



## Development of Individual Learners: Perspective on the Uncertain Future Contribution of E-Learning

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### Abstract

E-learning in the educational world has grown and changed rapidly in recent years. Both private and public sector organizations have embraced the practice of reaching their students at a distance via new technologies afforded them by Information Communication Technology (ICT) infrastructure. E-learning is grounded on technology, and without it, its practice would be difficult, if not impossible. We can see that the use of the internet and ICT are becoming an important part of learning and teaching strategies in many educational institutions. Knowing that education has always been an important engine for economic development, the Malaysian government has taken initiative steps to implement public awareness on the ICT issues. An important part of e-learning has been to contribute to the development of individual learners whatever their life circumstances. E-learning as a field of educational endeavor is at a crucial juncture in its historical development. The notion of learning at a distance has gained wide acceptance across the developed world. Instructors, physically and temporally separated from learners using newly emerging information and communication technologies, are widespread. The potential of latest technology has adopted in creating new learning environments. The rationale behind this endeavor is the expectation that unique features of the Information Communication technology. It also can include a range of powerful media forms and its interactive capability that support sophisticated range and interaction in teaching. As a result, these approaches will provide a rich environment for teaching.

**Keywords:** E-learning, Information and communication technology, Individual learners, Internet, Multimedia

### 1. Introduction

E-learning is not a recent phenomenon to Malaysia. Most of the people work harder for higher qualification, especially those in employment who aspires to be successful in their career development. E-learning was conducted by supplying

to registered students with reading materials, reference and assignments by accessing from the web. At the end of session students will have to sit for the scheduled examinations at different recognized centers in the country. In person teaching was not common, but educational entrepreneurs normally took the opportunity to provide some form of tuition to those students who were preparing for their examinations. In certain cases, there was no interaction at all between students and learning institution.

Information and Communication Technology (ICT) pushes our society from one of the industrial production to a dynamic, knowledge-based service and information society. Social processes change rapidly as is shown by individualization and globalization. Demographically, the most important issue is that more people grow old and fewer babies are born. Such trends lead to the need for 'life long learning'.

The need to learn is definitely there, but motivation is an important issue. All of the learners are required to participate fruitfully in our modern society. In addition, e-learning environments that engage learners are required learning processes. There are some issues that need to be looked into:

- What is the impact of social and technological changes on learners and their learning processes?
- What are the required learning processes in order to participate productively in our (future) society?
- How can we facilitate such learning processes?

E-learning describes the way new information and communications technologies (ICT) are set to re-invent education and learning in a digital world. It means that internet enabled learning by an exciting range of opportunities for educators and learners alike to use new skills and tools to prosper in an information society. E-learning means the delivery of learning with the assistance of interactive and electronic technology. The delivery and administration of learning opportunities are done via computer networked and web-based technology, to help individual performance and development. It is more than just training on a computer as it encompasses dissemination of information, performance support, and knowledge management. It involves not only access to training materials but also offers the management of learning by providing both content and administration.

Approaches such as Computer Based Training (CBT), Web Based Training (WBT), electronic performance support systems and video conferencing have to be integrated. Some people prefer to use the new approaches such as knowledge media, technology-assisted learning and *technology*-based training. Sometimes the term Technology Based Training (TBT) has been used to refer to computer-mediated learning. There is a better term to cover the entire alternative approaches. This e-word is a sibling of e-business where e-learning exploits the technology of the World Wide Web. E-learning is not, however, restricted to the Web. It also includes training delivered via stand-alone computers like CBT. Nowadays, we are moving toward Mobile Based Training.

## 2. Method

Learning processes should be reconstructed into a framework of competencies where the people can develop for a 'life long learning'. The categories are prerequisite literacy competencies (e.g. English, ICT), learning competencies, social competencies, professional competencies and career development competencies. Concerning the socio-constructivist learning theory, people can develop such competencies by being actively involved in constructive learning activities, within the setting of a 'rich' learning environment. Such an environment resembles real life, is motivating and provides learners with the opportunity to transfer learning experiences to daily practice. Along this lines, problem-based learning, case-based learning and methods such as learning by discovery are strongly preferred (Veerman, Riemersma & Veldhuis, 2004).

### 2.1 The role of e-learning

With the growing number of on-line courses, the increasing accessibility of computers, the rapid growth of internet and intranets, and the increasing number of computer users, students of all ages are taking advantages of distance learning/distance education or are using computers to enhance traditional classroom experience. E-learning, which describes the use of Web or Internet technologies to enhance teaching and learning experience, is therefore, a suitable solution to encourage education to anyone, anywhere, at anytime. In addition, the overall operating costs for the national education system can be reduced once the e-learning systems have been implemented.

