

THE ANTECEDENTS AND OUTCOMES OF
USER SATISFACTION IN E-TRAINING

BY

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ABSTRAK

E-latihan telah berkembang menjadi satu cara revolusi pembelajaran di organisasi-organisasi kebelakangan ini disebabkan oleh perkembangan pesat infrastruktur teknologi maklumat di Malaysia. Penyokong sistem e-latihan mendakwa bahawa ia adalah kos efektif, fleksibel dan memberi kemudahan menghantar arahan dengan cara yang konsisten dan tepat kepada semua kakitangan dalam sebuah organisasi. Memandangkan pelbagai manfaat yang diberikan oleh e-latihan, organisasi patut mengguna perkembangan terbaru ini untuk membina sumber yang berilmu dan layak untuk memastikan kebolehsaingan diri dalam industri yang pantas. Penyelidikan ini bertujuan untuk mengenalpasti faktor-faktor kritikal yang mempengaruhi kepuasan pengguna dalam e-latihan dan seterusnya kesan kepuasan pengguna kepada keberkesanan e-latihan. Keberkesanan e-latihan merujuk kepada niat untuk meneruskan e-latihan dan faedah kepada individu. “Technology Acceptance Model”, “Updated Delone and Mclean IS Success Model” dan “Expectation-Confirmation Model” telah digunakan sebagai asas untuk perkembangan kerangka teori untuk pengkajian ini. Dari 163 soal-selidik yang dikutip daripada pekerja-perkerja dengan pengalaman e-latihan di organisasi yang terletak di utara semenanjung Malaysia, tujuh hipotesis telah diuji. Dorongan untuk belajar, senang diguna, sokongan pengurusan dan sokongan organisasi didapati sebagai punca-punca utama yang mendorong kepuasan pengguna. Tetapi, keupayaan menggunakan komputer dan kandungan pendidikan tidak memberi kesan positif kepada kepuasan pengguna. Akhirnya, kepuasan pengguna didapati mempunyai pengaruh yang kuat and positif terhadap keberkesanan e-latihan. Memahami faktor-faktor tersebut di atas adalah penting untuk organisasi yang mengguna e-latihan untuk mengatur langkah strategi organisasi supaya kepuasan pengguna dan keberkesanan e-latihan dapat dipertingkatkan.

ABSTRACT

E-training has developed into a revolutionary way of learning in organizations in recent years due to rapid growth in information technology infrastructure in Malaysia. The advocates of e-training system claim that it provides a cost effective, flexible and convenient way in delivering instructions in a consistent and timely manner to all employees in an organization. In view of the various benefits of e-training, organizations should capitalize on this latest development to build a knowledgeable and competent workforce in order to sustain their competitiveness in the fast paced industries. This study intends to identify the critical factors that influence user satisfaction in using e-training, and the impact of user satisfaction on e-training effectiveness. E-training effectiveness refers to continuance intention and net benefits to the individual. The Technology Acceptance Model, Updated Delone and Mclean IS success model and Expectation-Confirmation Model were used as the foundation for the development of the theoretical framework for this research. Drawing a sample of 163 respondents working in organizations located in the northern region of Malaysia with prior e-training experience, 7 hypotheses were tested. Motivation to learn, ease of use, management support and organizational support were found to be significant predictors of user satisfaction. However, computer self-efficacy and contents of training did not have a significant positive relationship with user satisfaction. Lastly, the result revealed that user satisfaction demonstrated a direct, statistically significant, and positive relationship with e-training effectiveness. Understanding these factors are essential for organizations adopting e-training in formulating the company strategies to increase user satisfaction and enhance e-training effectiveness.

Chapter 1

INTRODUCTION

1.1 Introduction

This chapter provides an outline of this research study. This chapter illustrates the background, problem statement, research objectives, research questions, definition of key terms, significance of the study and organization of remaining chapters.

1.2 Background

The development of information technologies has contributed to the exponential growth in corporate e-learning (or e-training) in recent years. The importance and significance of e-training cannot be neglected, especially in today's environment where organizations are moving towards globalization, with employees located at different continents of the world. This topic has also drawn great interest from researchers. Research in this area has started since early 1990s, but we can clearly witness the intensity and scope of research has grown since.

E-training is a subset of e-learning. It is similar with e-learning in many ways in terms of the methods of delivery, technology used, etc; except that it refers to much shorter time frame of learning which usually is specifically designed to achieve a certain learning objectives or skills.

According to Cappel and Hayen (2004), e-learning has grown into a revolutionary way of learning due to the rapid development of information and communication technologies. This revolution enables employees to obtain an intimate learning experience without attending a brick-and-mortar facility. E-learning has received considerable attention

as means of providing alternatives to traditional face-to-face, instructor-led education (Douglas & Van Der Vyver, 2004). In today's rapidly evolving high technology environment, e-training enables a person to undertake customized training at a distance over the Internet, at any time at any location. Typical types of e-training listed are video conferencing and web-based training. These technologies purport to permit delivery of learning which is "new, better, cheaper, and faster" (Bardach, 1997; Taylor, 2002) than traditional classroom methods. Cost effectiveness and administrative advantages have been the main drivers for e-training growth. However, more recently, organizations have recognized benefits derived from the consistent and uniform delivery of trainings across the organization, especially for global organizations. In addition, e-training allows flexible and timely updating of training content, opportunity for high level of interactivity, and fosters studying possibilities to everyone within the organization.

