Better Online? Efficiency of E-learning Courses

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Abstract: The Z generation, which makes up most of the university's students, is already living on the Internet. They shop, live their social life online and their daily tasks are also managed through the net, 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. They have many advantages for example allowing information exchange between points that are far from each other, eliminating tempo constraints and students being able to learn the subject at an individual pace and method. The University of Obuda consider it as an objective to advertise many e-learning courses in line with student's needs. 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 present, the first phase of research is taking place, in which, based on the literature, I ask a focus group from the students of the university about e-learning courses, resulting a system of basic rating criteria.

1 Generations

The Cambridge Dictionary says generation is all the people of about the same age within a society or a particular family. The grouping of generations is not unified, as different researchers made different sections, based on the things and attributes they thought is important. It follows, that the names can be different, too. The table below shows the birth dates and names of the groups used in the literatures.

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)

Figure 1
Generations [1][2][9][10]

The Baby Boom Generation was born during the period after the war. They are curious, humanity and respect are important for them. The 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'ers are todays parents. In some studies, they are mentioned as digital immigrants. They were born during the technological breakthrough, so the continuous progress is not strange for them, but they prefer the traditional tools and methods. On the other hand, members of Generation Y 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. [3] [11]

1.1 The Digital Generation

Generation Z is the second digital native generation, they are 10-24 years old, so they make a great share of higher education students. This is why their description is more detailed. The generation gets its other names by the behavior and activity of its fellows. These names are Facebook Generation, Dotcom Children, Zappers and IT Generation. [4]

According to a study, their most important features are they live their social life online, they live in a faster pace than their ascendants, they are brave and outgoing, but they respect the rules less. [4] Another author states that they use

digital technology to express themselves, they show in the social media that everything is perfect around them. Multitasking and task-switching are typical activities, these means youngers do different thing at the same time and change between them often. For example, they study, listen to music and chat with their friends at the same time. In addition, they require that most of the information they get to be available in digital form. It is important to give attention to this in their education. [5] I think it is important to mention that it is an average characterization, the fellows of the group can be different.

1.2   The games, internet and education

A lot of people say that the new generation can not concentrate for a long time. It is partly true, but several research and the daily experience prove, they can pay attention to something for hours, but not for everything. For example, they can spend hours playing a game, watching series or films, the key is the interest.

They accustomed to the environment that requests fast reactions and gives fast feedback because of the opportunity given by the video games, action films and the advanced technology. [3]

At the end of the 20th century, the explosive release of the digital technologies affected education too. Half of the university students belong to the Generation Z, who spend their free time online using laptops, tablets and mobile phones. This means that institutions must adapt to the expectations of the generation. The students changed, and they are not the same as whom the current educational system was made for. [3]

Their teachers, in most of the cases, are members of Generation X., so they are less proficient in digital technologies than their students, who want to include IT tools. As its result, so-called 'generation gap' was formed between teachers and students, which sometimes affect communication, makes it harder and often seems that teachers and students speak different languages.

The digital immigrant teachers presume students are the same as they were and the old, well-tried techniques can work nowadays. [3] But the truth is the new generation needs new techniques. This situation requires flexibility and consciousness from both the educators and the institutions, too.

The fast speed of information flow makes it hard to hold the student's attention with traditional, frontal tools. They prefer visual representations to long, unstructured texts. [12] This means it is not very easy to an undergraduate from Generation Z to sit through a longer, even 120-180 minutes lesson, where the professor explains curriculum in a monotonous, concentrated style. It would be more beneficial developing a way to help them to learn in their own way and speed.

This needs new 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." [3] The teachers have several possibilities, one of them is they can ignore the changed enviroment, act like the digital native and immigrant topic would not exist and continue teaching with the traditional, well-tried methods until they retire and the next generation takes their places, or instead of this, they accept the situation, that they became immigrants in a new, digital word and ask their colleagues or even their students for help, and with a little creativity they find new methods to pass on their knowledge to the new generations. One of this innovation's result is the implemantation of e-learning at universities.

