

Coalescing Project-based Learning in Problem-solution Environment: Turning Writing Modes to Speaking Activities

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Abstract

Teaching language skills in seclusion has been proven to be impossible. This project aims to introduce a project-based learning approach turning writing modes to speaking activity in ESL classrooms. Three main theories were chosen as the theoretical framework of this project, which are; project-based learning, practical-inquiry model and Bloom's taxonomy. It is a 3-week project conducted with 22 students from the Faculty of Music. In the first week, basic writing skills were introduced to learners. Then, a problem-solution essay task was given where the learners would then prepare a reporting video of an authentic problem in their surroundings by using the problem-solution essay format. The showcase of the video was scheduled for the third week. A set of questionnaires was used as the instrument to obtain their perception of their writing and speaking abilities upon completing the project. The findings suggest that the project supports learners' autonomy, collaborative learning, writing skills as well as speaking skills. Through the implementation of the project, it can be seen that writing, speaking and higher-order thinking skills were practised and developed in completing the tasks. The implication of the approach has provided learners to be autonomous in gaining knowledge. The learners have become more independent as they are responsible for their own learning experience. Thus, this approach could be used by language instructors to improve their students' writing and speaking skills in ESL classrooms since it can provide an environment that allows students to utilise their ability in writing, speaking and higher-order thinking.

Keywords: *project-based learning, writing skills, speaking skills, higher order thinking skills*

Introduction

Speaking and writing are considered to be one of the most critical skills that should be mastered by students when they graduate from universities. Being communicatively competent gives the graduates the edge in getting a job after graduating. This can be seen in a report by Shaari (2022), in *The Star*, some interview candidates were reprimanded as they were unable to communicate their thoughts well during an interview. Undeniably, these skills serve the purpose of production skills where the goal is for the students to be able to convey the message albeit they are both different forms of communication. As mentioned by Hidayati and Ariani (2017) these skills are usually assessed via the meaning-focused output where the attention is given to the process of conveying information to another person.

In this study, students were exposed to problem-based learning where they would need to work around the issues that they face every day and find the solutions. They were given different tasks varying from basic writing to video showcase that needed to be completed within three weeks. The breakdown of the tasks fit to project-based learning (PBL) components as depicted by Boss and Krauss (2007) in Giao and Nguyen (2021). The researchers suggested a number of considerations in PBL activities among students such as students should embark on self-directed projects aligned with their interests and abilities. Subsequently, they should gather, analyse data, and present their discoveries, utilising a variety of sources and skills. Moreover, the interdisciplinary nature of the project should extend over a significant timeframe, involving the development of a tangible product, presentation, or performance. The instructional approach should be guided by comprehensive educational goals within a broader subject framework.

Social constructivists stated that the process of learning is affected by other people and is mediated by community and culture (Amineh & Asl, 2015). Project-based learning (PBL) is one such example of social constructivism pedagogy as this approach integrates the essence of learning through the exposure of communication among peers. Social constructivism in pedagogy amplifies the need for the teachers to consider the students' knowledge in order to put that knowledge into practice (Mvududu & Thiel-Burgess, 2012). There are two important notions that encompasses social constructivism. Firstly, learners construct new understanding of certain information using their current knowledge. The second notion is that learning is an active process whereby learners negotiate the meaning of what they experience in a new learning situation from a current intellectual level to a higher level. This movement occurs in the zone of proximal development (ZPD), where "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance, or in collaboration with more capable peers" (Vygotsky, 1978, p. 86).

The implementation of PBL in teaching and learning for higher education can be seen to have positive reviews from both lecturers and students' tertiary level of education (Guo et. al, 2021), this study has adopted the PBL method in incorporating speaking tasks in teaching writing skills. Previous research has been inclined towards assessing the influence of individual language skills on the overall teaching and learning process while neglecting the interconnectedness among these skills (Akki & Larouz, 2021). As developing writing skills are considered as a complex process and oftentimes students are found to have lack of motivation in learning writing skills (Dang, 2019), this study will focus on the effectiveness of using speaking skills as positive reinforcement for the teaching of writing skills through the implementation of PBL in classroom.

