



UNIVERSITI PUTRA MALAYSIA

***MOTIVATION AND SELF-REGULATION AS PREDICTORS OF
E-LEARNING EXPERIENCE AMONG UNDERGRADUATES
IN A MALAYSIAN PUBLIC UNIVERSITY***

CHIANG YAN CHIOU

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MALAYSIAN PUBLIC UNIVERSITY**

By

CHIANG YAN CHIOU

**Thesis Submitted to the School of Graduate Studies,
Universiti Putra Malaysia, in Fulfilment of the
Requirements for the Degree of Master of Science**

May 2015

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Abstract of thesis presented to the Senate of Universiti Putra Malaysia
In fulfilment of the requirement of the degree of Master of Science

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This study was carried out to identify the relationship between motivation and self-regulation towards e-learning experiences among undergraduates at Universiti Putra Malaysia (UPM). For this purpose, a total of 314 samples were selected from undergraduates in UPM. Data were collected using a questionnaire and analysed using Statistical Package for Social Sciences (SPSS) version 20. A descriptive analysis was completed to obtain both mean and standard deviation of the variables. Findings from the descriptive analysis showed that students are motivated and self-regulated when using PutraLMS. Besides, students also had positive perception or were satisfied with PutraLMS.

Meanwhile, inferential analysis showed a significant positive relationship between motivation ($r = 0.589$, $p = 0.0001$) and self-regulation ($r = 0.632$, $p = 0.0001$) towards e-learning experiences. In addition, multiple linear regression analysis was also used to identify predictive factors of two independent variables that influence e-learning experience. Results showed that self-regulation ($\beta = 0.421$, $p = 0.0001$) was a better predictor for e-learning experience as compared to motivation ($\beta = 0.413$, $p = 0.0001$). The results revealed that the final two predictors model explained about 54.2% of the variation in e-learning experiences. This finding suggests that students generally view PutraLMS as an useful tool that supports them in their face-to-face classes. With an e-learning environment that supports students' motivation and self-regulation, students are likely to have a positive perception and feel satisfied to using PutraLMS. Finally, PutraLMS has been certified as a suitable tool to assist face-to-face classes in UPM, where students are satisfied with the PutraLMS environment, as shown in this study.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia
Sebagai memenuhi keperluan untuk ijazah Master Sains

**MOTIVASI DAN REGULASI KENDIRI SEBAGAI FAKTOR PERAMAL
KEPADA PENGALAMAN E-PEMBELAJARAN DI KALANGAN SISWAZAH
DALAM SEBUAH UNIVERSITI AWAM MALAYSIA**

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Pengerusi : Prof. Madya Ahmad Fauzi Mohd Ayub, PhD
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Kajian ini bertujuan untuk mengenalpasti hubungan antara motivasi dan regulasi sendiri terhadap pengalaman e-pembelajaran di Universiti Putra Malaysia (UPM). Untuk tujuan ini, sejumlah 314 orang responden telah dipilih daripada siswazah UPM. Soal selidik digunakan untuk mengumpul data kajian and data kajian tersebut dianalisa menggunakan perisian *Statistical Package for Social Sciences* (SPSS) versi 20. Selain itu, analisis deskriptif juga telah digunakan untuk mendapatkan nilai min dan sisihan piawai pembolehubah. Dapatan kajian menunjukkan responden bermotivasi dan mempunyai regulasi sendiri semasa menggunakan PutraLMS. Selain itu, analisis deskriptif juga menunjukkan pelajar secara amnya mempunyai persepsi positif atau berpuas hati terhadap penggunaan PutraLMS. Analisis inferensi menunjukkan terdapat kolerasi yang positif dan signifikan antara motivasi ($r = 0.589, p = 0.0001$) dan regulasi sendiri ($r = 0.632, p = 0.0001$) terhadap pengalaman e-pembelajaran.

