

# Exploring Project-Based Learning as 21st Century Learning Practice in Enhancing Critical and Creative Thinking: A Case Study of Form Two ESL Students

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**Abstract:** Education system in Malaysia, as in many countries, is leading towards the 21st Century teaching and learning which integrates the use of project-based learning (PBL) to prepare students holistically to compete in this rapidly globalising world. Blending PBL into English language classroom is one of the strategies to promote critical thinking and creativity in language learning. In order to apply critical and creative thinking, teachers have to maximise the use of PBL for self-paced learning regardless of students' skill levels. However, research shows that only a small percentage of English language teachers use PBL regularly. Thus, this research aims to explore the effect of implementing PBL approach among English as a Second Language (ESL) learners in improving students' critical and creative thinking skills as well as students' and teachers' perspective regarding the practice. In this study, semi-structured interviews and observations are employed to collect data from three low to intermediate level of proficiency form two students and two English teachers in Kuala Kangsar, Perak. PBL benefits students in a way that it motivates them to learn language through real-world experiences. Teachers can implement and adapt the step-by-step of PBL method in this study to increase students' participation in the language classroom. This study is hoped to provide teachers and students the insight of PBL tremendous potential to accelerate critical and creative thinking especially in ESL teaching and learning.

**Keywords:** Project-based learning, PBL, critical thinking, creative thinking, HOTS, 21st century learning, ESL.

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## I. INTRODUCTION

According to the Malaysia Education Blueprint 2013-2025, one of the shifts in education system is to provide equal access to quality education of an international standard. In order to achieve the standard, in 2017, the Ministry has launched the Secondary School Standard Curriculum or Kurikulum Standard Sekolah Menengah (KSSM). KSSM stipulates the importance of the development and the application of 21st century curriculum and assessment. This curriculum focuses on student-centred and differentiated teaching but have a greater emphasis on project-based work.

Project-based Learning (PBL) promotes 21st century learning based on the elements of communication, collaboration, critical thinking and creativity as well as moral values and ethics. PBL mirrors the real-world experiences where students learn to plan and keep track of the progress of their projects. The effective completion of the project includes critical and analytical thinking as well as creativity and collaborative work. Through hands-on and minds-on activities, students are able to apply knowledge and skills to real life settings which would lead to favourable outcome in their future encounters. In English as a Second Language (ESL) context, PBL refers to the method of learning a second language based on projects in which the focuses are on the utilisation of authentic language and acquiring students to do meaningful tasks using the target language.

The Blueprint also specifies that every pupil should be independently proficient in the English language as defined by the Common European Framework of References (CEFR) in order to meet the international benchmark of English curriculum. Hence the latest curriculum (KSSM) enables the development of the Standard-Based English Language Curriculum for Secondary Schools (SBELC). Among the aims of SBELC are “to enable pupils to make calculated decisions through critical and analytical thinking, and collaborate with others to solve problems creatively and innovatively in the real world”. In SBELC document, the mapping of the English language content and suggested pedagogical approaches are presented align with the CEFR to fully cater for cognitive progression in the learning standards.

In addition, the school curriculum is revised to embed a balanced set of knowledge and skills. Surveys of Malaysian and multinational companies suggest that our students fall short on the soft skills looked for by prospective employers (Malaysia Education Blueprint, 2013). Critical thinking and creative thinking are among the significant soft skills required in work place as well as other skills such as attitude, communication, work ethic, teamwork, decision making, time management, motivation, flexibility, problem-solving, and conflict resolution. To address this issue, the ministry has revamped national examinations and school-based assessments to gradually increase percentage of questions that test higher-order thinking skill (HOTS). In SBELC, emphasis on HOTS refers to the four cognitive levels namely, application, analysis, evaluation and creation. By 2016, higher-order thinking questions has comprised at least 40% of questions in UPSR and 50% in SPM. Students will be trained to think critically while school-based assessments will also “shift their focus to testing for higher-order thinking skills” (Malaysia Education Blueprint, 2013). Furthermore, in an exam-oriented assessment, only 10% of the questioned posed in reading comprehension is HOTS. Thus, PBL is a medium for teacher to teach critical thinking. This study is significant for ESL teachers to understand the ministry objective to incorporate 21st Century teaching and learning skills - which in this study refers to the ability to think critically and creatively - into the curriculum.

**Statement of the Problem.** As stated in the Malaysia Education Blueprint 2013 - 2025, only 28% of students achieved a minimum credit in the 2011 SPM English paper against Cambridge 1119 standards. Through the revamp of the curriculum, it is said that by 2016, at least 50% of higher-order thinking questions are comprised in SPM while school-based assessments will also shift their focus to testing for higher-order thinking skills. Those remarkable development of education system may be at risk towards students’ educational outcomes. Thus, the upskilling of students' cognitive performance is mandatory. The emphasis of language education is no longer restricted to enhancing the four language skills but also on developing critical and creative thinking.

