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Current Trends in E-Learning Development

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Abstract

E-learning, electronic or digital education, is one of the areas in which information and communication technologies, if although not in the most spectacular way, but have certainly had the deepest impact. All that first seemed to be just an extension of distance learning, and then of the so-called computer-assisted education, has now become an independent, ever-expanding and increasingly dynamic industry. ELearning tools are now used at all levels and in all areas of education and training, including non-formal and lifelong extensions. The aim of my study is to present the current trends in this extremely fast-moving and enormously innovative area. When outlining trends, I take into account the opinions and forecasts of leading individuals, companies and organizations in the profession and the industry.

Keywords: education, training, E-learning, digital education, ICT, trend forecast

JEL classification: P46, I21, N30

Introduction

Technology has irrevocably changed teaching in almost every part of it. Thus, the classroom does no more necessarily mean a physical location where students come together at a specific moment or for a specific period of time and where they are guided by a teacher in a more or less comfortable environment. E-learning (electronic or digital education) has changed the way students and teachers think about education, learning and training. Nowadays, graduation has become much easier as it is also much easier to get an online degree or certificate. Students no longer have to sit together in a classroom and they often has the possibility to learn at their own pace. All that they need to do this is an Internet connection to access the lessons and the curriculum. Students -can use e-learning to study a wide range of courses and acquire the skills for developing their careers. They can practically learn anything by having an Internet connection; the number of different available courses and subjects is significant in every conceivable area.

Nowadays, many schools, offices, and businesses accept from their applicants' certificates and documents obtained online, as a proof of the successful completion of courses and thus demonstrating their expertise. As the acceptance of degrees and certificates obtained online becomes more and more widespread, they are increasingly appreciated, their thematic offerings are widening, they become more important in the supply portfolio of educational institutions, and their popularity is continuously increasing by a positive feedback. Online learning has become very widespread due to its accessibility and numerous benefits. One of the basic opportunities offered by e-learning for students is to have access to a quasi-traditional classroom environment online. In many cases, e-learning refers to programs that are fully online.

There are many interpretations of e-learning, including electronic learning, digital learning, online learning, and then we shall replace learning with education, then training and we will create a picture of the area covered. There are also related areas such as distance learning, adult education or lifelong learning. E-learning consists of

courses that are not created in the same place where they are used, which are distributed across the Internet, outside the classroom, but which maintain a similar learning environment where students can interact directly with the pedagogues. On many occasions, the courses can be 'live' and the students can interact in real time, for example by raising their hands electronically. In these cases, the teacher still explains, classifies, tests and develops homework.

E-learning appeared inside the companies back in the early 90s and it meant nothing more for most of its users than some PowerPoint presentations. Nowadays, with a superfast evolving technology and an Internet that grew ubiquitous, e-learning industry simply break out. This new dimension of education has been soon adopted by companies as a convenient and cost-effective instrument of workplace teaching / training which suggests growing at an amazing pace. The logic for this development is elementary and efficient: ICT-based digital devices and techniques offer a unique opportunity to learn at any time and at own pace. In the long run, e-learning reduces expenditures, boosts productivity and, in the end, raises company revenues.

Methodology

The used methodological approach is a qualitative one: it consists of analysing the predictions made by representatives and professionals from some of the best-known e-learning companies, analysts and leaders of the industry. Their names are mentioned in the list of references. I consulted numerous reports and blogs authored by digital technology and information society specialists too. Last, but not least, I also had several conversations with professionals in related fields, such as information technology and education from schools and universities in Oradea, Romania as well as Budapest and Pécs, in Hungary.