Conventional classroom-based and distance education has collided in the realm of e-learning (Muirhead, 2005). The challenge now is to support university teachers in the new blended environment characterized by elements of both conventional classroom and distance learning. Our paper is a critically reflective case study of one strategic project to deliver such support. E-learning in university teaching is still generally considered an educational innovation rather than the use of teaching and learning strategies embedded in university culture and practice. An institutional strategic plan is essential but only the first step. Uptake of an educational innovation is about personal and, often, institutional change, whether desired or required.

While there is a growing base of literature on descriptive case studies of the implementation of e-learning strategies (Steeple & Jones, 2002), they observe that only a fraction use an explicit theoretical framework to examine the experience. This is not surprising as a recent wider study of published educational research concluded that more explicit theoretical engagement is needed (Tight, 2004).

Buch & Sena, (2001) posed important questions when looking at the benefits of using the Internet in education. The questions they asked were:

- Do individuals learn differently with on-line instruction than traditional classroom situations?
- Can the same teaching strategies be used with on-line as traditional methods and will they be as effective?
- Do individuals' react differently to on-line instruction and how can individual differences in learners be accommodated?

### *2.2 Independent Learning*

Independent learning focuses on creation of the opportunities and experiences necessary for students to become capable, self-reliant, self-motivated and life-long learners. The desired outcome would be students who value learning as an empowering activity of great personal and social worth. Independent learning is that learning in which the learner, in conjunction with relevant others, can make the decisions necessary to meet the learner's own learning needs. In this method a process independent learners develop the values, attitudes, knowledge and skills needed to make responsible decisions and take actions dealing with their own learning. Independent learning is fostered by creating the opportunities and experiences which encourage student motivation, curiosity, self-confidence, self-reliance and positive self-concept; it is based on student understanding of their own interests and a valuing of learning for its own sake.

This method is part of an ongoing, lifelong process of education that stimulates greater thoughtfulness and reflection and promotes the continuing growth of students' capabilities and powers. More than the rote learning of facts and skills, this approach to learning encourages students to make meaning for themselves, based on their understanding of why and how new knowledge is related to their own experiences, interests and needs.

It is a direction for the process of education, not an absolute standard; this process takes different forms for different students and it varies according to subject matter and students' interests and abilities in the subjects. The process involves the teacher and learner in an interactive process that encourages students' intellectual development and their capacity for independent and reflective judgment.

Independent learning is fostered by a school environment which is sensitive, flexible, democratic and responsive to the needs of students. This encourages a strong sense of purpose and motivation on the part of students. Independent learning makes full use of the resources of the school and the community and fosters the development of independent learners in every grade and in every subject.

### *2.3 Technology Literacy*

The goal of incorporating technological literacy is to develop individuals who understand how technology and society influence one another and who are able to use this knowledge in their every day decision making. What is desired are students who are able to analyze the technological influences on their lives and see themselves as having roles and responsibilities in shaping public policy related to technological changes?

Technological literacy can be described as the intellectual processes, abilities and dispositions needed for students to understand the link between technology, themselves and society in general. Technological literacy is concerned with developing students' awareness of how technology is related to the broader social system, and how technological systems cannot be fully separated from the political, cultural and economic frameworks which shape them. In order to achieve an informed, balanced and comprehensive analysis of the technological influences on their lives and then be able to act on the basis of their analysis, students require certain levels of knowledge, skills and abilities.

A technologically literate person is someone who critically examines and questions technological progress and innovation. To be critical about technology means to have the intellectual skills to analyze the pros and cons of any technological development, to examine its potential benefits, its potential costs, and to perceive the underlying political and social forces driving the development. Decisions about the creation and use of new technology involve human, social and environmental issues which place constraints and limits on the solutions. Values also influence intellectual processes, since anything that involves choice also involves consideration of whose values are shaping a particular technological development. The capacity to make critical judgments involving technology increases the ability of students (as citizens) to use such knowledge to shape and influence their environment.

#### *2.3.1 Technology and society*

An understanding of how technology shapes and is shaped by society is based on two principles. First, technology is an agent of social change. Technological systems have produced great increases in the speed of communication, made

mass production possible, and reduced physical labor for human beings. Technology has also provided an abundance of products and services; this requires individuals to make wise consumer decisions. Second, societies influence the course of technological development. Social, historical and cultural factors determine if, and how, a technology is used. More than ever before, students are immersed in an environment shaped by human technology. Citizens' responsibilities in a technological age are defined as the exercising of democratic rights on issues that affect the direction to be taken by society and its technological developments. Becoming technologically literate means coming to grips with the problems of living in, and exerting influence upon, the constructed world.