In order to enhance Malaysian students’ critical and creative thinking skills, PBL should be implemented in schools to prepare them for real-world situation. Project-based learning is a very successful learning practice that enables the students to share their thoughts about the subject of interest. Katz & Chard (2000) describe that learners can also “ask questions, develop theories, use different tools, use the skills acquired in the context of a real and meaningful situation”, as well as “solve problems and answer questions in a creative way in and out of the classroom” (as cited in Du & Han, 2016, p.1080). A study in 2014 found high rates of college success among students from high schools. It is believed that the success is lead by student-centred approach which researchers defined as project based learning. In the study, the student-centred schools have designed their curriculum purposefully “to provide students the kinds of academic skills they need to do college-level academic work, have the fortitude to persist through challenges, and be successful in their careers” (Friedlaender et al., 2014, p. 22). The higher-order thinking skill is encouraged as one of the instructions, and often requires more complex project-based and collaborative activities within the classroom. The approaches include interactive class projects, role play, mock trials, art projects, and presentations (ibid). Therefore, curriculum in Malaysia should also be designed in the direction of strengthening students’ critical and creative thinking skills.

In real workplace settings, apart from communication skill, soft skills such as basic leadership, critical thinking, and being innovative are additionally significant components of occupation competence. In addition, critical and creative skills are also required so that people will thrive in the work environment. High-performance workplace requires workers to have extra skills such as computational skills which is obviously important in this tech-age as well as thinking skill. As mentioned in Faridah Musa et al. (2012), Kloppenborg and Baucus (2004) state that many skills acquired through PBL are exceedingly sought by today’s employers. The skills include the “ability to work well with others, handle interpersonal conflicts, make thoughtful decisions, practice and solve complex problems” (p.702). Kloppenborg & Baucus (2004) also report on the result of learning students’ learning as showed in their effective experiences gained by planning, managing, and successful projects. Therefore, PBL plays a significant role in presenting students to a significant learning process and make students aware of real life issues such in resolving conflicts through creative and critical thinking skills.

However, there are limited studies of understanding the nature of PBL as a language learning practice to enhance critical and creative thinking skills among Malaysian students. Thus, this study will explore the effect of PBL as an approach of teaching among Malaysian students with the outcome on the development of critical and creative thinking.

**Objectives of the Study.** The objectives of the study are to:

- i. identify the effect of PBL in enhancing students' critical and creative thinking in ESL classroom.
- ii. explore the students' perspectives on using PBL in enhancing students' critical and creative thinking in ESL classroom.
- iii. explore the teachers' perspectives on PBL in enhancing students' critical and creative thinking in ESL classroom.

**Significance of the Study.** The study is useful for ESL teachers as the effects of using PBL are related to the improvement of critical thinking and higher order reasoning skills (Allen, 2004). By understanding the effects of PBL in cognitive development, teachers can prepare the environment to facilitate the learning process. Teachers can allocate HOTS task to promote the different cognitive levels: application, analysis, evaluation and creation. Besides, teachers can also assign task that required critical thinking to enhance students' capability of evaluating an idea logically and rationally in order to make good judgment using logical reasons and evidences. In fact, HOTS task can also boost creative thinking skills as students have to produce something new using their creativity and out-of-the-box thinking. Therefore, it is important that HOTS activities are assigned to students and materials used are attentively chosen to promote students' full potential. The improvement in teaching method will help teachers to plan their teaching to enhance students' performance in answering HOTS question.

Using PBL in the classroom also promotes the 21st century learning which is assured by the ministry as the current style of teaching and learning to prepare students to compete worldwide. Even though the findings of this study could not be generalised as it only applies to the researcher's school, the ministry could compare students' achievement in particular Transformational Schools (TS25) that are chosen to apply this 21st century learning approach, with other schools which are not yet involved in the program. If the results show the students are achieving higher performance especially in English, it can be a basis for the ministry to implement PBL approach in all schools throughout the country though further study should be made.

