

STUDENTS' SELF-REGULATION AND CRITICAL THINKING IN LEARNING
E-COMMERCE THROUGH SOCIAL NETWORKING SITE

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To My Family

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ABSTRACT

This study aims to analyse the effect of social learning environment through Social Networking Site (SNS) towards students' Self-Regulation (SR), Critical Thinking (CT), and performance in learning E-Commerce subject. Initially, this study has identified the self-regulation and critical thinking levels among students. The study also investigates the relationship between students' self-regulation, critical thinking skills, and performance when using SNS. Finally, this research has examined how student cultivate self-regulation and critical thinking in learning through SNS. 295 undergraduate students who were taking E-Commerce subjects at a private institution in Kota Kinabalu were selected using cluster random sampling technique. These students were involved in determining their self-regulation and critical thinking level. Next, 50 students were selected purposively to involve in a study in analysing the effects of social learning environment through SNS towards students' self-regulation, critical thinking, and performance in learning E-Commerce. Self-regulated learning was measured using adopted Online Self-Regulation Learning Questionnaire (OLSQ), while critical thinking was measured using adapted California Critical Thinking Skills Test (CCTST) and academic performance was measured using a question exam paper for the E-Commerce subject. The results obtained from post test reveal that self-regulation, critical thinking level, and performance in learning E-Commerce subject have improved after they went through learning process in social learning environment when using SNS. Pearson correlation analysis reveals that there was no significant relationship between self-regulated learning and critical thinking as well as self-regulated learning and academic performance. However, there was a moderate positive correlation between critical thinking and academic performance. Besides, there was a positive pattern of relationship in the process of identifying student's self-regulated learning, critical thinking, and academic performance when analysed further using crosstabulation analysis that involved partial data. A data mining analysis using decision tree technique was used to project a predictive model that suggests students' performance based on the percentage of student's frequency posting of self-regulation and critical thinking messages throughout the discussion in social networking site. The finding also shows that student's acquire the ability to cultivate self-regulation and critical thinking based on the discussion with an instructor and peers in social networking site. Results also show that student's academic performance improves, along with self-regulation and critical thinking.

ABSTRAK

Kajian ini bertujuan untuk menganalisa kesan persekitaran pembelajaran sosial melalui penggunaan Alat Rangkaian Sosial (SNS) terhadap Pembelajaran Kendiri (SR), Pemikiran Kritikal (CT) dan pencapaian dalam pembelajaran *E-Commerce*. Pada mulanya, kajian ini mengenal pasti tahap pembelajaran sendiri dan pemikiran kritikal dalam kalangan pelajar. Penyelidikan juga dijalankan untuk melihat hubungan pembelajaran sendiri pelajar dengan kemahiran pemikiran kritikal dan pencapaian apabila menggunakan alat rangkaian sosial. Akhir sekali, kajian ini mengkaji bagaimana pelajar memupuk pembelajaran sendiri dan kemahiran berfikir secara kritikal. Seramai 295 pelajar yang mengambil subjek *E-Commerce* di institusi swasta di Kota Kinabalu telah dipilih dengan menggunakan teknik persampelan rawak berkelompok. Pelajar tersebut terlibat dalam menentukan tahap pembelajaran sendiri dan pemikiran kritikal. Seterusnya, seramai 50 pelajar telah dipilih secara bertujuan untuk terlibat dalam kajian menganalisis kesan persekitaran pembelajaran sosial melalui alat rangkaian sosial terhadap pembelajaran sendiri pelajar, pemikiran kritikal dan pencapaian dalam pembelajaran *E-Commerce*. Pembelajaran sendiri telah diukur menggunakan instrumen *Online Self-Regulation Learning Questionnaire* (OLSQ), pemikiran kritikal pula diukur menggunakan instrumen *California Critical Thinking Skill Test* (CCTST) yang telah diadaptasikan dan pencapaian akademik diukur menggunakan kertas soalan *E-Commerce* setelah melalui proses persekitaran pembelajaran sosial apabila menggunakan alat rangkaian sosial. Dapatan dari pasca ujian mendapati pembelajaran sendiri, tahap pemikiran kritikal dan pencapaian pelajar dalam pembelajaran subjek *E-commerce* meningkat selepas melalui proses pembelajaran dalam persekitaran pembelajaran sosial menggunakan SNS. Analisis korelasi Pearson mendapati tiada hubungan signifikan antara pembelajaran sendiri dan pemikiran kritikal serta pembelajaran sendiri dengan pencapaian akademik. Walau bagaimanapun, terdapat korelasi sederhana positif antara pemikiran kritikal dengan pencapaian akademik. Selain daripada itu, terdapat hubungan positif yang wujud dalam proses mengenal pasti pembelajaran sendiri pelajar, pemikiran kritikal dan pencapaian akademik apabila dianalisa selanjutnya menggunakan analisis jadual bersilang yang melibatkan sebahagian data. Analisis perlombongan data menggunakan teknik *decision tree* digunakan untuk menghasilkan model ramalan yang mencadangkan pencapaian pelajar berdasarkan peratusan kekerapan pelajar menghantar mesej pembelajaran sendiri dan pemikiran kritikal sepanjang perbincangan menerusi alat rangkaian sosial. Dapatan kajian juga menunjukkan bahawa pelajar telah memperolehi keupayaan untuk memupuk pembelajaran sendiri dan pemikiran kritikal berdasarkan perbincangan dengan pengajar dan rakan sebaya dalam alat rangkaian sosial. Seterusnya dapatan kajian menunjukkan terdapat peningkatan dalam pencapaian akademik pelajar disamping pembelajaran sendiri dan pemikiran kritikal.

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LIST OF ABBREVIATION

SNS	-	<i>Social Networking Site</i>
SPSS	-	<i>Statistical Package for Social Sciences</i>
SLE	-	<i>Social Learning Environment</i>
PBL	-	<i>Problem Based Learning</i>
CT		<i>Critical Thinking</i>
CTT		<i>Critical Thinking Test</i>
SRL		<i>Self-regulated Learning</i>
SR		<i>Self-regulation</i>
LASSI		<i>Learning and Study Strategies Inventory</i>
CCTST		<i>California Critical Thinking Skills Test</i>

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CHAPTER 1

INTRODUCTION

1.1 Introduction

The emergence of the 21st century technology has impacted a lot in our lives. These technologies bring us to the world of high technology and virtual lives whereby we could never imagine this happening in this era. Youngsters nowadays are exposed to gadgets and use them in their daily lives. Mobile handphones, iPod, iPad, notebooks, instant messaging, skype, tango are used to connect with friends, families, colleagues, employers and others in their community and around the globe. These generations are well versed with the gadgets whereby educators must know how to tap into this technology and use it for the benefit of teaching and learning. The urge to connect with other people is a natural process that brings excitement to youngsters. The cost of getting these technology gadgets is affordable and enables youngsters to purchase with their own pocket money and monthly allowance from the parents. Children as young as seven years old have been exposed to this wireless technology that it is hard to block this technology advancement. Advertisements are everywhere promoting the public about the latest technology available. Even retail shops are selling this product at a very competitive and affordable price.

