CHAPTER 2
LITERATURE REVIEW

2.0 Overview

The purpose of this literature review is to provide a macro-level understanding of three important elements in this research: lifelong learning, adult education and e-learning. It also aims to provide more knowledge on the relations and impact of lifelong learning, adult education and e-learning. The review also attempts to identify key studies that can provide guidelines for this study.

Several electronic databases and printed materials were used to find relevant information. Among the electronic databases used were: Educational Resources Information Centre (ERIC) database, ProQuest database and Emerald Library. From these databases, many journals and magazines like E-Learning, Journal of Distance Education Technologies, The International Journal of Educational Management and Campus-Wide Information System were accessed. Printed publications available in University Malaya library that were searched included IT Malaysia, Adult Education Quarterly and The American Journal of Distance Education. Several websites of virtual universities were also browsed through. The keywords used to search for materials were: distance learning/education, lifelong learning/education, adult learning/education, e-learning, adult learner perceptions and success factors in higher education.

This literature review is divided into three main sections: Lifelong Learning, Adult Education and E-learning. Under each section, there are sub-sections explaining the related issues surrounding the main topic. For the Lifelong Learning section, the definition and forms of lifelong learning are examined. Under the Adult Education section, definitions, goals/motivation toward learning, hindrances/obstacles toward
learning and adult learning models are discussed. In the E-learning section, the general opinions of e-learning, and e-learning specifically in higher education institutions, are looked at. Previous surveys and research on e-learning based on important issues like quality, success factors, learner’s perceptions or satisfaction were presented as well. Issues and challenges in implementing e-learning are also discussed. A Malaysian context of e-learning development is presented in the last sub-division.

2.1 Lifelong Learning

2.1.1 Definitions

Educators and general public use many different terms related to lifelong learning such as adult education, continuing education, social education, lifelong education and recurrent education. Lifelong learning has been simply viewed as "deliberate learning that can and should occur throughout each person’s lifetime" (Mazanah, 2001). Knapper and Cropley (1985) explained that it takes place at all stages of life and includes both formal learning at school or other places, and non-formal learning. In their opinions, lifelong learning is not the spontaneous, day-to-day learning of everyday life, but which has been described as having the following characteristics:

- It is intentional – learners are aware that they are learning,
- It has definite, specific goals, and it is not aimed at vague generalization such as developing the mind,
- This goal is the reason why the learning is undertaken, and is not motivated simply by factors like boredom, and
- The learner intends to retain what has been learned for a considerable period of time.
Candy and Crebert (1991) also have a similar view on lifelong learning. They defined lifelong learning as process of continuous learning and adaptation. It is distinguished from lifelong education, which refers to the structures, systems, methods and practices that attempt to enhance lifelong learning. They further argued that the differences between lifelong learning and lifelong education are based on the philosophical implications of the former and the practical applications of the latter.

Another definition, provided by Asia-Europe Meeting (ASEM, 2002a) for lifelong learning, is of all learning activities either through formal or non-formal sources, which helps improve the knowledge and skills of an individual throughout his lifespan. Lifelong learning helps an individual to develop his potentials to the fullest so that he could be a contributing member to his society. The meeting also commented that a continuous learner recognizes the potential for learning amid the problems, changes and flow of life’s events. Though some continuous learning may be characterized as self-direction, this does not imply that the learner no longer constructs meaning as a social, dialogical process. Rather, continuous learners will “take initiative; set own goals and standards; use experts, institutions and other resources to pursue these goals; take responsibility for their direction and productivity in learning” (MacDonald, Gabriel and Cousins, 2000). Prior to this, Chapman and Aspin (1997) pointed three major elements or outcomes of lifelong learning: education for a more highly skilled workforce, personal development leading to a more rewarding life, and creation of a stronger and more inclusive society. Hence, it is reasonable to say that people are most likely to pursue a lifelong learning opportunity for self-improvement with clear purpose at heart.

Ironside (1989) described lifelong learning as “the habit of continuously learning throughout life, a mode of behaviour”. From this definition, it is construed
that lifelong learning is intrinsic, demand-oriented and heavily dependent on the learner's motivation and ability.

Daphane (1997) proposed a model based on a Singapore perspective, called DAMN cycle. By understanding the Desire, Ability, Means and Need for lifelong learning, policies, practices, problems and potential are identified clearly for the nation.

![Diagram of DAMN cycle]

Figure 2.1 The DAMN Cycle of Lifelong Learning (Source: Daphane, 1997)

On 12th February 1999, Singapore Prime Minister Goh Chok Tong announced the setting up of a system, which he called School of Lifelong Learning to help workers to study the labor market, invest wisely in continuing education, sell their skills to employers and enhance their careers. The Ministry of Manpower (MOM) organized *The Singapore Lifelong Learning Festival* to support its lifelong learning initiative. The lifelong learning movement aims to imbue in Singaporeans the spirit of continuous learning and improvement so as to achieve lifelong employability. In August 2000, Goh announced the S$5 billion Lifelong Learning Fund. The Fund signals the Singapore Government's strong emphasis on Lifelong Learning. It provides significant resources to support training programs for workers (ASEM, 2002b).

