

English Language Problem-based Learning via user-generated 3D world Roblox Module: Need Analysis

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Abstract. This study aimed to explore the need of a user generated 3D world (Roblox) online game module in English Language Problem-based Learning for Malaysian university students. The researchers used observations, interview, and questionnaire distribution that were implemented to 60 university students studying English Language at Universiti Malaysia Kelantan, Malaysia as well as 4 English Language teachers in the university. The results indicated that the students agreed that learning English language by using Roblox online games was interactive, challenging, exciting and fun. The students also recommended that the activities in the English Language Roblox Module should be easily done and accessed in all platforms including mobile phone, table and computer. Teachers also pointed out that the narrative elements that involve critical thinking skills were needed in the module to help them fostering the students to imply their problem-solving skills related to real-life issues in the learning process. The implications of this study will be significant for the English Language Roblox module developer as the technique for promoting problem solving skills in English Language Learning and to enhance students' awareness on real-life issues.

Keywords: Roblox, class technology, student learning, SLA, e-learning

1. Introduction

Teaching is not a simple task if the teachers have not acquired enough educational and psychological experience until they jumped into the teaching careers. To accomplish the teaching and learning target, educators need to weigh several factors to make the lessons effective. In a special issue of Contemporary Education Psychology, 20 years ago, researchers studied intrinsic and extrinsic motivation concepts and studies (Ryan & Deci, 2020), which at the time was still an emerging area of research.

With respect to learning strategies, students need optimal encouragement to succeed in their learning process. Motivation plays a significant role in learning and therefore its influence is often emphasized in different educational fields. Most of the latest education literature pays attention to learning encouragement and instructional techniques for the students. Educators need to learn how to approach the best way for students to understand the lesson. As being suggested by researchers, highly imaginative learners use unconventional approaches to solve problems, bravely take risks on others, challenge the public and speak up for their convictions, and are able to resolve barriers and difficulties that stymie others (Kaufman & Sternberg, 2006, 2010; Sternberg, 1999; Sternberg & Grigorenko, 2007; Sternberg & Lubart, 1995, 1999).

Teachers need good teaching preparation, constructive input and enough encouragement to make the class enjoyable and foster a creative-thinking orientation in the lesson. Wu & wu (2020) discovered that variations in cognitive principles, personal motivation, and personality characteristics between high and low creativity learners, can serve as inspiration for teachers preparing teaching, input, which is the stimulus for creative-thinking-oriented learning courses. This implied that fostering a creative-thinking orientation in classroom impact the students' performance and creativity.

Problem-based Learning(PBL) is a pedagogical technique commonly used in various educational settings to improve the problem-solving skills of the students. Built up from the social constructivism theory of Vygotsky, PBL is a student-oriented teaching approach (Vygotsky, 1978; Ali, 2019; Chiou, 2019; Hung, 2011). PBL is learner-centered, offering a

learning opportunity by presenting students with realistic issues, and motivating learners to apply information and skills in order to create a feasible solution to a particular problem (Engel, 2011). Studies in this area has received continues attention educational literature (Savery, 2006; Jiriyasin, 2014; Barrows, 2002; Poikela, 2005; Wang, 2016; Chen, 2013; Ding, 2016; Li, 2018; Zhang, 2015; Zhang, 2018; Zheng, 2011; Zhou, 2018).

Regarding the implementation of PBL in Malaysian education system, the Ministry of Education Malaysia has suggested several learning methods, based on the Malaysian Standard Curriculum Document and Assessment (DSKP), with PBL as one (Chai & Swanto, 2020). Many research on the efficacy of PBL have been performed, in particular in teaching English to ESL learners. The implementation of environmental and social education in PBL is however very limited (Chai & Swanto, 2020).

Implementation of problem-based learning (PBL) at Malaysian Higher Education Institutions (HEI) is not recent. It began more than two decades ago with the medical programs and other academic programs such as engineering, science, economics and others (Hashima & Samsudinb, 2020). One solution to maintaining the idea of problem-based learning is through games or other activity that solves problems. The online games that are nowadays in trend among kids and youngsters are Roblox online games. "Corp.Roblox.com"(2020) defines Roblox as a global network where millions of people gather everyday in interactive, user-generated 3D environments to imagine, develop, and share experiences with one another. Mastroberti (2020) carried out surveys suggested that games, especially digital games, are the most popular entertainment among researched kids and teenagers: about 80 per cent would prefer to play with smartphones or consoles rather than reading comics or books. Playing games as entertainment usually comes first even when compared to watching animation movies or live-action series, especially for boys (Mastroberti, 2020).

