Future of E-Learning: Perspective of European Teachers

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Imagining is the first step in actualizing something. Several technological developments have been the product of people's dreams. This study discusses the results of a workshop related to dreaming about what e-learning will be like in the future that was part of an in-service training course included in the European Union Lifelong Learning program. The purpose of the current study is to shed light on the workshop participants' visions of the future of e-learning. The participants emphasized that e-learning will not only develop toward technology but also lead to pedagogical outputs. It was predicted that e-learning will contribute to education as blended learning and lifelong learning become popular. Other leading issues will be the integration of technology with the human body and the facilitation of learning.The author of the current study, who took part in the workshop, emphasized cloud-based technologies. Workshop participants stated that cloud-based services will inevitably become part of fields such as information security storage and e-state services, as well as education. Moreover, they predicted that information and education clouds will emerge that can be accessed anywhere and anytime, and that these clouds will be used at all grade levels through facilitation by moderators on a local and a national basis. They also mentioned that the concept of e-learning will evolve into cloud-based learning.

Keywords: Blended learning, cloud-based learning; future of e-learning, educational technologies, ICT in education, lifelong learning.

INTRODUCTION

Nowadays, "e" is not just an alphabetic letter. It contains several meanings as a result of the development of technology. Words such as e-government, e-shopping, e-wallet, e-course, e-banking, e-tutor, and e-mail have become frequently used in daily life. And "e-learning" is one of these popular words with an "e" prefix.

Whereas education that took place through the use of tape or video was accepted as e-learning in the past, education that is now actualized through whole information and communication technologies (ICT) has recently been called e-learning. Developments in ICT have led to the broadening of the definition and content of e-learning. Factors such as the technological information substructure of individuals, their upbringing, and their learning styles have had an influence on how they imagine ICT, and accordingly their predisposition toward these technologies. Several studies have considered what education will be like in the future. Many discussions about the form that education will take in the future raise the question of what e-learning will be like. The answers given in response to the question, "What kind of e-learning do you dream about?" have played a great role in defining what e-learning will be like in the future.

Bill Gates, ex-chairman of Microsoft, says, "Two of the things I care most about are education and computers. Finally, online learning and other educational technologies are taking off in a big way. As a result, the next decade is going to be a period of tremendous innovation in teaching and learning" (Gates, 2013). Attwell (2007) focused on the changing face of education and the use of technology for learning by the "net generation." Tosun ve Barış (2011) said, "in the restoration and development of education, use of

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State of the literature

- Developments in ICT have led to the broadening of the definition and content of e-learning.
- e-learning will not only develop toward technology but also lead to pedagogical outputs and e-learning will contribute to education as blended learning and lifelong learning become popular.
- Home-based and cloud-based learning approaches will gain in importance .

Contribution of this paper to the literature

- This study discusses the form that e-learning will take in the future, with emphasis on the technological and pedagogical progress that will be made.
- It should not be ignored in mentioning the new technologies and discoveries related to e-learning that these technologies will lead to radical changes in educational systems and approaches.
- Cloud-based services will inevitably become part of fields such as information security storage and e-state services, as well as education.

ICT which is actively integrated with www (World Wide Web) is a significant catalyst." As can be seen, experts in the technology field have foreseen that ICT will play an significant role in education in the future. Accordingly, e-learning, which is one of the most important outputs of ICT, will be essential. Charmonman (2010) said that e-learning will become mainstream and that classroom learning will play only a supporting role. In mentioning e-learning 2.0, Downes (2005) said that "In the future it will be more widely recognized that the learning comes not from the design of learning content but in how it is used."

Another study identified four themes related to the future of e-learning: (1) growth in synchronous learning, (2) prevalence of blended solutions, (3) improved technology and access, (4) integration of information provision, performance support, peer collaboration, and training (Welsh et al., 2003). Brown (2003) focused on m-learning (mobile learning) and said that it is a natural extension of e-learning. He argued that e-learning, and especially m-learning, can and should contribute to improving the quality of education. In another study, the features of an e-learning environment create a smart and flexible context that can accommodate various learning activities (Wang, 2013) was argued. The cartoon below shows that the evolution and innovation in educational technologies have been remarkable (Figure 1).