Results

If we try to map out society's expectations against e-learning, we would not get to the end of the list very soon, but we can be sure that everyone in the future will give an increasingly important role to e-learning for both children and adults. It is a general requirement that the changed learning environment will lead to qualitative improvement, faster and more efficient learning, and an optimal combination of traditional and modern educational elements leading to considerable time savings. Meanwhile, a good electronic curriculum properly guides the work of the individual, provides the learner with the ability to work according to his or her own rhythm, and to have the tools to grow into more and more self-sufficient work. According to Ryan Ayers, a frontrunner in e-learning Industry, there are five trends that make e-learning the future of education (Ayers, 2018). These can fundamentally influence it, enabling both students and teachers to adopt this technology:

1. The first trend is represented by the Learning Management Systems (LMS). They aim to develop and track online training initiatives. Teachers can use LMSs to upload different materials, such as lectures for students, to make them easier to access on the Internet.
2. The second decisive educational trend seems to be what is called gamification. This process creates algorithms for the development of educational games for learners, thus giving the user personalization, commitment and a better experience.
3. The third educational trend has two components: Virtual Reality (VR) and Augmented Reality (AR). In the VR, the environment is simulated, while in the AR the information is based on an existing environment. Using the two

technologies simultaneously, students can simulate the real environment while gaining more practical learning.

4. The fourth trend is represented by coding and robotics. Many institutes have begun to introduce robotic technologies to classrooms. These institutions, in collaboration with the educators, are trying to create a better educational environment for learners.
5. The ultimate trend is the development of an intelligent classroom. The concept of intelligent classroom refers to a learning environment that is essentially based on technology, from smartphones and voice recognition devices to biometrics, from sensors to artificial intelligence (AI). In smart classrooms, students can take advantage of the latest technology.

According to Suresh Kumar DN, head of Tesseract Learning, the acceptance of e-learning in the world has been steadily increasing in recent years, despite the fact that, thanks to new technologies and tools, it is changing rapidly. Forecasting educational trends is not as simple as it might seem at first sight, as some of them have been lurking in the industry for a long time, but did not have enough maturity or pulling force. He sees the strengthening of nine e-learning trends and his opinion is much the same as Ryan Ayers' one (Kumar, 2018a). These are the following:

1. *Virtual and Augmented Reality (VR and AR)*

Their importance is also indicated by the fact that Ryan Ayers has picked them up too on his list. Virtual and Augmented Reality is at present one of the most complete and complex means of training. VR has been present in classrooms for a long time, but by adding expanded reality and mixed reality, exciting new opportunities are emerging in the educational space. Habitually, VR and AR were predominantly used for games and movies, but they became now also elements of learning. The VR will continue to focus on training hazardous tasks and complex operations and procedures, while AR is more likely to be used in just-in-time learning. By reducing the cost of portable glasses and headphones, VR and AR are anticipated to develop more affordable for all institutions that are willing to adopt them, even at an experimental level. So, their number is expected to increase, at least in the nearby future.

2. *Smart assistants / Chatbots*

Although the popularity of iPhone's Siri projects a proliferation of digital voice assistants, it is too early to predict with certainty that the intelligent programming of these or even machine learning-supported chat bots are already here, for as artificial intelligence itself is still moving on with baby steps. There may be some chatbots as intelligent search applications, in the field of information security, data protection, and so on. They can help students learn to learn on the move and increase their load at the right moment.

3. *Gamification and Game-Based Learning*

Like Ryan Ayers, Kumar is also predicting the triumph of gamification. The institutions seem to be willing to invest heavily in games and "play" their own courses, maintaining their students' interest and inducing them to take learning seriously while playing. Gaming allows students to invest time and effort in activities that are not traditionally enjoyed.

4. *Adaptive or Personalized Learning*

Adaptive or personalized learning in libraries means customizing existing modules to meet the specific learning needs of individual groups. The biggest advantage for institutions is that they do not have to provide all modules for every student. Instead of it, they can provide focused training to different learners, e.g. on basis of their performance, thus increasing their internal rate of

return. Because it can produce spectacular results with little investment - existing LMSs can be used for their implementation - this is likely to be an important trend in customizing individual learning spaces.

5. *Microlearning*

Microlearning is already a powerful current, as institutions strive to provide targeted, object-specific, useful learning units, for they bring benefits such as quick deployment, regular updates, fast learning, productivity enhancement, and easy tracking. Its tools, traditionally, are short videos, but today they include interactive videos, short games, quizzes or even interactive infographic materials. They are best used to achieve specific just-in-time learning goals, not to teach complex procedures or problem-solving skills. The materials of the microtraining are available on any device, so the demand for them will increase due to the increased use of smartphones.

