Collaborative Problem Based Learning within Social Learning Environment to enhance Students' Argumentative Knowledge Construction Process in learning English Literature

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Dedicated to my beloved family

Not to forget; Abah

Allahyarham Khamis bin Long

Al-Fatihah

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ABSTRACT

The purpose of this study is to investigate the influence of Collaborative Problem Based Learning (CPBL) within Social Learning Environment (SLE) to enhance secondary school students' knowledge construction process in learning English Literature as higher order thinking skills is seen as vital aspect in education. In this 21st century, SLE can be seen as a suitable medium to encourage knowledge sharing, analysing information and exchanging opinions among the students and thus, nurture one's knowledge construction process. The researcher started the study by developing CPBL learning materials based on PBL and Computer Supported Collaborative Learning (CSCL) principles to be integrated within SLE. This study involved three instruments; (1) online discussions scripts, (2) final writing assignment and (3) questionnaire. Qualitative data was gathered using thematic content analyses of 20 discussion scripts and final writings as to analyse the types of interaction occurred during the knowledge construction process and their argumentative skills using Toulmin's Model. Then, interview was used to understand its influence on students' argumentative skills. Finally, a survey was distributed as to examine students' level of acceptance towards this approach. The results showed that cognitive contribution (74.85%) was the highest occurrences in the discussions scripts in which high-level elaborations (32.22%) were slightly lower than low-level elaborations (42.63%). This brings to low-level of argumentation skills in most of the final writing analyses. The content analyses on final writings showed students who interacted using high-level of elaborations during the discussions tend to provide high-level of Toulmin's argumentation level in final writings. The ones who interacted using low-level interactions, albeit in small amount, also displayed encouraging argumentation skills in their final writings. Interview data indicated that CPBL had encouraged the students to jointly construct own knowledge, analyse each other's reasoning and thus, enhance their argumentative skills. The finding further shows high level of acceptance towards this alternative medium of learning (M=4.21). Hence, collaborative learning supported by online learning is thus, possible to encourage students' knowledge construction process. Educators then should organize a learning environment as to prompt such interaction to further encourage the development of higher order thinking skills amongst students.

ABSTRAK

Kajian ini bertujuan untuk menyelidik tentang kesan Pembelajaran Berasaskan Masalah secara Kolaboratif (CPBL) dalam Persekitaran Pembelajaran Sosial (SLE) dalam meningkatkan proses pembinaan pengetahuan di kalangan pelajar sekolah menengah dalam mempelajari Kesusasteraan Bahasa Inggeris kerana kemahiran berfikir aras tinggi dianggap sebagai aspek utama di dalam sistem pembelajaran. Di abad ke-21 ini, SLE merupakan platform yang sesuai bagi menggalakkan para pelajar untuk berkongsi pengetahuan, menganalisis informasi serta bertukar pendapat dan seterusnya, meningkatkan proses pembinaan pengetahuan. Kajian dimulakan dengan membangunkan material pembelajaran CPBL yang berasaskan PBL dan Pembelajaran Kolaboratif Berbantukan Komputer (CSCL) untuk diterapkan dalam SLE. Kajian ini melibatkan tiga instrument; (1) skrip perbincangan online; (2) tugasan karangan dan (3) kaji selidik. Data kualitatif menggunakan teknik analisis isi kandungan berasaskan tema ke atas 20 skrip perbincangan dan tugasan karangan untuk menganalisis jenis interaksi yang berlaku semasa proses pembinaan pengetahuan dan kemahiran mengutarakan pendapat menggunakan Model Toulmin. Seterusnya, satu temubual telah dijalankan untuk memahami bagaimana proses pembinaan pengetahuan ini mempengaruhi kemahiran pelajar dalam mengutarakan pendapat mereka. Akhir sekali, satu kaji selidik telah diedarkan untuk memahami tahap penerimaan pelajar terhadap pendekatan ini. Dapatan kajian menunjukkan taburan kognitif (74.85%) merupakan yang tertinggi di dalam skrip perbincangan di mana penerangan tahap tinggi (32.22%) didapati lebih rendah berbanding penerangan tahap rendah (42.64%). Ini menyebabkan kemahiran mengutarakan pendapat tahap rendah di dalam kebanyakan analisis tugasan karangan. Analisis isi kandungan terhadap tugasan karangan menunjukkan pelajar yang berinteraksi menggunakan penerangan tahap tinggi semasa diskusi cenderung untuk memberikan pendapat aras tinggi mengikut aras Toulmin. Namun begitu, didapati pelajar yang berinteraksi menggunakan penerangan tahap rendah tetap juga menunjukkan kemahiran mengutarakan pendapat yang agak memberangsangkan. Temubual menunjukkan bahawa CPBL telah menggalakkan pelajar untuk membina pengetahuan melalui interaksi dan seterusnya, meningkatkan kemahiran mereka dalam memberikan pendapat secara kritis. Kajian ini juga menunjukkan bahawa pelajar menunjukkan tahap penerimaan yang tinggi terhadap sistem pembelajaran ini (M=4.21). Maka, dapatlah disimpulkan bahawa CPBL yang disampaikan dalam persekitaran pembelajaran sosial dapat meningkatkan proses pembinaan pengetahuan pelajar. Para pendidik diharapkan dapat menyediakan suasana pembelajaran sebegini untuk menggalakkan interaksi dan seterusnya meningkatkan kemahiran berfikir aras tinggi di kalangan pelajar.