In Malaysia, Mazanah (2001) considers lifelong learning as a concept that theoretically encompasses the entire lifespan, from birth to death. Promoted by the
United Nations Educational, Scientific and Cultural Organization (UNESCO) as a master concept, lifelong learning “should extend throughout life, include all skills and branches of knowledge, use of all possible means, and give the opportunity to all people for full development of personality” (UNESCO, 1977:p.2). In Malaysia, financial institutions are encouraged to participate in promoting lifelong learning by providing soft loans to individuals who wish to further pursue their education or training. Employers must provide training and retraining programs to their workers with new skills and knowledge so that they can keep up with technological advancement. National Higher Education Funding Authority (Perbadanan Tabung Pengajian Tinggi Nasional, PTPTN) loans are also provided by government (ASEM, 2002b).

According to the Organization for Economic Co-operation and Development (OECD, 1996), lifelong learning means the continuation of conscious learning throughout the life-span, as opposed to the idea that education stops at 16, 18 or 21. It encapsulates the blueprint of recurrent education but in an adapted form: the opportunity to return repeatedly to formal educational institutions and non-formal learning that is in some way conscious, planned and systematic. Secondly, it implies recognition by individuals, employers and governments of points where there is a social and/or economic need to update knowledge and skills.

On the other hand, the International Labor Organization (2000) considers a need for learning to become a lifelong function that has been identified as a pivotal conceptual change in the way education and training operate. It would enable individuals, communities and nations to be at the cutting edge of, and where necessary adapt to, the constant and sweeping political, economic, environmental, technological and social transformation of societies. At the forefront of political rhetoric for the last
couple of decades, lifelong learning is now the guiding principle for policy strategies concerned with multiple objectives: economic well-being and competitiveness; employability; personal fulfillment; democracy; and social cohesion. To make lifelong learning more than rhetoric, education systems need to focus on a learner-centered approach and culture committed to learning where no such culture exists or where it is still very weak. They must ensure the necessary opportunities and infrastructure, marked by a variety and diversity of provision.

In summary, lifelong learning is considered as purposeful endeavor for self-improvement throughout one’s life. Economic, social, political, technology and personal factors are the driving forces that can motivate this lifelong process.

2.1.2 Forms of Lifelong Learning

2.1.2.1 Conventional Education System

Learning takes place in a great variety of settings other than school – in art galleries and museums, at home and during excursions, but for most young people the school is the principal center of learning. The earliest stage of purposeful learning happens in schools where children from age 6 and above are exposed to the traditional education system.

According to Ishak (2003), a formal school education system in Malaysia was introduced by the British in the 1800s. The early years of education focused on the 3Rs of reading, writing and arithmetic. After many years of political, social and economical changes, the education system has evolved to develop more competent citizens. These days, students have to go through 6 years of primary school and at least three years of secondary school. If the students succeed at the Lower Secondary Assessment (Penilaian Menengah Rendah, PMR), the students can go for another two years of
upper secondary education. After succeeding in Sijil Pelajaran Malaysia (SPM), students can either go for the Matriculation program or sit for Sijil Tinggi Persekolahan Malaysia (STPM) for entry into university (Kementerian Pendidikan Malaysia, 1999). The conventional education system in Malaysia is summarized in Figure 2.2:

Figure 2.2 Overview of Malaysia Education System

Besides the conventional schools, there are also vocational schools or training centers that cater for specific groups of students who are interested in technical learning. The National Vocational Training Council in Malaysia (Majlis Latihan Vokasional Kebangsaan, MLVK) for instance, has accredited 585 training centers, including 401 private training institutions to conduct 2,828 training programs of the Malaysian Skill Certificate (Sijil Kemahiran Malaysia) Level 1 to Level 5. Up till the year 2001,
110,000 certificates had been awarded under this competency-based scheme. As at 2002, there were 14 Industrial Training Institutes, four Advanced Technology Centres, a Japan-Malaysia Technical Institute and a Centre for Instructor and Advanced Skills Training (ASEM, 2002b). More Malaysians will, therefore, be provided with the opportunity to acquire industrial skills as well as higher order cognitive skills continuously.

2.1.2.2 Workplace Learning

After going through the traditional education system with a recognized certification, we still need practical training when appointed to a new job or position. Workplace learning is among the fastest growing areas of adult education. Learning in workplace includes everything from basic skills training to on-the-job training to advance technical training (MacDonald, Gabriel and Cousins, 2000). Companies and organizations offer training and guidance by providing various types of learning opportunities. Various options for delivery of instruction are available but most organizations choose the conventional instructor-led classroom approach. Every method has it own advantages and limitations. The selection of methods should take into consideration instructional objectives, nature of trainee population, quality and quantity of instructors, instructional facilities, equipment and materials, teaching-learning duration and costs. Tracy (1992) identified six categories of training methods, of which some are overlapping. The categories are: one-to-one training (e.g. on-the-job-training); interactive training (multimedia, interactive video system); distance training (correspondence study, teleconferencing); centralized training (instructor-led training); learner-controlled (self-directed) training; and other forms of training.
Learning at workplace was found to have the highest participation for adult learning in The National Adult Education Learning Survey conducted in the United Kingdom in 2001. About 81-89 percent of the adults aged 20 and above was found to be learning while working. Most of these people learn because they want to improve their working ability at the current job and to prepare themselves for future employability. Their participation of learning is mainly through classroom courses conducted by their organization and on-job training (La Valle and Blake, 2002).