The term “social network website” describes a class of web services that invites users to create an online profile of themselves, most commonly with a photograph, a listing of vital statistics (e.g. name, age, marital status, geographic

location, sexual preference, occupation) and interests (hobbies, favourite books, movies, television programs, music and so on)(Golder *et al.*, 2007). One of the well known social network website is Facebook. Mark Zuckerberg created Facebook at Harvard University in February 2004 (Bosch 2009). Initially, Mark Zuckerberg created Facebook for Harvard students only together with Dustin Muskovitz and Chris Hughes. Eventually, it extended towards college students, high school network, work network, business network and all Internet users in general. Facebook is one of the many Web 2.0 tools, which are wikis, Del.icio.us, YouTube, podcasts-listed as having potential application for teaching and learning. Moreover it has been argued that the current generation of youth, often described as Net Geners or Digital Natives, may be resistant to traditional methods of teaching and learning (Bosch 2009). Since young people will likely continue to be at the forefront of technological change, Net Geners will continue to have a lot to teach educators about evolving technology. Yet educators must not abdicate their role as authorities directing the learning experience of their students. Today's digital and computer technologies allow us to remedy this by giving us the tools to teach Net Geners not just what to learn but how to learn (Barnes *et al.*, 2007).

Business operation and function on daily basis had change since the emergence of technology. There is a constant need from executives as well as college professors to have updated technology in their working environments in order to effectively educate their peers or associates on new concepts and ideas in a particular subject. The wave of computers, as well as the Internet has enhanced the way a person obtains education from a college or university. To be successful, people need to take time to learn these technologies or they will miss the opportunities (Shilesky and Casey, 2004).

Web 2.0 technologies have become so popular that educators are using it as part of their teaching and learning tools. One of the most favorable tools is a social networking site, which is Facebook. Due to this incorporating social networking site as part of the ways to learn has been found to effectively improve the student performance (Greenhow, 2011). Using this as a base for teaching and learning, students can share and give comment about what they learn through socialising in

Facebook. Reynard (2009) states that much has been written recently about the impact of social networking tools in teaching and learning and how educators can build on the skills of their students in using these tools.

A quite number of studies have shown that social networking sites are a useful tool for promoting effective academic practice. Gunawardena and Richmond (2009) defines social networking technology as tools that facilitate collective intelligence through social negotiation when participants are engaged in shared practice. Similar findings were reported by Veletsianos and Navarette (2012), where learners supported one another in their learning and noted that they perceived their learning experience using Elgg online social network was enhanced by their interactions. Research conducted by (Brady *et al.*, 2010) surveyed the students using Ning shows that there are potential benefits in using social networking tools to improve learning experiences. Kayri and Cakir (2010) study shows that students actively participated in virtual environment using Facebook and might be suggested as an effective learning environment. Students in this study who spent much time on Facebook perceived Facebook as an educational tool. Using Facebook as teaching and learning in Bosch (2009) research appeared to be beneficial to the students in terms of helping them to identify and find learning material on the Internet, answer question about logistics and also used during university vacations to connect with others about holiday projects, and to share lecture and study notes. Similar findings were found in Tian *et al.* (2011) study where Facebook usages were found to be social and educational in nature. It was reported that Facebook allowed them to connect with the faculty and other students in term of friendship, provide comments to share knowledge, share feelings with peers, join groups established for subjects, collaboration: notification, discussion, course schedule, project management calendar and to use educational applications for organizing learning activities.

Fernandez (2009) studies shows that traditional educational practices no longer provide a successful integration of ICT into the classroom. The approach on education requires encouraging cooperative interaction, and collaborative learning, new teacher roles and professional development based on social learning environment where a democratic community of practice discusses. There is evidence

that shows students generally learn as much online as they do in traditional classroom environment (Swan, 2003).

Students who self-regulate their learning appeared to be more successful in academic than those who do not self-regulate (Montalvo and Torres, 2004; Schloemer and Brennan, 2006). Student who self-regulate proactively use strategies to accomplish their goals because they believe change and success are possible. Students who portray self-regulated learning behaviour exhibit the following qualities (Montalvo and Torres, 2004; Schloemer and Brennan, 2006):

- i. They consciously use cognitive strategies to succeed.
- ii. They do planning, controlling, and directing their mental efforts.
- iii. They use motivational beliefs and emotions to promote their own achievement.
- iv. They manage their time and effort.
- v. They choose favourable work environments.
- vi. They show initiative to participate in academic tasks and planning.

Although the concept of self-regulated learning has been around for many years, the application to online learning environment has not been widely researched. The online environment requires more of learners' mind than the passive absorption of knowledge from the instructor's brain. Learners must monitor the learning process as they attend to information delivered over the Internet (Anderton, 2006).

Another factor that would contribute to the success of a student is critical thinking ability. Critical thinking has been widely discussed in the education field for the past decades. Researchers such as Sonn (2000) and Olafson (2003) indicated that educators spend too much time devoted to instruction but less focus placed on the construction of knowledge, thinking skills and how to evaluate them. Students who have high critical thinking ability proved to be more successful in academic and higher metacognitive abilities (Downing, 2009).

With these two criteria, Electronic Commerce or E-Commerce subject will be used to examine the improvements. With the importance of improving academic

performance, it is necessary now to assess the relevance of self-regulation and critical thinking skills toward learning through social learning environment.

1.2 Background of Problem

Self-regulated learning approach is widely used due to the learning system that inculcates a person to regulate his or her own learning. Learning through online need a person to be self-regulated due to the nature on the learning environment. Research conducted by Chang (2005) discovered that students in online environment trained with SRL ability were more responsible with their learning and oriented intrinsically. However, there has been relatively little empirical research on the usage of SRL through social learning environment through social networking site.

Studies have shown that critical thinking is lacking in student nowadays due to the way the student have been brought up and educational system whereby the skill of critical thinking have not been established. Studies by Lorenzo and Dziuban (2006) indicated that graduates with high level ability using the technology at their workplace still lacking critical thinking skills. This shows that they still lack of critical thinking skill. Thus, learning design which is up to date with the technology is needed for student to be able portray their ability when using it.

There have been study in E-commerce subject to seek the effective learning system by using simulation game providing group based student-centered learning environment for students to learn online auction (Lok and Ngai, 2005). Even though online learning environment was used in learning E-commerce but it is not similar to online learning through social networking site.

In the era of mobile technology environment in the form of mobile phones, iPads, notebooks, DVD players and television, it is hardly surprising that students nowadays have not learned to self-regulate their academic studying well. Research conducted by Arum and Roksa (2011) found that 32 percent students did not take any courses with more than 40 pages of reading per week and 50 percent did not take

a single course which they wrote more than 20 pages over the course of the semester. This finding indicated that students have not been self-regulating their studies and learning at all.

Zimmerman and Schunk (2001) points out that there have been exciting discoveries regarding the nature, origins, and development of how students regulate their own learning processes. Self-regulation is important because a major function of education is the development of lifelong learning skills whereby one of it is critical thinking. Critical thinking is an important and vital topic in modern education and mostly educators are interested in teaching critical thinking to their students (Schafersman, 1991).

There have been decades of numerous studies on self-regulated learning and critical thinking skill. Social networking sites especially Facebook have been one of the favorite topics for researchers for the past few years since Marc Zuckerberg started it. However, there have been lacks of studies that demonstrate the use of self-regulation learning and critical thinking skill using Facebook to improve the performance of undergraduate students in E-Commerce. This lack of research may be due to the lack of agreement whether students should be taught to self-regulate their learning and critical thinking without being taught in the course or taught as a part of an integral component of the subject. Studies conducted on social networking sites-Facebook are mostly researched on the social part without taken into consideration about the usefulness of integrating teaching and learning as part of learning when socialising. Research also suggests that using social networking site-Facebook can be use as a tool for teaching and learning, but this may not guarantee success unless students' self-regulated learning and ability of critical thinking skill level is high. Self-regulated learning and critical thinking are essential skills to predict the performance achievement for student. There has been lack of information on these skills on research looking at this element. Therefore, there is a need to conduct the research to seek the relationship.