In line with the use of PBL in teaching and learning of writing skills using speaking activities as parts of the learning process, this study was conducted to examine the students' perception of using speaking activities for writing topics. This study was also conducted to investigate the use of higher and lower order

thinking skills employed by the students in conducting the speaking projects. As PBL is viewed positively as a teaching methodology in teaching and learning when it comes to development of higher order thinking skills, this study employed this teaching method to assess the employment of higher order thinking skills in students while producing a video as part of the project.

Literature Review

Project-Based Learning

Project-based learning is an approach whereby projects will be developed and later presented by students in class (Levine & Mosier, 2014). Students will have to participate in discussions, negotiate meaning and exchange ideas. During the implementation of project-based learning in the classroom, learners are engaged in purposeful communication among peers to complete the project work. Hence, they have the opportunity to use the language in a natural setting and participate in meaningful activities which require authentic language use (Fragoulis, 2009). Besides, in implementing PBL in class settings, students are also given autonomy in their learning environment allowing them to develop their higher-order thinking skills.

The above aspects were considered in the present study where students can design their project according to their interests and ability. In completing the tasks given by the lecturer, they would have to collect, analyse and report the information that they have found in a form of writing and video recording. In getting the solution to the issues that they raised up, they would need to do their own research through reading and also, interviews. Even from the beginning of the project, students would need to leverage their knowledge and skills as the project requires them to read, write, speak and listen critically for the best outcomes. This shows how this project covered all aspects of language skills, specifically writing and speaking. Upon completion, the students showcased the video that they have prepared from scratch to the audience. The showcase proves the achievement of the students within the 3-week activity, which the effort was mostly from the students themselves. It is student-centred and far beyond a traditional chalk and talk classroom.

In general, Almulla (2020) viewed PBL as a means to offer students the opportunity to work on a project that revolves around discussing a pertinent issue, looking for solutions and developing a product. It is also highlighted in the study that the implementation of PBL was observed to be different among teachers despite featuring a similar approach to the activity. Therefore, it is clear that through the implementation of PBL in teaching and learning, it could be used to investigate the development of higher order thinking skills among the students while developing a product in answering a problem posed by the teachers.

Writing Skills

Writing abilities necessitate English language learners to utilise their language proficiency (I Made & Sebastianus, 2020). They highlighted a range of students' writing abilities such as to formulate suitable central

themes, provide supporting details, incorporate expert concepts, make effective word choices, select relevant topics, employ proper punctuation, establish seamless sentence transitions, and utilise fitting sources for referencing. These ideal writing outcomes parallel to the present study as the students were given the authority to decide the issues for them to work on, and later produce a full write up concerning the issue. The activity is compatible to the undergraduates' level as mentioned in Ningtyas and Lilis (2021) that university-level students need to acquire proficiency in effective writing to fulfil their educational objective of learning how to write proficiently as students. The researchers acknowledge that writing skills is the most challenging skill for students, yet they believe that problem-based learning can alleviate this issue.

Speaking Skills

Project-based learning could develop and enhance language skills, such as speaking, reading, writing and listening. Speaking skill is a crucial language skill to prepare learners to function in the working world. Several studies have been conducted to investigate the development of speaking skills through project-based learning. In the study conducted by Simbolon et al. (2019), they reached the conclusion that when it comes to challenges in teaching and learning of speaking skills in the classroom, whether they arise from students or the environment, the responsibility for addressing and resolving these issues lies primarily with the teachers. They believe that it is the teachers' role to select an appropriate and effective method tailored to the specific problem at hand. Hence, they recommended for teachers to adopt Project Based- Learning (PBL) as a viable and valuable approach to address speaking skills challenges. This method is seen as instrumental in attaining the desired outcome of effective language learning, particularly in developing proficient speaking abilities.

Sutrisna and Artini (2020) in their study that focused on the impact of problem-based learning on students' speaking skills concurred that teachers bear a significant responsibility in guiding and engaging students throughout the learning journey, thus ensuring the effective attainment of educational objectives. Their research revealed that the implementation of Problem-Based Learning (PBL) had an impact on students' proficiency in English speaking. The introduction of problems prompted lively discussions and interactions among students, facilitating the identification and resolution of the given challenges. These interactions also served as an indirect means of honing and enhancing their oral communication abilities, thereby fostering the development of effective speaking skills.