As organizations strive to enhance their competitiveness by constantly promoting continuous learning culture, corporate e-learning (or e-training) becomes an increasingly important tool for various reasons. Study has shown that e-learning trend has shown no sign of slowing down. As this trend evolves over time, it has led to a range of innovative services offering one-stop education and training solutions. Online training continues to grow in popularity as organizations strive to better meet their immediate and strategic needs for a flexible, well-trained workforce (Kosarzycki et al., 2002; as cited by Long, DuBois, & Faley, 2008). IDC, the IT intelligence analyst puts the total global e-learning market at \$8 billion and set to grow to \$13 billion in the next five years (Flood, 2006). In the 2004 Training Industry Report, Dolezalek, noted that 89 percent of companies who responded to their survey reported that they used the Internet to some extent for instruction delivery.

While the reward seems promising, careful assessment and evaluation of real organizational learning benefits derived from e-training are required to justify the investment. There is a lack of sound research on the satisfaction and effectiveness of corporate e-training. Are the employees satisfied with the e-training system provided by the organizations, and more importantly, are they willing to continue pursuing e-training in the future and are the benefits articulated realized? Therefore, understanding of the critical factors that lead to user satisfaction and effective training outcomes is fundamental for organizations.

In Malaysia, we saw a period of considerable economic and technological changes in the 1990s. The decade began with Vision 2020, the policy introduced by then Prime Minister Datuk Seri Dr. Mahathir bin Mohamad, and was followed in 1996 by the establishment of the Multimedia Super Corridor, and the privatisation of tertiary education (Puteh, 2007). The government places high priority on the development of Information and Communications Technology (ICT). Malaysia is ranked top five in terms of promoting information, communication and technology (ICT) in Asia (iParkSingapore; as cited by Asirvatham, Kaur & Abas, 2005). All these initiatives were interconnected, and represent the main forces that drive the e-learning trend in Malaysia. In fact, e-learning is identified as one of the five Strategic Thrust Areas which focuses on cultivating a lifelong learning culture (Navi Bax & Abu Hassan, 2003).

In the 9th Malaysia Plan (2006-2010), one of the seven strategies is building world-class human capital. And the government is trying to capitalize on e-learning to achieve this goal. In the country report by Asirvatham et al. in 2005, there are many initiatives taken to promote and develop e-learning in Malaysia. These include the MyGfL (Malaysia Grid for Learning) initiative by NITC (National IT Council) in 1999, first National E-Learning Conference started in 2000, two virtual universities were established i.e. UNITAR and Open

University Malaysia, the establishment of the National E-learning Steering Committee in 2002, participation in the Asian E-Learning Network (AEN) and others.

As an initiative to accelerate the achievement of Vision 2020, a path has already been defined through seven innovative Flagship Applications. These applications are engineered to jump start the MSC Malaysia initiative and create a multimedia utopia for innovative producers and users of multimedia technology. These 7 Flagship Applications serve two main purposes: first is to provide the necessary "development" mechanism, and secondly, assuring an "environment" for the growth of the multimedia and information technologies.

With the desire to enhance government delivery system and to remain competitive in this networked global village, the need for more frequent training among civil servants is inevitable. The Public Sector E-Learning project has been identified as one of the initiatives in the Public Sector ICT Blueprint launched by the government in August 2003 whereby the National Institute Of Public Administration (INTAN) has been identified as the lead agency for its implementation. This project is a government initiative implemented with the intent of making quality training easily available to all its personnel. INTAN will spearhead this implementation which is one of the projects in the 9th Malaysia Plan. This project is aimed to bring great changes to the public sector learning and training culture; affecting and benefiting the institutions and all public sector personnel.

Development of e-training is indeed not a new phenomenon in Malaysia. Many firms in the service and manufacturing industries in Malaysia have started to adopt e-training, with the majority are multi national companies. However, research in Malaysia is still immature and requires much work from scholars. With the emerging trend of e-training in Malaysia, this research intends to fill the gap by studying the critical factors that leads to higher satisfaction and effective online training in the Malaysian context.

1.3 Problem Statement

The capacity for continuous deep learning has been argued to be the only enduring competitive advantage for organizations. Many companies recognize the need for continuous renewal of knowledge to be successful, and e-training plays a critical role to foster this knowledge transfer within the organizations.

Because knowledge is the key strategic competitive resource in many industries, improved methods of developing, deploying, and using knowledge constitute a competitive advantage (Baldwin, Danielson & Wiggenhorn, 1997). E-training has emerged as a new means of skill training and knowledge acquisition, encouraging industry to invest resources in the adoption of this system. However, many organizations which have already adopted e-training are faced with issues that arise due to lack of understanding of the critical factors that will lead to a successful implementation.

