2-3 weeks or per topic, with 10-20 questions
- Includes a list of required and recommended literature

4.2 Review of the courses

Based on these aspects, I rated three e-learning courses I have already completed.

The first is an IT course, where students can learn the using of basic business softwares. The curriculum is divided into weekly units, including topics. Each week, the teacher uploaded several shorter videos (maximum 15 minutes in length), in which she briefly explained the presentation of the lectures and the operation of the software used in practice. The presentation of the lecture is of sufficient length and contains the theory necessary for understanding the practice. In addition parts of the course are the weekly assignments that can be created based on the videos using the software. There are tests about every 4 weeks, they contain 10-15 questions, but you can try them several times. It also contains where the literatures are available and the teacher's contact.

Overall, the curriculum of the subject is appropriate, because, although the videos make up more than 50%, this is not a problem in understanding and mastering the curriculum, it even promotes it.

The second is a business course, where students get basic knowledge in economy. There is no weekly division, in the curriculum, the different topics are uploaded one after the other. This makes preparation difficult as the student may not always be able to identify the curriculum for the actual week. The contact details of the teacher and the dates of the consultations are indicated in the course, so the students can discuss any questions or problems with him. Video is not included in the curriculum, which I think would be needed in some sections, for better and easier comprehension. Uploaded presentations are of sufficient length, but do not have a more detailed explanation, which can also cause problems during processing. Solved tasks are included in the presentation, however, this is not always enough to acquire knowledge. The practical tasks appear in the form of homework, they must be completed by the student for a certain period of time, this is part of the grading system. In contrast, a test is not part of the curriculum, but it is not absolutely necessary for this course, as homeworks can replace it. Required or recommended literature is not included in the course.

Overall, the subject is not appropriate based on the aspects I have compiled earlier, in order to improve it, it is important to replace the video and to improve and expand the presentation with an appropriate explanation.

The third is also an IT subject, where students can gain more advanced programming skills. The curriculum is presented in a weekly schedule, by topics

on the online interface, theoretical and practical topics are separated. The curriculum is available in the form of videos, which, although exceeding 50%, is necessary in this case due to the theme of the subject. The videos are 15-20 minutes long and include a presentation in the theoretical part. The practical part contains videos about solving excercises, where the teacher explains the individual logical steps and the solution of various problems in a detailed and clear way. There is also a homework assignment for each week, which is a short follow-up to a program we have learned in practice, which is a good exercise for students. Additional practice tasks are not available within the curriculum, but are not required. A test is also not part of the course, however, it is not necessary for the submission and assessment of homework, as I think it is also appropriate feedback to both the student and the teacher. The textbook and the contact details of each instructor and the dates of their consultation are also available within the course.

In summary, the electronic syllabus for the subject is appropriate and contains all the important elements needed to understand and master the subject. This course can be a good example in the future as well.

Conclusions

While it can still be said that there is no perfect curriculum for everyone because of different personalities and thus different needs, the majority agrees on the basics. Based on these, I created a new assessment system, which can be used to check the general, basic expectations of e-learning materials and to improve the individual problems and shortcomings in order for students to learn effectively.

Of the three subjects analyzed, two proved to be appropriate, which is an encouraging sign for the development of electronic learning materials, as with the development of IT tools, online education has an increasing future and an increasingly important role. This is also evidenced by the events of recent months, as for many subjects the online curriculum already had a good foundation, the instructor did not have to build from scratch due to the sudden change.

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