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LIST OF ABBREVIATIONS

AKC	-	Argumentative Knowledge Construction
AKCP	-	Argumentative Knowledge Construction Process
CSCL	-	Computer-Supported Collaborative Learning
CPBL	-	Collaborative Problem Based Learning
HOTS	-	Higher Order Thinking Skills
ID	-	Instructional Design
IT	-	Information Technology
KBSM	-	*Kurikulum Bersepadu Sekolah Menenengah*
KPLI	-	Teacher Training Programme such as in Post Degree Teaching Programme
LMS	-	Learning Management System
M	-	Mean
MOE	-	Ministry of Education
MOHE	-	Ministry of Higher education
PBL	-	Problem Based Learning
PILTS	-	Programme for Instruction in Learning and Thinking Skills
SD	-	Standard deviation
SLE	-	Social Learning Environment
SPSS	-	Statistical Package for the Social Sciences
TAM	-	Technology Acceptance Model
TED	-	Teacher Education Division
TM	-	Toulmin's Model

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CHAPTER 1

INTRODUCTION

1.1 Introduction

Critical thinking has been seen as one of the most vital aspects in education for many years. Its implication in one's education has been significantly debated in the world of education since Benjamin Bloom took the lead in developing the goal of educational process in American Psychological Association Convention in 1948 (Schneider, 2002). Since then, most educators feel obliged to teach critical thinking skills to their students.

Nowadays, most education systems and modern teachers have realised that teaching using rote learning and drill and practise methods are no longer a suitable learning pedagogy. As education should seek to prepare learners for self-direction in the real world, the teaching strategy used should challenge students to "learn to learn" in order to look for solutions to real-world-situation problems. Moore (1989) findings claim that critical thinking skills have been admitted by most educators as the skills necessary for Twentieth Century learning.

With rapid development of Information Technology (IT) that provides its user with easy access to knowledge, it is important for students to be able to cope with vast amount of knowledge and select essential from it. Therefore, critical

thinking is perceived as important because it emphasises that learning process should be greatly placed on the learners and how they organise their knowledge (Chitravelu, Sithamparam & Teh, 2005). Critical thinking proposes learners to learn by analysing problems and learn how to think for themselves instead of rote memorization, repetition and drills. The thinking process involves problem solving skills, interpreting data and evaluating evidences to construct knowledge and argument in order to seek solutions for the problem as students do their independent discovery of the subject matter.

In a traditional classroom, the teacher would encourage students' critical thinking skills by asking open ended, thought stimulating questions that require the students to imply their knowledge or experiences to solve the problem. This is usually done in small or large group discussion as learning is said to be more effective to be done socially and collaboratively amongst peers (Vygotsky, 1986). In order to participate efficiently in an academic discussion, students need to have the skills to evaluate other's opinions, analyse its strengths and weaknesses, then independently construct own standpoints supported with relevant evidences before they could argue reasonably (Marttunen & Laurinen, 1999). This is known as argumentative knowledge construction process.

