UNIVERSITI PUTRA MALAYSIA

EFFECTS OF BLENDED LEARNING ON READING COMPREHENSION AND CRITICAL THINKING SKILLS OF UNDERGRADUATE ESL STUDENTS

SAEIDEH BOLANDIFAR

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By

SAEIDEH BOLANDIFAR

Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia, in Fulfillment of the Requirement for the Degree of Doctor of Philosophy

May 2017

DEDICATION

This dissertation is specially dedicated to my dearest and beloved:

Parents, Asghar □ Zahra□
Spouse, Mohammad□□
Brothers, Ehsan □ Kamran

EFFECTS OF BLENDED LEARNING ON READING COMPREHENSION AND CRITICAL THINKING SKILLS OF UNDERGRADUATE ESL STUDENTS

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Blended learning, as a combination of face-to-face instruction and computer-mediated instruction, has achieved an unprecedented popularity in higher education today. This is due to the fact that blended learning attempts to take advantage of the strengths of both learning environments. The present study therefore aimed to investigate the effects of blended learning instruction on Malaysian undergraduate ESL students' reading comprehension and critical thinking skills.

The study adopted a quasi-experimental design featuring a nonrandomized control group, pretest–posttest design which included a mid-test as well. A total of 42 undergraduate ESL students were assigned to two groups, namely the blended learning (experimental) group and the traditional face-to-face learning (control) group. The blended learning method of instruction using the course management system, Moodle was conducted as the research treatment for the blended learning group while the face-to-face instruction was conducted for the traditional face-to-face learning group. Both quantitative and qualitative methods were applied to collect and analyze data. The TOEFL reading comprehension test, the Cornell Critical Thinking Test (CCTT, Level X), and the blended learning perception questionnaire were utilized to assess students' reading comprehension, critical thinking skills, and the perception of blended learning implementation respectively. A content analysis method utilizing Newman, Webb, and Cochrane's (1995) critical thinking model was employed to analyze the students' discussion transcripts. In addition, semi-structured interviews were also conducted.

The Repeated Measures ANOVA, Analysis of Covariance (ANCOVA), Independent Sample t-test, and chi-square test were used to analyze the data. The findings of the study revealed that both the blended learning group and the traditional face-to-face

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learning group improved greatly in their reading comprehension and critical thinking skills across the three testing periods of pre-tests, mid-tests, and post-tests. However, a statistically significant difference was found in reading comprehension and critical thinking skills between the blended learning and the traditional face-to-face learning groups. Findings from the blended learning perception questionnaire revealed highly positive attitudes toward the implementation of blended learning. The content analysis of the discussion transcripts indicated that the depth of critical thinking ratios of the blended learning group and the traditional face-to-face learning group improved significantly in which there was a significant difference between the depths of critical thinking ratios of the two groups. Qualitatively, the results showed that the students found blended learning as a new, effective, useful, and interesting method of instruction in improving their reading comprehension and critical thinking skills.

These findings demonstrated that the proposed blended learning method of instruction was more effective in improving reading comprehension and critical thinking skills of undergraduate ESL students than the traditional face-to-face instruction. This method of instruction offers an alternative teaching and learning approach with an effective use of Moodle-supported strategy instruction which supports the constructivist theory of learning in order to enhance the reading comprehension and critical thinking skills of students.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Doktor Falsafah

KESAN PEMBELAJARAN TERADUN KE ATAS KEMAHIRAN KEFAHAMAN MEMBACA DAN KEMAHIRAN BERFIKIR SECARA KRITIS PELAJAR PRASISWAZAH BAHASA INGGERIS SEBAGAI BAHASA KEDUA (ESL)

Oleh

SAEIDEH BOLANDIFAR

Mei 2017

Pengerusi: Nooreen Noordin, PhD
Fakulti: Pengajian Pendidikan

Pembelajaran teradun sebagai gabungan arahan bersemuka dan arahan melalui komputer telah mencapai populariti dalam pendidikan tinggi hari ini. Ini kerana pembelajaran teradun cuba mengambil kesempatan di atas kekuatan kedua-dua persekitaran pembelajaran. Oleh itu, kajian ini bertujuan untuk mengkaji kesan arahan pembelajaran teradun ke atas kemahiran kefahaman membaca dan kemahiran berfikir secara kritis pelajar.