Selain itu, analisis regresi linear menunjukkan kedua-dua faktor peramal (motivasi and regulasi sendiri) berpengaruh terhadap pengalaman e-pembelajaran dan pengaruh regulasi sendiri ($\beta = 0.421, p = 0.0001$) adalah lebih berpengaruh berbanding dengan motivasi ($\beta = 0.413, p = 0.0001$). Dapatan kajian kombinasi dua pengamal menerangkan 54.2% variasi dalam pengalaman e-pembelajaran. Penemuan kajian mencadangkan responden berpandangan positif terhadap penggunaan PutraLMS and bersetuju bahawa PutraLMS adalah berguna untuk menyokong pembelajaran kelas tradisi. Sekiranya PutraLMS dapat menjadikan para pelajar untuk lebih bermotivasi and mempunyai regulasi sendiri, mereka akan lebih berpersepsi positif and berpuas hati untuk menggunakannya. Akhir sekali, PutraLMS telah terbukti sebagai alat yang sesuai untuk membantu kelas tradisi di UPM kerana para pelajar berpuas hati dengan persekitarannya seperti yang telah ditunjukkan di dalam kajian ini.

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This thesis was submitted to the Senate of Universiti Putra Malaysia and has been accepted as fulfilment of the requirement for the degree of Master of Science. Members of the Supervisor Committee were as follows:

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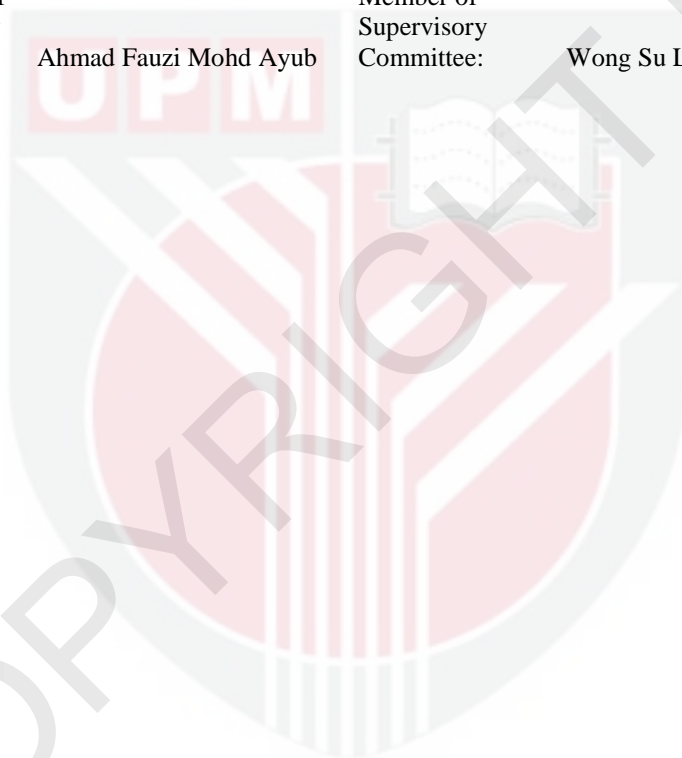


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LIST OF ABBREVIATIONS

3P Model	Presage-Process-Product Model of Student Learning
CADe	Centre for Academic Development
CGPA	Cumulative Grade Point Average
EDA	Exploratory Data Analysis
ICT	Information and Communication Technology
LMS	Learning Management System
MOE	Ministry of Education Malaysia
NTU	National Taiwan University
OSLQ	Online Self-regulated Learning Questionnaire
SEM	Structural Equation Modeling
SIMS	The Situational Motivation Scale
SPSS	Statistical Package for Social Science
SRL	Self-regulated learning
UiTM	Universiti Teknologi MARA
UKM	Universiti Kebangsaan Malaysia
UPM	Universiti Putra Malaysia
USM	Universiti Sains Malaysia

CHAPTER 1

INTRODUCTION

1.1 Background

Information and Communication Technology (ICT) has become part of our daily life. With the flourishing advancement of ICT, it has changed our daily life in a lot of aspects including economic development, politic, social life, as well as education. ICT in education involves data collection, information processes and knowledge creation, which are the most important processes in teaching and learning (Costa, Alvelos, & Teixeira, 2012). By using ICT in education, teaching and learning methodology can be enhanced (Boon, 2010), while teaching and learning experiences can be enriched (Chow & Shi, 2014).