2.1.2.3 Distance education

According to Thomerson and Smith (1996), distance education programs using variety of media have been used to reach and serve non-traditional students since the development of correspondence courses in the late 19th century. Although not always given much attention and respect, distance education efforts in all forms have had remarkable success. New distance learning delivery systems allows students at remote sites to interact with each other and with instructors at the host site. Due to its improved delivery system coupled with technology, this type of learning has gained tremendously popularity in recent years among non-traditional learners.

In 1971, one of the long established universities in Malaysia – the Science University of Malaysia (Universiti Sains Malaysia, USM) took the unprecedented step of providing distance education through “off-campus academic programs to adults not less than twenty three years old who for one reason or another were not able to engage in full-time study at a university although qualified to do so” (Mazanah, 2001). USM also, through its School of Distance Education, has been offering in-service programs for working women, civil defense personnel and teachers since 1970. It has produced graduates, of which 40% are women. The university’s Women Development Research
Centre (KANITA) provides training in leadership, entrepreneurship and resource allocation as well as conflict resolution.

Mazanah (2001) categorized the providers of adult and continuing education in Malaysia into three groups: government controlled, private and non-government or volunteer agencies, with the following framework.

<table>
<thead>
<tr>
<th>Types of Providers</th>
<th>Source of capital</th>
<th>Mission</th>
<th>Programs</th>
<th>Client</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government</td>
<td>100% government</td>
<td>Sectorial development</td>
<td>Multifaceted</td>
<td>Specific target group</td>
</tr>
<tr>
<td>Private</td>
<td>100% private</td>
<td>Profit</td>
<td>Market demand</td>
<td>Open to all clients</td>
</tr>
<tr>
<td>Non-government</td>
<td>Government, private, public donation</td>
<td>Development of special interest groups</td>
<td>Specific interest</td>
<td>Open to all clients</td>
</tr>
</tbody>
</table>

Figure 2.3 Framework of adult and continuing providers in Malaysia (Source: Mazanah, 2001)

Distance education supported by instructional technology will particularly address the challenge of providing access and opportunities for adult learning, especially among the people in the rural areas, neglected areas in the city, women and the disadvantaged groups. Information and communication technology has undeniably great potential in enhancing learning by increasing access and flexibility for participants, improving the quality of teaching, cost reduction and cost-effectiveness of teaching. According to Rače and Brownd (1995), the reasons for rapid growth of distance learning in recent years include:

- Lower cost of computer hardware, software and telecommunications services;
- Younger generation familiar with computers and the Internet;
- Younger generation has better keyboarding skills and less fear of technology;
- Better access to computers in the general population;
- More pleasing users interface (including multimedia).
In France and Dianne's (2000) opinion, as we enter the 21st century, organizations in the private and public sectors face increased financial and business challenges. These challenges have created an imperative for distance learning as a practical solution that can:

- Lower the costs of education and training per learner
- Increase education and training opportunities for all knowledge workers who work with and produce value from information, rather than from products of physical labor
- Provide lifelong learning opportunities for people of all ages, lifestyles, capabilities and financial situations.

The newly evolved form of distance education is e-learning. E-learning has gained much attention in both education and business industries. It is a distance learning method that helps non-traditional students obtain academic recognition and a way to assist business organizations distributes their work culture (OECD, 1996). A further discussion of e-learning is presented in Section 2.3.

2.2 Adult Education

2.2.1 Definitions

Knowles (1980) defines adult education as 'a set of organized activities carried on by a wide variety of institutions for the accomplishment of specific educational objectives.' Whereas UNESCO's definition of adult education emphases on learning, another definition of it is as follows:

'Adult education denotes the entire bodies of learning processes taking place, formal or otherwise, whereby people regarded as adults by the society to which
they belong develop their abilities, enrich their knowledge, and improve their technical or professional qualifications or turn them in a new direction to meet their own needs and those of their society. Adult learning encompasses formal and continuing education, non-formal learning and the spectrum of informal and incidental learning available in a multi-cultural learning society, where theory and practice-based approaches are recognized.’ (The Hamburg Declaration on Adult Learning, 1997: p.253).

Mazanah and Norhayati (1997) referred to adult education as learning opportunities that are undertaken by adults who seek education outside the formal schooling system. Non-formal education is defined as any organized educational activity outside the established formal education system that is intended to serve identifiable clienteles and specific learning objectives. According to the Ministry of Education (1968), in the Malaysian context, continuing or further education is available to those who (i) because of being over the age are not allowed to continue with primary or secondary school education at the government public school; (ii) have undergone some schooling but have not completed primary or secondary school; (iii) are working and would like to improve their general education, technical education or education in commerce.

Most adults who initially seek out formal learning to help them deal with external change do not realize that it is also likely to engender internal change. Similarly, they may not realize that seeking higher education or higher-level training is often an outgrowth of change that is already in process. If asked, most are likely to name reasons connected to job security or career advancement; a few come ‘just because’ learning something new appeals to them for its own sake or, in the case of a
degree program, to complete something left undone. For those whose primary attention has been devoted to supporting others, putting their own goals first is itself a dramatic shift in priorities. Hence, there could be many reasons why adult education existed in today’s society (Taylor, Marienau and Fiddler, 2000).