Kajian ini menggunakan reka bentuk eksperimen-kuasi yang mempunyai satu kumpulan kawalan bukan rawak, rekabentuk pra- dan pasca ujian yang termasuk ujian pertengahan. Sejumlah 42 pelajar prasiswazah ESL terbahagi kepada dua kumpulan, iaitu kumpulan eksperimen pembelajaran sebati dan kumpulan kawalan pembelajaran bersemuka. Kaedah pembelajaran teradun menggunakan sistem pengurusan kursus, Moodle telah dijalankan sebagai rawatan kajian untuk kumpulan pembelajaran teradun, sementara pengajaran bersemuka dijalankan untuk kumpulan pembelajaran bersemuka. Kedua-dua kaedah kuantitatif dan kualitatif telah digunakan untuk mengumpul dan menganalisa data. Ujian kefahaman membaca TOEFL, Ujian Berfikir Secara Kritis Cornell (CCTT, Aras X), dan soal-selidik persepsi pembelajaran teradun telah digunakan untuk menilai kefahaman membaca pelajar, kemahiran berfikir secara kritis, dan persepsi pelaksanaan pembelajaran teradun. Satu kaedah analisis isi kandungan menggunakan model berfikir secara kritis Newman, Webb, and Cochrane (1995) telah digunakan untuk mengkaji transkripsi perbincangan pelajar. Tambahan pula, temuramah separa-berstruktur telah dijalankan.

Langkah-langkah Berulang ANOVA, Analisis Kovarian (ANCOVA), Sampel Ujian-T Bebas, dan ujian kuasa dua Chi telah digunakan untuk menganalisa data. Dapatan kajian menunjukkan bahawa kedua-dua kumpulan pembelajaran teradun dan kumpulan pembelajaran bersemuka tradisional telah meningkat dengan begitu ketara dalam kefahaman membaca dan kemahiran berfikir secara kritis merentas tiga tempoh iaitu pra-ujian, pertengahan ujian dan pasca ujian. Namun begitu, satu perbezaan yang signifikan secara statistik dikesan di antara kefahaman membaca dan kemahiran berfikir secara kritis di antara pembelajaran teradun dan kumpulan pembelajaran bersemuka secara tradisional. Dapatan daripada soal-selidik persepsi pembelajaran teradun menunjukkan sikap positif yang tinggi terhadap pelaksanaan pembelajaran teradun. Analisis isi kandungan transkripsi perbincangan menunjukkan bahawa nisbah pemikiran kritis kumpulan pembelajaran teradun dan kumpulan pembelajaran bersemuka telah meningkat dengan ketara di antara nisbah pemikiran kritis kedua-dua kumpulan. Secara kualitatif, keputusan menunjukkan bahawa pelajar-pelajar mendapati pembelajaran teradun adalah sesuatu yang baru, efektif, berfaedah dan menarik dalam mempertingkatkan lagi kefahaman membaca dan kemahiran berfikir secara kritis mereka.

Dapatan menunjukkan bahawa kaedah pembelajaran teradun yang disarankan adalah lebih efektif dalam memperbaiki kefahaman membaca dan kemahiran berfikir secara kritis pelajar pra-siswazah ESL dari pembelajaran tradisional bersemuka. Kaedah pengajaran ini menawarkan satu pendekatan pengajaran dan pembelajaran alternatif dengan satu penggunaan efektif arahan strategi yang disokong oleh Moodle yang menyokong teori pembelajaran konstruktivis untuk meningkatkan lagi kefahaman membaca dan kemahiran berfikir secara kritis para pelajar.

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In the Name of Allah, the Most Compassionate, the Most Merciful.

First, I would like to express my thanks and deepest gratitude to my supervisor, Dr. Nooreen Noordin for her invaluable help, guidance, supervision, and constant encouragement throughout my dissertation.

I certify that a Thesis Examination Committee has met on 16 May 2017 to conduct the final examination of Saeideh Bolandifar on her thesis entitled "Effects of Blended Learning on Reading Comprehension and Critical Thinking Skills of Undergraduate ESL Students" in accordance with the Universities and University Colleges Act 1971 and the Constitution of the Universiti Putra Malaysia [P.U.(A) 106] 15 March 1998. The Committee recommends that the student be awarded the Doctor of Philosophy.

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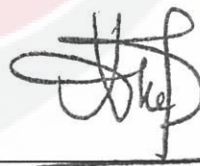Universiti Putra Malaysia
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This thesis was submitted to the Senate of Universiti Putra Malaysia and has been accepted as fulfilment of the requirement for the degree of Doctor of Philosophy. The members of the Supervisory Committee were as follows:

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I hereby confirm that:
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This is to confirm that:
- **the research conducted and the writing of this thesis was under our supervision**
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LIST OF ABBREVIATIONS