These skills are viewed as necessary as an active engagement in the group discussion requires one to undergo the process of analysing the strengths and weaknesses of other's views, reflecting and evaluating the possible solutions for the task at hand. This is to encourage socio-cognitive process that requires one to digest previously acquired knowledge and before one can emerge with new understanding. Therefore, it is concluded that critical thinking skill is an important aspect in order to produce lifelong learners. However, what can the educators do in order to inculcate higher order thinking such as critical thinking skills onto their students? What are the cognitive processes involved during the knowledge construction process? Most importantly, what are the teaching methods or tools that can be used to enhance this process?

1.2 Background of Problem

Critical thinking is defined as a process that requires one to reflect, analyse, construct, generate ideas, draw inferences and evaluate in order to solve a problem (Chance, 1986). Woolfolk (1993) claims that critical thinking as evaluating conclusion after systematically and logically analysing the problem, the evidences and the solution options.

Higher order thinking skills such as critical thinking skills is said as essential skills in order to produce students with independent thinking to face real life situations. Critical thinking skill is not only important in education field, but seen as equally a necessary skill in working field too. DETYA (2000) report proclaims that university graduates that demonstrate critical thinking are highly desired by employers. According to Chartrand (2009), critical thinking is rated as the highest in a survey of 400 Human Resource professional when they were asked to name the most essential skill that an employee will need for the next five years. She further claims in her research that a survey done by Society for Human Resource Management and The Conference Board report that only 28 percent of employees with a four-year college education are rated as critical thinkers and 70 percent of employees with high school education are deficient in critical thinking skills. In Malaysia, six out of ten university graduates take as much as six months to be employed due to lack of critical thinking skills and poor communication (Gurvinder Kaur & Sharan Kaur, 2009). Due to these reasons, many changes have been done in the education system globally to integrate critical thinking skills into the existing education curriculum.

As critical thinking is almost impossible to be taught in isolation for young and secondary school learners, it is often integrated in constructivist learning environment that supports active learning. Constructivism theory of learning encourages students to construct their own learning (Woolfolk, 1993) as students are given specific task that requires them to analyse the situation of the problem before they can emerge with possible solutions to the problem at hand. One of the strategies

that is well known in constructivist learning theory is by integrating problem based learning such as problem based cases so as to produce holistic learners.

Higher order thinking skills have been recently integrated in many subjects taught in schools. In an effort to integrate critical thinking with the teaching of History subject in Winconsin, for example, the teachers are using primary sources such as a copy of historical documents or analysis of eyewitnesses' recount to increase students' interest in History and at the same time developing critical thinking skills by analysing the historical evidences (Michael et. al, 2005). Whilst in Seattle, a high school known as Aviation High School incorporates critical and problem solving skills into the teaching of Science subject by assigning the students to complete an engineering design project. The students are required to develop and test out several different wings that can withstand a different amount of pressure and decide which one is the most effective (Raker, 2012). Another example, the Physics teachers in Malaysia integrate critical and problem solving skills in the learning process by using simulation project to teach Archimedes Principle. The upper secondary students need to produce a hot air balloon model that could float and they need to solve the problems by independently and critically applying their knowledge on buoyancy and density (Curriculum Development Center, 2005).

Currently, Malaysia education system is moving towards integrating critical thinking into its curriculum too. As reported by Gurvinder Kaur and Sharan Kaur (2009), one of the main problems amongst employees freshly graduated from Malaysian universities is deficiency in terms of critical thinking and poor communication. They further claim that this shows that it is no longer enough for students to leave schools with the 3R skills namely reading, writing and arithmetic skills. As a result, most of the students and even graduates being produced under this education system appear as passive receivers of knowledge, lack of critical thinking skills and very much dependent on others.

Hence, to counter this problem, a few strategies have been introduced by Malaysia government to curb this problem at all education levels. One of the efforts is being implemented at university level as institutions of higher education play a

vital role to equip the undergraduates with necessary soft skills for their future employability benefits. Ministry of Higher Education (MOHE) makes it a requirement for the undergraduates' curriculum in public universities in Malaysia to incorporate relevant soft skills such as communicative skills, critical thinking and problem solving skills, lifelong learning, team work force and leadership skills into its syllabus (Hairuzila, Hazadiah & Normah, 2010). Therefore, assessments for undergraduates are not only based on pen and paper test, but could also be based on activities or work fields that require them apply problem solving skills in a real life situations.