A study conducted in 2005 showed that knowledge management tools, online simulations, wireless technologies, and reusable content objects would impact

the delivery of e-learning most significantly during the next few years (Kim et al. 2005). Although only 9 years have passed since the aforementioned study was carried out, the e-learning technologies it describes have become usable. The researcher of the current study wonders, "What kind of development will there be in e-learning from now on?" The results of the present study were based on a workshop in which teachers from European Union (EU) member countries participated and discussed the future of e-learning. This research is considered to be inspirational for the future. The study aims to shed light on research related to the future of e-learning.

METHODS

Purpose of the Study

On May 5–12 in 2013, a Comenius/Grundtvig in-service training course titled "TACCLE—Creating your own e-learning content in school education and adult education" was organized as part of the European Union Lifelong Learning Program in Urbino, Italy. The purpose of the course was to train teachers in creating e-learning materials and to raise their awareness of e-learning in general. The present study was undertaken in light of the ideas revealed through the workshop, which had the theme "How will e-learning look like in the future? What are your dreams about this?," which was the focus of the aforementioned course. Based on the workshop participants' ideas, this study discusses the form that e-learning will take in the future, with emphasis on the technological and pedagogical progress that will be made.

Study Group and Method

The participants for the present research included educationalists who attended the aforementioned course. In total, 19 people, including 6 from Belgium, 1 from France, 3 from Turkey, 4 from Portugal, 2 from Luxembourg, and 3 from England, participated in course. The workshop facilitators organized the participants into 4 groups, each of which included 4–5 educationalists from different countries. Prior to the workshop, the participants were informed of the title of the workshop, and the purpose of the workshop was explained. The groups discussed for 45 minutes, and each group presented the results of their own work, complete with figures and text. After the group presentations, an overall evaluation was performed, and what e-learning would look like in the future was discussed.
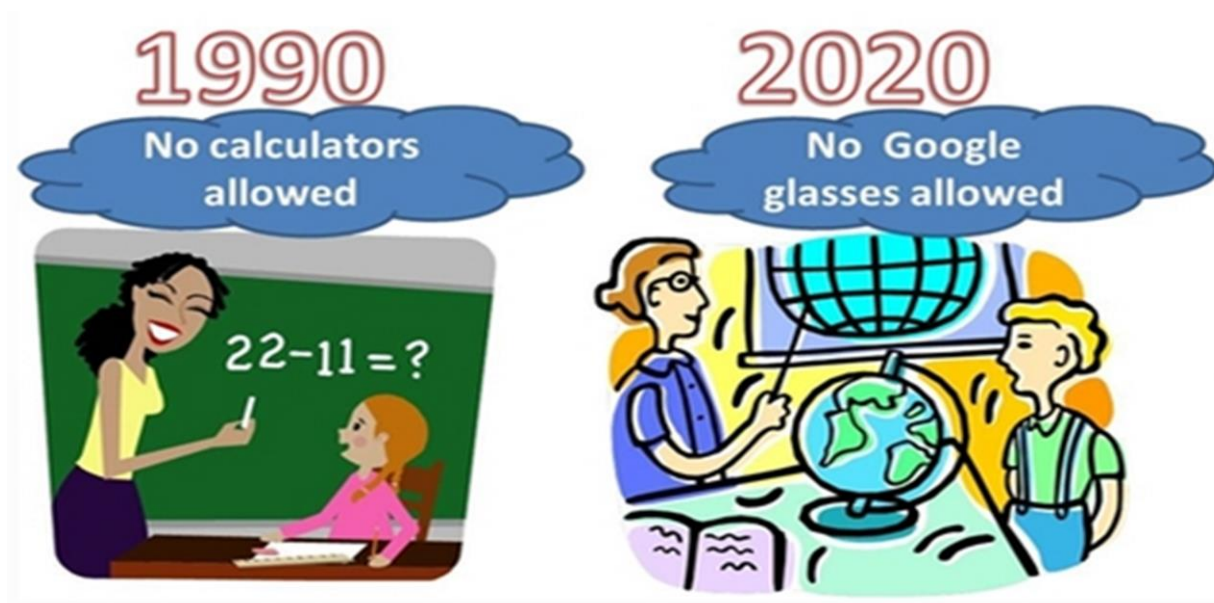
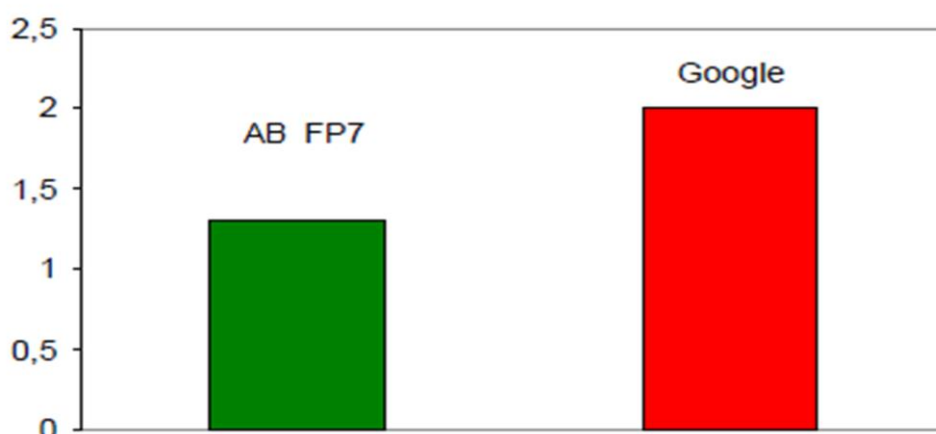**Figure 1.** Evolution and innovation in educational technologies (Retrieved July 9, 2014, from http://www.teliasonera.com/en/newsroom/blogs/my-blog/?blogId=5&entryId=42)