2 E-learning

E-learning is the information technologies effectively used for educating, but in fact it is more than that. This kind of education has existed only for 30-40 years so it does not have a coherent definition. I want to highlight one definition from the literatures: "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." [8]

It has a lot of advantages why students prefer, such as it easily can be reach at any time, from anywhere, it can be processed on an own way and speed. It is profitable for everyone that the learning process can be traced, and both the teacher and student see where are problems, arrears and what changes are required in the future.

2.1 Evolution and current forms of e-learning

The first, rudimentary form of e-learning was CBT (Computer Based Training), where the educational materials could be reached on an electronic data carrier (for example CD or Floppy) instead of papers, books or notes. Its advantage that students get not only texts, but videos or audio files, which they can listen or watch anywhere, anytime again. One of its **disadvantages is the one-way communication, because there is no connection between the student and the teacher, since the data storage transmits only the substance. The next milestone was the** WBT (Web Based Training) which means computers are connected with networks. This helps to overcome the long distances since students and teachers are able to communicate more easily than before. Later, online

learning was based on WBT, with the difference of the network, which connects the computers is the internet. **[6]**

Nowadays there are many forms of e-learning. I would like to explain the two most common of them. The first is blended learning, it means there are traditional classroom lessons too, but a part of the lesson is in e-learning form. It takes advantage of both technologies, because students can learn in their own way and speed, but they can easily communicate with their teachers. [7]

The second form is e-learning. Unlike blended learning, there is no (or rarely) personal consultation, which can complicate studying. There are many types of it based on the student-teacher relations. The first type is e-learning controlled by the students. In this case, there is no connection between the student and the teacher, or the other students, the lessons contains the instructions. The second type is assisted e-learning, where the students can communicate with each other, or a helper, but they are not teaching, they only can help to solve the problems. The third type is the teacher controlled e-learning. It is distance education completed with web technologies. The students and the teacher communicate in real time, they help each other. [6]

2.2   E-learning at University of Obuda

The University of Obuda consider it as an objective to advertise many e-learning courses in line with student's needs. This is currently possible on two platforms: within the framework of Moodle and K-MOOC. Moodle is a learning platform which is made to provide educators, administrators and learners with a single robust, secure and integrated system to create personalised learning environments. The advantages of the moodle are the following: it is easy to use it, the interface is transparent and what is more important for Generation Z, it has an application for smartphones so they are able to learn anywhere, for example, while travelling. [13]

The K-MOOC is operated by University of Obuda. It offers MOOC type online courses in hungarian language for the sudents of the joined universities. MOOC is massive open online courses, where massive means mass educational goal, open is the free access of educational materials and online means it is available from any browser, any computer or smartphone. [14]

3   The research

My research is based on a survey with a focus group which contained mostly open-ended questions about the university's e-learning courses. The group consists of six people, they are all students of the University of Obuda from

Generation Z. Because of the small size of the group the research is not representative so formal conclusions cannot be drawn from it, but it may serve as a basis for my subsequent research.

I asked the following questions:

1. List the elements that a good e-learning curriculum should contain!

2. The elements mentioned above, in what proportion they would be appropriate in a good online coure? 'What ratio of the elements mentioned above would be ideal for a properly structured online course?'

3. Is there any element that you think should not be included in a well-made curriculum?

4. On a scale of 1-5 (not important - very important), how important are the following? Text, video, audio, pictures, explanatory text, sample exercises, curriculum related items

5. On a scale of 1-5, how satisfied are you with the current courses?

At the first question the sequence is also important, because the first mentioned element is usually the most important one for the responder. I want to confirm this with the fourth question. The second question is relevant because, even though the good elements of the curriculum consist of, a too long video or too much text can be complicating factors, as a short sentence that is too vague or confusing because of its shortness. The third question is to express possible negative opinions, so I am not just paying attention to what students need, but it also reveals what they do not prefer at all. The fifth question is also significant because it shows whether the curriculums need to be improved or the majority of students are satisfied with their current quality.

3.1 The result

Most of the answers to the first question were in agreement, five of them mentioned videos at the first place and at the fourth questions's answers it also get higher 'points', so I think it must be an important point when analysing the courses. However, it is not sufficient. I only got two answers for the third question, but they said it is important that the curriculum should not only contain one type of elements, it must contain at least two types of them. This is also supported by the fact that it turns out the answer given to the fourth question, it is essential to a well-processable curriculum, among the video to include images and graphics, explanatory texts and if the the curriculum justifies it, elaborated sample assignments is also a requirement from the students. The curiosities related to the curriculum is generally rated as medium, so I do not find it important to verify its existence.