Apart from that, a few changes have also been introduced at school level. In order to move away from the comfort zone of teacher centred in Malaysian schools, the teaching methods in schools have also been move towards student centred as to promote active learning. However, Nagappan (2001) states in one of his findings that it is believed that teachers available in schools nowadays are mostly not well-trained in incorporating higher order thinking skills in the classroom. Therefore, transformation has also been made in terms of Teacher Education Programme in order to produce future educators that are equipped with knowledge and skills to teacher higher order thinking in classrooms. According to Nagappan (2001), the Teacher Education Division (1994) has made a few changes to Malaysia Teacher Education Programme by adopting Boston Model to advocate integrating teaching critical thinking across curriculum in schools starting from June 1994.

Besides, Ministry of Education (MOE) has also made a few alterations in terms of curriculum development by integrating higher order thinking such as critical and critical thinking skills into various subjects taught in both primary and secondary schools (Curriculum Development Center, 1993). Latest as reported in National Education Blueprint 2013-2025, one of the eleven shifts to transform current education system is the national examination and school-based assessment will be revamped and geared towards higher order thinking skills (HOTS) in order to produce students that are globally competitive (Malaysia Education Blueprint, 2012).

One of these changes is clearly evident in English Language syllabus. Ministry of Education (MOE) has also introduced some changes in the education curriculum on the teaching of English as another effort to inculcate critical thinking skills as well as re-establishing its importance in Malaysian schools. In 2000, one of the major changes that have been introduced in our education curriculum is the incorporation of English Literature Component in the English Language syllabus for secondary schools. Whilst this incorporation is aimed to improve students' language proficiency, it is also intended to enhance their aesthetic skills in which students are expected to come out with personal responses about the literature piece being reviewed. This is aimed to produce learners equipped with critical thinking skills and prepare them with critical attitudes towards knowledge and have the ability to produce scientific argumentations in educational discussions.

However, the effort of integrating Literature Component in Secondary English Syllabus in Malaysian schools to produce critical thinkers does not really turn out as intended. Studies have shown that in most schools in Malaysia, students appear as passive learners and are unable to respond critically and analytically to the content. (Radzuwan, Malachi & Shireena, 2010). This could be due to the teaching methodology being applied in Malaysian schools. They further claim that one of the reason to the failure is due to the insufficient time for the educators to finish the syllabus on time and at the same time under the pressure of the need to prepare the students for the written examinations. Hence, the teaching of literature lesson often too teacher-centred and presented in one-way teaching and then students are required to memorize its content to obtain high grade.

Besides, the large gap in terms of English language proficiency amongst students in one classroom is another factor that leads to spoon feeding culture in teaching English Literature at secondary schools. Although all students have the opportunity to learn English since elementary school, not everyone learn at the same rate. It is not unusual to have a few students who are well versed about the Literature content and ready to be challenged with activities that trigger their critical thinking skills whilst another half could not fully understand the storyline even after instruction. As teachers do not really have the time to fulfil these different needs at

the same time, this results the high achievers to easily feel bored whilst the low achievers just give up learning (Radzuwan, Malachi & Shireena, 2010). This is definitely will produce an alarming situation in the future as rote memorization is not the best way of learning, let alone to inculcate higher order thinking in the learning process. Besides, memorization of English text or passages definitely will not help to improve one's command of the language, not to mention one's scientific argumentation in discussion.

However, studies have shown that teacher is not the sole resource in knowledge acquisition (Chitravelu, Sithamparan & Teh, 2005). Learning is believed an active, constructive process within an individual and can be enhanced by learning with others (Smith & MacGregor, 2001). This approach is known as collaborative learning. They further claim that interactions between peers to achieve mutual understanding over certain matter or conflict seem promising in providing a platform for students to become critical thinkers and enhance their knowledge construction process. This is because in a collaborative learning environment, students create new understanding with the information and ideas gathered within group activities instead of simply taking in and accepting new information or ideas.

