



INNOVATIONS IN E-LEARNING

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ABSTRACT

Power quality may be defined as the measure analysis and improvement of the bus voltage usually load bus voltage to be pure sinusoid at rated magnitude and frequency. Due to increase use of non-linear and electronic based equipment's the load bus voltage and current waveforms will not be a pure sinusoid in rated magnitude and frequency. This creates the disturbances in the system. In power system there are various kinds of power quality disturbances such as voltage sags (dips), swells, transients, flickers, harmonics etc. Among these voltage dips (sag) particularly troublesome, since sags in modern power system leads to tripping or misoperation of customer equipment and reduced life of the equipment. This paper presents the various power quality issues and various detection methods for determining the voltage sag and voltage swell. The prediction of voltage sag and swell in a power system is necessary for the analysis of supply reliability.

KEY WORDS: E-learning, innovation, educational marketing, collaborative model

INTRODUCTION:

Technology-based innovations in education reshape the environments in which schools operate. In general, they tend to open up learning environments, both to the digital world and the physical and social environment. They also bring new actors and stakeholders into the educational system, not least the education industries, with their own ideas, views and dreams about what the future of education can hold. Despite fears of “marketization”, the education industry could be an essential partner in any education innovation strategy. Instead of being considered just as providers of goods and services, different relationships between schools and industry could foster an innovation-friendly environment, with a greater

focus on methods over technologies. understanding the education industries better, including their market structures and innovation processes, would help to create a more mature relationship with the education sector. Innovation in the industry – which develops the products and services that could drive innovation in schools – does not happen in isolation from what is happening in the education sector. Only when there is an innovation-friendly culture in education systems, supported by an innovation-friendly business environment and policies, will industries start to engage in risk-intensive research and development. Governments can support this by fostering a climate of entrepreneurship and innovation in education. Thirdly e-learning systems support

collaborative communication, whereby users have total control over their own situations of learning. In the fourth place, e-learning support networks for accessing information And fifth, e-learning allows for the systems to be implemented freely on various kinds of computer operating systems.

It can therefore be concluded from the above that it is difficult to identify a common definition for e-learning. Some of the authors refer to e-learning as providing complete on-line courses only whereas comprise web-supplemented and web-dependent services for the provision of educational and support processes. Innovation in education is a highly contentious issue. Talking to education ministers one quickly gets the impression that education systems in general are very reluctant to innovate, and that there is strong resistance to change among teachers. Education is sometimes perceived as one of the most conservative social systems and public policy fields. But talking to teachers gives one the opposite idea – that there are too many changes imposed on them without much consultation or the necessary preconditions for successfully implementing change. In some countries, innovative change has been implemented without the care and diligence needed or the appropriate prior testing, experimentation and evaluation. This controversy should not deter us from looking to the facts. And the facts clearly demonstrate that education systems are running up against very serious problems which, if left untouched, could result in serious risks not only for education itself but also for future economic growth, social progress and well-being. Since the mid-20th century, education systems have expanded enormously and human populations have never

been more highly educated than today. Emerging economies and developing countries are now also relentlessly expanding their education systems, seeing education as an indispensable ingredient of modernisation and progress. Indeed, the benefits to individuals and societies of ever more education remain very impressive. Yet, although many policy makers may consider the continued expansion in numbers as the best route forward, a closer look into the data reveals that this may as well lead us into difficulties. The problem education is facing is mainly one of productivity and efficiency. Here, efficiency means the balance between resources invested and the outcomes in terms of students' performance and equity. Over the past decades ever more resources have been invested in education. Looking just at school education, the average expenditure per student across OECD countries increased by no less than 17% between 2005 and 2013 in constant prices (OECD, 2016). But over roughly the same period, the Programme for International Student Assessment (PISA) data from the 2003 and 2012 surveys show no significant improvement in test scores. Instead, in most countries the percentage of top performers has declined. And, while the PISA data show some progress in equity, huge gaps remain in equality of opportunity and education outcomes between various social groups (OECD, 2013). The problem of productivity and efficiency in education is even more striking when education is compared with other public policy sectors, which have realised enormous productivity gains in past decades. In sectors such as health, technology has been a major driver of increased productivity and efficiency with much improved outcomes even if the cost has also gone up.