The incorporation of ICT in education, especially the Internet, has apparently changed the teaching and learning model (Sangra, Vlachopoulos, & Cabrera, 2012). As the use of the Internet grows, a huge number of educational applications have been developed via the Internet. Such applications are known as e-learning. E-learning delivers information for education using telecommunication technology by providing learning at any time and from any where (Sun, Tsai, Finger, Chen, & Yeh, 2007). Besides, e-learning provides the opportunity to mix the accessibility to information with the use of communication technology to create a challenging learning environment (Garrison, 2011, p. 4).

Terzieva, Ilieva and Radonova (2009) categorised e-learning based on the forms of e-learning realising such as computer-based, web-based, or internet-based teaching, web-managed courses and blended learning. Meanwhile, Bowles (2005) defined e-learning as generation and transfer of knowledge using ICTs. E-learning should not concern upon any one form of technology, while it can be more than one. Those technologies involved in e-learning can be as simple as a radio or as complex as a computer or the Internet (Bowles, 2005).

In Malaysia, e-learning is mainly developed via the government, whereby the greater part of e-learning has been implemented in higher institutions (Abubakar, Harande, & Abubakar, 2009). As mentioned by Puteh (2007), the development of e-learning in Malaysia started with Vision 2020, which was followed by the establishment of Multimedia Super Corridor in 1996. In 1999, Ministry of Education (MOE) Malaysia

introduced 'Smart School' project in selected primary and secondary schools as part of the government's plans to develop the IT-literate society in 2020 (Mondi, Woods, & Rafi, 2008).

Learning Management System (LMS) is one of the popular education application types in e-learning. It allows students to access the learning contents at any time and from any where (Dalsgaard, 2006), while improving course management, teaching practices and students' engagement supported learning in distance education and campus-based education (Coates, 2005). In addition, LMS allows students to learn more flexibly and to construct their own knowledge (Coates, 2005) and provide opportunities for instructors to explore new methods of teaching and learning (Costa *et al.*, 2012). However, to make sure that LMS is successfully adopted and implemented, there is a need to focus on students' perception towards the use of LMS (Black, Beck, Dawson, Jinks, & DiPietro, 2007).

E-learning has changed students' learning experiences across higher education sector (Barrett, Higa, & Ellis, 2012) because it is not limited only to universities with distance learning courses but it has also been integrated into campus-based universities (Ellis, Ginns, & Piggott, 2009). When e-learning becomes popular in higher education, researchers started to focus on understanding students' learning approaches and their perception of learning (Bliuc, Ellis, Goodyear, & Piggott, 2011). Similarly, Lee and Tsai (2011) stated that researchers started to describe students' e-learning experience and how it will impact on their learning outcomes. Moreover, the main focus in e-learning research has switched from comparison of academic performances between e-learning students and face-to-face class students to students' perceptions of experience in e-learning environment (Keller & Karau, 2013).

Students' autonomy in e-learning environment is different from that of other learning environments (Barnard, Lan, To, Paton, & Lai, 2009) and the interaction in e-learning environment is apparently very different from the interaction in face-to-face classes (Milligan & Buckenmeyer, 2008), where students in the e-learning environment are required to be more matured and have good self-discipline (Zhang, Zhao, Zhou, & Nunamaker, 2004). Besides, students need to be more responsible and to learn independently in e-learning environment (Terzieva *et al.*, 2009).

Evaluation of a learning environment does not only focus on students' knowledge and learning but also on the quality of learning experiences (Robinson & Hullinger, 2008). It is important to understand students' learning experience in e-learning environment because instructors' teaching skills, appropriate learning resources, appropriate

workload and student interaction are correlated with their learning experiences in the e-learning environment (Ginns & Ellis, 2007).