Whilst collaborative learning sounds perfect to encourage student centred learning, this opportunity also full with challenges if it were to be applied fully in a traditional classroom. Designing a collaborative task within a traditional classroom requires a great deal on time allocation and drastic change in terms of the role of the teacher as knowledge transmitter (Smith & MacGregor, 2001). Collaborative learning demands a great deal of time consumption for the learners to work together and help each other before they could come out with new understanding over the matter. This leads to insufficient time for both the teacher and students to address all of the other requirements of the course such as assignments and examinations. Besides, some students appear to be shy with the face to face interaction during the discussion with peers. Apart from that, for the ones who overly concern about the relationship with their peers might be too cautious of their utterances. This causes them to become passive learners and just receiving views from others which is no different from the classic teacher-centred approach.

However, in this new era of rapid development of computer and communication technologies such as Internet have significantly changed the way people work, play and learn. Computer-Supported Collaborative Learning (CSCL), a learning process that encourages sharing of knowledge and information through peer interaction with the use of computer and or Internet seem to fit well to encounter the problem of space and time and also to encourage positive interaction between peers (Resta & Laferrière, 2007). Nowadays, in which learning could take place anytime and anywhere, CSCL is not only limited to the use of computer per say. It includes the use of Internet, Web 2.0 and mobile technologies as well. As different learner learn best using different styles (Woolfolk, 1993), some students work best during the day whilst some perform better nocturnally, web-based learning able to provide a platform for the students to learn at a time convenient to them.

In learning English, one needs to practise by frequently interacting with others because it helps to enrich one's vocabulary and to boost up one's confidence in using the language. Vygotsky (1983) claims that one may maximise the learning process through social interaction with others. By using Web 2.0 tools, the students will have vast opportunities to interact with each other, be it synchronously or asynchronously, in accomplishing the learning activities. With Web 2.0 tools available online with little or no charge nowadays, teacher may create virtual social spaces for the students to send emails, communicate in real time using online chat or even edit the same document collaboratively to encourage collaborative learning.

The rise of Web 2.0 and its tools, social networking sites and uprising interest in collaborative learning in general are connected with the Internet to enhance one's education. Lee and McLoughlin (2010) imply that online social network that is based on Social Learning Environment (SLE) can provide a medium to encourage virtual social interaction between teacher and students and also between peers while at the same time allows individuals to engage in meaningful exchange of knowledge with others. This will indirectly cause the students to meaningfully participate in an active learning and gradually move away from the teacher centred that is commonly practiced in Malaysian classrooms. Due to this reason, many teachers in schools have used social networking system such as Facebook as an information sharing medium

because it is considered as the 'in' thing amongst teenagers nowadays and it shows the high level of users' engagement when educators use the Pages application in Facebook as a medium for synchronous or asynchronous discussion. Under this context, English Language teachers in Malaysia could use this opportunity to use computer and Web 2.0 tools to assist the learning of Literature Component and at the same time enhancing students' argumentative knowledge construction.

However, while active learning is theoretically appealing, many educators are still unsure of how to take advantage of this technique to bring out the best learning outcomes for their students. Active learning, as the experts suggest, is an instructional method in which students are required to actively engage in meaningful activities and think about what they are doing in the learning process (Bonwell, 2002). On the other hand, Bonwell (2002) also put forward that it is also important to note that simply introducing an activity to the students might lead to failure to capture the benefits that active learning has to offer. This is because the activity that is not carefully designed around important learning outcomes that require active engagement from the students will cause the students to not able to see the purpose of learning and thus, the motivation to actively participate and learn will be lessen. Here, it can be seen that devising an active learning task requires too much time for pre-class preparation and thus, teachers might not be able to cover as much course content in a traditional classroom. Besides, large class size in Malaysian schools does not help to allow active learning to be applied smoothly.

One of the ways to overcome these problems is by applying Problem Based Learning (PBL) into the learning activities being introduced to the students. This instructional method requires the educator to design a learning task that is based on a problem of a real world situation and challenge the students to "learn to learn" and works cooperatively and/or collaboratively to emerge with solution to the problem (Duch, Groh & Allen, 2001). This is believed will provide a purpose for the students to learn and thus, allow active learning to occur. In this modern world where teaching and learning process is possible to be done regardless of its time and space, Computer Supported Collaborative Learning (CSCL) such as Web 2.0 tools seem appropriate to provide the students with a platform to actively participate and

contribute via online learning and virtual documentation. The use of Web 2.0 tools in PBL activities will provide students with an excellent context to foster active learning as they will collaboratively work towards solving the given task. Besides, the vast sources of data background that can be obtained and shared effortlessly via online to support their arguments need to be evaluated critically; allowing the students to develop critical thinking and problem solving skills as lifelong learners.