A	Ambiguities
ADDIE	Analysis. Design, Development, Implementation, Evaluation
BL	Blended learning
C	Critical assessment
CALL	Computer-assisted Language Learning
CCTT	Cornell Critical Thinking Test
CCTT-X	Cornell Critical Thinking Test-Level X
CMC	Computer-mediated communication
CMS	Course management system
CT	Critical thinking
EFL	English as a Foreign Language
ESL	English as a Second Language
ETS	Educational Testing Service
FL	Foreign language
F2F	Face-to-face
HEIs	Higher Education Institutions
I	Importance
ICT	Information and Communication Technology
J	Justification
L	Linking ideas, interpretation
LMS	Learning management system
L2	Second language
M	Mean
MLE	Managed learning environment
MOHE	Ministry of Higher Education
Moodle	Modular Object-Oriented Dynamic Learning Environment
MUET	Malaysian University English Test
N	Novelty
NLE	Networked learning environment
O	Outside knowledge
P	Practical utility
R	Relevance
SD	Standard Deviation
SPM	Sijil Pelajaran Malaysia (Malaysian Certificate of Education)
SPSS	Statistical Package for the Social Science
TELL	Technology-enhanced language learning
TF2FL	Traditional Face-to-Face Learning
TOEFL	Test of English as a Foreign Language
VLE	Virtual learning environment
W	Width of understanding
WLE	Web learning environment
ZPD	Zone of Proximal Development

CHAPTER ONE

INTRODUCTION

This chapter outlines the background of the study. It presents the statement of the problem, the objectives of the study, the research questions and hypotheses, the significance of the study, the scope and limitations of the study, and the operational definitions of the key terms used in the current study.

1.1   Background of the study

As one of the most important languages around the world these days, the English language is regarded as a world language. The English language has become internationally accepted particularly for daily communication, science and technology, business, diplomacy, and broadcasting. According to Burns (2004), the English language is considered a competitive language skill on the road to globalization and internationalization among the non-English speaking countries. Since the English language has been widely used in Malaysia for many years, it has become the second language of the country. The English language was formally presented as the second language in Malaysia when the National Language policy was executed in 1970. The importance of the English language as a second language has led to the teaching of English as a compulsory subject in every Malaysian school from the first year of the primary education level (Ali, Hamid, □ Moni, 2011). All the four main skills (i.e., listening, speaking, reading, and writing) are taught to students. At the end of the primary level of education, all students should take part in the Primary School Assessment (Ujian Penilaian Sekolah Rendah), which is a national assessment in English and aims to measure the achievement of students in English and four other subjects. At the secondary level of education, students are required to learn mathematics, biology, chemistry, and physics in English for five years besides learning English as a subject. At the end of the secondary school, students should take the Sijil Pelajaran Malaysia (SPM), or the Malaysian Certificate of Education which is required to enter the tertiary level of education. In this exam, among other compulsory subjects, the English language subject which includes reading comprehension and writing should be also assessed. The diploma and pre-university students should sit for the test of English language proficiency which is called the Malaysian University English Test (MUET) to get the admission in public and private colleges and universities. In addition, higher educational institutions have used the English language as a medium of instruction. With regard to the importance of English language in education, enabling individuals to become good language learners and seeking for ways to facilitate learning have always occupied the minds of administrators.

The principal purpose of language education is to make learners proficient in the four main skills: reading, writing, speaking, and listening. Reading is an essential skill fundamental to the academic success in any discipline of study (ACT as cited in

Johnson, Archibald, □ Tenenbaum, 2010). In the same vein, Lynch and Hudson (1991) believe that out of the four main skills, reading is one of the most prominent skills which is necessary for academic success. Carrell, Devine, and Eskey (1988) describe reading as the most salient language skill in learning English as a Second Language (ESL) or English as a Foreign Language (EFL). They claim that second language learners themselves consider reading to be the most significant skill among the four language skills. Reid and Lienemann (2006) declare that reading refers to a complicated process which encompasses the ability of the students to read words separately or in context with comprehension. It requires the capability to perceive the texts of various content areas. Richards, Platt, and Platt (1992) define reading as □perceiving a written text in order to understand its contents□(p. 306). It is the most effective means of information which enhances individuals' comprehension and thinking skills. As reading is related to comprehending a text, students should be informed of the procedures that take place during the reading process. It means that some specific reading skills and strategies should be taught to students to cope with different texts. Although reading is a basic skill in the scholastic success, many college students are incapable of implementing it efficiently (Archibald, 2010).

Besides reading comprehension skills, the ability to think critically is also significant for college success (Nikoopour, Amini Farsani, □ Nasiri, 2011□Archibald, 2010). In line with the Malaysian National Education Philosophy which intends to develop well-balanced individuals, the modern English language teaching in Malaysia calls for higher order thinking skills that aim to expand the cognitive feature of the individuals (Ismail □ Hassan, 2009). According to Rashid and Hashim (2008), in Malaysia, the superiority of the English language and critical thinking skills become the significant consequences of university education. Brown (2004) declares that a good academic English program entails not only linguistic factors in its curriculum objectives, but also developing the mastery of critical thinking. Thus, the development of students' critical thinking skills is considered as an essential educational priority by educators, administrators, and policy makers. In order to obtain the required information from scientific texts, students should read texts critically and interpret them. Cook (1991) considers reading as a thinking process and emphasizes the importance of involving the students in speaking about the text they have read when utilizing reading strategies. Thus, learners are required to think critically in order to understand the texts. Some studies such as Fahim, Bagherkazemi, and Alemi (2010) verify the relationship between critical thinking and language learning, particularly with reading comprehension. Like Fahim et al. (2010), Langer (1985) too agrees that reading comprehension is directly related to some of the critical thinking skills of learners. Hence, in order to address the needs of students in reading comprehension and critical thinking skills, effective instructional approaches are required to improve these two fundamental skills (Archibald, 2010).