Many observers wonder why enormous advances in technology has not yet led to similar improvements in education. Governments have invested a lot in bringing technology, mainly information and communications technology (ICT), to schools. But, as the analysis of PISA data discussed in Chapter 3 will show, it has not yet been possible to associate increased availability and use of computers in schools with improvements in learning outcomes.....

FAVOURABLE ENVIRONMENT FOR E-LEARNING

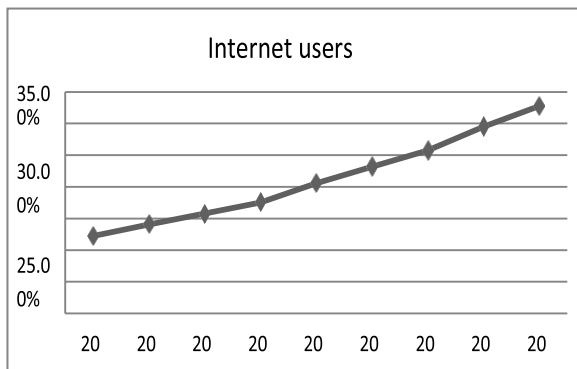


Fig1. Internet users evolution between 2003 and 2011

The Internet is the greatest key driver for e-learning concept birth and proliferation: this virtual global network development and its acknowledged benefits created an increasing desire of applying it in the educational process. As Figure 1. shows, the number of internet users has been rising globally more than 2 times in the last 8 years: from 12% in 2003 to 33% in 2011. The unpredictable dynamic life asks of individuals a perpetual process of learning as seized by more and more company employees that adopt an attitude of constant development and lifelong learning motivation (Daukilas and Vaisnoriene, 2009). Lifelong learning is also a

concept situated at the heart of EU 2020 Strategy as one of its main goals is to have 15 per cent of the adults ages between 25 and 64 years involved in lifelong learning programs by 2020 (The European Commission, 2012). As this concept is gathering more and more advocates, e-learning offers a solution that is a shift from knowledge delivery toward groups to knowledge delivery toward individuals (Huddleston and Pike, 2008). Of course that e-learning is an alternative to blended learning or traditional teaching methods that cannot be replaced by technology-based methods due to their particular features. Still, e-learning has hit a rough path due to higher education institutions (HEIs) resistance to major changes that e-learning implies (White, 2007), and also the difficulty of creating a shared learning environment that offers the possibility of sustaining online community of inquires (Johnson et. al, 2008). Even though e-learning is a concept frequently used in different areas of interests, specialists in e-learning have not managed to reach a common stable definition for e-learning. American Society for Training & Development (ASTD) cited by Brandon (2008, p.5) first defined e-learning in 2001 as “instructional content or learning experiences delivered or enabled by electronic technology that is designed to increase workers’ knowledge and skills so they can be more productive, find and keep high-quality jobs, advance in their careers, and have a positive impact on the success of their employees, their families, and their communities”.

E-LEARNING- A TOOL FOR UNIVERSITIE SAND COMPANIES

Despite criticism and people resisting the e-learning system adoption, e-learning is

happening and gathering enthusiasts across utilization fields and interest area. E-learning has become a favorite solution for people who want an acceptable and rationale way to learn from the point of view of time, and space (Daukilas and Vaisnorienė, 2009). Also, a study conducted by Pineda-Herrero et. al (2011) concluded that the major success factor of e-learning is accountability: the course attendant's capacity of turning the gained knowledge into revenue for himself / herself or the third party paying for attending the course (e.g. companies). The same study defined the catalyst factors of e-learning mentioning training satisfaction, gathered knowledge, transfer design, personal motivation and personal or organizational support. Developing an e-learning program is based on the evaluation of learning requests and their match to e-learning outcomes. In this evaluation, a few questions are critical (Huddleston and Pike, 2008): Can it assure the necessary human interaction? Is it the right method? Is there the right amount of competences and motivation amongst course attendants? Does e-learning match the organizational and cultural frame? Is e-learning more cost efficient? Generally speaking, one might wonder what benefits is e-learning expected to create for organizations and their innovation capacity or universities and their increased image awareness and marketing efforts?