Up to this day, quite a number of researches have been done to determine the successfulness of certain learning outcomes in online learning. However, not many researches have been done on the process of argumentative knowledge construction itself. As Malaysian graduates are said to be lacking of critical thinking skills and this leads to poor communication in English which could be due to the spoon feeding style of teaching and learning that has been widely practised since elementary school, it is hoped that this research that focus on integrating Problem Based cases into Computer-Supported Collaborative Learning in a Social Learning Environment will help to enhance students' knowledge construction process to become critical thinkers.

1.3 Statement of Problem

Apart from poor command in English in general, Malaysian graduates are proclaimed to be lacking in terms of critical thinking skills especially when it comes to communicating ideas or argumentatively supporting own standpoint in an educational discussion. The problem could be rooted from the way students learn English in elementary and secondary schools. The rote memorization of words and essay, grammar drill and repetition of exercises obviously do not pay off when they need to apply this knowledge in real life situation. Here, it seems to be there is a need to reform the way of teaching English in Malaysian schools. The focus should be to train students to be independent thinkers and at the same time to be able to use English in real-life situations.

To inculcate critical thinking skills onto students in this modern era, it might be useful to develop a Computer-Supported Collaborative Learning in a Social Learning Environment that might be able to create learning situations that requires argumentative knowledge construction process. Knowledge Construction Process is defined as the process for indicating the cognitive activities in seeking, interpreting and reasoning the option and making decision in educational discussions (Zhu, 2012). Therefore, the learning process should enforce on student's knowledge construction process in order to produce citizen with an ability to become critical thinkers.   With the emergence and uprising interest in social network amongst teenagers nowadays, it only seems appropriate to integrate Problem-Based learning into Computer-Supported Collaborative Learning in a Social Learning Environment as to encourage students to work collaboratively and critically helping each other out in learning the language.

To serve the purpose of this study, the researcher hopes to develop a Social Learning Environment to support Collaborative Problem Based Learning for learning a scope in Form 1 English Literature Syllabus. This study aims to investigate students' knowledge construction process via Social Learning Environment and how does argumentative knowledge construction process contribute towards students' participation in an educational discussions or writings.

1.4 Research Objectives

1. To develop problem based learning cases for learning a scope in Form 1 English Literature Syllabus

2. To develop a Social Learning Environment (SLE) by using Web 2.0 technology to support collaborative learning for learning a scope in Form 1 English Literature Syllabus

3. To integrate collaborative problem based cases and Web 2.0 Social Learning Environment for learning a scope in Form 1 English Literature Syllabus

4. To analyze secondary school students' argumentative knowledge construction process via collaborative problem based cases embedded within Social Learning Environment.

5. To study how argumentative knowledge construction process contribute towards students' final writing project

6. To investigate students' acceptance towards integrating collaborative problem based cases and Social Learning Environment in learning English Literature.

1.5 Research Questions

1. What are the types of process involved in students' argumentative knowledge construction process via problem based cases in CSCL embedded within Social Learning Environment?

2. How does argumentative knowledge construction processes in a forum discussion contribute towards students' final writing?

3. What is students' acceptance towards integrating collaborative problem based cases embedded within Social Learning Environment in learning English Literature?

1.6 Rationale of the Research

Higher order thinking skill is important to produce lifelong learners. Critical thinking skill, however, cannot be taught in isolation and thus, it has to be integrated across curriculum (Nagappan, 2001). In order to enhance critical thinking skills, educators need to provide a learning situation that allows active learning to take place. Higher order thinking skills can also be developed via language learning. For the purpose of this research, English Language is chosen as the medium to evaluate students' progress to develop their critical thinking skills by analysing students' argumentative knowledge construction processes throughout the collaborative discussions and final writing.