Nowadays, the development of Information and Communication Technology (ICT) in all aspects of human lives, especially in language education has led to the designing and implementing of new methods in the teaching and learning process. These days, adopting the pure forms of face-to-face learning or lecturing is not highly advocated in higher education. Traditional face-to-face classes are being improved by implementing some level of computer-mediated instruction. The

potentiality of computer technology in teaching makes computer-assisted language learning (CALL) a trend in the second/foreign language teaching and learning. Integrating face-to-face classes with online computer-mediated activities in a planned manner are known as blended learning classrooms (Picciano, 2009). In the context of language education, blended learning provides a comfortable environment for the learners in order to learn the second language, both on site (in the classroom) and online (beyond the classroom).

Azizan (2010) states that Higher Education Institutions (HEIs) in Malaysia become interested in implementing Information and Communication Technology (ICT) in teaching and learning activities both inside and outside classrooms. In order to implement the computer and internet technology in educational settings, new instructional methods integrated with technological tools are provided. Therefore, the online teaching and learning environments become prevalent for pedagogical purposes which have obtained acceptance among students, teachers, and parents (Ronsisvalle □ Watkins, 2005□Smith □ Meyen, 2003). According to Allen, Mabry, Mattrey, Bourhis, Titsworth, and Burrell (2004), the possibilities of internet technology in educational settings have made distance education an effective model for teaching and learning. Nevertheless, Kilickaya (2007) and Marino (2000) argue that using just computers and internet technology for teaching courses instead of teachers and classrooms cannot be appropriate for all types of students. The lack of face-to-face interaction in e-learning has heightened the need for a new approach which compounds some features of the traditional face-to-face learning with e-learning (Alotaibi, 2013). Hence, blended learning as a more developed model of instruction has become established. Bunyarit (2006) points out that the public higher educational institutions in Malaysia are moving toward using blended learning as an alternative learning approach. In a three-round Delphi study by Parsons (2008), a panel of experts in Malaysia (including 12 academic experts who were employing online learning in five institutions of higher education in Malaysia) reached the consensus that in the current time, the blended learning approach involving face-to-face interactions and online learning was the most acceptable method of learning in Malaysian higher educational institutions. Among the Asian countries, as reported by the Economist Intelligence Unit, Malaysia ranked 25th out of 60 in its e-learning readiness to adopt blended learning (as cited in Karimi □ Ahmad, 2013). However, Maulan and Ibrahim (2012) claim that blended learning is a relatively new term in the Malaysian tertiary education system.

According to Garrison and Kanuka (2004), blended learning as an acceptable teaching method can change higher education. It is seen as one of the most significant educational developments of this century (Thorne, 2003). Blended learning provides environments where teachers and students can interact with each other both face-to-face and online. Graham (2006) defines blended learning as a combination of the traditional face-to-face instruction and computer-mediated instruction in which face-to-face learning is the synchronous model of learning and computer-mediated learning as an asynchronous form of learning. Hiltz and Turoff (2005) declare that the emergence of asynchronous learning environments to traditional face-to-face courses will be considered as a notable development in the learning process. Through the utilization of asynchronous online forums, educators

can provide students with a strategic resource to assist them in refraining from some of the face-to-face classroom frustrations (Alrushiedat, 2011).

Researchers (e.g., Rozgiene, Medvedeva, ☐ Strakova, 2008☐Kern, 2006) recognized the importance of utilizing technology to expedite the language teaching and learning process. The use of technologies with ESL learners can help them to achieve the linguistic skills required for success in the age of information and communication technology. Some researchers such as LeLoup and Ponterio (2003), Egbert (2002), and Cheng and Liou (2000) claim that the integration of technology in language teaching and learning can develop the academic performance, motivation, and learning process of students. Due to the switch of language classrooms toward the blended learning environments, active learning which develops the learning process and quality of language learning experiences will flourish (Nimavat, 2013). Likewise, some studies by Leakey and Ranchoux (2006), Engelberg and Sjoberg (2004), and Linn, Clark, and Slotta (2003) demonstrated the usefulness of blended learning which combines the classroom and the internet-based learning environment, in the development of social skills and facilitation of language knowledge construction.