E-learning is said to enhance students' learning experience. However, adoption and implementation is very important so as to ensure that implementation of e-learning is able to fulfil students' need and expectation (Quinney, 2005). Thus, e-learning should not only focus on the technical innovation as the teaching methodology is more important (Goi & Ng, 2009). The best learning experiences will not be achieved without proper motivation to engage students in their teaching and learning activities (Hodges, 2004). Hence, in order to help students maintain their motivation in learning, motivational strategies should be included in instructional design for teaching and learning. Similarly, Ainley and Armatas (2006, p. 366) suggested motivation as the key to promote students' participation and involvement in e-learning environment.

Artino (2008) suggested that motivation and self-regulation are needed for students to succeed in e-learning environment. Besides, in the e-learning environment that requires students to organise their own learning, self-regulation is particularly very important (Zimmerman, 2008). Students who lack self-regulation tends to misuse the autonomy provided in e-learning and will easily drop out from the e-learning course (Barnard *et al.*, 2009). Moreover, students who are not highly motivated and self-regulated in their learning are more likely to face disadvantages in e-learning (Artino & Stephens, 2009).

Thus, this current study aimed to identify the relationships between students' motivation and self-regulation towards their e-learning experiences in using PutraLMS among undergraduates at Universiti Putra Malaysia (UPM). Moreover, students' motivation and self-regulation in using PutraLMS were used to evaluate the prediction to e-learning experiences.

1.2 Statement of the Problem

UPM is a traditional university that offers majority of learning courses in face-to-face classes. In face-to-face classes, the learning environment is surrounded by students, classroom and textbooks (Hartvig & Brooks, 2013, p. 127). Many students are passive listeners, where they do not ask questions or repetitions even though they have doubts about the learning content (Davies, Dean, & Ball, 2013). Moreover, students are unable to control their learning schedule because the learning pace is controlled by their instructor (Popescu, Jonoski, & Bhattacharya, 2012). On the other hand, efficient delivery of learning provided in e-learning allows students to learn at any time and

from anywhere and this enhances the teaching and learning processes which are different from face-to-face classes (Garrison, 2011, p. 52). Since the learning environment in e-learning is significantly different from face-to-face classes, there is a need to evaluate students' e-learning experiences in an e-learning environment when e-learning is integrated into the traditional face-to-face classes, especially in a traditional university like UPM.

PutraLMS was developed by Centre for Academic Development (CADE), UPM to enhance the effectiveness of teaching and learning and encourages sharing of learning materials among instructors. By using PutraLMS, instructors are able to upload course material, update students' test results, class attendance and participate in forums with their students (Hashemyolia, Asmuni, Ayub, & Daud, 2015). However, universities are having challenges related to students' abilities to create new ideas, evaluate complex information, think creatively and communicate effectively when integrating LMS into teaching and learning processes (Hashemyolia *et al.*, 2015). Many universities have integrated LMS into their teaching and learning but determining factors related to acceptance or rejection of LMS is crucial for researchers (Baleghi-Zadeh, Ayub, Mahmud, & Daud, 2014). Most of the students prefer to have paper based test and discuss problems related to their course with their instructors or peers physically than utilising the online submission and discussion provided by LMS (Rahman, Ghazali, & Ismail, 2011). The main reason why students use LMS is for their academic purpose only but they are not willing to use it even though the 'chatting' and 'messaging' tools are integrated into LMS (Raman & Don, 2013). Therefore, the reasons for students to accept or reject LMS need to be further investigated.

As highlighted by Paechter, Maier and Macher (2010), research on students' expectations and experiences in e-learning is still scarce. Furthermore, students' learning approach in e-learning environment, how and why they involve in e-learning environment remains unclear (Barrett *et al.*, 2012) and adoption of e-learning seems challenging for institutions (Costa *et al.*, 2012) because the dropout rate for e-learning classes is higher compared to face-to-face classes (Bell & Federman, 2013). Motivation is particularly critical in e-learning environment that provides full control of learning to students (Sansone, Fraughton, Zachary, Butner, & Heiner, 2011). In order to reduce high drop out rates in e-learning classes, students' motivation in e-learning environment needs to be determined and identified.