Figure 2. 2009 ICT R&D expenses (AB-Google)

FINDINGS

The groups' projects related to ICT that has been employed in EU countries, and especially in recent years, when ICT investments have increased (Barış et al., 2013). The total money spent by all EU countries within the scope of Framework Program (FP7) for research and development (R&D) activities was 1.3 billion Euros; however, Google, in contrast, spent about 2 billion Euros (Figure 2).

Studies of and investment in ICT contribute to the development of e-learning, which is one of the most important parameters of ICT. Moreover, the EU prioritizes the use of ICT in educational programs and organizes courses to help educationalists adapt to these developing technologies. The present study was undertaken as a result of the previously mentioned course that was organized in this context.

In the workshop with the theme "What will e-learning look like in the future? What are your dreams about this?", which was organized within the scope of the EU Lifelong Learning Program, the 4 groups, consisting of participants from 6 different countries, performed group projects and shared their ideas.

Group 1 defined what e-learning will consist of in the future and mentioned that certain concepts will be prominent. They emphasized that e-learning will be a supplementary factor for students in terms of face-to-face learning. The concepts and subjects emphasized by the first group are presented in Figure 3. The approaches of this group were based on the concepts they saw as most important as a result of this workshop.
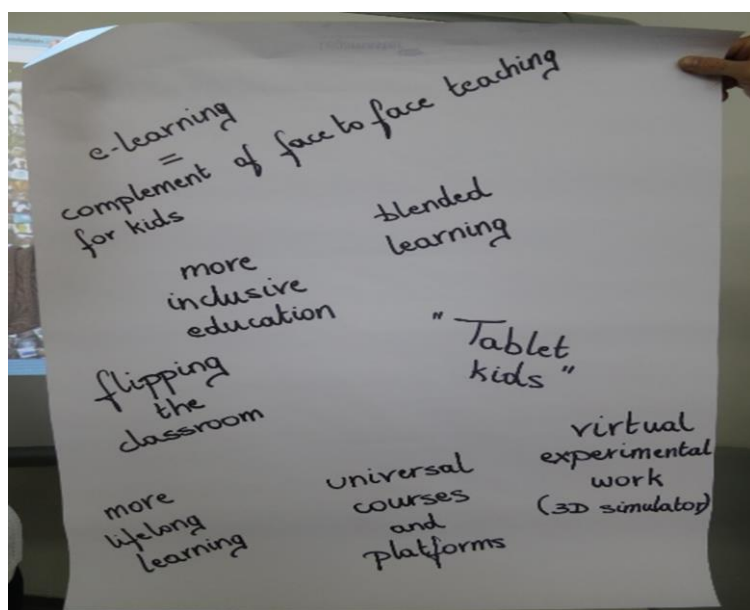
Figure 3. Group 1 workshop output

Blended Learning: This educational model will be used more frequently in the future, and it will be preferred by educationalists.