Mun and Hwang (2003) argued that despite the considerable amounts of time, money, and resources invested in implementing and maintaining web-based courseware in higher educational institutions, many are underutilized and sometimes abandoned due to the lack of user acceptance. When these systems are not used, educational institutions are unable to realize a return on their investments. Understanding the factors that promote the effective use of information systems continues to be a critical issue for researchers and practitioners.

At the corporate end, while e-training initiatives are thought to dramatically change how organizations conduct training, evidence has suggested that as many as 80% of the employees drop out of these programs before completion (Flood, 2002). Therefore, it is important for researchers to begin systematically investigating these e-training initiatives to “uncover principles and guidelines that can aid instructional designers in building sound

environments'' (Salas and Cannon-Bowers, 2001; as cited by Johnson, Hornik, and Salas, 2007).

Long et al. (2008) argued that the advantages of cost savings and convenience of e-training will be mitigated if the training is not effective in producing desired outcomes. Thus, the need to evaluate training effectiveness is critical in this emergent decade of online training in the workplace. High dropout rates are one of the biggest problems faced by organizations when implementing online training (Frankola, 2001). The larger dropout rates associated with online training must also be resolved, especially as the use of online training courses increases (Welsh, Wanberg, Brown, & Simmering, 2003). Identification of possible impediments to completing voluntary online training courses impediments would better help organizations develop strategies to increase the use and completion rates of voluntary training courses delivered online. Long et al. (2008) claimed that negative trainee reactions may be one of the barriers in completing a course.

Although there are increasing interest in the study of e-learning in recent years, it is apparent that, at present, only few studies exist with focus on the critical factors affecting training satisfaction and effectiveness in organizations in emerging nations, as the majority of these studies concentrate on academic settings or US and European companies. Research in Malaysia is still very limited. And the findings from the previous research conducted, mainly in developed countries like US, UK, Australia, Taiwan and Japan may not apply in Malaysia.

Firms in Malaysia have been hopping on to the e-learning bandwagon, hoping to rip benefits from this upcoming trend. However, there are issues and challenges with the implementation of e-learning that needs to be avoided or resolved in order to enhance the user satisfaction and e-training effectiveness. Ali (2004) had identified seven issues and challenges in implementation of e-learning in Malaysia. They are lack of awareness amongst

population, low adoption rate, bandwidth and connectivity limitations, computer illiterate, lack of quality e-learning content, difficulty in engaging learners online and language barrier. Limitation in bandwidth and connectivity will affect the response time of the e-learning system among Malaysian organizations (Ali, 2004). Slow response from the e-learning system will create frustration and boredom among users and leads to low satisfaction (Almutairi & Subramanian, 2005).

The primary goal of this research is to identify the critical factors affecting user satisfaction of e-training in organizations, and whether higher user satisfaction will lead to higher training effectiveness, where effectiveness is measured by the degree of e-training continuance intention and benefits to the individual.

1.4 Research Objectives

The main objectives of this study are:

1. to examine the satisfaction level of employees using e-training.
2. to measure the effectiveness of e-training in terms of employees' continuance intention and benefits from e-training.
3. to identify critical factors from trainee perspective affecting user satisfaction.
4. to identify critical factors from course perspective affecting user satisfaction.
5. to identify critical factors from organization perspective affecting user satisfaction.
6. to investigate the influence of user satisfaction on e-training effectiveness in terms of employees' continuance intention and benefits from e-training.

1.5 Research Questions

In order to achieve the above objectives, this study attempt to answer the following research questions:

1. What is the satisfaction level of employees using e-training at workplace?
2. Are employees willing to continue using e-training in future and do they perceive that e-training brings benefits to them?
3. What are the critical factors from trainee perspective influencing user satisfaction?
4. What are the critical factors from course perspective influencing user satisfaction?
5. What are the critical factors from organization perspective influencing user satisfaction?
6. Does user satisfaction influence employees' continuance intention and benefits from e-training?

1.6 Definition of Key Terms

For the purpose of this study, the following definitions will be used throughout this paper.

1. **E-learning:** The use of electronic devices for learning, including the delivery of content via electronic media such as Internet/Intranet/Extranet, audio or video tape, satellite broadcast, interactive TV, CD-ROM, and so on (Kaplan-Leiserson, 2000).
2. **E-training:** Represents a subset of e-learning. Any type of training provided in organizations via electronic media. This includes delivery of course content via Internet, company Intranets, Extranets, satellite broadcast, audio/video tape, interactive TV, and CD-ROM.
3. **Computer self-efficacy:** Individual's judgment of their capabilities to use computers in diverse situation (Thatcher & Perrewe, 2002).