With regard to the importance of reading comprehension and critical thinking skills in tertiary education, specific strategies should be taught to students to strengthen these two indispensable skills. Blended learning helps students to extend the in-class reading by providing online activities after class without the limitation of time and place (Yang, 2010). Moreover, researchers such as Guiller, Durndell, and Ross (2008) claim that a combination of teaching approaches consisting of face-to-face meetings and online discussions can improve the critical thinking skills of students in higher education. This method of instruction can be executed using course management systems (CMSs)/learning management systems (LMSs). Gibbons (2005) believes that CMSs, which came into being in the 1990s, has been found in higher education settings in order to support online instruction. It helps not only instructors to manage their course materials, but also students to build a proper platform to study the course content (McGee, Carment, ☐ Jafari, 2005). Moodle as an online course management system has gained popularity in higher education these days. According to Cole and Foster (2007), the three characteristics of Moodle, ☐open source, educational philosophy, and community☐have made it unique in the CMS space. The various features of Moodle make it an appropriate platform which supports the high-quality courses and creates an effective learning environment (Cole ☐ Foster, 2007).

Regardless of the aforementioned overview about the influence of blended learning on reading comprehension and critical thinking skills, the practical evidence of its effectiveness in an ESL context is still scarce. Therefore, this study aims to apply an empirical study using blended learning instruction to investigate its effect on reading comprehension and critical thinking skills of undergraduate ESL students.

1.2   Statement of the Problem

Having the ability to read efficiently and effectively is related to successful education. The ability to read in a second language is regarded as a necessary skill for academic students, because it paves the way for autonomous language learning (Carrell ☐ Grabe, 2002). Reading comprehension ability permits students to understand and elaborate the concepts always incorporating the information obtained from lectures and texts. According to Freese (1997), as teachers, we always see students of different levels from seventh grade English to college level students who can read the paragraphs in the texts but are not capable of comprehending them completely. This problem might be due to the unfamiliarity of students with special skills and strategies which can assist them to understand the written text comprehensively (Dreyer ☐ Nel, 2003☐Van Wyk, 2001). Cabral and Tavares (2002) claimed that when asking lecturers about the skills proficiency of their students, they stated that students are incapable of reading analytically, recognizing between important and unimportant ideas, and adapting their reading to the various types of materials they are confronted with, and hence do not find themselves delighted in reading.

A great number of ESL learners look at reading as a challenging skill. In universities, as noted by researchers (e.g., Rahman, 2012☐Zin, 2007☐Ting, 1995), reading has been recognized as the most vital need of Malaysian undergraduate students which should be developed. Despite learning English language for 11 years in school, obtaining a competency level in English language has always been an impediment for the success of Malaysian students at the university level (Yamat, Fisher, ☐ Rich, 2014). In the Malaysian context, although the importance of learning English language as a second language has been demonstrated in many studies, there are some studies which highlighted the university students' problems in the reading comprehension of the texts. Nambiar (2007) points out that students at the university are not ready for the reading demands expected of them. She argues that many Malaysian tertiary students lack the comprehension of long sentences which causes obstacles in their comprehension skills. Having low reading strategy knowledge, low level of reading proficiency, and weak interest are among the factors that lead to tertiary students' problems in reading (Majid, Jelas, ☐ Azman, 2002☐Ramaiah, 1997). According to Musa, Lie, and Azman (2012), the students' problems in English language learning and specifically in reading English texts are related to the Malaysian education system that educates students who are too dependent on their teachers for their own learning. When the students enter the tertiary level, they confront problems in carrying out cognitive tasks like evaluating and critically thinking about the texts (Noor, 2006). Thus, much more attention is required to be paid to develop the reading comprehension of ESL learners.

Researchers such as Fishbein, Eckart, Lauver, Van Leeuwen, and Langmeyer (1990) claim that critical thinking has been recognized as an essential competency expected from students in the second language learning process. Reading comprehension is directly related to the critical thinking skills of individuals (Friedman ☐ Rowls, 1980). The rapid development of technology and its influence on higher education

requires students who understand the texts with a critical view (Pescatore, 2007 Rosenblatt, 2004). Critical thinking assists individuals to make inference from what they read and understand and then demonstrate their inference through discussion (Alotaibi, 2013). Arons proclaimed that college students lack the skills to engage in deductive and inductive reasoning, the ability to infer, to identify assumptions, and determine conclusions (as cited in Fahim, Barjesteh, Vaseghi, 2012).

The importance of critical thinking skills caused the Ministry of Higher Education (MOHE) in Malaysia to expedite the process of implementing critical thinking skills in higher education and listed these skills as one of the seven skills namely communication, critical and problem solving, life-long learning and information management, team work, entrepreneurship, ethics and professional moral, and leadership skills, which are required for students to improve during their tertiary education (MOHE, 2006). However, studies by some researchers (e.g., Lie, Fei, Ismail, 2012 Pandian, 2007 Koo, 2003) demonstrated that Malaysian undergraduate students lack the ability to think critically. Since the education system is exam-oriented, it produces students who are not critical thinkers and prefer to accept information the way it is presented by teachers (Lie et al., 2012). In a study by Rozaidi (2003) on 250 undergraduate students in UITM, Malaysia, the findings showed that language learning strategies, which were related to students' thinking skills, were the least employed by the students. Kaur (2013) and Kaur and Sidhu (2014) argue that in the Malaysian context, lack of consideration to the improvement of critical thinking abilities of tertiary students leads to some problems in their reading comprehension. The students face difficulties in comprehending the message of the author, understanding the main points, recognizing the facts from ideas, and making inferences. Thus, implementing instructional approaches that develop readers who are more critical is required to be included in the pedagogical program of undergraduates.