However, it is important to pay attention to the rates mapped out in the second qurstion when assembling an electronic curriculum. Ratios and quantities refer to the weekly processed lessons. According to 5 of the 6 students surveyed, the length of a video that can be properly processed and students are really able to pay attention from the beginning to the end, is maximum 30 minutes. They suggest that if a curriculum requires more time, it should be split into more parts and more videos. In case of text syllabus, that they can read or are willing to read (and they might take notes) it is three or maxiumum four pages, depending on the content of important and noteworthy information.

In reality, teachers often upload the whole textbook without any helping context, even though students think it is the least helpful way to master a subject. This may also be due to fact that Generation Z prefer visual or audiovisual stimuli to longer, monotonous, unstructured texts. However, the reason for the result can be that students at University of Obuda have unlimited access to online textbooks and lecture notes, so not requiring them to be re-uploaded.

In addition, 4 students mentioned that they are much more effective at learning when they are "forced to do it" and, although they are often not happy, their results are better when exams and tests are more often. This can be accomplished at a blended course in the classroom events with small tests, and at e-learning subjects with online short tests.

All in all, a curriculum can be considered an appropriate e-learning course based on the following criteria:

- Curriculum divided into units (units to be processed weekly or monthly)

- Contains video for a maximum of 30-40 minutes

- The video is supplemented with explanatory text or graphics, but not more than 3-5 pages

- If required by the course syllabus, upload sample assignments with solutions

- Verification test to help students test their knowledge

3.2   Review of the courses

In my research I analyze three online courses from my previous university studies. The first 'A' is an economy course, which is obligatory at every economic major at University of Obuda. It includes the curriculum divided by weeks, a weekly part contains a video and a slideshare, a test for self-checking and emphasizes the related chapters of the textbook and the exercisebook. It is clear, easy to navigate through the uploaded units. As I mentioned the course also contains video, but in half of the cases it is more than 50 minutes long. This is too long for an IT generation to catch their eye from start to finish. This results in wavering attention, requiring them to watch the same video multiple times.

There are no diagrams or explanatory text on the subject's online interface. One reason for this is that the structure and composition of the subject do not justify them and the text is spoken below the video. However, the lack of text is important, as it makes it difficult to search in the syllabus since it is only possible to retrieve an example or definition by rotating the video.(rewatching the needed part of the video) As it is an economic subject, calculus can be found in almost every part of the syllabus, so sample calculations are required and these are uploaded as well. This is also important because a student can more easily make up for a backlog or missing a consultation, especially if the calculation task is detailed. Each test contains 8-10 questions, which can be solved three times. In addition, twice in the semester there are bigger tests, which contain 30 questions and with which you can retrospectively check your knowledge.

In summary, there is one shortcoming in the e-learning material of subject 'A', the explanatory text which can be easily corrected. If this substitution is made, the curriculum can be qualified as appropriate based on the evaluation system I have set up.

The second 'B' subject is an obligatory programming course for every IT student at the university. The online lessons of this course is only completing the classroom lessons and the subject itself is not e-learning. Nevertheless, the lecture and the practical part are well separated from each other, and within them the weekly divison makes it easy to search for any part of the lesson. The logical basics of programming are presented by instructors through short videos and animations, with explanatory text underneath each video, which also provides proper searchability. A detailed description of the programming problems solved in practice was added week by week, and after a while - leaving time for individual solutions - the solutions were also accompanied by detailed explanations, so in the case of a miss, the student does not get an irreplaceable backlog. The tests are not available for every module, only every 2-3 weeks, but if the student wants to, they can work in advance, or if they do not feel confident after 3 weeks, it is not too late to revise previous lessons.

In summary, the online curriculum of subject 'B', while serving as an adjunct, is appropriate based on a pre-defined set of criteria, can serve as a good model for future e-learning courses.