6. *Content Curation*

Content curation is also a booming trend of our days. More and more organizations are investing in it as it has significant potential to create reliable alternative sources of standard learning. There are several open source tools that can help learners and trainees get just-in-time access to data / information. Libraries can be expanded and organizations can focus on individual e-learning and mobile learning solutions.

7. *Interactive Video-Based Learning*

The unexpected popularity of video-based tutorials on different online video platforms (e.g. YouTube) is already high and still increasing. Institutions take advantage of the popularity of videos to create their own tutorials, which may have branched scenarios, add interactive deposits, and publish them on their own internal sites. One of the benefits of this technique is that employees are more committed and willing to invest more in the learning process, and the other is that the institution can create a library with the proper content.

8. *Social Learning*

When learning is shared among peers, the efficiency of the whole process is increasing. Different forums and chat rooms, or even simple note-sharing may help spreading ideas in a cooperative environment. Companies and institutions will be ready to experiment with social learning platforms, for the advantages they can assure. Those professional environments are able to afford stronger tools that can sustain the learning process instead of the sharing of personal information. Organizations will be able and more willing to experiment with popular LMSs that provide community learning services.

9. *Workforce Enablement*

For the institutions, beyond automation, retention of labour force will continue to be of paramount importance. According to research, pupils usually remember only ten percent of their learning in the training or e-learning program four weeks after learning. Therefore, it is important to motivate them regularly with different learning tools that can increase their productivity. Targeted interventions as important tools for retaining labour will constitute a strong trend.

Kumar (2018b) also made projections for e-learning trends by 2019, although only eight have now been listed. While looking forward to the trends shaping the industry, many of them are on the same list as for the previous year, with only a slight increase in prospects. These are the following:

1. Adaptive learning
2. Microlearning

3. Gamification and game-based learning
4. Extended, virtual and mixed reality AR / VR / MR
5. Video-based learning
6. Social learning
7. Content curation

One more trend is added:

8. *Artificial Intelligence And Learner Assistance*

Artificial intelligence is included in the e-learning space. Various institutions offer innovative solutions where bots can guide students through both the learning path and the lectures. Artificial intelligence is used to predict student behaviour and personalize learning based on the modules they choose and the difficulties or challenges they have overcome. Voice-guided bots also help students finding key content in the modules. This is accompanied by the help of robots for children and people with special needs, in order to achieve new knowledge and skills. Kumar is confident that the use of artificial intelligence will continue to be a very strong trend that will fundamentally change the learning environment.

In (iSpring 2018), similar trends are anticipated as those shown above, but occasionally attention is drawn also to some of the drawbacks of the mentioned trends:

1. *AR and VR are on the rise.* VR is sexy, but AR has more applications. These technologies are good, but with a limited amount of resources you can't start with them much.
2. *Artificial Intelligence (AI) becomes an everyday tool in e-learning.* The same setbacks apply to the use of AI as above. However, all who dispose of the necessary means to use a chatbot, should not hesitate to try it out.
3. *Courses will be taken over by content.* E-learning is not just about courses, but also about resources.
4. *Content becomes visual.* Visual content becomes the driving force behind e-learning.
5. *Learning becomes more mobile.* Learning content is expected to work better and to look more elegant on both desktop computers and mobile devices.
6. *The industry is looking back to its roots.* All the debates that accompany modern technologies should not forget the importance of learning and cognitive sciences. They are an integral part of successful training and can save us time and resources, which could be wasted by some other fashionable "miracle cures".

Ehsan Memari from skyprep, has made similar predictions at the beginning of 2019 (Memari, 2019). In his opinion, dominant trends in the field of e-learning will be:

1. *Flexible Learning*, as well as adaptive learning, is extending the limits of learning by adding different tools to enhance analytics, measurement, estimation, and evaluation.
2. *Artificial Intelligence (AI) and User Support* will be used to forecast students' behaviour and performance along with personalizing the process of knowledge acquisition. Based on the modules taken and the challenges confronted by the learners, improved personalization will be brought about. Smart chatbots will be used as an aiding technique of learning for practical investigations.
3. *Gamification and Game-Based Knowledge* "will continue to reshape the e-learning landscape" by increasing retention rates of learners. They will

become more efficient in applying the knowledge they have acquired in their everyday work.