With the expansion of e-learning as a method of educational instruction, public universities in Malaysia become interested in the implementation of this learning system to their teaching and learning experiences (Azizan, 2010 Masrom, Zainon, Rahiman, 2008). However, implementing e-learning for pedagogical purposes demonstrated some restrictions which cause lower levels of teaching and learning efficiency (Azizan, 2010). The lack of motivation, isolation, lack of face-to-face communication, and apprehensiveness of online communication are among the issues of online learning stated by Hanisch, Caroll, Combes, and Millington (2011). The shortcomings of traditional and e-learning methods and the efforts for making e-learning more efficient have led to the development of a new instructional method which mixes e-learning with the face-to-face traditional instruction method. Hence, blended learning as a new method of instruction has supplied the opportunity to combine the best advantages of face-to-face instruction with the best benefits of online learning (Tselios, Daskalakis, Papadopoulou, 2011 Morgan, 2002). Although blended learning utilization is expanding considerably it is a relatively new term in the higher education system of Malaysia (Maulan Ibrahim, 2012).

Based on the aforementioned arguments, the first gap that is apparent with regard to the proposed study is the issue of reading comprehension of Malaysian undergraduate students. A few experimental studies have been conducted to investigate the effect of blended learning on reading comprehension of students (e.g., Tsai □ Talley, 2014□Yang, 2012□Behjat, Yamini, □ Bagheri, 2012) and none of those studies have been conducted in the context of Malaysia. Hence, there is a gap on the effective instruction of reading comprehension through the implementation of blended learning method of instruction especially in Malaysia.

The second gap that promotes this study is that regardless of the documented significance of critical thinking skills for individuals, there is a scarcity of experimental research that measures the attainment level of these skills utilizing the blended learning method of instruction (Alotaibi, 2013□ Rodriguez, 2009□ Svenningsen, 2009□Aky□z □ Samsa, 2009). However, no specific studies have been conducted to explore the effect of blended learning on critical thinking skills of Malaysian students.

Despite the growing body of research on blended learning, hardly any study to date (to the knowledge of the researcher) has ever looked into the effect of blended learning as a method of instruction on the two connected variables, reading comprehension and critical thinking skills, in a single study. Since critical thinking skills are important in the process of reading comprehension, the present research might be one of the earliest studies especially in Malaysia which is designed to investigate the effect of blended learning on reading comprehension of students while working on their critical thinking skills at the same time.

An extensive review of literature regarding the use of blended learning in educational settings in Malaysia, demonstrated that most of those studies focused on the different perspectives of teachers and students toward the blended learning environment (Haron, Abbas, □ Rahman, 2012□Azizan, 2010□Dzakiria, Mustafa, □ Bakar, 2006) and hardly any study has been designed to focus on the empirical implementation of blended learning in educational settings, particularly, in the specialized area of reading comprehension and critical thinking skills. Therefore, this dissertation may make a contribution through studying the effectiveness of blended learning on the reading comprehension and critical thinking skills of undergraduate ESL students providing a good model of instruction for ESL/EFL teachers.

1.3   Objectives of the Study

The main goal of this study is to investigate the effects of blended learning on reading comprehension and critical thinking skills of Malaysian undergraduate ESL students. Hence, the study seeks to fulfill the following specific objectives:

1. To investigate the effect of blended learning on reading comprehension of undergraduate ESL students.
2. To investigate the effect of blended learning on critical thinking skills of undergraduate ESL students.
3. To investigate the extent of critical thinking in discussions of undergraduate ESL students during and after the implementation of blended learning.
4. To identify the perception of students regarding the implementation of the blended learning method of instruction.
5. To explore the effectiveness of using blended learning and traditional face-to-face learning in improving Malaysian undergraduates' reading comprehension and critical thinking skills.

1.4 Research Questions and Hypotheses

Based on the aforementioned objectives, the present study attempts to achieve answers to the following research questions and their related hypotheses:

1. **Do the blended learning and traditional face-to-face learning methods of instruction have any effect on undergraduate ESL students' reading comprehension?**

   H_01: There is no significant difference in the mean scores of students' reading comprehension at pre-test, mid-test and post-test in the blended learning group.

   H_02: There is no significant difference in the mean scores of students' reading comprehension at pre-test, mid-test and post-test in the traditional face-to-face learning group.