Similarity, Barnard *et al.* (2009) suggested that students who lack self-regulation tend to misuse the autonomy they have in e-learning and will easily drop out from their e-learning courses. Students who are not highly motivated and self-regulated in their learning are more likely to face disadvantages in e-learning (Artino & Stephens, 2009).

Thus, students' self-regulation in e-learning environment must be taken into consideration to prevent high drop-out rates in the e-learning environment.

In summary, students in UPM lack the experience in an e-learning environment because UPM is a traditional university where the majority of the courses are conducted in face-to-face classes. Moreover, factors related students' acceptance or rejection of LMS and students' learning approach in e-learning environment remain unclear to researchers. Motivation and self-regulation are important in e-learning environment to help students learn better. Therefore, this study was carried out to identify the relationship between students' motivation and self-regulation towards e-learning experience in using PutraLMS for teaching and learning. In this study, prediction of e-learning experience was done using motivation and self-regulation as predictors.

1.3 Objectives

The objective of this study was to identify the relationship between students' motivation and self-regulation towards e-learning experiences in using PutraLMS. Therefore, the specific objectives are as follows:

1. To determine students' motivation in using PutraLMS.
2. To determine students' self-regulation in using PutraLMS.
3. To determine students' e-learning experiences in using PutraLMS.
4. To explore the relationship between motivation and self-regulation with e-learning experiences in using PutraLMS.
5. To explore the best predictor of students' e-learning experiences in using PutraLMS.

1.4 Research Questions

The research aims of this study were addressed through the following research questions:

1. What is students' motivation in using PutraLMS?
2. What is students' self-regulation in using PutraLMS?
3. What is students' e-learning experience in using PutraLMS?
4. Is there any relationship between motivation and e-learning experience in using PutraLMS?
5. Is there any relationship between self-regulation and e-learning experience in using PutraLMS?
6. What is the best predictor of students' e-learning experiences in using PutraLMS?

1.5 Significance of Study

This study is expected to provide information on students' learning experiences in e-learning environment. Students who lack motivation and self-regulation often face disadvantages in e-learning environment. The results of this study are particularly important to stakeholders who are involved in e-learning environment such as learners, educators, instructional designer, higher institution, as well as Ministry of Higher Education that provide fund to develop integrate e-learning in higher institutions in this country.

UPM is one of the campus-based universities in Malaysia and students may lack e-learning experiences. Therefore, this study aimed to engage students in using PutraLMS and minimise the barriers for them to use it. Through these results, other students may perceive using PutraLMS as an interesting experience and this will indirectly encourage them to PutraLMS for teaching and learning.

Besides, this study provides some overview of the students' perception and satisfaction in using PutraLMS to instructors by giving suggestions instructors to enhance their teaching methodology in conducting an e-learning course. Instructors can integrate some activities that will motivate students to use PutraLMS and encourage them to regulate their own learning. This result will give instructors some ideas about how to plan for and conduct effective e-learning courses. It also can provide advice to instructors to include elements that are able to enhance students' motivation and self-regulation in e-learning environment.

By investigating students' e-learning experiences in using PutraLMS, system designers for PutraLMS will be able to gather some information related to the features provided

in PutraLMS. Thus, research findings provide some ideas to system designers to integrate features that can promote students' motivation and self-regulation in using PutraLMS so as to arouse positive e-learning experiences. In addition, students' perception will provide relevant information for system designers to modify elements in PutraLMS in order to promote students' motivation and self-regulation.

The evaluation of e-learning experience was done to determine by students' engagement, enhancement of learning experience and execution of a programme (Roffe, 2002). Since PutraLMS is a customised system supported by Centre for Academic Development (CADE), UPM, it needs to be evaluated to provide better services. Therefore, findings from this study can be used as an assessment to PutraLMS by providing consideration to UPM to make decision to integrate of e-learning as a complementary to face-to-face classes. Lastly, other higher institutions in Malaysia and Ministry of Education Malaysia (MOE) can use the results of this study as a guideline for them when implementing e-learning in campus-based university.