#### *2.4 Challenges in E-learning*

Since the emergence of the Internet and the World Wide Web (WWW) in providing instruction in the mid-1990s, there have been numerous studies about the problems of designing web-based instruction. Most of these studies have had "common shortcomings" in that they have failed to develop a theoretical or conceptual framework of web-based, or online instruction (Jung, 2001). Indeed, the process of designing online instruction can be so complex and difficult that educators often end up adopting curriculum to fit the technology rather than selecting the proper technology to support the curriculum.

Many educators now believe that the unique environment of online learning necessitates a reexamination of the learning process, in many instances a paradigm shift in pedagogical practice. For instance, changing a traditional face-to-face course to an online course does not mean posting lectures online in a text-based format. Rather, it involves a transformation of both teaching and learning, a process that requires training and possibly a change in an instructor's style and expectations.

Time is another challenge. Faculty must work with time constraints and communicate and follow-through with email, grading, discussion boards, and online chats. They must be able to support and nurture a community of learners, motivate and inspire, gain their attention, and get them to learn. At the same time, faculty must also be cognizant of available and evolving technologies and how to use them to effectively support and enhance student learning. As a result, educators need to constantly reflect upon, improve, and update their practice, understanding how to best design instruction to support student learning. These can be difficult, if not impossible, goals, given the time that most instructors of higher education must spend on teaching, research, and service (Turley, 2005).

Faculty may also need to learn new skills to create and implement rich online learning experiences. Those who want to augment their instruction with online components need to learn how to use those tools, such as synchronous meetings, tutorials, simulations, multimedia lessons, instant messaging, blogs, course management systems, and other interactive multimedia formats. Additionally, instructors need to understand human learning processes. According to Clark & Mayer (2003), when the limits of human cognitive processes are ignored, instruction that employs all of the technological capabilities to deliver text, audio, and video can actually reduce or hinder learning. An understanding of educational psychology, instructional design, multimedia production, graphics, and interface design are necessary to translate these principles into effective online instruction. Although new technologies ease the burden of knowing a programming language, it still takes from ten to twenty times more labor and skill to produce good courseware for online learning than for traditional classrooms (Clark & Mayer, 2003).

Another challenge of online learning environments is the shortage of technical staff to help faculty, students, and staff. This shortage can put a strain on developing web-based programs and delay worthwhile projects. Many issues continue to confront institutions of higher education in the realm of online learning. The following are the goals for development of distance learning programs.

- Reducing per-student costs
- Making educational opportunities more affordable for students
- Increasing institution enrollments
- Increasing student access by reducing time constraints for course taking
- Increasing student access by making courses available at convenient locations
- Increasing institutional access to new audiences
- Improving the quality of course offerings
- Meeting the needs of local employers

The good news is that instructors now have access to rich multimedia tools to enhance instruction. The bad news is that multimedia software is often used in instructionally-deficient ways. For instance, PowerPoint is multimedia software that is easy to use, but can be detrimental to learning if used in the wrong ways. Faculty in higher education may need to receive training on how to effectively integrate multimedia in instruction. This is indicated by the availability of training courses offered by various universities.

### 3. Result and discussion

#### 3.1 Opportunities of E-learning environment

Western industrialized countries are undergoing a transformation from industrial societies to information and communications societies or knowledge-based societies. Almost all spheres of life are affected by these radical changes, which, however, also offer new opportunities. The education sector is both affected and challenged by this change. New content-related and structural requirements have to be met by initial and continuing training but at the same time the new media offer new opportunities for processing and presenting knowledge and for organizing the teaching process. Self-directed and assisted learning will be thoroughly transformed by the new media. Digital processing of knowledge becomes increasingly important, and new forms of teaching are emerging. Fresh impetus is given to the vision of self-directed learning at any place. Modern information and communications technologies are opening up new training and continuing training options which enable participants to independently organize their learning, thus adapting to quickly changing qualification requirements. Web-based learning breaks up traditional structures of learning and combines initial and continuing training more than in the past in terms of content and organization.

Broad application of information and communications technologies in the education sector and a multimedia-based teaching approach offer an opportunity to better prepare young people already at school for the requirements of the knowledge-based society in their private and professional lives and familiarize them early on with multimedia based learning, develop further the tried and tested, internationally recognized dual system of vocational education and training, support structural change in higher education and enhance the international competitiveness academic teaching, better prepare employees for changes at the workplace and on the labor market and include them in the organization of corporate development processes, facilitate self-directed site-independent learning, which benefits mainly those men and women who, due to family duties, illness, old age or other circumstances, want to learn at home, introduce new, cooperative forms of teaching and learning.