Higher Order Thinking Skills

Based on the outcomes of the research conducted by Tama et. al (2020), students engaged in higher-order thinking skills through problem-based learning. This can be demonstrated through students' involvement in collaborative discussions for strategising solutions, attentive consideration on problem instances, and appli-

cation of problem-solving strategies while addressing exercises on their worksheets. The research conducted by Hari Sugiharto Setyaedhi (2019) corroborates the discovery as he found that the problem-based learning model significantly enhances university students' higher-order thinking skills. This is evident through the enhanced performance of students upon their subsequent involvement in problem-based learning activities.

To solve the problems posed during PBL, the students will analyse and evaluate the possible solutions, formulate inferences, calculate likelihoods and make their decisions. This shows a process of higher-order thinking skills that are highlighted through critical thinking. Miri et al. (2007) note that higher-order thinking skills encompasses many other thinking skills such as critical, creative and problem-solving skills. Ersoy and Baser (2014) conducted a study to examine the effect of project-based learning on higher-order thinking skills. The study consisted of 73 first grade students from the Department of Statistics. The participants were given the Torrance Creative Thinking Test Oral A-B in order to look at their creativity, one of the levels in higher-order thinking skills. The research concluded that students with higher-order thinking skills approached events in multi-dimensional ways and were able to adapt to the changing situations. Consequently, the effectiveness of the problem-based learning model in elevating higher-order thinking skills among university students is firmly established.

Methodology

Research Design

This quantitative study was designed and conducted in one of the public universities in Malaysia over the duration of three weeks of the project-based learning for a unit of syllabus on Problem-Solution Expository Essay. Quantitative methods were also used in the study as the frequencies of each sub-categories were recorded. This follows as quantitative studies deal with numbers and countable results (Mishra & Alok, 2017). The data collection involved surveys after the project-based learning period. Additionally, the study examined students' feedback on their learning experiences, which provided insights into the effectiveness of project-based learning in enhancing their skills and engagement. Quantitative research methodologies focus on collecting and analysing numerical data to describe characteristics, find correlations, or test hypotheses. In this study, the methodology involved using surveys to gather data after the project-based learning period. Quantitative methods, such as this, provide a systematic and objective way to evaluate educational interventions, ensuring that the results are reliable and replicable (Khan et al. 2023).

Participants

There were 22 students in total from a class which was from the Faculty of Music. The participants were taking the same subjects, ELC231 (Integrated Language Skills III), which focuses more on reading and writ-

ing skills. The learners' language proficiency varied as the class composed of heterogeneous participants consisted of 12 males and 10 females. There was also one blind participant in the class.

Instrument

A questionnaire was adapted and distributed to the students at the end of the project. The questionnaire is administered to get the general perception of project-based learning among students. It was administered at the end of the project to get the general perception of the Project-based learning after the participants had undergone the treatment. The questionnaire was adapted from Faridah et. al (2011) on learner's perception of project-based learning in general and Yang and Puakpong (2016) regarding the learner's perceived speaking abilities after the project-based learning treatment. The questionnaire consisted of four parts. The total number of questions in the questionnaire was 40. The six-point Likert scale is employed as Chomeya (2010) found that six-point Likert scale gave higher reliability than five-point Likert scale. In order to achieve reliability, the six-point Likert scale was used in the questionnaire. A pilot study was conducted and the reliability index of all the items was more than .70 and Cronbach's Alpha of all the items combined is .904. Since the value is between .70 and .95, the questionnaire is considered as reliable and can be used to measure the perception of the participants regarding the project-based learning implementation.

Findings and Discussion

The findings show that students' speaking ability improved through the project-based learning approach. The data from the questionnaire on the participants' perception of the implementation of the approach showed a positive attitude on the implementation of PBL in ESL classrooms. Project-based learning develops higher-order thinking skills and boosts participants' confidence through communication. Through the project, the participants were more confident in their speaking ability.