1.6 Limitations of the Study

This study investigated the factors contributing to students' experiences in using UPM's learning portal known as PutraLMS. PutraLMS was developed by the Centre for Academic Development (CADE), UPM, to facilitate and promote e-learning activities at the university. Therefore, the design of LMS may differ with other university's online learning portal. For this reason, the findings of this study cannot be generalised to all online learning portals, except for those having the same purposes with this study.

This study was conducted in UPM, Malaysia. UPM is one of the campus-based universities in Malaysia and PutraLMS is developed to assist face-to-face classes. In other words, face-to-face classes are maintained while using PutraLMS in teaching and learning. Therefore, the findings of this study cannot be generalised to any other university that is implementing e-learning to replace the traditional face-to-face classes.

There are various definitions of e-learning involving different types of ICT. Only PutraLMS, which is the LMS developed by UPM, was involved in this study. Thus, the results of this study cannot be generalised to other e-learning portals that use different types of technology, except LMS. In addition, the online materials in PutraLMS are provided by instructors and no particular subjects are specified in this study. Therefore,

the results from this study cannot generalised to any particular subjects or LMS that was developed by other researchers.

1.7 Definition of Terms

1.7.1 E-learning

Bell and Federman (2013) refer to e-learning as all forms of technologies supporting teaching instruction, while Sangra *et al.* (2012) concluded e-learning as teaching and learning processes that are done via virtual space with the use of the Internet and technologies. Islam, Rahim, Liang and Momtaz (2011) defined e-learning as effective tools in education with positive effects to teaching and learning processes. In this study, e-learning is defined as learning using learning management system (LMS) to assist face-to-face classes.

1.7.2 Learning Management System (LMS)

Wichadee (2014) referred to LMS as server-based software that delivers learning material via web browser. Awang and Darus (2012) defined LMS as a software package that delivers the learning contents online and support online collaboration. Za'ba, Mamat, Isa, Aziz, Ramakrisnan and Zain (2012) defined LMS as a web-based application that allows learners to access their learning courses online, while Macfadyen and Dawson (2010) referred to LMS as a web-based platform that provides teaching materials and teaching tools to support learning. LMS, in this study, refers to PutraLMS that was developed by the Centre for Academic Development (CADE), UPM, to assist face-to-face classes.

1.7.3 Motivation

Motivation refers to students' willingness to make efforts to enhance their performance (Bukhari, Khan, Shahzadi, & Khalid, 2014). Hartnett, George and Dron (2011) stated that motivation is a complex mix of person-context interaction involving intrinsic and extrinsic motivations. Motivation is defined by Ainley and Armatas (2006, p. 366) as movement, energy, selectivity and direction in behaviour, while Guay, Vallerand and Blanchard (2000) defined motivation as individuals' experiences when they are currently engaging in an activity. In this study, motivation refers to students' motivation to use PutraLMS, and this consists of four components. Guay *et al.* (2000) suggested these four components as intrinsic motivation, identified regulation, external regulation and amotivation.

Intrinsic Motivation

Intrinsic motivation occurs when someone performs an activity by herself in order to achieve pleasure and satisfaction that are obtained from the activity (Guay *et al.*, 2000). Meanwhile, Ryan and Deci (2000) referred to intrinsic motivation as the intention to involve in an activity for the inherent satisfaction one can get from it. In this study, intrinsic motivation refers to students' motivation to use PutraLMS in order to attain pleasure and satisfaction from their engagement with it.

Identified Regulation

Identified regulation refers to the motivation that occurs when someone performs particular activities because the option is chosen by themselves (Guay *et al.*, 2000). Similarly, Hartnett *et al.* (2011) highlighted that identified regulation learners are involved in an activity because the engagement will bring them some personal values. In this study, identified regulation refers to the motivation that occurs when students decide to get engage in PutraLMS as they will benefit from this engagement.

External Regulation

External regulation is when the involvement in an activity is done to avoid any punishment (Hartnett *et al.*, 2011) and to gain external rewards (Froiland, Oros, Smith, & Hirschert, 2012). External regulation drives someone to involve in an activity to avoid any negative consequences or to obtain external rewards from the involvement (Guay *et al.*, 2000). In this study, external regulation refers to students' motivation to engage in PutraLMS to avoid any negative consequences.