#### 3.2 Technologies convergence shaping the future of E-learning

As we have now moved into the digital and internet information age, where e-learning courses can be accessed from anywhere, we must ask the question, how will new technologies affect the future of e-learning? First, what are the new technologies? Some of these new and future technologies consist of video conferencing, TV/PC bridging, broadband access for wire technology, virtual reality programs, and multi sensory technologies. All of these technologies and more could revolutionize the way digital learning is implemented in the future.

Video conferencing has been the dream of the future, for quite some time now, however, only businesses seem to use it. In order to set up videoconference, you must get an IP address, however your IP address changes every time you sign off and on. Meaning, if you want to video conference, you have to communicate with the person before, in order to get their IP address to reconnect with them, which is both inconvenient, and unnecessary. The technology is there, it just needs better implementation, and spread more universally before it can be used for online learning.

Video conferencing will actually allow people to take e-learning courses together, which will improve the integration process, as well as other processes, because interaction with other people will actually bring it closer to real life situations, in which the learner can relate and apply the knowledge to everyday life. The collaborative potential of Computer Mediated Communications (CMC) for learning was realized utilizing computer conferencing technologies.

Today's wireless network is fast enough for digital music and photos, but when you try to download a streaming video over a network, the quality is low, and it needs to be compressed, or it will stall and jump, which is not pleasant to watch. So finally, there is a new form of network connection on the horizon, and although the best thing now is the Ethernet cord, some new devices will be for sale by the end of the year. Broadband bandwidth is an important aspect for the future of e-learning, as it will allow more courses to be taken online without a CD, allowing more streaming audio, video, animation, and other graphics, plus more interactive two-dimension and three-dimension environments. These technologies will allow designers to create advanced e-learning courses that will engage the learner at an all-new level (Hammond, 2005).

Virtual reality and multi sensory technologies are still infants in terms of technology. However, with further development, these technologies could expand e-learning beyond the standard of what we're used to. E-learning will no longer be limited to the mouse, keyboard, and monitor. There will be gloves that will allow you to feel what somebody else is feeling. As they mold clay, you too will know what it feels like to sculpt. Learning will go beyond emotional and mental capacity, it will actually tap into your sensory motor skills and with virtual reality, and you could see something and feel something through advanced courseware that is purely based on new technologies linked with e-learning. Think about flight simulation programs that have been used for several years now, in training pilots, astronauts, and military personnel. With the technologies that already exist, and the potential of these other technologies, the possibilities of e-learning in the future are endless.

Overcoming the hurdle of limited wire-technology, improving the speed of networking, increasing the use of video conferencing, more online interactivity, and the introduction and application of virtual reality and multi sensory activated technologies, will allow digital learning to become a higher form of education. These are merely introductory products into the technological marketplace, and although they cannot fully be utilized in the marketplace of e-learning, because not enough people have them yet, there is the great potential for these products to be used in the future.

E-learning in terms of corporate objectives is far different than anything that universities are concerned with. The courses are based on money, as all things are with business. When corporations with thousands of employees are required by law to teach their employees about something, they can save time and money by hiring a company to make an e-learning course for them, as opposed to making them all take classes on the subject. For the corporation, the most important thing about the e-learning course is the learning outcome. They will set a learning outcome goal of 80%-90%, and once the employee has achieved this goal, they are done with the course, and the corporation is legally covered. Whether these courses are successful or not, is up for debate, however, these corporate e-learning situations make up the majority of all e-learning courses in existence.

The future of e-learning looks promising, as new technologies arise, and new and improved course designs and modules are developed, making some sort of prediction about what is to come with e-learning may not be too far out of reach, as the beginnings of several innovations are actually being utilized. E-learning will incorporate individual's learning styles and an emotional profile before the course is even taken, finding the best way to teach each individual learner. New interactive technologies will be integrated with the program, making the course exploration enjoyable and more interesting to the user. Learners will not be rushing through the course just to get it over with. In addition, with new technologies, digital learning may not be limited to just a keyboard, a mouse, and a computer screen. It is very likely that e-learning will become part of everyday learning, just as computers today are a part of everyday communication. Overall, digital learning has and will continue to affect the way people in society teaching (Hammond, 2005).

It is thought that E-learning is here to replace the Instructor Lead Training (ILT) with Computer Based Training (CBT). This is probably the most common reason why many people think that e-learning is a bad idea, can a machine replace the human mentor? But in fact, the true meaning of e-learning is to enhance the ILT with CBT. The best possible e-learning is the correct portion of Instructor Lead Training and Computer Based Training. Taking the best of both worlds creates a setting of more powerful, personalized and efficient learning.