From the video showcase, it is observed that lower-order thinking skills were applied and higher-order thinking skills were enhanced during the implementation of project-based learning. During the planning and developing stages, the participants have shown the application of lower-order thinking skills of remembering, understanding and application. Through problem-solving, the participants' higher-order thinking skills were developed. Their analysing, evaluating and creating skills were enhanced along with critical thinking and creative thinking skills. These skills were enhanced during the creating and revising stages of the project. The participants were able to solve the problems faced through communication that could be manifested via group cohesion.

Moreover, the results indicate a favourable attitude among learners towards project-based learning (PBL) and its positive influence on their speaking and writing proficiencies. Participants expressed genuine

enjoyment throughout the entire process and demonstrated a clear awareness of the advantages gained from engaging in PBL activities. Notably, learners reported significant enhancements in their speaking skills in the English language, particularly in terms of fluency, pronunciation accuracy, grammatical correctness, word choice, and sentence structure. They also observed improvements in their writing abilities, citing the capability to compose problem-solution essays and advancements in grammar usage, vocabulary selection, sentence complexity, and overall confidence when writing in English. This comprehensive improvement across both speaking and writing domains underscores the effectiveness of PBL in fostering language development and empowering learners to communicate effectively in English.

According to the result of the questionnaire, the learners were more willing to speak English after the project-based learning treatment. When they were willing to speak, the participants felt that they wanted and needed more opportunities to practise the language. The participants' speaking ability, based on the questionnaire, had improved in terms of fluency, vocabulary, pronunciation and grammar. The beneficial impact of project-based learning on participants' speaking proficiency aligns with findings from Yang and Puakpong's (2016) study. Their research demonstrated that the adoption of project-based learning resulted in enhanced speaking skills among participants, particularly through collaborative group work. Through this collaborative approach within project-based learning environments, participants were able to actively engage with peers, exchange ideas, and collectively develop their speaking proficiency. This emphasis on teamwork and communication not only facilitated individual growth but also fostered a supportive and interactive learning atmosphere conducive to enhancing overall speaking skills.

It has also been shown that through the incorporation of both speaking and writing skills in teaching writing skills, the respondents agreed that they want to be given more opportunities in showcasing their skills and more time in learning and developing their speaking and writing skills. This shows that through the coalescence of the skills, students are more motivated to learn the skills as opposed to when it is taught separately. These responses show that students are more engaged when speaking tasks are embedded in their lessons on writing modes. A study by Hidayati and Ariani (2017) affirmed that by integrating different writing modes, such as narrative, descriptive, expository, and persuasive, into speaking tasks and adapting activities accordingly, students are provided with a multifaceted approach to language learning. This integration not only encourages students to express themselves orally but also deepens their comprehension and application of language elements. Through engaging in tasks that require them to transition between writing and speaking, students develop a holistic understanding of language items, including vocabulary, grammar structures, and discourse patterns.

In summary, the findings from this study entail that project-based learning is an approach that would support learners' autonomy, collaborative learning and communication skills. Through the implementation

of the approach, speaking skills and higher-order thinking skills could be developed through problem-solving and project creation.

Recommendation and Conclusion

The nature of the project is considerably flexible. Hence, it can be conducted via any mode - online or physical. Perhaps, future researchers can replicate the study in different modes using any suitable online platform with their students. In relation to the flexibility of the study mode, the study can be utilised as one of the modules in exchange students programme, intensive English programme as well as language off-shore programme.

In conclusion, the project supports learners' autonomy, collaborative learning, writing skills as well as speaking skills. Through the implementation of the project, it can be seen that writing and speaking skills were practised and developed in completing the tasks. The implication of the approach has provided learners to be autonomous in gaining knowledge. The learners have become more independent as they are responsible for their own learning experience. Thus, this approach could be used by language instructors to improve their students' writing and speaking skills in ESL classrooms since it can provide an environment that allows students to utilise their ability in writing and speaking skills.

Author contributions

Conceptualisation, data collection and analysis; N. L. S. R. , H. H., W. N. M. S., A. M. A.; article draft preparation, writing, review and editing, H. H., W. N. M. S.. All authors have read and agreed to the published version of the manuscript.

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Data availability statement

The data that supports the findings of this study are available on public domain.

Conflicts of interest

The authors declare that they have no conflict of interest.

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