**Operational Definition.** The terms used in this study are as follows:

**Project-based Learning :** PjBL is a model of learning that invites students to think creatively to take part in performance, and experience what they do directly. This model is a model that organises learning through specific projects (Thomas, 2000)

**Higher order thinking skill:** 'Artful thinking', which includes reasoning, questioning and investigating, observing and describing, comparing and connecting, finding complexity, and exploring viewpoints (Barahal, 2008)

**Critical thinking:** Critical thinking relates to the activities of analyzing, making assessment, drawing conclusions and formulating solutions to problems (Paul & Elder, 2006; Lai, 2011)

**Creative thinking:** Creative thinking requires imagination, and leads to many possible answers or ideas. When a person is thinking creatively, they are required to analysed many ideas and later sort out the few that can be implemented. Creative thinking is the relating of things or ideas which were previously unrelated. (Rawlinson, 2017, p. 4 & 8)

## II. METHODOLOGY

The research design of this study was based on a qualitative research methodology to gain insight of the phenomenon of enhancing critical thinking through project. As cited in Strauss and Corbin (1998), "qualitative methods can be used to obtain the intricate details about phenomena such as feelings, thought processes, and emotions that are difficult to extract or learn about through more conventional methods" (p. 11).

Two ESL teachers were interviewed to gain insight of their perspective on PBL. Apart from that, three out of 18 form two students were chosen for the interview as the participant for the case study. The selected research participants were determined in a purposive conduct among the classroom learners and selection was made from the careful study of the learners' language proficiency. To ensure the students are heterogenous in term of their language proficiency level,

they were chosen based on their English test score, whether they possessed B, C or D grade. The different level of grades was chosen because the researcher wanted to get their views of PBL in enhancing critical and creative thinking skills not only from the good language learners but also from the poor ones. Hence, the selection of different students' language proficiency level is crucial as it may influence the practice of PBL in ESL.

The instruments used in this research to collect data was observation and interview. The purpose of observation is to document and analyse PBL practice in the classroom that can enhance students' critical and creative thinking. The observations were taken place over the entire duration of the project-based learning and not only limited to a specific lesson. The participants were observed on their social interactions, obtrusiveness towards higher order thinking tasks assigned and their ability to respond to the tasks. Meanwhile Semi-structured interviews were conducted towards student participants and English teachers individually. The purpose of the interviews is to gather information regarding their experiences and knowledge of answering higher order thinking questions, their opinions, beliefs and feelings towards enhancing critical and creative thinking through PBL. Interview allowed face-to-face verbal exchanges between the interviewer and interviewee in which the interviewer will gain an understanding of the interviewees (Rowley, 2012).

The analysis of the data collected were matched for convergence and divergence between the students' and the teachers' perspective towards implementing project-based learning in enhancing and the students' critical and creative thinking skills.

### III. RESULT AND DISCUSSION

#### A. *Applying Critical and Creative Thinking in Completing a Project - Think, Plan, Create and Evaluate*

Researcher who was the English teacher of the class observed the students' social interactions, consciousness towards higher order thinking skill and their ability to respond to the tasks. During the whole process of *Think, Plan, Create and Evaluate*, teacher examined how critical and creative thinking was applied. The process of PBL (Think, Plan, Create and Evaluate) was adapted from Collaborative Project in PULSE 2 Textbook.

During the *Think* step, teacher facilitated and scaffolded students by writing on the whiteboard questions such as *What types of information can you include? What things can you include, e.g. photos, graphs, maps? How can you organise the information?* The first step in the process gave overview of the task and opportunity to the students to brainstorm ideas. Teacher scaffolded students, giving them examples of final draft of the project, guiding them of what kind of information to include and where to get the information. In this stage, the students employed the 'applying' thinking process. They followed the examples given to guide them in their research of the topic and decided what information to include.

During the *Plan* stage, a more in-depth cognitive skill is required as students need to choose only the appropriate information from the materials they have prepared. The researcher observed that the participants used their analysing skill by carefully selecting the specific and useful information for the final draft of their project.

During the *Create* stage, each group created a project such as creating poster or leaflet. Teacher constantly encouraged students to be creative and try to make the poster or leaflet as interesting as possible. At this point, the students' effort in creating the end product of the project, - such as to include different types of information such as pictures, maps and other colourful content to make the end product look attractive - demonstrates that the students successfully applied their creative thinking skill in PBL.

The final step in PBL process is evaluation process. During *Evaluate* stage, Show and Tell method was used. Students showed their final project to the class. Then, teacher allowed time for the students to ask and answer questions as well as giving feedback. According to revised Bloom's taxonomy, while evaluating, students are able to appraise, argue, defend, judge, support and value. Feedback can help students to improve their work for future references as well as improving their critical thinking skill.

#### B. *Project-Based Learning vs Traditional Learning*

All three respondents concurred that they prefer PBL methods compared to the traditional language learning. It is found that the intermediate student, Respondent A, prefers PBL because of the exchanging of ideas the method provides. She also claimed that sharing of ideas in PBL increases confidence.