There are studies that indicate how lack of self-regulatory skills such as effort regulation can experience difficulty, particularly in the online environment in which

they are expected to manage their own learning (Rakes and Dunn, 2010). Research by (Styles and Zariski, 2000) also indicated that learning in online environment need students to be highly self-regulated and responsible for organising and reflecting on their learning.

The lack of Self-regulated and critical thinking skill through online learning environment need to be develop in order for them to perform n their studies. Study conducted by (Orange, 1999) indicated that student lack of self-regulatory skills especially in an online environment where student is expected to manage their learning. Critical thinking relates closely with self-regulated learning whereby when student manage to regulate their studies, critical thinking comes to place. Lack of critical thinking discovered in McLoughlin and Luca (2000) research shows that students in a project management course in a forum do not possess this higher order skills or critical thinking skills.

Self-regulation is not a mental ability or an academic performance skill; rather it is the self-directive process by which learners transform their mental abilities into academic skills (Zimmerman, 2002). Wolters (2010) has indicated that student characterized as self-regulated learners are seen as more effective, efficient and productive students when compared to their peers who fail to self- regulate.

Self-regulated learning skills and strategies are behaviors that function of an individual's desire to achieve in their learning. These skills and strategies of self-regulation have been proffered as being utilized in social relationships as well as learning (Boekaerts and Cascallar, 2006). Most of the studies on self-regulated learning skills (White, 2006; Williams and Hellman, 2004) were focusing on the skills in conventional teaching and learning and only few studies focused on online learning environment. Ally's (2004) research shows that online learning environment using self-regulated learning skills and strategies require individuals to be more autonomous in their learning, the prerequisite of which is being able to self- regulate. Competency in self- regulated learning, thus, plays an important role in determining the success of learning. Therefore, there is a need to measure students' online self-regulated learning skills to make sure students can survive in online learning

environment. The Online Self-Regulated Learning Questionnaire (OLSQ) designed by Barnard *et al.* (2009) are suitable to measure for students in online environments that consists of six subscales constructs, including environment structuring, goal setting, time management, help seeking, task strategies, and self-evaluation.

Another factor that students lack nowadays are critical thinking skills (AcademyHealth Report, 2006; Telg and Irani, 2005, Arum and Roksa, 2011). According to Brooks and Brooks (2001), student often complete assignments, do well on tests and get good grades but do not learn to think critically. The mere acquisition of knowledge through memory is often not sufficient for effective learning. Learners need to make sense of what they have learned and know when, where and how to use knowledge. To acquire the understanding of knowledge, effective learning is fundamental and the mental process in understanding is thinking (Mohd Nazir, 2010).

(Facione, 1990) defined critical thinking as purposeful, self-regulatory judgment which results in interpretation, analysis, evaluation and inference, as well as explanation of the evidential, conceptual, methodological, criteriological, or conceptual considerations upon which that judgment is based. Studies have shown that student ability for critical thinking is significantly correlated towards the improvement in academic performance (Collins and Onwuegbuzie, 2000; Fahim *et al.*, 2010)

Another definition of critical thinking by Bailin (2002) as thinking of a particular quality, essentially good thinking that meets specified criteria or standards of adequacy and accuracy. Ennis (1989) define critical thinking as reasonable and reflective thinking focusing decision what to believe while Baker *et al.* (2000) defined critical thinking as reasoned, purposive, and introspective approach to solving problems or addressing questions with incomplete evidence and information and for which an incontrovertible solution is unlikely.

Bloom and his associates have included the category of critical thinking in the field of education whereby they come up with a taxonomy to differentiate the level of competency. Bloom's taxonomy is categorized, with "comprehension" at the bottom and "evaluation" at the top. The three highest levels which are analysis, synthesis and evaluation represent critical thinking (Kennedy *et al.*, 1991). Facione (2000) and Paul (1992) discuss that educators should model critical thinking in their own instruction by "thinking aloud" method so that reasoning is visible to students and they can observe the teacher using evidence and logic to support arguments and assertions.

Critical thinking skills are important because they allow students to deal efficiently with social, scientific and practical problems (Shakirova, 2007). Beside critical thinking skills, self-regulated learning will enable student to adjust their time in learning E-Commerce subject. These two skills are important for learning. There have been numerous research conducted on using self-regulated learning and critical thinking skill for learning but lack of study for E-Commerce subject. By implementing social networking as a tool to improve student's performance, it will boost up their critical thinking skills and self-regulation adding ways to seek knowledge. Bower and Callaghan (2012) studies discovered that students were able to deliver all the tasks instructed when learning through social networking sites without any teacher intervention which shows that social networking sites does enable self-regulated learning.

There are several critical thinking tests available to measure the critical thinking level such as Cornell Critical Thinking Tests (Ennis and Millman, 2005), the Ennis-Weir Critical Thinking Essay Test (Ennis and Weir, 1985), California Critical Thinking Skills Test (Facione, 1990), and the Watson-Glaser Critical Thinking Appraisal (Watson and Glaser, 1980). California Critical Thinking Skills Test (Facione, 1990) studies have shown scores in students' critical thinking over one quarter to one semester. California Critical Thinking Skills Test (CCTST) provides objectives measures of participants skills in six subscales (analysis, inference, explanations, interpretation, self -regulation and evaluation) and an overall score for critical thinking.

With the fast emergence of Internet communication tools such as Social Networking Tools, there is a potential where critical thinking and self-regulated skills can be enhanced through those communication tools. Ryberg and Christiansen (2008) research conducted through social networking site shows that learning and development facilitated by various modes of belonging, afforded when the site-structure and design allows self-regulation and collective, social regulation around problem solving.

Previous study conducted by Cheng (2011) enhanced student their self-regulated skill by optimising their learning strategies through continuous self-assessment of their learning efficacy. The finding also shows that it is the interests of teachers to develop students' self-regulation ability if they really want to enhance students' learning. Previous studies enhance critical thinking skills and self-regulated skill but not many studies considering social learning environment through online learning to enhance critical thinking skills and self-regulated skills.

Focusing on enhancing critical thinking skills and self-regulated learning in online learning requires educators to explore the learning theory related to social learning environment. Social Constructivist theory emphasises how meanings and understandings grow out of social encounters (Atherton, 2011). Social constructivist learning environment is a place where an individual can work and learn together collaboratively with others for example in course or study group. This group of individuals will come together and share knowledge, experience and learn from one another to improve themselves. Similar findings were found in Reynard (2009) research whereby social constructivism was found to be the most effective pedagogical approach building on social interaction and engagement. The open environment enable for them to work and learn collaboratively. However, focus must be conducted in those two aspects in learning to achieve a functional social learning environment.

Self-regulated learning using social networking tool will enable student to learn without being forced. Self-regulated learning within the social networking environment can be more self-organised, customised and occurs in collaborative learning environment whereby social networking tools provide a way of communication to both students and educators to support and enriching the educational experience. By using the skill of critical thinking student can use social networking tools as a way of learning and decide the worthiness of information receive through socializing with one another. The popularity of social networking applications could make a powerful cognitive tool if adapted for academic pursuits and career goals. Colleges and universities could take advantage of the new approach in order for student to interact with one another (Pempek *et al.*, 2009).