4. **Motivation to learn:** Specific desire of the trainee to learn the content of the training course (Noe, 1986).
5. **Perceived ease of use:** Degree to which a potential adopter considers use of the target system to be relatively free of effort (Davis, 1989; Davis, Bagozzi, & Warshaw, 1989).
6. **Contents of Training:** Refers to information quality which is concerned with such issues as accuracy, timeliness, completeness, relevance and consistency of the information generated by an information system (Delone & Mclean, 2003).
7. **Management support:** The aspect of work environment that reflects the extent to which supervisors and managers encourage on-the job learning, innovation, and skill acquisition and provide recognition to employees in support of these activities (Tracey, 1998; Tracey, Hinkin, Tannenbaum, & Mathieu, 2001).
8. **Organizational support:** This dimension corresponds to policies, procedures, and practices that demonstrate the importance of training and development efforts, such as reward systems and resources to acquire and apply learned skills (Tracey, 1998; Tracey et al., 2001).
9. **User satisfaction:** An affective state that is the emotional reaction to a product or service experience is influenced by a consumer's satisfaction with the product itself and with the information used in choosing the product. (Spreng, MacKenzie & Olshavsky, 1996).
10. **Continuance intention:** The employees' intention to continue using e-training systems at workplace in the future.
11. **Net benefits:** The most important success measures as they capture the balance of positive and negative impacts of the e-learning on customers, suppliers, employees, organizations, markets, industries, economies, and even our societies (Delone & Mclean, 2003).

1.7 Significance of the Study

Recognizing the limitation in the current research in the topic of corporate e-training in Malaysia and the significance of the study due to the phenomenal growth in the adoption of e-training, this paper intends to enrich the existing knowledge about corporate e-training in Malaysia.

This research will assess the level of e-training satisfaction and effectiveness among firms in Malaysia. E-training effectiveness in this study includes continuance usage intention and the net benefits attained by the employees. As e-training gains attention, it is important to establish an appropriate framework for research to enhance the satisfaction and effectiveness of this new trend. This study is important for firms that are currently considering e-training as an alternative to the traditional face-to-face classroom training as well as for those firms already adopted this approach.

This study attempts to help executives and managers to understand the critical factors affecting online training satisfaction and effectiveness. This study focus on six factors that are believed to be significant: computer self-efficacy, motivation to learn, ease of use, contents of training, management support and organizational support. The relationship between these factors and user satisfaction will be investigated. The result will bring great implications to managers and executives as they continuously try to enhance training satisfaction and effectiveness in organizations. It leads managers to look into the most critical factors, and take appropriate and prudent actions to address those factors that they are trailing before making sizeable e-training investment decisions.

While many studies have been done on e-learning satisfaction and effectiveness since 1990s, these studies focus on the specific variables that have been developed through past theories related to Information Technology acceptance and usage. This study differentiates

from existing literatures by including variables also found to be important in off-line training program and as well as e-learning specific variables. In essence, this study seeks to investigate the influence of factors from three distinct dimensions: trainee (computer self-efficacy and motivation to learn), course (ease of use and contents of training), and organization (management support and organizational support) on user satisfaction. The theoretical framework also expands on previous IS frameworks to specifically address the importance and influence of user satisfaction on the e-training experience on training effectiveness.

1.8 Organization of Remaining Chapters

This research paper is organized into five chapters. Chapter 1 starts with an introduction to the topic of interest, giving an overview of the research background. The problem statement is defined along with the key objectives and research questions that this paper intends to achieve and answer. Chapter 2 presents the comprehensive literature reviews on previous studies; and ends with the development of theoretical framework and formulation of hypotheses. Chapter 3 explains the methodology that will be used in this research, questionnaires development, measures, sampling design, data collection, coding and analysis. Chapter 4 presents the results of the statistical analyses and hypothesis testing. Finally, Chapter 5 summarizes the research findings, implications and limitation of the study. The concluding chapter also provides some suggestion for future research.

Chapter 2

LITERATURE REVIEW

2.1 Introduction

This chapter presents an overview of literature based on a comprehensive search of previous studies undertaken in this topic. This chapter focuses on discussing related underlying theories, and the expansion of the theories to derive at the current theoretical framework and subsequently, the hypotheses development.

2.2 Review of the literature

2.2.1 E-training in organizations

There are some variations in the definition of e-learning based on the review of literature. E-learning is defined as the delivery of learning through electronic mediation which bridges the gap caused when the instructor and student are separated in either time or place (adapted from Leonard, 1996). E-learning refers to the use of electronic devices for learning, including the delivery of content via electronic media such as Internet/Intranet/Extranet, audio or video tape, satellite broadcast, interactive TV, CD-ROM, and so on (Kaplan-Leiserson, 2000). Johnson et al. (2007) cited that according to the definition by Eddy and Tannenbaum (2003), e-learning refers to training initiatives which provide learning material, course communications, and the delivery of course content electronically through technology mediation.

In this paper, e-training refers to any type of training provided in organizations via electronic media. This includes delivery of course content via Internet, company Intranets, Extranets, satellite broadcast, audio/video tape, interactive TV, and CD-ROM. Examples of

e-trainings are: Self-paced learning from company Intranet, learning from CD-ROM at work, training provided by instructors live through Webcast, recorded session of past webcast trainings available to employees, etc.

Johnson et al. (2007) cited that organizations are currently spending over \$250 billion dollars annually on training (American Society for Training and Development, 2004), of which over \$16 billion is spent on technology-based training (Anonymous, 2006, December). According to Sweeney (2002), 40 percent of all US corporate training efforts were expected to be using virtual learning technologies by 2003.