Similar to Respondent A, Respondent C prefers PBL because it provides them with the opportunity to cooperate and communicate with peers. Meanwhile, Respondent B chooses PBL because she can express her own ideas while doing the projects. The word 'creativity' was also mentioned as one of the benefits of learning English through projects.

One of the teacher views PBL as an interesting method of teaching language in her classroom. It is clearly identified that Teacher B prefers to teach language through projects because she can divert from the conventional lesson. In her opinion, learning language does not necessary limited to textbook. It is interesting to note that all the respondents find it monotonous to teach and learn English using exercise books. The factor may have influenced their preferences towards PBL.

### ***C. The Advantage of Project-Based Learning Process to Promote Critical Thinking***

Respondent A mentioned that the process of PBL helps her do the work better by following the plan. Similar to Respondent B, the responses students get from their peers during evaluation stage may help them improve their work in the next project. Meanwhile Respondent C agreed that the process allow her to discuss in depth with peers. Thus, it proves that PBL promotes critical thinking because students are encourage to give and receive feedback during the lesson.

In the second part of the interview, the researcher questioned the teachers about ‘*what is the evidence of the effectiveness of PBL in developing students’ critical thinking skills and how do they assess?*’ Teacher A mentioned that students develop critical thinking skill when they successfully applied the knowledge they acquire during formal class into their projects. The students’ ability to complete the task by applying the thinking process can also be assessed through the amount of information they included in the end-product, through writing or speaking. It is the evidence that the students have thought critically during the planning and creating stages.

Teacher B explained how the students use their critical thinking in their lesson by integrating it to the real-life situation. Instead of explaining their project on paper, they created a mini stage to represent their information. They see themselves standing on stage to present so they created a mini stage full with the information. It is the evidence of the authenticity of the task and effective critical thinking process.

### ***D. The Advantage of Project-Based Learning Process to Promote Creative Thinking***

Based on the interviews, all three respondents agreed that PBL encourages them to be creative. They can use their creativity as the teacher does not restrict them by setting any requirement. They should be given the authority to plan, analyse and create their own projects. Teacher only presents as the facilitator and should not interfere in the process.

Teacher A pointed out that the more efforts students put in the project indicates that they have practised creative thinking. Students also have to ensure their project is ‘presentable’ and understood by the public. This shows that they require creative thinking skill in order to deliver the best practice. Students do not have to apply only what a teacher teaches but they have more space and freedom to be creative. Meanwhile, Teacher B responded that she assigned a presentation board project to the students. However, the students autonomously did further research from youtube to look for a more interesting method of presentation. This response is one of the evidence that when given a project-based task, students are obligated to think creatively to ensure their project is outstanding compared to other.

## **IV. CONCLUSION AND RECOMMENDATION**

As mentioned earlier, PBL promotes 21st century learning based on the elements of communication, collaboration, critical thinking and creativity as well as moral values and ethics. PBL emulates the real-world experiences where students learn to plan and keep track of the progress of their projects. Although there are negative views on PBL such as concerned when the group members do not contribute to the project, the effective completion of the project includes critical and analytical thinking as well as creativity. PBL in English language learning serves significant function in enhancing critical and creative thinking thus it should be practised in the classroom. Owing to that fact, it is notable to focus on this practice in order to assist language teachers to gain a better understanding on the advantages and disadvantages to practise PBL in their English language classroom.

The result of the observations indicates that the step-by-step (*Think, Plan, Create and Evaluate*) PBL serves as an unconscious catalyst to enhance students’ higher order thinking skills in English language classroom. Further analysis on the interview data reveals that most of the students and teachers prefer to learn and teach language through projects as it is more engaging compared to traditional language classroom. The tasks also provide opportunity to students to work creatively and autonomously while teachers act as facilitator. The results also meet the aims of the SBELC which enable pupils to make calculated decisions through critical and analytical thinking, and collaborate with others to solve problems creatively and innovatively in the real world.

In short, the findings of this study testify that the practice of project-based learning in the ESL classroom enhance students' critical and creative thinking. Both teachers and students positively view PBL as an effective method of teaching and learning.

The following are some recommendations for further research:

1. The research should include more student and teacher participants and is expanded to more schools in order to gain more insight. A larger data obtain an extensive knowledge of the advantages and disadvantages of PBL method in enhancing critical and creative thinking in ESL classroom.
2. Future researcher can expand the data collection by observing different projects from different classes. Besides, for more comprehensive and detailed study, further research should also compare and contrast the effect of PBL in the different levels of proficiency.
3. Further research can include students' academic progress. Researcher can compare and contrast the students' English language development before and after carrying out PBL. Thus, pre and post test can be done to elicit any improvement in students' critical and creative thinking skills.

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