The development of Web 2.0 tools has been significant for general social purposes unfortunately not to the same extent in an educational context. This lag of use of technologies for learning and teaching purposes, verses its use generally mirrors a similar lag in pre-Web 2.0 tools. Therefore, in contrast to the lack of uptake of technologies in education, the impact of technology in general day-to-day practice has been more pervasive. The usage of computers, mobile devices and the Internet are now standard aspects of daily practices, organisations are technologically enabled, and there is a core set of technologies for finding and using information and for communication. Using email for working contexts is now the main communicative channel. Google is the first port of call for finding information, Word and PowerPoint are standard tools for production of content (Conole *et al.*, 2010).

E-Commerce is a core subject and diploma requirement for completion of study for the researchers institution conducting the study. According to Byerly (2001) learning E-commerce subject should have hands-on experience. In this research online learning environment is used to engage students active learning. Student becomes an active player when engaged in using numerous approaches in E-commerce field such as website development, programming, animation design and others (McKeachie, 1994).

There are various materials which relate to online learning using E-Commerce. For example, HKCyberU has successfully launched a Web-based post-graduate courses online which is using E-Commerce subjects and the student feedbacks for the course are positive. Web based teaching is considered a new trend in education (Cheung, 2001). North Carolina State University, Rappa's course Managing The Digital Enterprise have moved completely to online delivery in E-Commerce course for distance mode (Rappa, 2002). Open Polytechnic of New Zealand design a degree level E-Commerce subject and web-based learning environment to integrate different modes into teaching. Leong and Petkova (2003) states that in active learning classroom students generally must adopt higher order thinking, critical thinking, analysis and evaluation. However, the material is limited because of the lack of research relating to self-regulated learning and critical thinking through social networking site using E-Commerce.

Research must be conducted to gain more information on how these technologies can be implemented in the teaching and learning process to see the potential in using social networking sites as a tool. This is to identify what kind of patterns of this technologies or Web 2.0 user behavior are emerging in order to understand and design the learning activities that can be integrated into the teaching and learning system or syllabus. This is to enable better finding, sharing, discussing of learning and teaching ideas and design (Conole *et al.*, 2010). The students may improve their critical thinking skills and learning performance if they are using social networking throughout their learning activities. The integration of self-regulated learning process through social networking tool to enhance critical thinking skills should be explored more systematically through proper research. This finding from the research will be used as a guidance for educators in the future that would like to use social networking sites as a tool in their teaching and learning activities.

Electronic Commerce is one of the few subjects which cannot be taught without implementing active learning as a major and possibly the only way of learning. It is impossible to learn E-Commerce without browsing the Internet, looking for information and comparing information. These are natural activities for such a course, as compared to courses in other areas, where any activity different

from listening to the lecture, requires a lot of initiative and imaginative (Leong and Petkova, 2003). Sims, Dobbs and Hand (2001) studies also indicated that interactivity and clear instructional design remain essential in the process of learning online. Students tend to communicate and interact more continuously through online by using social networks for the past few years since social networking site has been introduced.

Kovacic (2002) research on E-Commerce subject and web based learning environment shows that well-defined structure between E-Commerce topics and activities on one sideband collaborative area with discussion forum on the other side integrates various parts of the learning environment into effective learning place. In E-Commerce subjects, active learning improves retention of material and stimulates an interest in learning, this is due to the involvement of the students in discussions, project presentations, and debates to name a few. Furthermore, teacher-student interaction is greatly enhanced through active-review session, analysis and evaluation of class project (Leong and Petkova, 2003). Dhamija, Heller and Hoffman (1999) have used unique teaching arrangements and styles for example, bringing together students with different backgrounds at different levels to engage in real-world E-Commerce projects. Shilesky and Casey (2004) demonstrate that the use of web-based teaching and learning in E-Commerce is effective technology in today's education and therefore, the potential of using social networking tool in learning E-Commerce topic should be explored more where social learning is the core learning environment that requires proper learning structure such as self-regulated learning process.

Social learning environment is a place where students, groups and professionals join together. This environment enables them to co-create content, share knowledge, experiences, and provide latest information, interacting with one another and to learn collaboratively. Mulder, Swaak, and Kessels (2002) studies show that interactive learning encouraged shared understanding. This element is important in improving the performance of individual. Students learn best when they actively construct their own understanding through social interaction with their peers (Sthapornnanon *et al*, 2009).

1.3 Statement of Problems

Tappan and Blount (2011) state that undergraduate students lack the analytical and communication skills to benefit from the approach of having to read and write about the subject and also lack a quantitative basis for making, evaluating and justifying their decision. In E-Commerce subject the skill of self-regulated learning and critical thinking are required.

When focusing on learning, these both skills of self-regulated learning and critical thinking are important in order for the student to be able to explore independently, analyse the resources and apply the information accordingly. However, students were found not being taught to think or learn independently and apply these skills (Landsman and Gorski, 2007).

In order to understand how educators can teach students to self-regulate and think critically about E-Commerce, more studies in self-regulation and critical thinking are needed. History of E-Commerce dates back to the invention of the very old notion of selling and buying, electricity, cables, computers, modems, and the Internet. E-Commerce became possible in 1991 when the Internet was opened to commercial use (Laudon and Traver, 2008). Computer scientist working under contract for CERN “Tim Berners-Lee” made a huge advancement by communicating via the Internet. This achievement has expanded towards common application that are related to electronic commerce for example, email and messaging, documents, spreadsheets, database, accounting and finance systems, orders and shipment information, enterprise and client information reporting.

Due to this achievement, E-Commerce has been included as one of the subjects in higher education studies. There is evidence that educators are struggling with the teaching of E-Commerce courses whereby how to ensure student gets maximum mileage from the courses (Chan, 2002). These are pertinent problems. They appear to be universal as well wherever E-Commerce courses are taught. Furthermore, these problems are persistent. They do not seem to disappear over time

because these courses have gained stature and popularity among many students (Lee, 2003).

A few methods of teaching E-Commerce had been studied by researchers to improve the students performance. These methods include socializing with one another to gain information. Teaching methodologies have evolved over time. Implementing a suitable teaching methodology depends greatly on the nature of the course and the content coverage.

College or undergraduate level E-Commerce courses provide rich and frequent opportunities to develop analytical and critical thinking skills yet the recent study by Leong and Petkova (2003), may face problem and reluctance in trying out new pedagogies. Ray (2001) states that E-Commerce is a subject difficult to teach due to the depth and breadth of this subject rival that of any other course in any other discipline and its content changes constantly.

Another new method of improving student performance through socialising using social networking sites on E-Commerce, is encouraging student to participate in the discussion. This method will involve student self-regulation and critical thinking ability to maximize their potential in academic performance. Although technology is not necessary to achieve these outcomes but it can help a great deal to facilitate the process in achieving the potential from the student. New technology is about connecting, networking, collaborating and mobility. These technologies merely enrich the learning potential rather that diminish it for students. Ideas can be articulated and shared not only within a class, but networks can be created that will connect students with a wider community of learner that enlightens and challenges their own thinking (Reynard, 2010). Educators are now turning to Web 2.0 tools, to support in creating, collaborating and sharing content (Towner and Munoz, 2009).

The rise of new technology provides innovative approaches to create social learning environments. Ability to interact and observe others is one aspect of technology. Human expectations, beliefs, emotional bents and cognitive competencies are developed and modified by social influences that convey

information and activate emotional reactions through modelling, instruction and social persuasion (Bandura, 1989). Varieties of models are influenced by learning or cognition. Learning will continually occur through social interactions and influences from the community, media and the Internet. Bandura's (1986) social cognitive theory incorporates the factors of person, behaviour and environment and their interactions which will provide the theoretical basis for this study. Based on the models that were developed from the literature reviewed, five general principles appear to be critical for quality social learning environment, which are motivating student, encourage social interaction, self-efficacy, observational learning, and active learning.