COMPANIES AND E-LEARNING BENEFITS

One major development of e-learning has been determined by the extension of companies' expenditure on employee technology-based training. A quantitative analysis conducted by the ASTD (2012) emphasizes that in 2011 there were a 156.2 billion \$ worth spend in USA for

employees' training, while 37.3% of the total teaching methods were technology-based methods. Also, companies tend to adopt new and improved ways of using technology in the training process of employees as one of the most innovative methods currently used is mobile learning. This extensive expansion of training methods was completed by an intensive growth in training: employees in USA have had on average 31 training hours in 2011, five times more training hours than they used to have a decade ago. Small-size companies (below 500 employees) are those who invest most in training – approximately 1605 \$ per employee on average, while large-size companies (over 10,000 employees) invest on average 825 \$ per employee (ASTD, 2012). The report issued by ASTD proves the increased importance of training programs for companies, regardless of their dimension or the economic frame, as a method to increase innovation capacity and consequently creating and sustaining the competitive advantage. In this context, e-learning programs have a set of advantages based on which they gather more and more advocates compared to traditional teaching techniques, especially among companies. As far as e-learning benefits are concerned, first, e-learning systems create and develop human competences that are predictors of innovativeness, as the better trained the teachers are for delivering and using e-learning tools and methods, the more innovating are the attendants taking the e-learning classes (Loogma, Kruusvall, Umarik, 2012). Additionally, the simple transition from traditional classroom learning to e-learning is a crucial change in technology and learning model for both learner and instructor (Wu, et al., 2008) that are prone to lead to innovating behaviour

and attitude. The reverse perspective is also viable: a certain amount of core innovation capabilities is needed for successfully exploiting e-learning (Wu, et al., 2008). E-learning systems have the ability to develop the organizational learning that affects positively innovation that consequently leads to higher business performance (Jimenez-Jimenez and Sanz-Valle, 2011). Still, in implementing an e-learning program within a company there is an increased request for also creating the transfer opportunity, since previous researches have shown that very few companies offer the resources, time and opportunity to apply what the employees learned after attending e-learning courses (Pineda-Herrero et al, 2011). But, on a general basis, skilful employees create among their company a culture of openness, co-creation and crowd-creation that eventually lead to a higher innovation rate in organization that is prone to increase organization's market performance. Other researchers also defined e-learning as a revolutionary approach (Jennex, 2005; Twigg, 2002) to enable a workforce with the knowledge and skills needed to turn change into benefit (Jennex, 2005). For instance Twigg (2002) described the e-learning approach as centered on the learner as well as its design as involving a system that is interactive, repetitious, self-paced, and customizable.

Even though, e-learning is a young concept discovered and used only a few decades ago, there are already a few myths that have developed around it (Brandon, 2008, pp. 5-6): everyone knows what you mean when you talk about e-learning, but the truth is that even the lack of a universal accepted definition of the concept reflects the inexistence of perfect understanding of the concept across cultures,

organizations, people. The second myth learning as magic (Brandon, 2008, pp. 11- 12), the saviour (Kariuki Njenga and Fourie, 2010, p. 202), but one must bear in mind that e-learning has no success formula as it only offers you (Brandon, 2008, pp. 6-7) states that e-learning is really no big deal, myth that would prove to be true only if e-learning was lacking the capacity of provoking change, fact denied by multiple benefits of e-learning universal usages. without giving the educators the time and opportunity to explore the danger and rewards of e-learning on teaching and learning".