The third 'C' is a mathematics subject that is mandatory for engineers. The online curriculum is only intended to support the lecture, yet it is structured over several weeks and topics, with a clear structure and easy search. It does not include video, which can be detrimental to understanding such complex calculations may not always be understood in a textbook. Sample assignments are also only uploaded from the textbook and the online curriculum also does not include tests, so students cannot assess their level of knowledge, although the nature of the subject would make it more difficult to accomplish than subject A or B.

Summarizing the evaluations of the 'C' course according to the pre-set criteria, it does not meet the students' expectations, but due to the difficulty of teaching the subject, the conversion of a mathematical subject into an e-learning course would require more complex solution and control.

Based on the answers to the fifth question, students are dissatisfied with the current standards and they think that the online curriculum should be modified and improved. This is confirmed by the results of my research, according to which one of the three substances tested was adequate, one needed minor additions and one should be completely redesigned to be student-friendly still in the 21st century.

This result raises further research questions, such as, do the same assessment criteria apply to all kind of subjects?

Conclusions

As the answers given by the group show, there is no curriculum that meets everyone's expectations and needs, as there are many opinions, styles and thus appropriate learning methods. Nonetheless, with the help of the grading system I have created, the general requirements of the electronic curriculum can be checked and improved in order to prepare students effectively.

The new generation spends their day in front of YouTube and other video sharing portals, so it's no wonder that learning is easier with videos. Length requirements are clear signs of an accelerated world, we don't have the time to read longer texts, watch longer videos, enough to know briefly the important things.

In comparing 'A' and 'B' subjects, 'A' proved to be more appropriate, even though it is not a complete e-learning subject, but this is not the case with 'C', which requires a complete rethink of its creators. This comparison is the basis for my further research.

Acknowledgement

References

[1]   Neil Howe, William Strauss: Generations: The History of America's Future, 1584 to 2069. New York: William Morrow & Company (1991)

[2]   Lynne C. Lancaster, David Stillman: When generations collide. Who they are why they clash. how to solve the generational puzzle at work. Harper Business (2003)

[3]   Marc Prensky: Digital Natives, Digital Immigrants I-II. NCB University Press (2001)

[4]   Eszter Pál: Science Communication to generation Z – The Generation "Z" overview study (2013)

[5]   John Palfrey - Urs Gasser: Born digital. Understanding the first generation of Digital Natives. Ingram Publisher Services US (2008)

[6]   Lengyel Zsuzsanna Mária: E-learning: tanulás a világhálón (2007)

[7]   Dr. Forgó Sándor: A korszerű – a gyors technológia váltások és tudástranszfer lehetőségét támogató – oktatási módszerek és IT technológiák alkalmazásának lehetőségei és gyakorlata a szakképzésben (2007)

[8]   Ruth C. Clark, Richard E. Mayer: e-Learning and the Science of Instruction: Proven Guidelines for Consumers and Designers of Multimedia Learning (2016)

Used webpages

[9] Diana G. Oblinger, James L. Oblinger: Educating the Net Generation
        https://www.educause.edu/ir/library/PDF/pub7101.PDF
        [Downloaded:2019.10.08.]

[10] McCrindle-Research: Generations Defined (2012)
        https://mccrindle.com.au/wp-content/uploads/2018/03/Generations-Defined-Sociologically.pdf [Downloaded:2019.10.30.]

[11] Börcsök Gyöngyi: X, Y és Z-generáció (2018)
        http://www.kamaszpanasz.hu/hirek/lelek/3912/x-y-z-generacio
        [Downloaded:2019.10.28.]

[12] Gerencsér Dóra: Generációk különbségei: X, Y, Z és Alfa az iskolában (2018)
        http://tantrend.hu/hir/generaciok-kulonbsegei-x-y-z-es-alfa-az-iskolaban
        [Downloaded:2019.10.18.]

[13] moodle.org – About Moodle

        https://docs.moodle.org/37/en/About_Moodle [Downloaded:2019.11.05.]

[14] uni-obuda.hu. (2018)
        https://news.uni-obuda.hu/articles/2018/01/31/laptoppal-okostelefonnal-elerheto-tantargyak-es-kreditek [Downloaded:2019.11.04.]