E-learning has generated tremendous excitement both inside and outside higher education. For some, it offers the potential to provide learning to new audiences; for others, it offers the opportunity fundamentally to transform learning delivery and the competitive landscape (Poehlein, 1996). Benigno and Trentin (2000), citing Thorpe (1998), note that virtual learning has a greater number of elements of evaluation, greater flexibility, a wider range of stimuli, and a broader component of resources for participants to use. Volery and Lord (2000) classified four broad categories of the reasons of institutions for embracing online education; expanding access, alleviating capacity constraints, capitalizing on emerging market opportunities, and serving as a catalyst for institutional transformation. E-training allows both the trainers and trainees to be decoupled in terms of time, place, and space (Lim, Lee, & Nam, 2007).

As the e-training technology is now available at a competitive cost, those organizations which do not embrace it will be left behind in the race for globalization and technological development. The benefits of e-learning have been discussed frequently in articles. It is capable of bringing the many advantages: cost-effectiveness, timely content, and

access flexibility (Hong, Lai, & Holton, 2003; Lorenzetti, 2005; Rosenberg, 2001). Bouhnik and Marcus (2006) stated that e-learning has four advantages:

1. Freedom to decide when each online lesson will be learned.
2. Lack of dependence on the time constraints of the lecturer.
3. Freedom to express thoughts, and ask questions, without limitations.
4. The accessibility to the course's online materials at students' own election.

Despite all the perceived benefits of e-learning, research indicates that a high rate of students who commence e-learning courses do not finish them (Dutton & Perry, 2002). Many are dissatisfied with the e-learning experience.

The focus of this study is on user satisfaction of e-training at their work place. There are a few studies conducted by scholars in Malaysia to investigate user satisfaction of e-training in organizations. Loh (2007) conducted a study on the antecedents and outcomes of e-learning effectiveness in the manufacturing industry in Malaysia, where e-learning effectiveness was measured by intention to use and user satisfaction. Result of his study revealed that system quality, information quality and perceived usefulness influenced e-learning effectiveness positively. In addition, e-learning effectiveness also affected individual impact and organizational impact. Md Hashim Nordin (2007) conducted another study on factors contributing to continuance intention and user satisfaction in e-training for employees in multinationals companies in Penang. Her study showed that information quality and system quality were important factors leading to increase in usage and user satisfaction of e-learning in work place. Furthermore, higher level of satisfaction was found to result in increase in intention to continue use.

2.2.2 Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) was developed by Davis (1989) and Davis et al. (1989) to measure, predict, and explain user acceptance of information technology (IT). It is an adaptation of the Theory of Reasoned Action (TRA) model by Ajzen and Fishbein (1980) that asserts that beliefs could influence attitudes, which lead to intention to use and finally actual usage behavior. TAM introduced two important constructs, perceived usefulness and perceived ease of use. Perceived usefulness is defined as the degree to which a person believes that using a particular system would enhance his/her job performance; while perceived ease of use is defined as the degree to which a person believes that using a particular system would be free of effort (Davis, 1989). TAM theorizes that perceived usefulness and perceived ease of use determine user's behavioral intention and actual usage. The causal relationships among these constructs have been validated empirically in many studies. Over the last two decades the TAM has been one of the most influential research models in studying the determinants of IT usage (Chau, 2001). Figure 2.1 below depicts TAM.

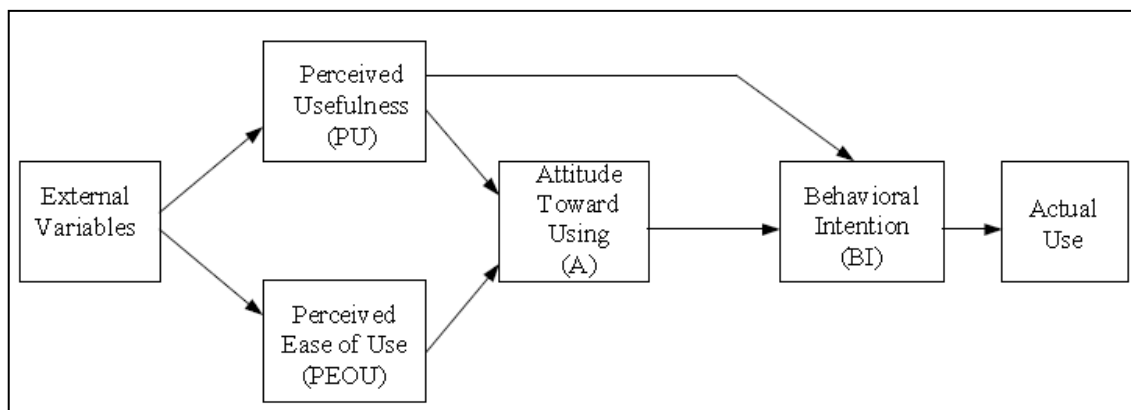


Figure 2.1. Technology Acceptance Model (TAM) (Based on Davis et al. 1989).

2.2.3 Delone and Mclean Information Systems Success Model

DeLone and McLean (1992) introduced the information systems success (ISS) model that is measured through six dimensions: system quality, information quality, use, user satisfaction, individual impact, and organizational impact. It is one of the most cited models for evaluating IS effectiveness. System quality and information quality singularly and jointly affect both use and user satisfaction. Use has positive and negative effects on degree of user satisfaction and vice versa. Both use and user satisfaction influence individual impact, which will eventually cause organizational impact.