Flipping the classroom: This term means turning classrooms into virtual classrooms. Classrooms will be supported through e-learning materials. E-learning materials will also be actively used in classrooms where classical education was provided in the past.

More inclusive education: Education will be more inclusive with the rich e-learning content that is offered. It is predicted that education, which will be independent of time and place through the use of e-learning materials, will be more inclusive of any field of life.

More lifelong learning: It is predicted that e-learning will be one of the most significant factors in facilitating lifelong learning. Contents will be developed that will be easily accessed by people in specific age groups who could not have received education for various reasons or because they were working. Moreover, based on the principle that education lasts a lifetime, public enterprises and private companies will actualize both in-service training courses and personal development seminars through lifelong learning programs.

Universal courses and platforms: It was emphasized that universal courses and platforms will take the place of local courses and platforms, and that any kind of content from all over the world will be provided easily. Diploma and certificate programs offered by educational institutions will have international competency and validity.

Virtual experimental work: One of the most important points emphasized by the group was that virtual experimental work will become popular and that virtual application environments will be created in many fields, from the social sciences to the physical sciences, and from the health sciences to engineering. It was predicted that virtual experimental work will reduce costs and be more instructive.

Tablet kids: It was suggested that children will find it easier to adapt to the virtual world. Information technology (IT firms) in the educational sector will focus on creating software that entertains while at the same time teaches children, and these applications will be designed in such a way that they can be used on electronic tablets.

The results of Group 1 have been discussed by Akkirman (2012), in Georgia, "Schools of the Future" project will occur in future classes, touchscreens on pupils' desks are connected to the Internet, the teacher's screen and the blackboard. The teacher can control from his/her screen what every pupil in the class is doing and send comments/suggestions during the work process. At the same time, children can answer a question from their own desk, projecting the illustration onto the board and their classmates' screens, thus avoiding the stress of standing at the board in front of the whole class (Figure 4).

Group 2 concluded that the technology of the future will have a structure that covers the entire world, and that this will influence not only education but also all areas of life. The results of their group project are illustrated in Figure 5. Furthermore, they wished that the technology of the future would be cheaper. According to this group, education will be home based, individuals will spend more time studying at home, and learning will be actualized at home.

The group mentioned the social side of e-learning, saying that there will be friends who will not meet face to face, and that a virtual friendship environment will be created. They also mentioned that virtual markets will take the place of regular markets, and virtual holidays will be popular.

Figure 4. Schools of the future (Retrieved July 09, 2014 from http://www.teliasonera.com/tg/newsroom/blogs/my-blog/?blogId=9&entryId=44)
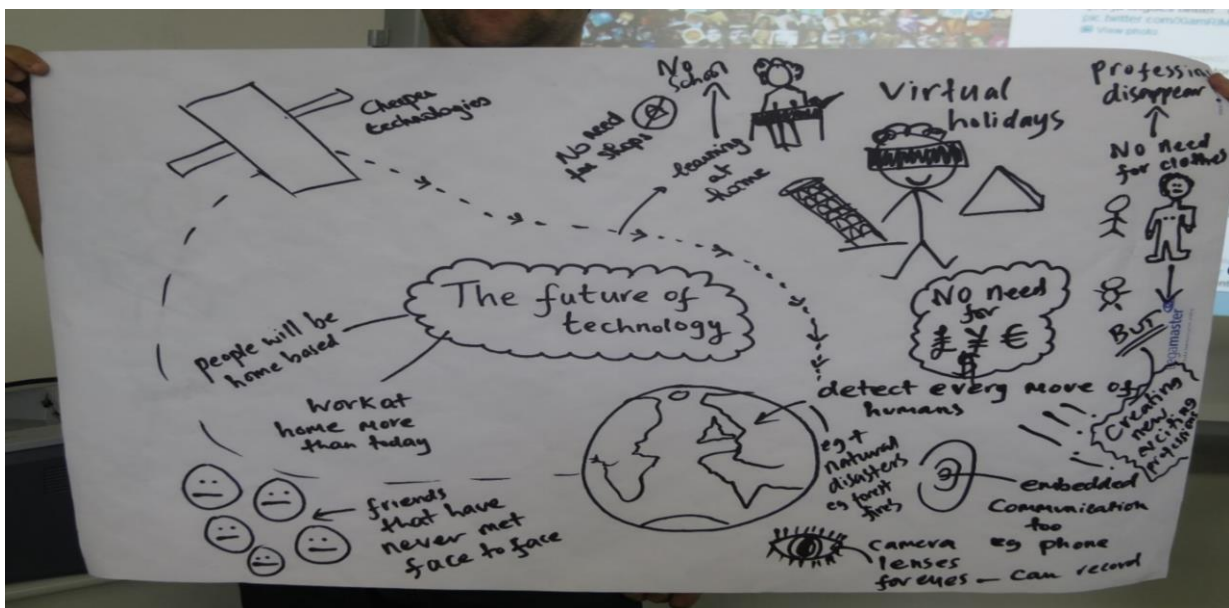