2.2.2 Goal/Motivation towards learning

Ungku (1997) recognized that adult education will play a major role in producing a knowledge workforce with competencies in the basic skills of literacy, numeracy and operacy in thinking. Times (1989) identified the goals of adult education as:

a) Second-chance education, which offers adults who missed the education obtainable in the initial education system. This may range from basic literacy to mature entrance to universities;

b) Role education, which is education for social function (outside employment) and includes social role education (e.g. as a citizen, member of an association) and personal role education (e.g. as a parent, spouse, retired person);

c) Vocational education, that is, education in the skills and knowledge required for employment;

d) Personal enrichment education, or education intended to develop the individual without regard to his or her social or economic function which includes, in effect, anything not covered by the other headings.

MacDonald, Gabriel and Cousins (2000) identified a few factors that can influence adult learners toward learning, viz. (i) recognize and use learners’ experiences; (ii) ensure program flexibility; (iii) conduct effective group discussions; (iv) relevant applicable content; and (v) modular structure. Adults are very much
motivated to learn by having the positive factors mentioned above. They are more independent with experience; therefore the expectation on programs and environment is higher than young learners.

2.2.3 Hindrances/Obstacles to learning

The Meeting of the Education Committee at Ministerial Level (OECD, 1996) identified several major barriers to adult learning, such as structural/contextual, institutional, and individual/dispositional. Structural/contextual barriers refer to socio-economic, labor market, financial and political conditions that influence participation in learning. Institutional barriers refer to the “supply side” of the education, training and learning opportunities in place, rather than the “demand” of individuals and groups. Individual/dispositional barriers comprise the dispositions, values and attitudes of individuals to education and learning more generally. The individual/dispositional barrier closely influences the structural and institutional factors outlined before.

Mazanah and Othman (1997) believe the main challenge to adult education in Malaysia is the issue of access and opportunity to participate. There are 'invisible borders' that set the boundaries to the educational opportunities and learners' access to adult education. These borders are set by the teaching-learning location, learners' age group, learners' gender, learners' religious beliefs, subject area of specialization, special interest groups and program fee structure. Poor participation was mainly associated with lack of time and programs not meeting the learners' needs and interests. Furthermore, a shortage of experienced educators and trainers is one of the major constraints of adult education in Malaysia. Other constraints interfering with learning are inadequate teaching/audio-visual aids and reference materials.
Listed below are the problems and issues in adult and continuing education in Malaysia, based on a survey done by Mazanah (2001) for public providers, NGOs and private education providers.

- Participation
  - Poor participation
  - Poor cooperation from learners
  - Programs does not meet learners' needs
  - Time shortage
  - Obtaining release from superior to attend classes
  - Lack of interest
  - Cannot attend training

- Affect actual job function

- High cost/cost benefit analysis

- Insufficient fund/budget

- Lack of/shortage of experience/qualified educators

- Lack of/shortage of appropriate learning places

- Lack of/insufficient/appropriate teaching aids

- Language and communication
  - Communication
  - Language
  - Lack of reference material in BM

- Competition among agencies

- Collaboration with other agencies
2.2.4 Adult Learning Models

The amount of information retained by a learner is generally regarded as follows: 10% of what they READ, 20% of what they HEAR, 30% of what they SEE, 50% of what they SEE and HEAR, 70% of what they SAY, 90% of what they SAY as they DO SOMETHING, 95% of what they TEACH to SOMEBODY ELSE. Thus in designing instruction for adult learning, the learners' retention capacity should be taken into consideration (Mazanah, 2001).

According to Tapscott (1996), future adult learners need differing knowledge and skills to become "knowledge workers". Scheckley (1989) in the *Experiential Learning Theory* gave a clear comparison for different types of learners as shown in Figure 2.4.

<table>
<thead>
<tr>
<th>Level of Competence</th>
<th>Developmental Path</th>
<th>Learning Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Novice: Can assess and adapt to deviations from basic rules and procedures</td>
<td>No distinction between rules and context in which rules are applied</td>
<td>90% grasping 10% transforming</td>
</tr>
<tr>
<td>Advanced Beginner: Can assess and adapt to important aspects of a situation</td>
<td>Shifting from actions dictated by rule to actions dictated by situation</td>
<td>70% grasping 30% transforming</td>
</tr>
<tr>
<td>Practitioner: Can assess and adapt to deviations from a plan</td>
<td>Shifting from actions dictated by situation to actions dictated by a general plan</td>
<td>50% grasping 50% transforming</td>
</tr>
<tr>
<td>Professional: Can assess and adjust to deviations from the pattern</td>
<td>Shifting from actions dictated by general plan to actions dictated by intuitions</td>
<td>30% grasping 70% transforming</td>
</tr>
<tr>
<td>Expert: Can assess and focus on critical factors in a situation</td>
<td>Actions and situation are synonymous</td>
<td>10% grasping 90% transforming</td>
</tr>
</tbody>
</table>

Figure 2.4 From Novice to Expert: Level of Competence, Developmental Path and Learning Processes (Source: Scheckley, 1989)
Adult learners also represent a variety of learning styles. Some may find that traditional education methods are not the best way to help them learn. Many may prefer hands-on activities, self-directed Question and Answer sessions, observations of a task being performed or a process as it takes place, and graphics instead of text as a primary style of document. The interactive capabilities of some distance learning technologies, especially those available through the Internet may be more attractive to adults. As distance learning should and usually does involve multiple media to present course information, adults may like distance learning courses better than traditional classroom-based courses or in-house training sessions conducted in a laboratory (Kirkpatrick, 1994).