   H_03: There is no significant difference in the mean scores of students' reading comprehension on the mid-test between the blended learning group and traditional face-to-face learning group while controlling for their scores at pre-test.

   H_04: There is no significant difference in the mean scores of students' reading comprehension on the post-test between the blended learning group and traditional face-to-face learning group while controlling for their scores at pre-test.

2. **Do the blended learning and traditional face-to-face learning methods of instruction have any effect on undergraduate ESL students' critical thinking skills?**

   H_05: There is no significant difference in the mean scores of students' critical thinking skills at pre-test, mid-test and post-test in the blended learning group.

   H_06: There is no significant difference in the mean scores of students' critical thinking skills at pre-test, mid-test and post-test in the traditional face-to-face learning group.

   H_07: There is no significant difference in the mean scores of students' critical thinking skills on the mid-test between the blended learning group and traditional face-to-face learning group while controlling for their scores at pre-test.

H₀8: There is no significant difference in the mean scores of students' critical thinking skills on the post-test between the blended learning group and traditional face-to-face learning group while controlling for their scores at pre-test.

3. What is the extent of undergraduate ESL students' critical thinking as shown in their discussions at the beginning, in the middle, and at the end of the implementation of blended learning and traditional face-to-face learning?
   H₀9: There is no significant difference in the extent of students' critical thinking in their discussions at the beginning, in the middle, and at the end of the implementation of blended learning and traditional face-to-face learning.

4. What is the students' perception regarding the implementation of blended learning method of instruction?

5. Do the Malaysian undergraduates find blended learning and traditional face-to-face learning effective in improving their reading comprehension and critical thinking skills?

1.5   Significance of the Study

The recent development of technology in language teaching and learning offers new instructional approaches in educational settings. The findings of the study are expected to make contributions to the fields of Computer-Assisted Language Learning (CALL), Teaching English as a Second Language (TESL), and the area of blended language learning.

This proposed method of instruction with a course management system -Moodle- will contribute to address the paucity of experimental studies in the area of blended language learning in higher education institutions especially in the context of Malaysia. The blended learning method of instruction can be an alternative to the traditional face-to-face teaching in English academic reading classes of Malaysian undergraduates. It highlights the constructivists' views of learning in which students construct their own knowledge through the interactive communications and discussions with their peers.

Educators, especially English language teachers, are also likely to benefit from the results, which can make them aware of the blended method of instruction. Through the implementation of a blended learning method in their teaching process, they can help students to improve their skills in the reading comprehension and critical thinking as active learners. Critical thinking integrated instruction can be helpful for learners of all levels. Utilizing Moodle in the section of computer-mediated instruction of the current study provides more student-centered learning in which students can read, think, and discuss in a more convenient environment rather than the traditional face-to-face environment. The significance of applying this method is that it enables students to take control of their reading process as independent

learners and to manage the reading time by themselves. They have enough time to discuss with other peers and generate questions whenever they encounter problems in their reading to get their peers' feedback. Meanwhile, they acquire to think critically by creating new ideas and asking higher level of questions which will lead to the development of their critical thinking skills. Interactive discussions in blended learning environments promote high-level learning and critical thinking skills of students (Garrison □ Kanuka, 2004). Moreover, teachers can monitor the progress of learning of all students from the first step that they login to Moodle.

Moreover, if the blended learning method of instruction improves students' reading comprehension and critical thinking skills and also causes a positive view toward this learning environment, the educators can implement it into many other courses they teach. Specifically, they can benefit from the part of computer-mediated instruction in which they can provide a comfortable environment for students to do activities and take part in discussions without being stressful.

The knowledge attained in this study can provide useful information for instructional designers and leaders of higher education to consider developing effective instructional methodologies with greater certainty. It can be useful for educators, administrators and the Ministry of Education in Malaysia (MOHE) by providing them information about the effectiveness of blended learning methodologies in educational settings which can promote the reading comprehension and critical thinking skills of students.

Finally, by way of developing the critical thinking and language proficiency of Malaysian students, the university authorities can help the country to have graduates who will help Malaysia to achieve its goal which is to become a developed nation by the year 2020.

1.6 Scope and Limitations

This study aims to investigate the effect of blended learning on improving reading comprehension and critical thinking skills of Malaysian undergraduate ESL students. Like most empirical studies, this study will face a number of limitations that need to be addressed as follows:

The first limitation of the study is related to the generalizability of the findings. Since the participants of the study were two intact groups of undergraduate ESL students majoring in English language at a public university in Malaysia, the results are restricted to be generalized to Malaysian undergraduate ESL students from other universities in Malaysia.

The second limitation of this research pertains to its research design. For conducting this study, two intact classes of the university, including the ESL tertiary level students were assigned. Due to the regulations of the university, after arranging classes, the random assignment of learners to different classrooms was not feasible. According to Ary, Jacobs, Sorensen, and Walker (2014), in cases where the participants cannot be assigned randomly, a quasi-experimental research design will be utilized. In contrast to a true experimental design in which the respondents are selected randomly, there are some threats to the quasi-experimental design that should be controlled by the researcher.