ADVANTAGES OR BENEFITS OF E-LEARNING

The adoption of E-learning in education, especially for higher educational institutions has several benefits, and given its several advantages and benefits, e-learning is considered among the best methods of education. Several studies and authors have provided benefits and advantages derived from the adoption of e-learning technologies into schools (Klein and Ware, 2003; Algahtani, 2011; Hameed et al, 2008; Marc, 2002; Wentling et al. 2000; Nichols, 2003). Some studies give advantage of e-learning as its ability to focus on the needs of individual learners. For example Marc (2000) in his book review on e-learning strategies for delivering knowledge in digital age noted that one of the advantages of e-learning in education is its focus on the needs of individual learners as an important factor in the process of education rather than on the instructors', or educational institutions' needs. Some of the advantages that the adoption of e-learning in education, obtained from review of literature includes the following:

- [1] It is flexible when issues of time and place are taken into consideration. Every student

has the luxury of choosing the place and time that suits him/her. According to Smedley (2010), the adoption of e-learning provides the institutions as well as their students or learners the much flexibility of time and place of delivery or receipt of according to learning information.

- [2] E-learning enhances the efficacy of knowledge and qualifications via ease of access to a huge amount of information.
- [3] It is able to provide opportunities for relations between learners by the use of discussion forums. Through this, e-learning helps eliminate barriers that have the potential of hindering participation including the fear of talking to other learners. E-learning motivates students to interact with other, as well as exchange and respect different point of views. E-learning eases communication and also improves the relationships that sustain learning. Wagner et al (2008) note that e-Learning makes available extra prospects for interactivity between students and teachers during content delivery.
- [4] E-learning is cost effective in the sense that there is no need for the students or learners to travel. It is also cost effective in the sense that it offers opportunities for learning for maximum number of learners with no need for many buildings.
- [5] E-learning always takes into consideration the individual learners differences. Some learners, for instance prefer to concentrate on certain parts of the course, while others are prepared to review the entire course.
- [6] E-learning helps compensate for scarcities of academic staff, including instructors or teachers as well as facilitators, lab technicians etc.
- [7] The use of e-Learning allows self-pacing. For instance the asynchronous way permits each student to study at his or her own pace and speed whether slow or quick. It therefore increases satisfaction and decreases stress (Codone, 2001; Amer, 2007; Urdan and Weggen, 2000; Algahtani, 2011; Marc, 2002; Klein and Ware, 2003).
- [8] The above-mentioned advantages of e-learning has been summed up by Holmes and Gardner (2006) by noting that the ability of e-learning to assess the students or learners as they learn, and at the same time increasing their experiences in education, by way of interactivity suitable to.
- [9] community education, cultural diversity and globalization, and eradicating boundaries of place and time. To them the most vital characteristics as well as advantage of e-learning in education is that it centres on the students or learners (Holmes and Gardner, 2006).

Through e-learning, according to Raba (2005), objectives can be accomplished in the shortest time with least amount of effort. Both learners and instructors can be able to accomplish and keep up with development as they obtain experience that is provided by numerous specialists in the various fields of knowledge. The impacts of e-learning on educational ethics according to Khan (2005) are ensured. This is because the environments for e-learning are tolerant, so they are a good ways of offering equal access to the information world irrespective of the locations of the users, their ages as well as ethnic origins, and races (Khan, 2005). The environment for e-learning also aids learners or students to depend on themselves for

the reason that instructors are no longer the solitary knowledge source. They instead become advisors and guides (Alsalem, 2004). E-learning also aids in the preparation of the society to globally communicate and to dialogue with others (Zeitoun, 2008). However according to Algahtani (2011), the likely benefits of e-learning are greater than the benefits of traditional learning if e-learning is used and applied in proper ways. The research conducted on the subject of elements that contribute to increasing a company's innovation performance involved applying a questionnaire between October 2012 and February 2013 on a random sample of 87 companies from Romania. This survey evaluates the way in which companies collaborate with partners in order to acquire knowledge and to transform it into innovation process outcomes.