In light of the huge technological advancement in information technology, especially the emergence and consequent explosive growth of Internet-based applications, DeLone and McLean proposed an updated model in 2003. In this updated model, DeLone and McLean (2003) added “service quality” measure as a new dimension of the IS success model and grouped all the both individual and organization impact measures into a single impact or benefit category called “net benefit”. Thus, this updated model consists of six dimensions: (1) information quality, (2) system quality, (3) service quality, (4) use/intention to use, (5) user satisfaction and (6) net benefits. The Updated DeLone and McLean ISS model is shown in Figure 2.2 as follow:

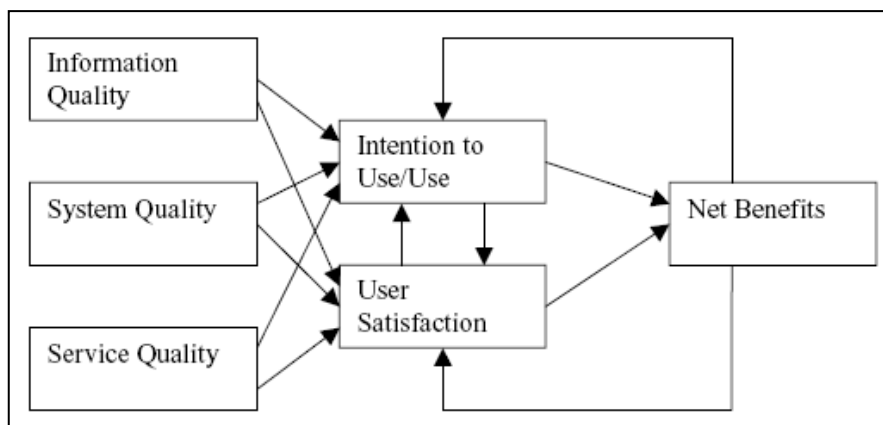


Figure 2.2. Updated DeLone and McLean ISS model (2003).

2.2.4 Expectation-Confirmation Model

The Expectation-Confirmation Theory (ECT) is derived from marketing and asserts that consumers' intention to repurchase a product or service is significantly influenced by their prior experience with that product or service (Anderson and Sullivan 1993; Oliver 1980). Lower expectation and/or higher perceived performance may lead to a greater confirmation, which results in positive influences to customer satisfaction and continuance intention. Reversing the relationship would cause disconfirmation, dissatisfaction, and discontinuance intention. Confirmation refers to the expectation-performance discrepancy (Hayashi, Chen, Ryan & Wu, 2004).

Bhattacharjee (2001) suggests that the IS users' continuance decision is similar to consumers' repurchase decision because both decisions (1) follow an initial (acceptance or purchase) decision, (2) are influenced by the initial use (of IS or product) experience, and (3) can potentially lead to an ex-post reversal of the initial decision. Bhattacharjee (2001) developed the Expectation-Confirmation Model (ECM) by integrating the Expectation-Confirmation Theory (ECT) with the Technology Acceptance Model (TAM). This model is mainly derived from ECT. However, the ECM focuses only on post-acceptance variables. Bhattacharjee (2001) emphasized that the ECM is a post-acceptance model of IS Continuance.

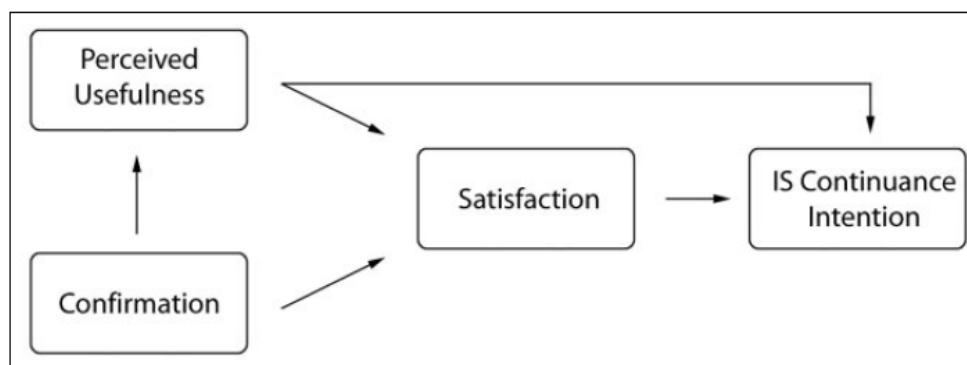


Figure 2.3 Expectation-Confirmation Model (ECM).

2.2.5 Computer Self-Efficacy

Bandura (1986) defined self-efficacy as people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances. It is concerned not with skills one has but with judgments of what one can do with whatever one possesses. Bandura's (1977) self-efficacy theory suggests that individuals must feel confident in using computer technologies that are important tools for learning and communication.

According to Compeau and Higgins (1995), computer self-efficacy is an individual's belief in his or her ability to perform specific computer tasks. Individuals with higher computer self-efficacy are more confident in their interactions with computers and likely to utilize them more effectively than those with lower levels of computer self-efficacy. Research has demonstrated that Computer Self-Efficacy (CSE) would also exert a significant influence on individuals' emotional reactions to using computers, as well as their actual computer use (Compeau & Higgins, 1995).