Therefore this study will see the impact of social networking site based on social learning environment towards students' self- regulation, critical thinking and performance in learning E-Commerce. This study will also see the relationship among students' self- regulation and critical thinking skills and performance when using social networking site and how student cultivate self-regulation and critical thinking in learning when using social networking sites . Facebook social networking site will be used for this study because of the number of social network users was high, every user knew the setting and Facebook offered e-mail, forums and chats as a learning management system. Currently, Facebook has 712.4 million users and experienced growth of 42.9% (Inside Facebook Gold, 2011). In Malaysia, Facebook has 12,488,340 user currently and growing (Malaysia Facebook Statistics, 2012).

1.4 Research Objectives

The objectives of this research are as follows:

- i. To identify self-regulation level among undergraduate students.
- ii. To identify critical thinking level among undergraduate students.
- iii. To study the effect of Social learning environment through SNS towards students' performance, self-regulation and critical thinking in learning E-Commerce.
- iv. To investigate the relationship nature of students' self-regulation and critical thinking skills and performance when using SNS.
- v. To examine how does learning through SNS improves students' self-regulation and critical thinking.

1.5 Research Questions

Several research questions that will be answered in this research including:

- i. What is self-regulation level among undergraduate students?
- ii. What is critical thinking level among undergraduate students?
- iii. What is the effect of social learning environment through SNS towards students' performance, self-regulation and critical thinking in learning E-Commerce?
- iv. What is the relationship of students' self-regulation and critical thinking skills and performance when using SNS?
- v. How do students cultivate self-regulation and critical thinking in learning when using SNS?

1.6 Hypotheses

There were three hypotheses stated below when power analysis was conducted for academic performance, self-regulation, and critical thinking.

- i) **Null Hypothesis, H_0** :This hypothesis predicts that the instructor guidance from giving treatment (Facebook learning activity) to the students' learning performance **do not** have significant effect.

Alternative Hypothesis, H_1 : This hypothesis predicts that the instructor guidance from giving treatment (Facebook learning activity) to the students' learning performance **do** have significant effect

- ii) **Null Hypothesis, H_0** :This hypothesis predicts that the instructor guidance from giving treatment (Facebook learning activity) to the students' Self-Regulation **do not** have significant effect.

Alternative Hypothesis, H_1 : This hypothesis predicts that the instructor guidance from giving treatment (Facebook learning activity) to the students' Self-Regulation **do** have significant effect

- iii) **Null Hypothesis, H_0** :This hypothesis predicts that the instructor guidance from giving treatment (Facebook learning activity) to the students' Critical Thinking **do not** have significant effect.

Alternative Hypothesis, H_1 : This hypothesis predicts that the instructor guidance from giving treatment (Facebook learning activity) to the students' Critical Thinking **do** have significant effect

1.7 Theoretical Framework

This research is bounded with three main aspects, which are self-regulated learning level, critical thinking skills, and social learning environment. Figure 1.1 shows the integration of these three aspects in this research.

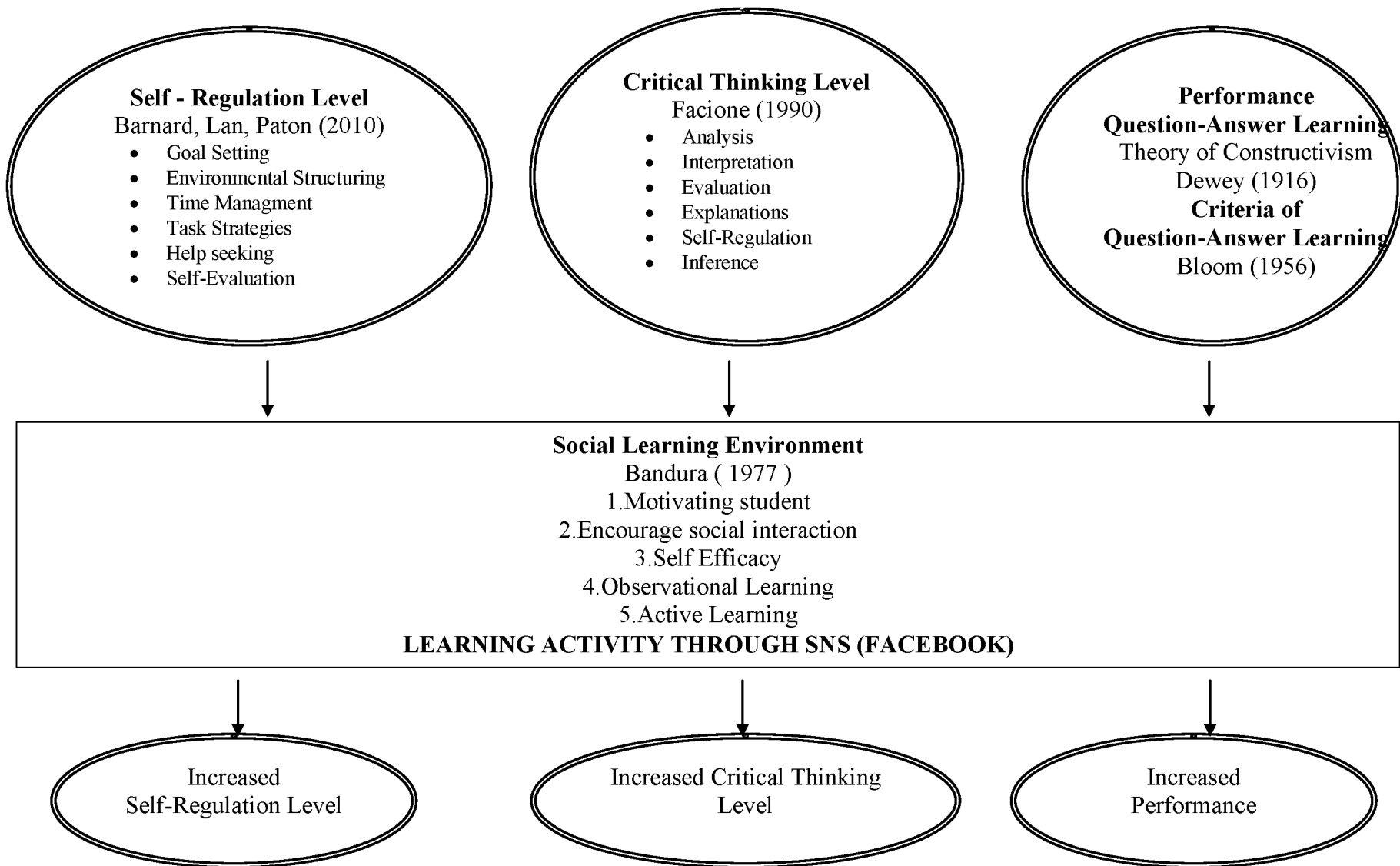


Figure 1.1 Theoretical Framework

1.7.1 Self-Regulation Level

Self-regulation level is a theoretical measurement. It can be measured through the learners' characteristics that can be addressed both by observing the behaviors and analysis outcomes of these actions. These behaviors include but not limited to environment structuring, goal setting, time management, help seeking, task strategies and self-evaluation. The emphasis on the ability to self-regulate as the ability to exercise control over one's behaviour suggest evidence toward the role of an individual's cognition in their observed behaviours (Bandura, 1977). Skills and strategies play an important role for student to perform in their learning. Student success in this self-regulated activity dependent on the level of their achievement. The development of self-regulatory skills would appear from the online learning factors, where learners would receive feedback from their behaviours in these online environments (Barnard *et al.*, 2008). These online environments would include lack of checking online for missed assignment deadlines, quizzes and other activities related to the course taken. Barnard, Lan and Paton (2008) points that there is a positive relationship between student perceptions of online course communication and collaboration and academic achievement through online self-regulatory learning behavior.