DISADVANTAGES

E-learning, in spite of the advantages that it has when adopted in education, also has some disadvantages. Studies support that e-learning possesses some disadvantages (Collins et al. 1997; Klein and Ware, 2003; Hameed et al, 2008; Almosa, 2002; Akkoyuklu and Soyulu, 2006; Lewis, 2000; Scott et al. 1999; Marc, 2002; Dowling et al, 2003; Mayes, 2002). For example despite the claims that e-Learning can improve the education quality, Dowling et al. (2003) argue that making learning materials available online results in improved learning results only for specific forms of collective assessment. Also Mayes (2002) asked a question of whether e Learning is simply a support device for existing methods of learning. The most noticeable condemnation of e-Learning is the complete absence of vital personal interactions, not only between learners and instructors, but also among colleague learners (Young, 1997;

Burdman, 1998).According to Almosa (2002), regardless of all the disadvantages of e-learning, there are a lot of benefits which inspire its use and also encourage the search for ways to reduce disadvantages. The disadvantages of e-learning that have been given by studies include the following:

- [1] E-learning as a method of education makes the learners undergo contemplation, remoteness, as well as lack of interaction or relation. It therefore requires a very strong inspiration as well as skills with to the management of time in order to reduce such effects.
- [2] Online students feedback is limited, it can causes social isolation, it also required time management skill, lack of communication skill development in online students.
- [3] Cheating prevention during online assessment is complicated, online instructor tends to focus on theory rather than practice it also has alack of face to face communication.
- [4] E-learning is inaccessible to the computer illiterate population, it also has lack of accreditation & quality assurance in online education.
- [5] With respect to clarifications, offer of explanations, as well as interpretations, the e-learning method might be less effective that the traditional method of learning. The learning process is much easier with the use of the face to face encounter with the instructors or teachers.
- [6] E-learning may also deteriorate institutions' role socialization role and also the role of instructors as the directors of the process of education.
- [7] When it comes to improvement in

communication skills of learners, e-learning as a method might have a negative effect. The learners. Though might have an excellent knowledge in academics, they may not possess the needed skills to deliver their acquired knowledge to others.

- [8] Since tests for assessments in e-learning are possibly done with the use of proxy, it will be difficult, if not impossible to control or regulate bad activities like cheating.
- [9] E-learning may also probably be misled to piracy and plagiarism, predisposed by inadequate selection skills, as well as the ease of copy and paste.
- [10] Also not all fields or discipline can employ the e-learning technique in education. For instance the purely scientific fields that include practical cannot be properly studies through e-learning. Researches have argued that e-learning is more appropriate in social science and humanities than the fields such as medical science and pharmacy, where there is the need to develop practical skills.
- [11] E-learning may also lead to congestion or heavy use of some websites. This may bring about unanticipated costs both in time and money disadvantages (Collins et al. 1997; Klein and Ware, 2003; Hameed et al, 2008; Almosa, 2002; Akkoyuklu & Soyly, 2006; Lewis, 2000; Scott et al. 1999; Marc, 2002).

THE USE OF E-LEARNING IN EDUCATION

The development of multimedia and information technologies, as well as the use internet as a new technique of teaching, has made radical changes in the traditional process of teaching (Wang et al. 2007). Development in information technology, According to Yang and Armband (1999), has generated more choices for today's

education. Agendas of schools and educational institutions have recognized e-Learning as having the prospect to transform people, knowledge, skills and performance (Henry, 2001). Also according to Love and Fry (2006), colleges, universities, and other institutions of higher learning race to advance online course capability in a speedily developing cyber education market. E-learning, has come to be more and more important in institutions of higher education. The introduction and expansion of a range of e-Learning tools has been initiating several changes in higher education institutions, particularly when it comes to their educational delivery and support processes (Dublin, 2003). Just as there are different types of e- Learning, there are also different ways of employing the technique in education. Algahtani, (2011), in his evaluation of E-learning effectiveness and experience in Saudi Arabia, discovered three distinct models of using e-learning in education including the “adjunct, blended e-Learning and online”. The three ways of using e-Learning technologies as discovered by Algahtani (2011) are described below. The “adjunct e-Learning is the situation which e-Learning is employed as an assistant in the traditional classroom providing relative independence to the learners or students (Algahtani, 2011). In the blended e-Learning, Algahtani (2011) and Zeitoun (2008) explained that, in this way of using e-Learning, the delivery of course materials and explanations is shared between traditional learning method and e-learning method in the classroom setting. The third one which is the online is devoid of the traditional learning participation or classroom participation. Today's learners want relevant, mobile, self-paced, and personalized content.