Collaborative Problem Based Learning (CPBL) approach is chosen for this research as it seems appropriate to provide an excellent context for developing higher order thinking skills. This is because it requires the students to analytically and critically weight out others' opinions before emerges with new understanding about the subject matter. However, CPBL is almost not convenient to be practised in a traditional classroom as it is too time consuming and students might be burdened with additional discussions and thus, might de-motivate some students to participate actively.

In this modern world of technology, however, the limitations of CPBL can now be overcome by using Computer Supported Collaborative Learning (CSCL) such as Web 2.0 tools. CSCL with an aid of 2.0 tools is an advanced alternative way of learning and it offers another platform for teachers to overcome the time and space boundaries as well as enable learners to actively participate and develop critical thinking and problem solving skills in the learning process (Resta & Laferrière, 2007). Therefore, the purpose of this project is to analyze secondary school students' critical thinking skills via argumentative knowledge construction process through collaborative problem based cases embedded within social learning environment.

1.7 Significance of the Research

This research will be advantageous to:

1.7.1   Secondary school students

The learning process undergone by the students in this project should serve as the platform for a better Problem Based Learning activity within a Computer Supported Collaborative Learning in a Social Learning Environment in the future. This should serve as a beginning to catapult active learning that enhance students' critical thinking skills; a soft skill that is very much needed for their future careers. Besides, students should also improve their communication skills via synchronous and asynchronous discussions throughout this project. Learning within Social Learning Environment using Web 2.0 tools should also provide them with a fun alternative way to become lifelong learners, regardless of time and space which suits very well in this modern world of technology.

1.7.2   School teachers

Teaching critical thinking skills across curriculum within a traditional classroom is definitely not an easy task to do (Lai, 2011). This project opens an alternative way for educators to inculcate higher order thinking skills into their teaching without have to worry about time and space restriction. Besides, the findings on knowledge construction process via this project should be able to help school teachers to plan learning activity that help to develop students' critical thinking skills.

1.7.3   Schools administrators

Critical thinking skill is seen as important aspect in education for years. Schools are expected to prepare students that are well-equipped with this potent soft

skill to face the real world after school especially to secure their future employability and hopefully, smooth future career advancement (Nagappan, 2001). Due to time and budget restriction (Chitravelu, Sithamparan & Teh, 2005) as well as large class size problem that might hinder the application of CPBL in traditional classrooms (Bonwell, 2002), the findings of applying problem collaborative cases and Web 2.0 Social Learning Environment in this project could provide an alternative for schools to assist teachers to inculcate critical thinking skills onto students via a cost effective and time savvy manner.

1.8 Scope and Limitation of the Research

There are many learning approaches that can be used to develop students' higher order thinking skills. In this study, however, Problem Based Learning (PBL) approach is chosen as this serves an excellent real life context for the students to develop critical thinking skills in order to seek the solutions to the task at hand. It is combined with Collaborative Learning approach as to encourage social interactions between teacher and students as well as amongst student participants themselves as it is believed that it would be helpful to encourage their Argumentative Knowledge Construction (AKC).

To analyse the critical thinking skills development amongst the students, this study will only use Toulmin's Model of argumentative knowledge construction. There are six elements of persuasive arguments according to this model which are; claims, grounds, warrant, backing, qualifier and rebuttal *(*Kneupper, 1978*)*.

Besides, this study is only focused on a scope on English Literature syllabus as students' progress in terms of knowledge construction process is assessed via the language that they use to support their arguments. English Literature is chosen as it provides the students with necessary aesthetic skills to analytically and critically evaluate literature piece being reviewed.

Apart from that, the collaborative problem based cases developed within Web 2.0 Social Learning Environment in this study are only designed for Form 1 students who are studying English Literature subject in one of the public secondary school in Johor. As this study is qualitative in nature in most parts of the study, only one classroom is chosen to participate in this study in which all individuals within this classroom participate in the study as to avoid any of these students feeling neglected. As for the data analysis, however, the samplings are divided into three sets as to respectively answer the three research questions stated earlier. The division of this Research Sampling is explained and can be viewed in details in Chapter 2. In general, although the student participants of this study were chosen using purposive sampling method, they were not chosen based on their level of proficiency in English and command of IT skills such as their history or experience of using any Web 2.0 tools.