2.3 E-learning

2.3.1 E-learning in general

Electronic learning/E-learning is one type of distance learning that utilizes information and communication technology extensively. The instruction and learning experiences are delivered via electronic technology such as Internet, audio- and videotapes, satellite broadcast, interactive TV and CD-ROM. Moneta and Moneta (2002) defined e-learning as using Internet and Internet-related technologies in instructional development and distribution of educational resources. The Internet offers communication channels in the form of email, bulletin boards (discussion groups) and live chat. The World Wide Web provides a platform for displaying course materials while web technologies enable human-computer interaction. According to Kenzo (2001), e-learning is an educational system concept which differs from the traditional ones in the sense of Information Communication Technology (ICT) based teaching and learning. It has four main functions: (i) delivery of ICT based contents; (ii) open access,
storing, sharing, dissemination of teaching contents over Internet; (iii) virtual education at remote sites; (iv) knowledge-based processing. For Strokes (2000), e-learning uses network technologies to create, foster, deliver and facilitate learning anytime and anywhere. E-learning is characterized by speed, technological transformation and mediated human interactions.

Fong and Hui (2002) commented that declining cost of computing power and growth in Internet usage has prompted development of Web-based communication system. Internet delivery of educational material across vast geographical distances becomes an attractive alternative to traditional mode of communication. Gunasekaran, McNeil and Shaul (2002) also have similar opinion that e-learning provides faster learning at reduced costs, increased access to learning and clear accountability for all participants in the learning process. It allows people and organizations to keep up with changes in the global economy that now occur on Internet time. They also concluded that e-learning can result in greater productivity, increased profitability and enhanced employee loyalty. It provides information from a greater variety of sources, increased access to knowledge for lifelong learners, improved quality of service and rapid adoption of new information and new programs.

A study in the United States of America found that it costs US$10 per person to provide e-learning training course compared with US$65 for a classroom course. It is predicted that e-learning market will grow from US$2.3 billion in 2001 to US$14.7 billion by 2004 while worldwide e-learning market is expected to rise from US$23 billion by 2004 (Gordon 2002). The e-learning market covers the academic, corporate and consumer fields, and has a variety of segments, including content providers, technology vendors and service provider (Gunasekaran, McNeil and Shaul 2002).
Volery and Lord (2000) categorized the rationale for adopting e-learning into four broad categories: (i) expanding access; (ii) alleviating capacity constraints; (iii) capitalizing on emerging market opportunities; (iv) serving as a catalyst for institutional transformation. According to Roffe (2002), the main benefit of e-learning is providing Just-In-Time education that is easily accessible from any site with the right equipment, and allowing personalization of education by allowing learner to learn at his or her own pace. Mutula (2002) pointed that e-learning has the potential to strengthen and expand research and development opportunities through participating in ICT mediated international research network. The cost of educational materials distribution is reduced where online research databases and lectures notes are distributed virtually. E-learning also enables students to manipulate information on the computer in different ways and communicate results in a variety of media to their instructors or other students around the world. From the instructor's viewpoint, e-learning helps to monitor student performance easily by having frequent interaction with students via email and forum discussion.

2.3.2 E-learning In Higher Education

2.3.2.1 History and Progress

As mentioned earlier, e-learning evolved from distance education. Distance education developed further when computer and information technologies were used as education aids. Ever since Thomas Edison predicted that motion pictures would replace textbooks for learning in 1922, the use of video has become popular in training. However, there is no interaction between instructor and audiences in the case of audio visual aids. Satellite communication was later used with video broadcasting to reach
out a larger group of audiences as well as enhancing communication between all participants (Shih et. al, 2003).

The use of computers follows video technology as the second phase of modern education (Shih et. al, 2003). Computer-based training and computer-assisted instruction use information technologies and educational theory to develop interactive software. The solution allows students to interact with their instructor in a limited way. The issue of stability was the problem for interactive software in the 1970s and 1980s. This is the main consideration for computer-based modern education.

Beginning in the early 1990s, the third period of modern education was stimulated with the development of multimedia and Internet technologies. Multimedia presentations, Web-based distance learning programs, on-line video conferencing based on ISDN, ADSL and broadband communication channels became popular. Bennet (1999) has recognized that the ‘broadband’ features of the Internet allow for the manipulation of a wealth of information in interactions when using the Internet for learning and instructions. The advancement of Internet technologies paved the way for e-learning today where many higher education institutions are able to provide distance education courses interactively with stability to audiences all over the world.

There has been much debate on the usefulness of Internet for educational purposes. For example, Bork and Britton (1998) concluded that the Web is still not suitable for teaching. Vouk et. al, (1999) highlighted the shortcomings of current Web-based teaching applications. These include poor end-user quality of service and lack of interactivity. The principal problem is that earlier use of the Internet for educational purposes had focused mostly on putting supplementary teaching materials on designated Web pages. However, there have been many encouraging studies reported recently. Tian (2001) concluded that the Web is a cost-effective technology to facilitate
the development of educational applications. The benefits of Web-based teaching extend well beyond classroom materials. As described by Bazillion and Braun (2001), the classroom, library and other campus resources can be linked into a single educational network. Also, Bedell and Somers (1999) reported an automated tool that facilitates immediate student feedback to the instructor and other students. All the recent inventions and improvements have prompted more higher education institutions to focus fully on web-delivery of education. This has led to a new concept of education institution referred to as a virtual university today.