Amotivation

Amotivation refers to individual behaviour that is neither intrinsically nor extrinsically motivated (Guay *et al.*, 2000). Amotivated learners lack the motivation or intention to involve themselves in an activity (Froiland *et al.*, 2012; Hartnett *et al.*, 2011). In this study, amotivation refers to the motivation that is involved when the students lack the motivation to use PutraLMS.

1.7.4 Self-regulation

Self-regulation refers to students' self-directed use and modification of their learning strategies to achieve the learning goals (Sandars & Clearly, 2011). Barnard-Brak, Lan and Paton (2010) agreed that self-regulated learners are able to act as the causal agent in their own lives. Chang (2005) concluded self-regulation as students' ability to direct their own learning process without guidance from other parties, while Zimmerman (2002) referred to self-regulation as students' ability to transform mental ability into academic skills and self-awareness, self-motivation and behavioural skills to mastery that knowledge. In this study, self-regulation refers to students' ability to regulate their involvement in PutraLMS systematically without any guidance from other parties. As suggested by Barnard *et al.* (2009), self-regulation consists of six constructs, which are goal setting, environmental structuring, task strategies, time management, help seeking and self evaluation.

Goal Setting

Schunk (1990) refers to goal setting as the ability to establish a standard to serve an action and modify it whenever needed, while Zimmerman and Pons (1986) stated that goal setting is setting and planning of educational goals. Goal setting in this study refers to students' ability to establish goals that are to be achieved in using PutraLMS.

Environment Structuring

Sharma, Dick, Chin and Land (2007) referred to environment structuring as the ability to control and avoid possible distraction during learning. Lynch and Dembo (2004) referred to environment structuring as students' ability to ensure accessibility and proficiency in using the equipment in order to study effectively, while Zimmerman and Pons (1986) referred to environmental structuring as students' initiative to arrange physical environment that encourage them to learn easier. Environment structuring in this study refer to students' ability to allocate a suitable and comfortable environment for them to access PutraLMS.

Task Strategies

Zimmerman (2002) refers to task strategies as ability to adopt and implement powerful strategies to achieve goal. Task strategies boost learning and performance by reducing a task to smaller components and reorganising those parts meaningfully (Zimmerman & Schunk, 2008, p. 19). In this study, task strategies refer to students' ability to determine learning strategies in using PutraLMS.

Time Management

Miksza (2012) refers to time management as students' ability to focus, concentrate and plan on the use of their time. Time management is defined as students' ability to manage their time, prioritising learning task and evaluating the time needed to complete a task (Lynch & Dembo, 2004). In this study, time management refers to students' ability to organise and plan on their time usage in PutraLMS.

Help Seeking

Miksza (2012) refers to help seeking as social factors with students' initiative to interact with others to get help. Pintrich, Smith, Garcia and McKeachie (1993) refer to help seeking as students' ability to seek help from their peers or instructors when needed, while Zimmerman and Pons (1986) indicated help seeking as students' initial efforts to source for help from their peers, instructors and adults. In this study, help seeking refers to students' intention to seek for help from their instructors or peers when they stumble upon obstacles in using PutraLMS.

Self Evaluation

Barnard-Brak *et al.* (2010) defined self-evaluation as students' self-evaluated outcomes of their performance. Self-evaluation refers to comparison of learning performance with standard learning outcomes which involves self-satisfaction with performance outcomes and causal attributions to their success in strategy use (Kitsantas, Reiser, & Doster, 2004). Zimmerman and Pons (1986) indicated self-evaluation as students' initiated evaluation of their quality of learning. In this study, self evaluation refers to students' ability to self-evaluate their learning outcome desire from PutraLMS.

1.7.5 E-learning Experience

Learning experience is defined as the interaction process between students and the instructional environment (Parrish, 2009). Gilbert, Morton and Rowley (2007) referred to e-learning experience as students' satisfaction about various e-learning environment features, while Ginns and Ellis (2007) defined e-learning experience as the quantity of learning arising from the learning experiences in both face-to-face and online contexts.