Figure 5. Group 2 workshop output

The group mentioned that "Some professions will disappear, but more exciting new professions will appear, instead," predicting that technology will span the entire world, and that each movement in the world will be determined soon. For example, it will be possible to determine the location of forest fires, floods, and similar natural disasters quickly and there will be an immediate response.

Finally, it was stated that technologies that can be integrated into the human body will become more prevalent. It was also mentioned that systems embedded in the ear or lenses that work as a camera will be available.

Group 3 fictionalized the dream of e-learning based on a fantastic assumption (Figure 6). According to the group, by means of external information devices linked to humans' brains, it will be possible to transfer any kind of information to humans. Based on this prediction, schools will then have only a social purpose, and will turn into places where students socialize. Students will transfer their personal information to integrated chips. Teachers will become "uploaders"
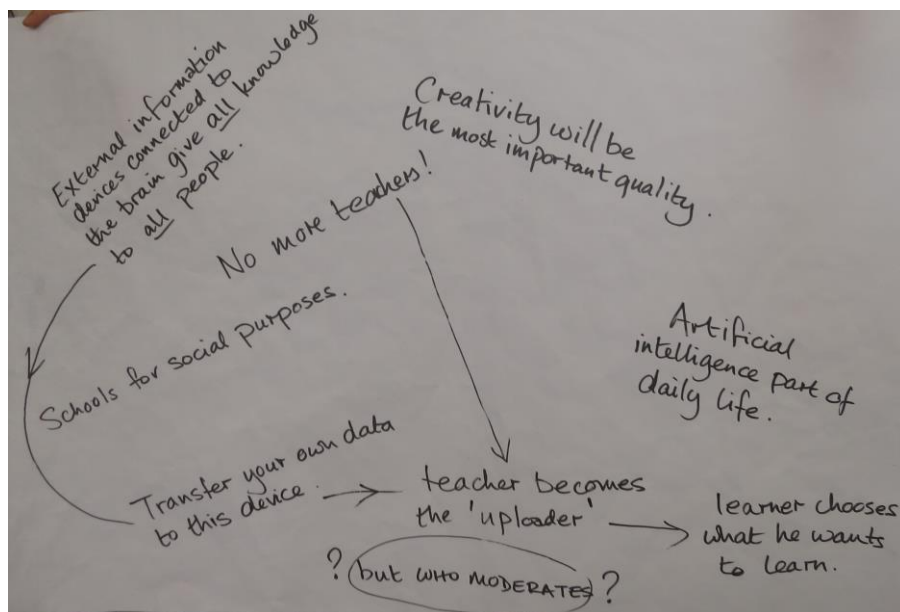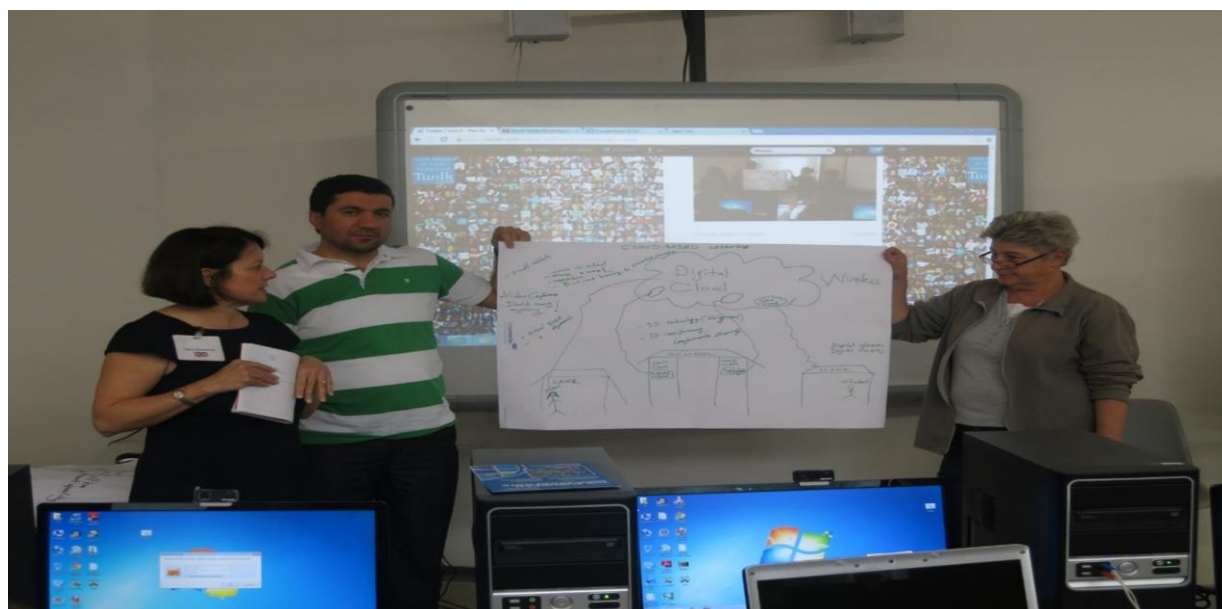
Figure 6. Group 3 workshop output