Virtual universities are established to provide e-learning courses to adult learners who wish to improve themselves during free time. The University of Phoenix and Athabasca University are among the largest virtual university in USA and Canada respectively. Virtual universities allow students the flexibility of time and location. Learners who have personal commitments are able to complete their higher level of education without sacrificing any of their personal interest (Evans and Jing, 2002). Though some virtual universities aim to provide 100% remote learning based on the Internet, other universities still need certain residential requirements where students have to come to meet their supervisor/instructors for minimum hours. This happens in local e-learning institution like UNITAR and Open University Malaysia. The efficient usage of technology is critical for the success of these virtual universities. Henry (2001) emphasized that e-learning requires the same management commitment as other mission-critical organization-wide initiatives. Most of all, e-learning needs to be compelling to the audience it targets, offering the learner a resource that is seen to be appealing, valuable and productive to their goals and inspirations. Therefore, the concept of virtual universities requires combination of many successful models and factors to reach its targets. For this reason, Vines (1998) has presented various quality
considerations within a large-scale model to ensure quality in the design of California Virtual University. The framework for success implementation of e-learning will be discussed in detail in Section 2.3.2.4.

2.3.2.2 Forms of e-learning found in higher education institutions

Many years ago before the usage of Internet in education, the majority of the higher education institutions conducted courses in classroom. Today, almost all of the institutions of higher learning are involved, in some way, in using Internet technologies, tools and techniques to deliver courses. Many surveys and research studies have been done to scrutinize the effect of Internet on learning. To measure and standardize the extent of online learning, some guidelines or categorization are needed.

A survey called Sloan Survey of Online Learning in 2003 was designed to find answers to some key questions related to specifically to e-learning education delivered by higher education institutions in the United States. This survey divided e-learning into three main categories, as shown in Figure 2.5.

<table>
<thead>
<tr>
<th>Proportion of content delivered online</th>
<th>Type of Course</th>
<th>Typical Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 29%</td>
<td>Web facilitated</td>
<td>Course which uses web-based technology to facilitate what is essentially a face-to-face course. Might use Blackboard or WebCT to post the syllabus and assignments.</td>
</tr>
<tr>
<td>30% to 79%</td>
<td>Blended/Hybrid</td>
<td>Course that is a blend of the online and face-to-face course. Substantial proportion of the content is delivered online, typically uses online discussions and has some face-to-face meetings.</td>
</tr>
<tr>
<td>80+%</td>
<td>Online</td>
<td>A course where the vast bulk of the content is delivered online. Typically has no face-to-face meeting.</td>
</tr>
</tbody>
</table>

Figure 2.5 Forms of E-learning (Source: Sloan Survey of Online Learning, 2003)
Some higher education institutions may go through the three different forms of e-learning delivery modes in conducting their online programs. In the initial stage of implementation, there will be some uncertainties involved especially on users' acceptance and technology stabilities. To reduce the risks of implementation and gradually let learners accept the delivery method, institutions can offer web-facilitated courses with more emphasis on traditional lectures. One example of this method is the Online Learning Interactive System used by International Medical University in Malaysia to supplement its face-to-face course delivery. Hybrid or blended form is implemented when learners are ready for more independent learning styles. This learning mode has been extensively used by IBM to train its managers worldwide (Tan, 2001). In Malaysia, the e-learning implementation has achieved this level where most of the lectures are delivered online with some weekend classes or meetings (http://www.unitar.edu.my/elearning/child.html). However, some institutions of higher learning may introduce fully online learning programs to adult learners who are having other commitments in life. This is the method is usually used by a virtual university.

No matter what types of delivery method are being used, three important features have to be considered to attract learners' attention (Harun and Yusof, 2001). Firstly, the information design where learners are happy with the manner in which information is provided. The design must be in such a way that learners have no hassle in looking for information. Secondly, there must be a good presentation design to encourage learners to access the web page and create an interest to know more about the knowledge provided on the web. Finally, the interaction design where learners feel comfortable to interact with instructor and peers. The design must be in a friendly and responsive mode so that learners like to have frequent interaction with other parties.
2.3.2.3 Perceptions of e-learning in higher education institution

There have been many surveys and research studies conducted on the topic of e-learning. In the area of computer usage influencing e-learning, a survey was conducted by Inti College Malaysia. In the survey, Lee, Ng and Ng (2001) found that perceived usefulness and ease in using computers can affect learner’s attitudes. Having a positive perception can help to encourage a positive attitude towards online instruction and interactive learning. In their conclusion, past experiences and attitudes toward computers could affect learners’ readiness for virtual learning.

A survey was conducted by Moneta and Moneta (2002) at the Hong Kong University of Science and Technology where a lecture mode (105 students) and an online mode (309 students) was used in the course on Computing Fundamentals. The results showed that lecture and online students achieved comparable factual learning outcomes. However, the online students outperformed lecture students in applied conceptual learning. Overall, the online course proved to be at least as effective as the lecture course in terms of student outcomes.

Katz and Yablon (2003) carried out a survey to assess the expectations, motivation and satisfaction of students regarding the use of Internet-based methodology as opposed to traditional lecture-based courses for the mandatory first-year ‘Introduction to Statistics’ course. The results showed that students who participated in Internet-based courses were able to reach achievement levels similar to those attained in traditional lecture-based courses.