Higher computer self-efficacy helps in setting higher goals, persisting in the face of obstacles, and engaging in behaviors that increase performance outcomes (Bandura, 1997; Marakas et al., 1998; Johnson, 2005). Johnson (2001) claimed that individuals having a high level of computer self-efficacy should be more likely to engage in computer tasks and to show persistence in completing computer tasks despite possible difficulties. In contrast, individuals with a low level of computer self-efficacy should be more likely to avoid computer tasks or to give up on a computer task in the face of performance obstacles.

Previous research has shown that computer self-efficacy plays a key role in e-training. Many researchers have proved that a high level of computer self-efficacy contributes towards a high degree of e-training acceptance, usage, satisfaction and effectiveness. Computer self-efficacy is an important trainee characteristic for e-training situations (Chau & Wang, 2000).

Chau and Wang found that self-efficacy affects training effectiveness in homepage design training course. Lim et al. (2007) found that the higher the trainee's computer self-efficacy regarding online training, the higher the higher their learning performance.

In prior studies, computer self-efficacy has been shown to influence perceived ease of use (Agarwal et al., 2000; Chau, 2001; Venkatesh & Davis, 1996 as cited in Roca and Gagné, 2007) and perceived usefulness (Chau, 2001; Compeau & Higgins, 1995; Compeau, Higgins, & Huff, 1999). When users have strong self-efficacy beliefs they perceive that less effort is needed to use the system and are more likely to continue using it. Studies also found evidence of a relationship between self-efficacy and performance in software training (Gist & Mitchell, 1992; Webster & Martocchio, 1992).

In the study conducted by Wu, Tsai, Chen and Wu (2006), the results indicate that, in the context of learning conceptual knowledge in undergraduate education, there are significant relationships among the computer self-efficacy of online learners, their perceived usefulness, confirmation, and satisfaction levels. Computer self-efficacy demonstrated a direct, statistically significant, and positive relationship with satisfaction ($p < 0.05$) and perceived usefulness ($p < 0.05$). When users feel that they have more computer self-efficacy, they will be more satisfied with the system and believe the system is more useful to their personal performances.

However, there were also mixed results from previous studies trying to validate the influence of computer self-efficacy in the computing environment. In the study by Masrek (2007) to investigate the influence of individual factors comprising attitudes towards the portal, personal innovativeness and web self-efficacy on the effectiveness of the university portal, web self-efficacy was found to be not related to portal effectiveness.

Hayashi et al. (2004) assessed the applicability of Computer Self-Efficacy (CSE) on the intention of online learners who continue using the e-learning system as a vehicle to assimilate IT skills. Nevertheless, the results indicated that there is not a significant relationship among the CSE of online learners, their perceived usefulness, confirmation, and satisfaction level. Also, as a moderating factor, computer self-efficacy does not have significant influence on learning outcomes.

Computer self-efficacy is especially important in the e-training environment. Employees who have low self-efficacy often find themselves having problem using the e-training system, as they get minimal guidance from trainer compared to a face-to-face training environment. Therefore, employee with higher computer self-efficacy is believed to have higher satisfaction on the e-training system.

2.2.6 Motivation to Learn

In a training environment, motivation is defined as “the degree to which the learner is willing to make efforts to improve his or her performance of training and work” (Robinson, 1985). Noe (1986) defined motivation to learn as the “specific desire of the trainee to learn the content of the training course” (p. 743). Noe (1986) characterized motivation to learn as both the trainees’ enthusiasm for learning and as the trainees’ persistence in attempting to learn the materials when the content becomes more difficult. According to Noe (1986), if the ability levels are similar, trainees who are more motivated prior to the training are more likely to learn than those that are not motivated.

In an entirely online learning environment trainees are primarily responsible for motivating themselves and guiding themselves through the learning; in a traditional

environment the instructor generally takes care of these tasks (Long et al., 2008). Thus, Long et al. (2008) argued that learning in an online training program is more likely to be compromised when trainees are unable to navigate through the training, or when they are lazy, careless, or do not know how or when to self motivate. Long et al. (2008) proposed a conceptual model. First, trainee attitude about computer anxiety influences intentions regarding expenditure of effort during the training course (motivation to learn), which influences how effortful the behavior is during the training course, which influences the outcome of learning. The trainees' motivation to learn is linked to their intentions regarding the amount of attentional effort they intend to expend during the course. The results revealed that both pre-training motivation and trainee reactions are significantly related to perceived effort: the more positive pre-training motivation and trainee reactions are, the greater the level of perceived effort reported by trainees. Also, individuals who are motivated to learn are more likely to seek additional learning experiences, in general, than are those who are less motivated to learn in an online training environment.