Figure 7. Group 4 workshop output

rather than being only tutors. Learners will have the opportunity to choose what they will learn. For example, people will speak a language within a few seconds by uploading the foreign language they want to learn into chips in their brain. However, the most important question about this structure is who will administer the system.

The most important quality indicator in the structure that this group discussed will be creativity. The value of information will be determined based on whether it is a product of creative thought or not. Artificial intelligence will be part of daily life. Artificial intelligence applications and instruments will appear in many fields, from cleaning to transportation, and from communication to security. Robots and automated systems will be the factors that facilitate the work of people and will be encountered in many areas of daily life.

Group 4 was the group in which the researcher of the present study participated. The digital cloud will be the basic element in e-learning in the future, as predicted by this group (Figure 7). Learning will turn into cloud-based learning. According to this structure, students will not be required to attend school regularly. They will go to school only once or twice a week. In general, it was predicted that there will be an educational
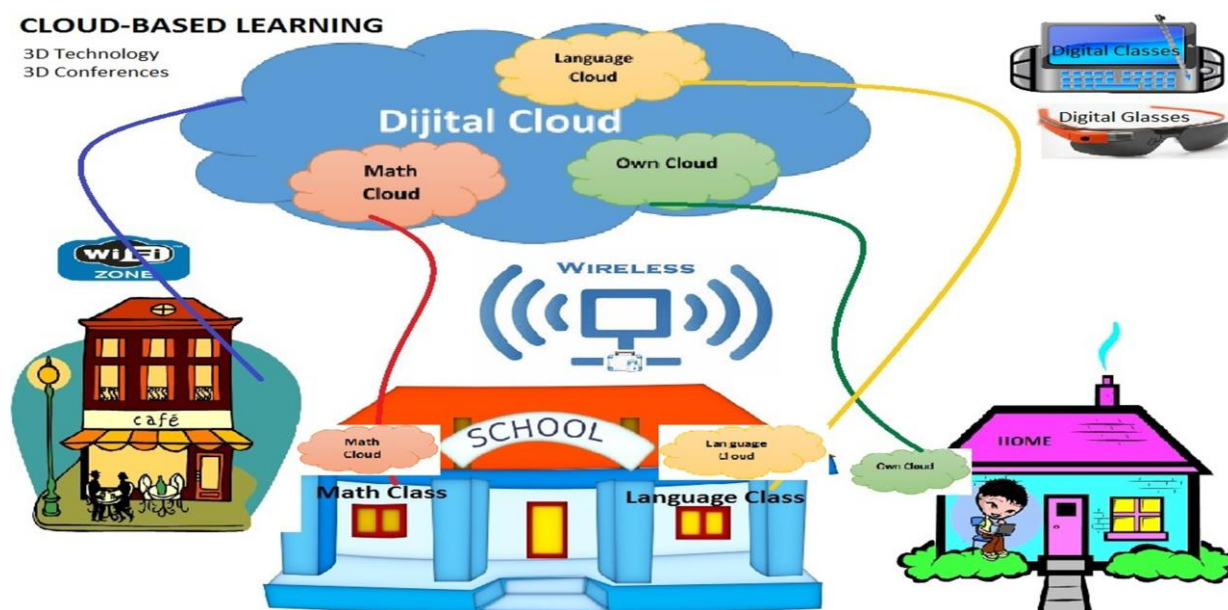
Figure 8. Group 4 workshop illustration