Prior to this, a study at California State University of Northridge had a similar result (McCollum, 1997). The study had divided a Statistics class into a traditional class and online class using World Wide Web. It is found that students who took the online course performed better than the others.
However, a survey done by Keller and Cernérud (2002) showed students having negative perception of e-learning. More than two third of the School of Engineering and School of Health Sciences students at Jonkoping University at Sweden totally disagreed or disagreed to a large extent that Web platform had facilitated their studies, improved communications with lecturers and other students, improved the pedagogic value of the courses or improved their possibilities to solve problems related to the course. However, they predicted that as e-learning concept becomes more widespread in future, the perceptions of students in higher education might be more positive.

2.3.2.4 Success factors for e-learning program

There are a number of surveys that have carried out to identify critical success factors in e-learning. Webster and Hackley (1997) emphasized effectiveness, where they used student involvement and participation, cognitive engagement, technology self-efficacy and perceived usefulness of technology employed to measure effectiveness of e-learning. The reliability, quality and medium richness were also key technological aspects considered in defining success factor e-learning (Sanders and Nagelhout, 1995). In a survey done by Volery and Lord (2000) in one online management course at an Australian university, they identified three critical success factors in online delivery: technology, instructor and previous use of the technology from the student perspective. In addition to technology, which has been emphasized by some researchers, instructor attitudes toward students, instructor technical competence, and classroom interaction are also important (Dillon and Gunawardena, 1995).

A survey by Lim (2001) showed that computer self-efficacy is an important factor in adult learner’s satisfaction and intent to take future web-based courses. Self-efficacy is affected by computer experiences and frequency of computer usage
(Tarkzadeh and Koufteros, 1994). In addition, years of computer use, Internet experience in a class and academic self-concept also had positive relationship with adult learner satisfaction in learning. With higher satisfaction levels, there will be greater opportunities of taking a Web-based program in future. Therefore, we can conclude that these factors are important influencers in e-learning course enrolment for adult learners.

According to a study done by Hill, Lomas and MacGregor (2003), the quality of the lecturer and the student support systems were the most influential factors in the provision of quality education. Their empirical research made use of focus groups involving a range of higher education students. Prior to this, Laudon and Laudon (1998) identified critical factors for successful implementing e-learning programs: management support, user participation, degree of complexity and risk according to the new technologies, and role of project management in the implementation process. Le Blanc and Wands (2001) categorized the critical success factor for e-learning into three main groups: Organizational, General and Cognitive. A further breakdown of the factors was shown in Figure 2.6.

<table>
<thead>
<tr>
<th>Organizational Factors</th>
<th>General Factors</th>
<th>Cognitive Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Technical infrastructure</td>
<td>• Adult learning principles</td>
<td>• Access to useful help facilities</td>
</tr>
<tr>
<td>• Clearly defined change leadership strategy</td>
<td>• Clearly defined learning outcomes</td>
<td>• User control of screen information</td>
</tr>
<tr>
<td>• Management support for training</td>
<td>• Pretest option</td>
<td>• Simple user interface</td>
</tr>
<tr>
<td></td>
<td>• Clearly defined learning pathways</td>
<td>• Access to presentation of complex information</td>
</tr>
<tr>
<td></td>
<td>• Assessment</td>
<td>• Appropriate use of multimedia</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Avoidance of redundant information</td>
</tr>
</tbody>
</table>

Figure 2.6 Critical Success Factors for E-learning (Source: Le Blanc and Wands, 2001)
2.3.2.5 Challenges and issues in implementing e-learning

There are a number of studies that point out challenges and issues in implementing e-learning. Alexander and McKenzie (1998) reported that e-learning would fail for the following reasons:

- Overly ambitious in terms of desired outcomes for the budget and time available
- Utilized particular information technologies for their own sake, without sufficient regard for appropriate learning design
- No change in the assessment of learning to suit the changed learning outcomes
- Commenced software development without adequate planning
- Failed to prepare students for participation in learning experiences such as working in groups
- Failed to obtain copyright clearance.

According to Parson (1997), much of the efforts to use the web for teaching and learning have merely resulted in using Internet-based structure to deliver content. It has only changed traditional text to electronic text. Doherty (1998) also noted that the Internet would become passive learning technology if it used to delivery traditional instructional materials without realizing its capabilities of facilitating communication and collaboration. Therefore, it is clear to see that Internet usage in education must be interactive and aggressive to benefits all parties.

According to Madhukar (2002), the Internet has positive influences on learning as it is a source of information, provides independent and individualized learning, gives in-depth understanding, and improves learner’s motivation. However, he also pointed out a few negative influences of the Internet on learning, which include interference with student concentration, time consuming, questionable resources and student dependency on Internet rather application of knowledge. By comparing the pros and
cons of the Internet as a tool for learning, he has provided some guidelines to consider making Internet learning effective:

- Monitor use of internet in class
- Instructor to identify beforehand lessons and/or activities that will necessitate use of the Internet. This will instill disciplined use of the Internet by the students.
- Instructors should provide Internet search guidelines and skills at the beginning of the course and bookmark important sites for students
- Instructors should diversify instructional strategies with textbooks, group discussions, CDs and videos instead of focusing solely on the Internet.
- Instructors should discourage students from pirating on the Internet.