The third limitation is the time constraint. The present study was conducted during one semester of study lasting for 15 weeks. To investigate students' reading comprehension and critical thinking skills before, in the middle, and at the end of the experiment, a time interval of 5 and 7 weeks was considered respectively. However, increasing the time interval between these three testing periods might influence the students' performance as well as increasing the test-retest reliability by decreasing the effect of pre-test for mid-test and mid-test for the post-test.

The last limitation of the study is related to the number of participants of the traditional face-to-face learning group. There were 16 participants in the traditional face-to-face learning group which was fewer than the participants of the blended learning group. Since the study offered an elective course for the students besides the university compulsory courses, the researcher could not control the number of participants.

1.7 Definition of Terms

There are some key terms in this study that need to be defined conceptually and operationally to understand how these terms are exerted throughout the study. The following is the definition of important terms:

1.7.1 Blended Learning

Blended learning specifies different definitions to itself. Osguthorpe and Graham (2003) define blended learning as an integration of face-to-face traditional learning and online learning. Blended learning provides the opportunity for instruction to happen both in the classroom and online in which the online learning is the extension of the traditional face-to-face classroom (El Mansour ☐ Mupinga, 2007). Blended learning aims to utilize the benefits of two approaches -traditional classroom and online- in order to use the class time and also the web for what they do best (Osguthorpe ☐ Graham, 2003).

In the context of this study, blended learning is a combination of traditional face-to-face instruction and computer-mediated instruction in which face-to-face learning is the synchronous model of learning and computer-mediated learning as an asynchronous form of learning. For applying the asynchronous form of learning (virtual learning classroom), the course management system (CMS), Moodle, has been used. Since the instruction was conducted in both learning environments, the students should attend both traditional face-to-face classes and the asynchronous virtual classes during the implementation of the course.

1.7.2   Moodle

Moodle is the acronym for ⬜Modular Object-Oriented Dynamic Learning Environment⬜ It is a Course Management System (CMS), also known as a ⬜Learning Management System (LMS)⬜or a ⬜Virtual Learning Environment (VLE)⬜ which is currently used by many lecturers, schools, colleges, and universities. Moodle is a free, open source delivery means for online learning and to supplement the traditional face-to-face learning. It is a comprehensive program for organizing the educational content electronically.

In the context of this study, the latest version of Moodle (2.7.2⬜) was applied for the asynchronous learning format. Through implementing Moodle, the researcher provided reading comprehension activities, quizzes, and discussion forums for students.

1.7.3   Traditional Face-to-Face Learning

Traditional face-to-face learning happens in the classroom where students and the teacher meet each other at the same time and the instruction is mainly conducted by the teacher. The instructional activities and the interaction between student and student and student and teacher occur in the traditional classroom (Comey, 2009).

In the context of this study, the traditional face-to-face instruction has been held for both groups (blended learning group and traditional face-to-face learning group). The difference is that the traditional face-to-face learning group received all the instructions in the face-to-face classroom, but the blended learning group received half of the instruction in the face-to-face classroom and the rest of instruction in the asynchronous virtual classroom.

1.7.4   Reading Comprehension

Reading comprehension, as defined by Cunningham and Allington (2003), is the ability to think about what is being read in order to get meaning from the text.

According to Snow (2002), reading comprehension is □the process of simultaneously extracting and constructing meaning through interaction and involvement with written language□(p.11). Extracting meaning refers to the comprehension of what the author implicitly or explicitly mentioned in the text. Constructing meaning refers to the interpretation of what has been written by the author based on the readers' experiences and background knowledge.

In the context of this study, some reading comprehension strategies such as cognitive, metacognitive, and social/affective strategies have been taught to students. Then the reading comprehension of students was measured by administering the TOEFL reading comprehension tests as pre, mid, and post-tests. The results of the tests were analyzed to answer the research questions of the study.

1.7.5   Critical Thinking Skills

According to Ennis (1987), critical thinking is □reasonable and reflective thinking that is focused on deciding what to believe or do□(p.10). Paul and Elder (2014) describe critical thinking as □the art of analyzing and evaluating thinking with a view to improving it□(p. 4). Critical thinking is the process by which an individual thinks, recognizes the problems, seeks for relevant information, and makes decision to solve the problems (Bean, 2011). The Delphi panel of experts 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 contextual considerations upon which that judgment is based□(Facione, 1990, p. 3).

In this study, critical thinking skills refer to the mental abilities of students to think critically about the texts, analyze multiple meanings in the text, ask meaningful questions, and express their own ideas with clarity. The general critical thinking skills of learners were represented by scores on the Cornell Critical Thinking Test, Level X (CCTT-X).

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