In environment structuring level students can select or arrange their physical setting according to their own time and convenience. This will isolate or eliminate distractions that can occur when studying through online. Distractions will enable student to spend good quality learning and will not achieve the result expected. Studying can be break up into certain time allocated which provides the most convenient time for efficient learning. In addition, a good location and comfortable place also play a big role in determining how to spend time studying.

Student must set a target in order to achieve their desired performance in study. Goal setting level is important for them to seek their targeted outcome of their studies achievement. Target for goal setting can be for short term or long term and set difficult, moderate and easy. Research has proven that student who target difficult goal performed better than students having either easily attainable or moderate goals.

Study conducted by (Morisano *et al.*, 2010) found that goal setting was able to successfully improved academic achievement among undergraduate students.

Time management is another aspect of students to identify the self-regulation level that involves their time. Management of time involves planning, scheduling and identifying when is the appropriate time to study. Studies found that managing time wisely helped students self- regulate their use of studying effectively and improved their academic results.

Help seeking level is the process of finding and receiving support from others. This level is important whereby students will experience tough times and cannot solve the problem themselves. Research identified that seeking assistance from others does really help in self-regulating learners and aid them in improving academic performance.

In task strategies level is important for students to improve their planning, organizational and metacognitive abilities. Strategies must be planned in order to achieve the desired result such as spend time to go thoroughly on the notes and reading aloud instructional material in order to fight against distractions. Other strategies include preparing questions before joining chat room, discussion and do extra tutorials, problem other than the one assigned on the subject.

In self-evaluation level, students need to be able to evaluate their own learning to achieve their learning goals and make strategies based upon learning outcomes. Self-evaluation has a big impact on the student academic success if they have control on their own learning. Ability to summarize the learning and understand the main concept and asking themselves questions about the subjects will enhance their understanding more on the material being taught. Communicating with other peers to identify whether their learning has the same understanding of the subject can also proved that they are on the right track. This level enables the learners to set goals, monitor and evaluate their own learning.

1.7.2 Critical Thinking Skills

Developing critical thinking skills is important to measure the academic performance. It indicates that the researcher tested the model developed by Facione for infusing critical thinking into various domains by using it through social learning environment by implementing social networking sites on E-Commerce subject. The researcher will construct questionnaire based on Facione's model (Facione, 1990), which is based on six activities that include analysis, inference, explanations, interpretation, self-regulation and evaluation. These six activities will focus on evaluating core critical thinking skills of analysis-interpretations, inference-deductive reasoning and inductive reasoning, and evaluation-explanation. Five research questions were stated, indicating intentions to test the effectiveness of the model empirically using the instrument constructed to assess students' response.

Analysis is to identify the intended and actual inferential relationships among statements, questions, concepts, descriptions, or other forms of representation intended to express belief, judgment, experiences, reasons, informations or opinions. (Facione, 2010). This includes examining ideas, detecting arguments, and analysing arguments as sub-skills of analysis.

The CCTST uses inference to identify and secure elements needed to draw reasonable conclusions, form conjectures and hypotheses, consider relevant information and to deduce the consequences flowing from data, statements, principles, evidence, judgments, beliefs, opinions, concepts, descriptions, questions, or other forms of representation (Facione, 2010). This also includes querying evidence, conjecturing alternatives, and drawing conclusions. Deductive reasoning skill is a basic form of valid reasoning. It begins with a general hypothesis or known fact and creates a specific conclusion from that generalization. Inductive reasoning skills involves creating broad generalizations from specific observations.

On the CCTST evaluation is the ability to assess the credibility of statements or other representations which are descriptions of a person's perception, experience

situation judgment, belief, or opinion, and to assess the logical strength of the actual or intended inferential relationships among statements, descriptions, questions or other forms of representation (Facione, 1990). This also includes determining the credibility of a source of information, judging statements and evidence to support conclusion being drawn.

1.7.3 Social Learning Environment

It has been known that one of the foundations of constructivism is Vygotsky's theory. Vygotsky's theory promotes learning where students play an active role in learning. This theory is related to Bandura's theory whereby behavior of a person is learned from the environment through the process of observational learning (Bandura, 1977). Bandura's theory is based on Vygotsky, where Bandura focuses more on social learning environment. In online environment context, self-regulatory behavior is important in the learning perspective. In this research focus will be towards using social networking site-Facebook as a tool to see the improvement in academic performance using E-Commerce subject.

On the social learning environment, motivating student play a big role in enhancing academic achievement. Through reinforcement it acts as a motivational device and the intervening of influences of goal setting and self-evaluative reactions (Bandura, 1977). Bandura defines motivation as an inner stimulus that leads to mimic the learned behavior. Motivating student can be divided into intrinsic and extrinsic motivation. Students who do not yet have powerful intrinsic motivation to learn can be helped by extrinsic motivators in the shape of rewards.

Socializing is part of everyday people's life (Bandura, 1977). People learn from others through conversation, discourse and open communication. By exchanging new information and feedback mediates learning. Whereby 21st century technology communication does fulfill the gap of enhancing interaction with one and another. People go from one source to another to get different kind of input and in

the process of receiving this input new behaviors continue to be learned, accepted, or rejected and then modeled and adopted. Sharing information, engaging in conversation, creating bonds, establishing rules, becoming part of a social system and a group allows for this method of communication to set the conditions for learning (Bandura, 1997).

Self-efficacy is concerned with judgments of personal capability in a particular situation. According to Bandura (1977), there are four major sources of self-efficacy: mastery experiences, social modeling, social persuasion and psychological responses. Through these major sources, those who have a sense of efficacy tend to learn better in formal school environments as well as in informal environments outside the school. Studies have shown that self-efficacy have significant impact on student performance whereby when confidence levels high, the performance level also high (Detruie, 2004).

In observational learning refers to learning that occurs from the observation of others. Bandura claimed that learning is heavily reliant on observation. This learning is also known as social learning theory whereby it occurs when an observer's behavior changes after viewing the behavior of a model. An observer's behavior can be affected by the positive changes or negative consequences (Bandura, 1977).

Active learning is a dynamic process whereby there is continuous adjustment of talking, listening, writing, and reflecting include learning strategies such as case studies, group assignment and presentation. In social learning environment to increase the performance of student, they need to engage student to actively searching for information and the application of knowledge to promote students' self-regulation and critical thinking skill. Studies have shown that active learning is more superior to passive learning in promoting students' skill in thinking (Bonwell and Eison, 1991). Active learning not only an effective learning strategy in the conventional learning environment but also effective in an online environment.

As an educator we need to seek ways to do online activities instruction to take advantage of increasing the knowledge of students. We need to guide the students in ways they can take control of getting knowledge using all sorts of technological means. In constructivism theory it emphasizes on learning is an active social process in which individuals make meanings through interactions with each other and with the environment they live in. Knowledge is thus a product of humans and is socially and culturally constructed. Constructivist learning environments are intended to provide multiple paths for students to learn meaningfully with teachers performing the role of guides, mentors or facilitators (Keengwe *et al.*, 2009)

With these elements taken into consideration, we can evaluate whether students' learning has improved in their performance. Social networking sites playing an increasingly important role in today's society, educators are exploring how they can be used as a teaching and learning tool. Online social networking has deeply penetrated university campuses, influencing multiple aspects of student life. Stimulating students to engage in learning is the nature and structure of constructivist learning. In order for the learners to construct their understandings on a topic, using authentic tasks in real-life situations increases the possibility they will invest the effort and time (Vrasidas, 2000).