This need is fulfilled with the online mode of learning; here, students can learn at their own comfort and requirement. Let's have an analytical look at the advantages of online learning. Unlike classroom teaching, with online learning you can access the content an unlimited number of times. This is especially required at the time of revision when preparing for an exam. In traditional form of learning, if you cannot attend the lecture, then you have to prepare for that topic on your own; in eLearning, you can attend the lectures whenever you want with ease. prime benefit of learning online is that it makes sure that you are in synchronization with modern learners. This enables the learner to access updated content whenever they want it. eLearning is a way to provide quick delivery of lessons. As compared to traditional classroom teaching method, this mode has relatively quick delivery cycles. This indicates that the time required to learn is reduced to 25%-60% of what is required in traditional learning. There are some of the reasons why the learning time is reduced by eLearning:

Lessons starts quickly and also wrapped up in a single learning session. This enables training programs to easily roll out within a few weeks, or sometime even days. Learners can define their own speed of learning instead of following the speed of the whole group. Saves time as a student does not need to travel to the training venue. You can learn at the comfort of your own place. Students can choose to study specific and relevant areas of the learning material without focusing on each and every area. For example, they can skip certain areas they do not want to learn. eLearning helps in creating and communicating new training, policies, concepts,

and ideas. Whether it is for formal education or entertainment, eLearning is very quick way of learning!

6. Consistency. E-Learning enables educators to get a higher degree of coverage to communicate the message in a consistent way for their target audience. This ensures that all learners receive the same type of training with this learning mode. E-Learning is cost effective as compared to traditional forms of learning. The reason for this price reduction is because learning through this mode happens quickly and easily. A lot of training time is reduced with respect to trainers, travel, course materials, and accommodation. This cost effectiveness also helps in enhancing the profitability of an organization. Also, when you are studying at your own place, you are relieved from paying for travel expenses (e.g. accommodation) when training happens in another city/state and/or external learning materials. eLearning has a positive influence on an organization's profitability. It makes it easy to grasp the content and digest it:It results in improved scores on certifications, tests, or other types of evaluation. Higher number of students who achieve 'pass' or mastery' level. Enhanced ability to learn and implement the new processes or knowledge at the workplace. As eLearning is a paperless way of learning, it protects the environment to a lot of extent. As per a study done on eLearning courses, it has been found that distance-based learning programs consumed around 90% less power and generated 85% less amount of CO2 emissions as compared to traditional campus-based educational courses. With eLearning, there is no need to cut trees for obtaining paper. Thus, eLearning is a highly eco-friendly way of learning. Help in retaining information for a

longer time.

CONCLUSION

Due to the wide set of benefits it gives to students, eLearning has become quite popular and appreciated among students all over the world. The effectiveness of the e-learning depends on the quality and quantity of the applied e-learning materials, the needed time for taking the course and the results at the course end. As the time necessary for learning the new information that given course offers is shorter and the results at the end are better, the effectiveness of e-learning is higher.

Elearning involves the use of digital tools for teaching and learning. It makes use of technological tools to enable learners study anytime and anywhere. It involves the training, delivery of knowledge and motivates students to interact with each other, as well as exchange and respect different point of views. It eases communication and improves the relationships that sustain learning. Despite some challenges discussed, the literature has sought to explain the role of elearning in particular and how eLearning has made a strong impact in teaching and learning. Given the results of the two main researches conducted among university students and companies' employees, we could define a collaborative e-learning scheme that would bring together universities and companies for their both interests and benefits. Based on the fact that both university students and companies' employees are searching and needing more and more learning opportunities, collaboration between the two types of institutions is the ideal model to tackle this issue. What would this collaboration mean? Universities would turn to companies as an e-learning provider whilst companies would offer

valuable insight for universities regarding actual life situations, case studies and new methods and practices in the domain, but also offering guest speakers for e-learning courses.

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