4. *Social and Informal Learning*, based mainly on social media networks, with their various components, such as: forums, informal discussion sessions, or gatherings may stimulate spreading of best practices and sharing of knowledge circles.
5. *Content Curation* will ease collecting relevant content and offering learners up-to-the-minute information as and when they need it.
6. *Mixed Reality (MR)*, together with *Augmented Reality (AR)*, will continue to combine, in order to generate some really remarkable ideas.
7. *Context over Courses* will allow educational materials to be accessible to the learner whenever and wherever needed, like Google's search results. They do not have longer to reside in knowledge portals waiting for users to log in and look for them.
8. *(More) Mobile Learning* will provoke companies to view native mobile apps as a must-have feature. Those apps will enthrall the user within learning matters by means of 3D and other real-time techniques.

As we can conclude from the items presented above, there are no really big differences between the opinions. There is Oleksii Kharkovyna who extends this circle by another, seemingly pretty important, trend in his blog (Kharkovyna, 2019). Along some already well-known titles, such as:

1. *Microlearning*: "Smaller Bites, Bigger Returns"
2. *Adaptive Learning*: "A Personal and Unique Experience"
3. *Artificial Intelligence*: "Wanna see e-learning Even More Accessible?"
4. *AR/VR/MR to Increase "Attention and Improve Learning Experience"*

he mentions, already on the second place, also:

5. *Big Data*: "The Way to Improve Online Training"

In his opinion, big data will impact e-learning in three main ways:

- a. *Analysing feedback*: collecting and analysing all learners' steps, monitoring their ways of gathering knowledge and their faults, and providing some tools to fix them.
- b. *Creating new eLearning approaches*: delivering a closer look at how strategies shall be selected, in order to receive more favourable outcomes than by a traditional learning strategy which is lacking estimation.
- c. *Tracking learner models*: obtaining skills to track a learner throughout the entire educational process, from the beginning to the end.

Conclusion

As seen by now, the primary direction of e-learning development concerns learning at any imaginable paces, by the support of big data and adaptive approaches. Artificial Intelligence, Augmented and Virtual Reality are aspiring to the title of the most wanted technologies. But we have to keep in mind that all the wide spreading and rapid extending of these techniques and the opening of new paths in education leads to success barely if the involved institutions (schools, companies, etc.) demonstrate sufficient willingness and motivation. The trends presented above will basically influence the education industry, as a whole, thus becoming more and more powerful with passing time. Institutions will have no pretext for avoiding mobile-friendly, personalized and engaging e-learning content. Ultimately, it seems that the advancement of technology is unstoppable and we can expect many novelties and spectacular improvements to many existing e-learning tools, but learning will not be replaced this year either.

References

1. Ayers, R. (2018), "Is e-learning The Future Of Education?", available at: <https://elearningindustry.com/is-elearning-the-future-of-education> (27 March 2019).
2. iSpring (2018), "6 e-learning Trends You Can't Ignore in 2019", available at: <https://www.ispringsolutions.com/blog/elearning-trends-2019> (01 April 2019).
3. Kharkovyna, O. (2019), "Top eLearning Trends Shaping 2019", available at: <https://hackernoon.com/top-elearning-trends-shaping-2019-5aaa33920cf8> (21 May 2019).
4. Kumar, S. (2018a), "Top e-learning Trends for 2018", available at: <https://www.tesseractlearning.com/blog/e-learning-trends-for-2018.html> (27 March 2019).
Kumar, S. (2018b), "8 Top e-learning Trends For 2019". available at: <https://e-learningindustry.com/e-learning-trends-for-2019-8-top> (27 March 2019).
5. Memari, E. (2019), "Top 8 2019 e-learning trends", available at: <https://skyprep.com/2019/01/04/top-2019-elearning-trends/> (21 May 2019).

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