In this study, e-learning experience is defined as students' perception and satisfaction in using PutraLMS. As suggested by Ginns and Ellis (2007), e-learning experience in this study is formed by seven components, which are: quality of teaching, student interaction and engagement, clarify of goals and standard, quality of online resources, appropriate workload, student management and overall satisfaction with online experience.

Quality of Teaching

Quality of teaching refers to measurement of satisfaction with good e-teaching and good e-resources (Ginns & Ellis, 2007). Fenstermacher and Richardson (2005) suggested that quality of teaching as related to the teaching content and teaching method. Meanwhile, Ramsden (1991) referred to quality of teaching as the effectiveness of teaching in education. In this study, quality of teaching refers to the teaching and guidance provided by instructors in PutraLMS.

Student Interaction and Engagement

According to Garrison and Cleveland-Innes (2005), interaction refers to engagement of students in a learning community. Zhao and Kuh (2004) defined engagement as students' participation in a learning community and interaction indicating that someone is present and might interact with other students by involving in activity in an e-learning environment (Picciano, 2002). Student engagement is measured by the time and energy they put in when they involve in their learning activity (Kuh, 2001). Student engagement and interaction in this study refer to students' involvement and interaction with their peers or instructors in PutraLMS.

Clarity of Goals and Standard

Good learning environment shall provide students with clear goals and standards (Ginns & Ellis, 2007). A good learning environment must offer clear standard expectation to students (Ramsden, 1979). In this study, clarity of goals and standard refers to clear learning goals provided to students and standard instructional system design in PutraLMS.

Quality of Online Resources

As suggested by Ruiz, Mintzer and Leipzig (2006), online resources shall be managed, delivered and standardised once they are developed. Course material should be complete with standard and uniform elements in order to support and develop learning process for each individual student (Tait, 2000). In this study, quality of online resources refers to the overall rating of the quality of materials and activities provided in PutraLMS.

Appropriate Workload

Appropriateness of workload is related to online materials, online activities and regularity of updates in an e-learning environment (Ginns & Ellis, 2007). Lizzio, Wilson and Simons (2002) defined appropriate workload as students' perception of a heavy academic workload. Study workload refers to the pressure of demands of syllabus and assessment tasks that imposed on students (Ramsden, 1979). In this study, appropriate workload refers to the workload derived from online activities in PutraLMS. This workload should be appropriate so that students are able to manage it.

Student Management

Govindasamy (2002) suggested that constructive and meaningful feedback should be provided to students in e-learning environment. Likewise, Tait (2000) stated that planning and management of student support are needed in e-learning environment. Those support and management can come from cognitive area (standard and uniform course materials), affective area (supportive learning environment to enhance self-esteem) and systemic area (effective, transparent and overall student friendly learning environment). Thus, student management in this study refers to the support provided by instructors to students in PutraLMS.

Overall Satisfaction with Online Experience

Chen, Lin and Kinshuk (2008) evaluated satisfaction of e-learning course from the four aspects of administration, functionality, instruction and interaction. Palmer and Holt (2008) stated that the quality of learning outcomes is positively correlated with learners' satisfaction in e-learning environment, where assignment submission and accessibility to online resources contribute to the highest satisfaction in e-learning environment. On the other hand, content, personalization, learning community and learner interface are used to evaluate learners' satisfaction in e-learning (Wang, 2003). In this study, overall satisfaction with online experience refers to students' satisfaction of the overall quality of e-learning environment including online learning material, online activities and other features that are available in PutraLMS.

1.8 Conclusion

This chapter discusses the background of this study, problem statement, objectives, research question, significance and limitations of the study, and definition of terms used in this study. Background of the study begins with the historical background of e-learning, e-learning using LMS, evaluation of students' e-learning experiences and the factors determining students' e-learning experiences. Objectives and research questions are also given in this chapter. The following chapter will discuss the literature related to students' e-learning experiences and theories that are involved in e-learning experiences.

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