Mutula (2002) also identified several important issues and challenges in implementing e-learning. The most important challenge is the resources and infrastructure needed to support this new way of learning, which can be a constraint. Information networked equipment, laboratories and bandwidth requirements fall under this category. The technology must be practically appraised to meet academic programs. The IT skills shortage is also likely to have negative impact on the Internet economy development. It is estimated that by the year 2010, the digital economy will have one billion Internet users but the skills needed to sustain this growth will be lacking (Gordon, 2002).

2.3.2.6 Malaysia’s e-learning development

The earlier establishment of distance education has laid the foundation for development of e-learning in Malaysia. The pioneering efforts of e-learning in a higher
education institution started when University Tun Abdul Razak (UNITAR) was set up in 1998. UNITAR offers all their courses online via their e-learning academic model. Based on information provided on the UNITAR web site, http://www.unitar.edu.my/elearning/child.html, there are six main components found in this model:

- Courseware

The traditional lectures are replaced by interactive multimedia CD or web-based coursewares which are accessible all times through Internet. It aims to maintain the quality of delivery and further enhances lectures presentation with use of multimedia tools.

- Course Management System

UNITAR’s course management system for students and instructors is known as Virtual Online Instructional Support System (VOISS). It consists of web-based courseware, forums, frequently asked questions (FAQs), e-mail, bulletin boards, announcements, assignments, quizzes, schedules and examination results.

- Tutorial Meetings

There are two modes of conducting tutorial meetings: online or face-to-face meeting. Students can make an appointment with instructors for a face-to-face meeting at their convenience. Online tutorials are carried out in real-time mode where interaction between students and instructors take place online.

- Study Centre

This is a place where students and instructors can meet for activities. UNITAR has seven study centres throughout Malaysia and the number is going to increase to fulfill greater demand. It has basic facilities like classrooms,
workstations, administrative offices and are equipped with e-learning necessities.

- Virtual Library

The virtual library serves students by providing online databases and e-books. Students can easily gain access to needed information and materials through the services provided by virtual library.

- Customer Relationship Management

Customer Relationship Management (CRM) has a call centre that aims to support students facing academic, technical and personal problems round-the-clock. It ensures student satisfaction, maintains student loyalty and serves as an excellent contact point.

According to report produced by Asia-Europe Meeting in 2002, a consortium of public universities formed a strategic alliance, which later evolved into the Open University of Malaysia. The university offers diplomas, degree and postgraduate programs for adults who wish to further their studies by using an open learning method. In addition, it is also providing degree programs for teachers in collaboration with the Teacher Education Division of the Ministry of Education to improve their academic qualification. It is also working with companies like Jaya Jusco Stores Berhad to provide diploma courses for Jaya Jusco’s trainees through an e-learning module. (ASEM, 2002b)

Other efforts in lifelong learning in Malaysia include public universities offering Executive programs, setting up of Community Colleges throughout the country, training programs provided for rural folks conducted by the Social Development
Department and training programs for the youths provided by the Ministry of Youth and Sports.

Malaysia is also working towards developing a Malaysian Grid for Learning, a project being spearheaded by the National Information Technology Council (NITC). Under this initiative a platform would be developed to enable Malaysians to gain access to online learning. The overall missions of the initiative are as follows:

- To connect and build quality educational content/resources for e-learning and lifelong learning
- To connect all schools, colleges, universities, public libraries and community centers via the Malaysian Grid for Learning (MyGfL)
- To provide an open platform to set standards and opportunities for the development of open resources
- To ensure an e-learning and lifelong learning culture in schools and communities. (ASEM, 2002b)

For other institutions of higher learning, there have been efforts in carried out e-learning education in many ways. The Faculty of Computer Science and Information Technology at the University Malaya has been distributing lecture materials and conducting online tests for their students who are taking conventional courses. University Technology MARA has also provided distance education model where Internet technologies have been used. Most of the public and private institutions of higher learning have in one way or another been involved in e-learning initiatives to provide better education. With the exposure and experience gained from e-learning, they are having another chance to explore the bigger market, such as adult distance learning. With the right factors, adult learners who are financially independent, but
have time and place constraints, can be attracted to e-learning programs that could provide high flexibility.

2.4 Summary of Literature

From the literatures examine, there is connectivity between lifelong learning, adult learning and e-learning. The literature has shown the importance of lifelong learning and how it has an effect on the adults. Education and learning do not stop when a person has completed the formal education system. An adult can be motivated to learn continuously throughout his/her life with many encouraging factors. However, adults are also easily distracted by many obstacles and responsibilities carried. With e-learning and the benefits of it, this new learning method could overcome some of the obstacles on adult lifelong learning.

In Malaysia, the implementation of e-learning programs started in late 1990s when UNITAR was established. Prior to this, there were also some e-learning initiatives with the distance learning programs offered in public and private universities. However, there have not been much research and surveys of e-learning on the Malaysia education scenario.

Looking at the previous research in other countries, many of the research studies were on students' perceptions and satisfaction when participating in an online program. Limited research has been done on those who have not been participating. Previous literature and studies have also showed the potential for e-learning market to grow in Malaysia. A detail study needs to be carried out to explore the opportunity and identify some issues that lie in front in moving the e-learning market. Therefore, research on the public perceptions of e-learning as a lifelong learning method, factors that can motivate these non-users to enroll in e-learning programs, as well as obstacles
that prevent them to be involved, needs to be conducted. By understanding the public’s viewpoints, some guidelines and success factors to implement e-learning programs can be established.