1.9 Definition

The terms used throughout this study are defined as follows:

1.9.1   Argumentative Knowledge Construction Process (AKCP)

Argumentative knowledge construction process (AKCP) refers to the process in which the learners are actively engage in particular discourse activities and the frequency of active participation by putting forwards arguments in interaction within groups is related to one's knowledge acquisition (Andriessen, Baker, & Suthers, 2003).

1.9.2   Problem Based Learning (PBL)

Problem Based Learning (PBL) is an instructional pedagogy that encourages and challenges the learners to actively engage in the "real life" problem as a learning context that initiate their interests to learn the subject matter. The

students are also challenged to "learn to learn" and cooperatively working in groups to find solutions to problems (Duch, Groh & Allen, 2001).

1.9.3 Social Learning Environment (SLE)

Social Learning Environment (SLE) is a place where individuals can learn with and from others in which the participants involved collaboratively seek a meaning or new understanding via formal or informal discussions or learning by observing others (Bandura 1986; Woolfolk, 1993). This can be achieved either in person or virtually through Web 2.0 social media tools such as blogs, wikis, social networking sites and social bookmarking services.

1.9.4 Computer Supported Collaborative Learning (CSCL)

Computer Supported Collaborative Learning (CSCL) is an instructional method that study how people can learn together with the aid of computer (Stahl et al.2006). This approach does not only restricted to cabled personal computers, but also including other advanced technologies such as Web 2.0 tools and mobile technologies.

1.9.5 Web 2.0

Web 2.0, as defined by O'Reilly (2007) is network as the base of multiple connected devices in which its applications makes the most use of this platform to deliver a continually-updated software which only getting better when more consumers using it by providing their own data and remixing data from multiple sources. He further describes Web 2.0 as "architecture of participation" and can deliver better user experiences more than Web 1.0 can offer. Web 2.0 tools offer its user with many useful online applications such as blogs, wikis, tagging and social bookmarking, folksonomy, Google AdSense, Flickr and many others interactive applications.

1.9.6 Toulmin's Model (TM)

Toulmin's Model (TM) is a scheme that layout the template of influential tools for analysis of arguments and presents the functional relationships between them (Toulmin, 1958). The main components identified in Toulmin's Model are known as *data, claim, warrants, backing, qualifiers* and *rebuttals.*

1.9.7 Technology Acceptance Model (TAM)

Technology Acceptance Model (TAM) is a model developed to specifically explain and predict computer user's usage behaviour. It is intended to explain the relationship between the system features, the user's perceived usefulness and perceived ease of use that eventually mould the user's level of acceptance to determine the actual usage behaviour (Davis, 1993).

1.10 Conclusion

Deficiency in terms of higher order thinking skills and poor communication skills are rated as the highest causes of Malaysian graduates and school leavers to struggle to perform well in their careers and even unemployed (Gurvinder Kaur & Sharan Kaur, 2009). Thus, in order to achieve Vision 2020, Malaysia education system is gradually adapting critical thinking skills across its curriculum as to produce critical thinkers and lifelong learners. This is believed due to our education system which is traditionally too teacher centred and based on memorization and repeated drilling to achieve higher grades. As a result, the products of Malaysia education system mostly appear as passive receivers of knowledge and are lacking in terms of higher order thinking skills.

In order to produce lifelong learners that possess higher order thinking skills and well articulate in supporting their arguments, the teaching and learning methods should move away from being too teacher centred. This could only happen when the students actively engage in the learning process (Nagappan, 2001). One of the solutions to overcome this problem is by applying Problem Based Learning approach. While PBL sounds plausible to assist the development of critical thinking skills, its application in a traditional classroom always appear too taxing to be achieved successfully (Lai, 2011). Hence, this study adopts collaborative problem based cases and Web 2.0 Social Learning Environment for learning a scope in Form 1 English Literature Syllabus to analyse students' argumentative knowledge construction process based on Toulmin's Model.

In this study, the researcher hopes to analyze secondary school students' argumentative knowledge construction process via collaborative problem based cases embedded within Social Learning Environment. The researcher also wants to find out how argumentative knowledge construction processes in forum discussions contribute towards students' final writing. This study is hoped will provide as an alternative way of instilling higher order thinking skills onto students as they actively participate throughout the learning activities.

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