It is critical how we perceive the world, reacting to events, challenges, problems, questions and even life itself. To ensure the success of our students, as educators we need to develop the thinking of our students within the various subject areas or professional skills that we teach. Their thought patterns will influence students in how they respond to challenges, create new ideas, new knowledge and that, in turn, will be helpful to them as ongoing students and as long term employees (Reynard, 2010). Student performance will be improved when students have self-regulation and critical thinking skill. Thus, self-regulated learning and critical thinking skill strategies will allow student to succeed in this social learning environment.

Social learning environment which consists of motivating student, encourage social interaction, self-efficacy, observational learning and active learning will be

embedded in the social networking sites to seek the improvement in the students performance when interaction or learning occur. Social learning environment and social networking sites is interrelated due to the surrounding environment that deals with interaction with one and another.

1.8 Research Framework

A research framework (Figure 1.2) illustrates how the researcher conducted this study in order to produce a framework of learning activities through SNS. Prior to identifying the students' self-regulated learning, critical thinking level and academic performance. The researcher distributed Self-regulated Learning Questionnaire as the one developed by Barnard, Lan and Paton (2010). The self-regulated learning question comprises questions that aim to identify the level of self-regulation in six elements : environment structuring, goal setting, time management, help seeking, task strategies and self-evaluation.

Next, the critical thinking skill questionnaire adapted from Facione (1990) was distributed to identify the level of critical thinking which comprised of six elements: analysis, inference, explanation, interpretation, self-regulation and evaluation.

Finally, the academic performance test to identify the improvement in the E-Commerce subject after going through the learning activities through SNS. This academic performance test use Taxonomy Bloom level which consists of 6 levels : knowledge, understanding, application, analysis, synthesis and evaluation.

The Facebook learning activities consist of activities to identify the self-regulated learning and critical thinking elements. These activities are questions posted on the Facebook page whereby students will answer by posting. The whole process of conducting this research will take fourteen weeks to complete.

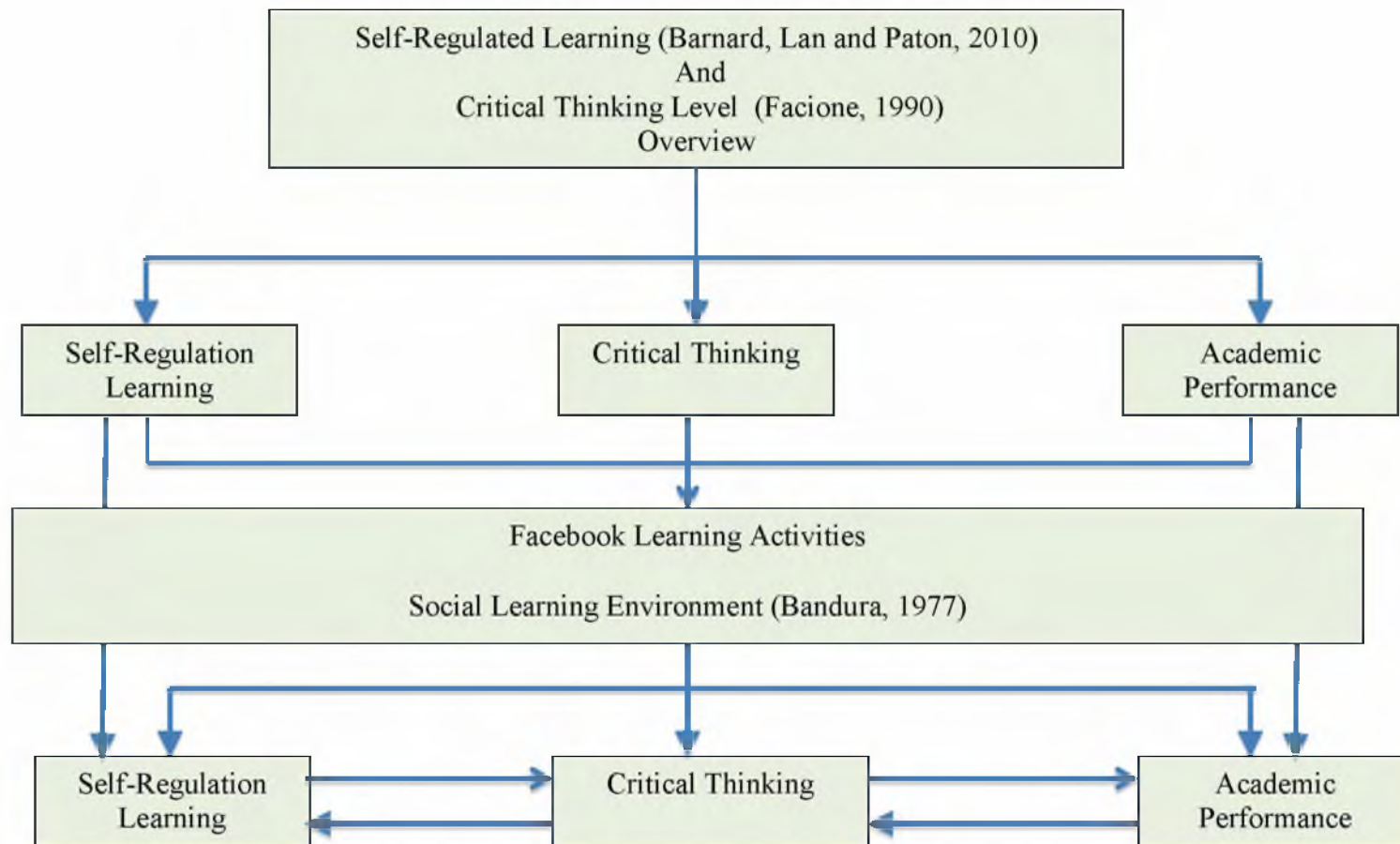


Figure 1.2 Conceptual Framework

1.9 Rationales of the Study

The usage of social networking sites as a mode of communicating virtually is very popular in this 21st century. Much has been written recently about the impact of social networking tools in teaching and learning and how educators can build on the skills of their students in using these tools. Wang *et al.* (2011) study in English vocabulary indicated that students tended to provide and share more ideas on social networking sites compared to traditional taught classroom. Research conducted by (Melor and Hadi, 2012) found that using Facebook group does help them in their writing, learning new vocabulary from reading the comments of others in the group, spell check feature helps reduce spelling error and ideas or opinions by peers help them in getting better idea for writing and easier to complete their essay when participating in the Facebook group discussion. Other subjects using Facebook also have similar findings whereby the researcher focus study on computer programming discovered to be useful in delivering content, assisting learners with learning difficulties after normal learning time and results proved to be positive (Dzvapatsva *et al.*,2011). Studies conducted by (Junco, 2011) shows that from the finding of the research conducted using Facebook have engagement and academic benefits and could be developed for further educational practices. This engagement can be helpful for obtaining academic outcomes to seek improvement in learning.