Everybody is different, which means, everybody learns in his/her own personalized way. So what can online training be like? Synchronous training means that a certain lesson or task is taught within a time frame and everyone works within that timeframe. Asynchronous training lets the student study a lesson in his/her own time and pace. The quick learners work fast and slow learners take more time. The real advantage of Computer Based Training is that it's easy to get the training material.

One of e-learning's advantages is that resources are at hand. Traditionally teachers use books as the learning material, but we are moving into an era where teacher's material is all in a digital form. This ensures that the material is up-to-date, easy to distribute and maintain. When the course material is available on the Internet or Intranet, the student has access to it anytime and anywhere. Although having material digital requires that the teacher knows how to create the material and use computers.

E-learning gives a student an opportunity to practice practical exercises that would occur in real life, this is called real life interactivity. Without technology the student would only have a pen, paper and books. With the advantage of technology, the student can for example drive a virtual drive test with a car, which will point out all the errors the student makes and simulates real life traffic. This is just one example of what real life interactivity brings to learning. The following points must be considered prior to designing any e-learning program (Wall, 2004).

There is plenty of evidence to suggest that pure e-learning programmes do not work whereas there is significant evidence to suggest that blended learning programmes are much more likely to be successful.

- Information is not instruction.
- Instruction must be based on sound pedagogical principles.
- Individuals have different learning style preferences, different cognitive processes and different past experiences.
- Different learning situations require different learning strategies.
- Learners require direction and focus.
- A one-size fit all approach to e-learning has been shown to be ineffective.

Revolutions are exciting but technological revolution is no exception. They generate energy as they gather strength and bring more and more individuals and functions into their sphere of influence. The changes come so fast that is often

little opportunity to reflect on the implications, little opportunity to access, plan for, and cope with the effects of these changes (Wibunsin, 2002).

There are a number of benefits to tertiary learning online that are unique to the medium (Capper, 2001). (1) Any time. The Students can access the learning program at any time that is convenient for them. Not just during the specific numbers of hour that is set for a conventional course. It can be quick snatches at odd times or long late-night sessions. It is more flexible for them to learn. (2) Any where. The students do not have to meet face-to-face, meaning that this learning process can be anywhere. International sharing is feasible. Individuals can log on and access reading material, assignment either at work, home, the library, in a community learning centre or from their hotel when traveling. (3) Asynchronous interaction. By using an e-mail, the students will become more convenience to come out with questions and ideas. Electronic mail does not require participants to respond immediately. As a result, interactions can be more succinct and to-the-point, discussion can stay more on-track, and people can get a chance to craft their responses. This can lead to more thoughtful and creative conversations. (4) Group collaboration. Electronic messaging creates new opportunities for groups to work together, creating shared electronic conversations that can be thoughtful and more permanent than voice conversations. Sometimes aided by on-line moderators, these net seminars can be powerful for learning and problem solving. (5) New approaches. Many new options and learning strategies become economically feasible through online courses. For instance, the technology makes it feasible to utilize faculty anywhere in the world and to put together faculty teams that include master teachers, researchers, scientists, and experienced professional developers. Online courses also can provide unique opportunities for teachers to share innovations in their own work with the immediate support of electronic groups and expert faculty. (6) Computers Integration. The online learner has access to a computer, so computer applications can be used without excluding some participants. This means, for instance, that a mathematical model implemented in a spreadsheet can easily be incorporated into a lesson and downloaded so all participants can run, explore, and refine the model and then share their findings and improvements.

#### 4. Conclusion

It can be conclude that the revolution of technology has been one of the most dramatic changes in modern history. Although not yet universal, this technology has been global in scope of human life. Learning is a process of active engagement with experience. It is what people do when they want to make sense of the world. It may involve an increase in skills, knowledge or understanding, a deepening of values or the capacity to reflect. Effective learning will lead to change, development and desire to learn more. By using or implementing e-learning, we can reduce training cost, training time and we also can increase learning effectiveness. I believe that in one day we can reach a peak at the future because e-learning gradually growth and promise for the developing world. A growing number of organizations are now delivering training and education over the Internet, including colleges and university, corporations, military institutions, and even secondary schools. Emerging of new technology and ICT infrastructure can help our nation to achieve their vision such as information society which it will culture ICT based economy. Knowledge society such as data worker and knowledge worker can produce knowledge products and services and lastly competitive society in which to face the challenge competitive knowledge economy.

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