format in which student-centered presentations and meetings will be undertaken, and discussions and workshop studies will be carried out. Teachers will provide counseling services rather than instruction. Moreover, schools will be places for socializing; they will become locations where students share ideas with their peers, take part in social activities, and have the chance to present their work to their peers.

The results of Group 4's workshop project, which focused on cloud-based learning, are illustrated in Figure 8. This group predicted that learning will be available anywhere, in any field, and at any time. Mobile applications will create the basis for this structure, in which wireless technologies will be commonly used. Because the backbone of the system will be established on a fiber-optic substructure and wireless technologies, data transfer will be at an advanced level. Individuals will not be obliged to carry any electronic devices.

Education clouds will be created by using cloud technology for national and local education following this approach, which is built on cloud-based learning. There will be subeducation clouds among these education clouds that are categorized according to lessons. For example, there will be a mathematics cloud for the mathematics lesson, and a language cloud for the foreign language lesson. Moreover, there will be a personal cloud in which students can store their personal information, and store and present their personal skills. This personal cloud, which will contain e-portfolios, will contain both educational skills and social skills and will be accessible at anytime and anyplace.

The group suggested that digital classrooms and digital eyeglasses will become popular. The digital cloud will be accessed through digital instruments, and so

access to information and knowledge sharing will gain speed. Through advanced-level technologies, not only will speed be gained but data size and format will also change. The use of 3D applications will increase, 3D technologies will develop, and 3D conferences and meetings will be popular. This development will definitely affect the entertainment sector, as well. For example, people will be able to watch a football match on a coffee table in their homes.

In cloud-based education, educational administration and organization will be carried out by the national and the local institutions as in classical education; however, the private sector will take a more active role in this process. Information security and charging will be the most important parameters. Official and private institutions and organizations will have to accommodate themselves to technology. A modern and technological educational model will be created based on classical methods.

DISCUSSION AND CONCLUSIONS

This study attempted to analyze what kind of e-learning teachers in different countries of the EU imagine. At the end of the workshop, the EU teachers had revealed their expectations and dreams in terms of technology and pedagogy related to e-learning. The results obtained from the workshop projects of the groups were the following:

- ✓ *Lifelong learning and blended learning will become popular.*
- ✓ *Universal and multinational courses will gain popularity.*
- ✓ *The use of virtual experimental workshops will increase.*
- ✓ *Mobile technology will become widespread.*
- ✓ *Technology will be integrated into the human body.*

✓ *Schools will turn into places for socializing and making presentations.*
✓ *Learning will become technological learning (uploading).*
✓ *Home-based and cloud-based learning approaches will gain in importance.*

The results obtained in this study are similar to those of previous studies. It has been revealed here, as in past studies, that mobile devices will be the essential elements of e-learning. It has been predicted that the developing technology and customer needs will make hybrid systems more attractive (Weiss, 2012). In this period when mobile systems are developing rapidly, an increasing number of applications that gather different platform choices together and address all those is inevitable. Mobile learning is a harbinger of the future of learning (Keegan, 2002). Platform independent- or multiplatform-supported applications will become popular, and will be frequently used in education. Attwel (2007) suggested that we are coming to realize that we cannot simply reproduce previous forms of learning, such as the classroom or the university, embodied in software. Instead, we have to look at the new opportunities for learning afforded by emerging technologies.

International certification will become common, and this will allow for the emergence of competent and efficient international standards. Environments that support lifelong learning and blended learning will expand, and these factors will not be ignored in the development of technology. Online teaching and learning spaces will be created, and by this means, the educational needs of the masses will be addressed more reasonably in terms of choices and cost.