The self-determination theory (SDT) by Deci and Ryan (2000) is a theory of human motivation that proposes a multidimensional conceptualization of motivation and an associated model of individual and contextual antecedents. SDT proposes two overarching types of motivation. Intrinsic motivation refers to doing an activity for its own sake, because one enjoys the process (Ryan & Deci, 2000). Extrinsic motivation refers to doing an activity for a consequence separable from the activity itself, such as the pursuit of a reward or the avoidance of a punishment (Ryan & Deci, 2000). The theory also proposes that the adoption of intrinsic motivation over extrinsic motivation depends on the satisfaction of three basic psychological needs for autonomy, competence, and relatedness. Roca and Gagné (2007) conducted one of the first studies to examine the effects of motivational factors affecting the

technology acceptance model (TAM; Davis, 1989) constructs. They introduced antecedent variables that are likely to have an influence on the type of motivation that e-learning users are likely to adopt and how these different types of motivation will influence intentions to continue using e-learning. The results show that applying SDT to e-learning in a work setting can be useful for predicting continuance intention.

Davis, Bagozzi, and Warshaw (1992) introduced perceived enjoyment in the model as an intrinsic motivation and defined perceived usefulness as an extrinsic motivation. Moon and Kim (2001) introduced perceived playfulness as a new factor that reflects the user's intrinsic motivation in World Wide Web acceptance. Shang, Chen and Shen (2005) integrated TAM with intrinsic and extrinsic motivations for consumers to shop on-line. They found that fashion and a cognitive absorption of experiences on the web played a significant role predicting on-line consumer behavior.

Based on the experiment conducted by Venkatesh and Speier in 1999 to determine how mood, during technology training, affected motivation, they found that there were only short term increases in intrinsic motivation and intention to use the technology among individuals in the positive mood intervention. In contrast, a long-term reduction of intrinsic motivation and intention was observed among those in the negative mood intervention.

Motivation to learn is equally important in the e-training environment as a factor that influences the user satisfaction of the e-training system. The higher the level of motivation to learn, the employees will be willing to put more effort in the learning process. They will also be more proactive in seeking knowledge using the e-training system available to them at work place. This in turn will increase the overall usage of the e-training system, which is critical for organizations as huge investment is put into developing these e-training systems. Under utilization of e-training system is a waste of the company resources.

2.2.7 Ease of Use

Davis (1989) introduced technology acceptance model (TAM) to predict user's acceptance of IT and introduced two important constructs, perceived usefulness and perceived ease of use. Davis (1989, p. 320) defined perceived usefulness as “the degree to which a person believes that using a particular system would enhance his/her job performance”. Perceived ease of use is defined as “the degree to which a person believes that using a particular system would be free of physical and mental effort” (Davis, 1989, p. 320). Davis et al. (1989) suggests that computer usage is determined by behavioral intentions. These behavioral intentions are determined by the user's attitude about the technology, which is determined by the user's beliefs about whether the system is easy to use and useful. The causal relationships among these constructs have been validated empirically in many studies of user acceptance. The TAM construct has been adopted in many studies on e-training effectiveness. Hayashi et al. (2004) believed that conceiving the causal relationship in the Technology Acceptance Model (TAM) theory would help us understand the IT (including e-learning system) adoption behavior.

While TAM focuses on the technology adoption process, later innovation research further distinguish between initial adoption of innovation and continued/sustained use of innovation (Rogers, 1983). There are two constructs in perceptions of innovation characteristics by Rogers (1983) and Moore and Benbasat (1991). The first being relative advantage, is similar to the concept of perceived usefulness of TAM. While the second construct, ease of use, which is also part of the TAM, is similar to definition to Rogers' concept of complexity (Rogers, 1983) and captures the degree to which a potential adopter considers use of the target system to be relatively free of effort (Davis, 1993). Liao and Lu (2008) proposed a theoretical framework for user adoption and continued use behavior of e-

learning based on the theory of perceptions of innovation characteristics. However, the result showed the hypothesis where perception of ease of use is positively related to user's intention about e-learning adoption/continued was not supported.

DeLone and McLean (1992) suggested the information systems success (ISS) model that is measured through six dimensions: system quality, information quality, use, user satisfaction, individual impact, and organizational impact. System quality implies an information process system quality based on production of produced information. It also implies accuracy and efficiency of the system. System quality is the measure of the information system process itself and effects user satisfaction (DeLone & McLean, 1992). However, Seddon and Kiew (1997) replaced the PEOU (perceived ease of use) and PU (perceived usefulness) with system quality and use.

In regards to information system theory, system quality is the user's judgment of dealing the system familiarly and easily (Doll & Torkzadeh, 1988; Rai, Lang, & Welker, 2002). It is acknowledged that system quality in information systems success model is substituted for perceived ease of use (Rai et al., 2002; Seddon & Kiew, 1997). Perceived ease of use can be justified as the perception of system usage effort, as it is an important variable in information system attitudes (Davis, 1989; Davis et al, 1989).

Van Slyke, Belanger, and Comunale (2004) studied factors that may impact consumers' decision to engage in Web-based shopping and found that perceived complexity (ease of use) has strong impact on intention of use. Ilie, Van Slyke, Green, and Lou (2005) added to the understanding of instant messaging adoption and use by examining gender differences in perceived innovation characteristics. The result revealed that for both males and females, perceived ease of use were significant predictors of intention to use. Walker and Johnson (2008) found that instructor perceptions of ease of use of web-enhanced instruction