In order to understand how educators can better improve the level of self-regulation and critical thinking among undergraduate students, more empirical studies in using social networking site in E-Commerce are needed. Social networking sites approach in this study is vital due to the interaction socially with two or more users will lead towards improving personal self-regulation and critical thinking ability. Hicks and Graber (2010) have pointed out that Web 2.0 tools and applications such as the use of social networking sites are often implemented in higher education on the argument that students use these tools in their everyday life. The accessibility of these tools encourages creativity, knowledge creation, conversation, and collaboration have created a student population with very different expectations about the control of their learning process and knowledge creation. Conrad (2008) adds that with such

technological advancement, students are likely to learn as much from social networking sites as they are from their assigned tasks and textbooks in the class.

Recent studies by Diaz (2009) discovered that traditional educational practices no longer provide a successful integration of ICT into the classroom. This requires encouraging cooperative interaction, and collaborative learning where new teacher roles and professional development based on social learning environment. California Test of Critical Thinking Skills (CCTST) was considered to be used since it involves quantitative measure using objective test. However, the questionnaire is not suitable for E-Commerce subject due to the content of the test not relevant. Adaptation of the California Test of Critical Thinking Skills (CCTST) will be used to make it suitable according to the subject.

This study can help to support social networking sites as a tool that can enhance student self-regulation and critical thinking when learning the E-Commerce subject. In addition, the study can help to support the relationship among students' self-regulation, critical thinking skills and performance when using social networking sites.

1.10 Importance of the Study

This research is important to authorities within the educational area which include Higher Education Ministries, societies, educators and also students in higher level study. This finding will inform the students on the importance of self-regulated learning and critical thinking skills in learning E-Commerce through social networking sites.

1.10.1 Students

Students nowadays are exposed to many different types of tools for getting information, communication and sharing information in their learning process. Creative and innovative thinking outcome had been included in their subject syllabus. In such a way students are encouraged to do predictions and have skills in getting information and using technology so that they can use the data from accessing Internet to help them get ideas and gain new knowledge. The use of social networking sites would help these students to improve their performance in the study process and enable them to communicate with the academicians without barrier. This research conducted would help in getting information with the other user and the sharing and interactivity would gain them good knowledge beyond the boundaries of knowledge only inside the classroom setting. This research is important also to teach and encourage students to cultivate self-regulated and be more independent in acquiring new knowledge or information. Whereby the importance of critical thinking would also assist the students in making decision and improve their own futures for their benefit individually and society as a whole. Students are our future leaders if we want our nation to be highly developed and progressed at par with other countries we must develop the learning of self-regulation and critical thinking from young.

1.10.2 Educators

Educators play an important role in becoming a facilitator to the students. Educators need to be skilled in the Internet usage and aware of the latest trend in technology. Most of these educators can access Internet from home and at workplace therefore make it easier for them to communicate and interact with one another. The usage of Internet is important in seeking information for their source of teaching whereby latest information can be obtained easily. Besides that, they can communicate with the student using chat rooms, email and social networking sites to provide information, exchange opinion, proposal and assignments to students. Educators also need to improve their skill in using technology to bring changes in

their teaching so that at par with the latest trend in current technology. We have move to the 21st century whereby the use of technologies has transformed the approach of learning. The way the educators have open mind and always encourage student to explain ideas and think critically and appreciate the students' views on a particular aspect. This research is important in finding new ways and many approaches in ensuring teaching and learning is implemented efficiently. Now that information is ubiquitous, educators need to facilitate learning that can improve the performance of students by the skills of self-regulation and critical thinking.

1.10.3 Higher Education Institution – University

Higher Education Institution is a place whereby education takes place. It plays a big role in moulding and bringing up a person to be knowledgeable. Management in higher education institution plays a big role in ensuring students and educators are well exposed to the current trend in technology and the changes surrounding them. The content of instruction must be parallel with the information obtained and implement it in the teaching and learning approach. This research would help the public or private higher education institution in providing changes towards teaching and learning approach to cope with the changes in education now. Innovation and creativity in education is needed to face the world without borders. The findings will provide important information to the IPTAs whereby self-regulated learning and critical thinking are important and social networking sites can be used in E-Commerce learning.

1.10.4 Ministry of Education (MOE)

This research is important to the Ministry of Education (MOE) in bringing up changes and improve approach in teaching and learning in our country. The usage of Internet that is widely used by student especially students in higher education studies to gain information and source of learning. With the approach of using social

networking sites as a tool in teaching and learning would give a big impact in the way how they exchange information and ideas with other users and at the same time improve the standard level of education in our country in terms of self-regulation learning and critical thinking skill.

1.10.5 Societies

This research is important to the society whereby it gives exposure towards the usage of using social networking tools that has been widely used in our society in our country. This social networking tool will encourage society to exchange views and share information with their friends not only for socializing but also for educational purposes.

1.11 Scope of the Research

This research conducted involves students in local Higher Institute of Studies in Kota-Kinabalu, Sabah. This research will see the changes in the improvement of performance of students in their studies by looking into student's self-regulation and critical thinking in learning E-Commerce through social networking site. This research will only see the self-regulation and critical thinking factors to identify whether there is improvement in their performance if conducted through social networking sites. The limitations of the study are that this research will not consider gender, age, personal preferences and abilities.

1.12 Operational Definitions

There are a few terms used in this research and below are the key terms and their definitions.

1.12.1 Social Networking Site (Facebook)

Social networking site has been widely used by societies nowadays to communicate and do work online. There are many types of social networking sites that are getting popular in our society. The social networking site that is going to be used in this research is Facebook. Selwyn (2007) study shows that Facebook has quickly become the social network site of choice by college students and an integral part of the college experience for interaction online.

1.12.2 College Students

College students include students that are studying in local private higher institution. In this research, it refers to students with the range age of 18 to 25 and have started studying at least one semester. These students are “Sijil Pelajaran Malaysia (SPM)” school leavers and taking Diploma level course in management field.

1.12.3 Self-Regulated Learning

Self-regulated learning attempts to explain academic learning and achievement of learners in term of various characteristics and processes individuals use to regulate their own behaviour. This research is based on definition of self-regulated learning by Barnard *et al.* (2010); which define self-regulated learning to those active and volitional behaviours on the part of individuals to achieve their learning. These behaviours also emphasize the student as an active participant in the learning process which comprise of goal setting, time management, task strategies, environment structuring, self-evaluation and help seeking element. These elements of self-regulation is important to identify the research objective stated.

1.12.4 Critical Thinking

Critical thinking skills to help improve student performance in their studies. This activity consists of learning activities that involved students interactions and discussion through online. In this research, critical thinking is based on Facione (2006), which defines critical thinking to be purposeful, self-regulatory and judgment which results in interpretation, analysis, evaluation, explanation, self-regulation and inference.

1.12.5 Social Learning Environment

Social learning environment comprises activities involved in the online environment in which communication occurs with one another to share knowledge and co-create content. In this research, social learning environment is based on Bandura (1977), which defines social learning as learning that occurs through observing others' behaviour, attitudes and outcomes of those behaviours.

1.12.6 Performance

Performance is defined when there is improvement in the test scores. The test scores are related to the self-regulated learning and critical thinking skills scores that were expected to increase when learning conducted through social learning environment using Facebook. This refers to the performance that falls score above the marks achieved on the posttest assessment.

1.13 Summary

The usage of computer is not something new in the field of education. It has been introduced in countries such as US and Europe since the 60s. This research

identified how to design different instruction and discussion session online in order to fully exploit the advantages of students using social network sites. With this research identifying the ways in which the approach of social networking tools in teaching and learning may improve the performance of students in their studies with self-regulated learning and critical thinking skill taken into consideration. This research conducted involved students in local private Higher Institute of Studies. The concluding chapter placed the basis for the present study by relating the problem statement, research objectives, theoretical framework, research framework, rationale, importance, scope and operational definition.

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