Consequently, if the cloud-based learning that was the focus of Group 4, which included the researcher, was emphasized, it was predicted that cloud technology will be the most commonly used technology within the next 10–20 years. Cloud computing is highly scalable and uses virtualized resources that can be shared by the users (Ercan, 2010). In fact, cloud technology is a way of presenting rather than being a new technology. This computing approach relies on a number of existing technologies, for example, the Internet, virtualization, grid computing, Web services, and so forth. The provision of this service in a pay-as-you-go way through (largely) the popular medium of the Internet gives this service a new distinctiveness (Sultan, 2010). It is considered that the use of this technology in education, which has also been employed in many other fields, will gain in importance. Through the popularization of cloud technology in education, new approaches will be created in terms of both preparing and presenting educational contents. Educational methods and teaching design models will be updated and will conform to this technology.

Finally, it should not be ignored in mentioning the new technologies and discoveries related to e-learning that these technologies will lead to radical changes in educational systems and approaches. Therefore, it will be critical to ask for the opinions of educationalists from different fields, and determine the priorities and needs of all fields such as the social sciences and the physical sciences in planning new technologies related to education.

REFERENCES

Arslan, Ç., & Altun, M. (2007). Learning to solve non-routine problems. *Elementary Education Online*, *6*(1), 50-61.

Akkirman, A. (2012). Schools of the future. Retrieved July 09, 2014 from http://www.teliasonera.com/tg/newsroom/blogs/my-blog/?blogId=9&entryId=44.

Barış, M.F. (2013). Trakya Kalkınma Ajansı Bilgi Toplumu Ve Yenilikçilik Özel İhtisas Komisyonu Raporu.

Brown, H.T. (2003). *The Role of m-learning in the Future of e-learning in Africa*, Presentation at the 21st ICDE World Conference, June 2003, Hong Kong.

Charmonman, S. (2010). *"eLearning in the Future." Keynote Address to "8th International Conference on Developing Real-Life Learning Experiences: Innovation and Technology Education."* King Mongkut's Institute of Technology Ladkrabang. 27 August 2010.

Downes S. (2005). E-Learning 2.0,eLearn Magazine (C - Publications in Trade Journals (invited article)) *Association for Computing Machinery*, Retrieved October 29, 2013, from http://elearnmag.acm.org/featured.cfm?aid=1104968.

Ercan, T. (2010). Effective use of cloud computing in educational institutions, *Procedia Social and Behavioral Sciences, 2*(2010) 938–942.

Gates, B. (2004). Retrieved October 29, 2013 from http://www.thetrainingroomonline.com/bill-gates-sees-online-education-as-the-future-of-learning/.

Keegan D. (2002). The future of learning: From eLearning to mLearning. *ZIFF Papiere,* 119 FernUniversität Hagen.

Kim, K-J., Bonk, C. J. & Zeng, T., June (2005). Surveying the future of workplace e-learning the rise of blending, interactivity, and authentic learning, Retrieved November 11, 2013, from http://elearnmag.acm.org/featured.cfm?aid=1073202.

Sawhney, P. (2012). Innovation in Education – from educe to deduce, Retrieved July 09, 2014 from http://www.teliasonera.com/en/newsroom/blogs/my-blog/?blogId=5&entryId=42.

Sultan, N. (2010). Cloud computing for education: A new dawn? *International Journal of Information Management, 30* (2010) 109–116.

Tosun, N. & Barış, M.F. (2011). Using information and communication technologies in school improvement.*TOJET: The Turkish Online Journal of Educational Technology, 10*(1), 223-231.

Wang, T-S. (2013). Design and Assessment of Joyful Mobile Navigation Systems based on TAM and Integrating Learning Models Applied on Ecological Teaching

Activity. *Eurasia Journal of Mathematics, Science & Technology Education*, *9*(2), 201-212.

Weiss, C. (2012). Forecasting the Future of E-Learning: Where are we going in 2013? *American Society for Training and Development*-Los Angeles- ASTD-LA.

Welsh, E. T., Wanberg, C. R., Brown, K.G. & Simmering M. J. (2003). E-learning: emerging uses, empirical results and future directions. *International Journal of Training and Development*, *7*(4), 245-258.

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