In University Malaysia Kelantan, before constructing an English Language Problem-based learning module using user generated 3D-world via Roblox, a need analysis is needed to be done in order to know the relevance of the module. A social education has been chosen as one of the themes for this module in order to relate the real life issues in the teaching and learning process. Therefore, since it is newly introduced in this area, the researchers believe it is a must to undertake a survey to explore the perceptions of the students regarding the need for them to have an additional English module to assist them in their learning. The results of the survey have been used to create the content of the module.

Based on the above objectives, the following research questions were aroused for this study:

1. What is the process of learning activities and the problem faced by students in English language writing classroom?
2. What is the process of teaching activities and the problem faced by teachers in implementing English language writing classroom?
3. If a special ROBLOX module is to be designed for students to learn Basic Narrative English language, what are the students' and teachers' rate regarding the suggested criteria and features for the designer to include in the module?

It is hoped that the findings of this study will assist the developer of the Roblox module in improving the module's quality and effectiveness as well as adding to the body of knowledge with respect to blended learning.

2. Literature Review

Motivation is increasingly becoming a main instrument for increasing the success of the students in learning English. Past studies have shown that the success of the students is directly linked to their level of motivation. Wong (2018) mentioned in his study that it is evident from the analysis done that the students were drawn to use computers and the Internet in the classroom setting as opposed to the traditional delivery system.

Kacar (2020) revealed that the learner-centered constructivist learning environment encouraged the building of knowledge. Students were actively involved in information sharing and recorded enjoying the exchange of feedback with other group members while expanding their information of the pedagogical material (Godwin-Jones, 2006; Petersen et al., 2008; Sun, 2010). This suggested that students who work in partnership and are granted flexibility in the

learning process have a greater propensity in their learning process to succeed. Teaching and learning strategies are very vital in order to boost the students' motivation to learn. Debate continues on the best approaches to improve the motivation of the learners. In 2011, Ming et al. presented that Malaysian teachers need to pay greater attention to students with lower skills to break the violent cycle. It includes offering a safe and stress-free atmosphere, as well as immersive and innovative English learning activities.

In a study, which aimed to determine factors influencing the achievement of students in English language learning, El-Omari (2016) found that pedagogues and linguists should pay more attention to improving the environment to increase student achievement in learning English. The public and private sectors are counted upon to work closely to keep track of

English-speaking students to succeed in the use of English by delivering English courses at universities with English learning facilities and coordinating events in which English is the main language. For schools the same should be achieved with more English connections and communications.

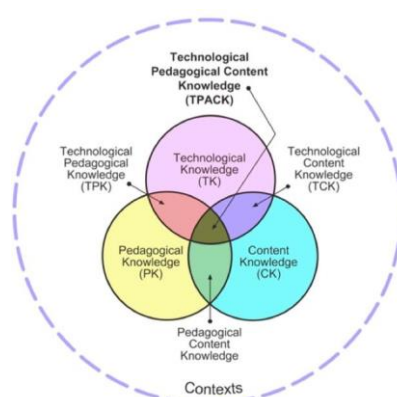


Fig 1: Technology, Pedagogy, and Content Knowledge (Koehler & Mishra, 2007)

Teachers are suggested to remember key three components when using technology in teaching and learning as proposed by Koehler et al. Al (2007) who stated that "TPACK is an emerging form of knowledge that goes beyond the three" core "components (content, pedagogy, and technology) see **Figure 1**. Knowledge of technological pedagogical content is an understanding which emerges from interactions between knowledge of content, pedagogy, and technology. Underlying genuinely relevant and deeply professional teaching through technology, TPACK varies individually from the experience of all three principles. It is the basis of effective teaching with technology, requiring an understanding of the representation of concepts using technologies; pedagogical techniques that use technologies in constructive ways to teach content; knowledge of what makes concepts difficult or easy to learn and how technology can help redress some of the problems that students face; knowledge of students' prior knowledge and theories of epistemology; and knowledge of how technologies can be used to build on existing knowledge to develop new epistemologies or strengthen old ones."(p.7) The present study applies this framework since it is focusing the English educators' pedagogical content; their technology, pedagogy, and content knowledge in implementing problem-based learning in classroom.

In summary, it is essential to enhance the variability of teaching approach that highlight the importance of the combination the educators' technological knowledge, content knowledge as well as the pedagogical knowledge. English Language Problem-based Learning via user-generated 3D world can be considered as one of those approaches that promote a meaningful learning for students.

3. Methodology

This study used descriptive qualitative method. The purpose of this study was to explore the students' and teachers' needs of the English-language Problem-based Learning module as the additional materials to assist them in teaching and learning process of the English Language subject. The subjects of this research were students of University Malaysia Kelantan the participants of the present study were 60 university students, all of them were learning English as a second language at Universiti Malaysia Kelantan. There were about 20% males and 80% females. Out of 60 students, 60% from the discipline of Business and the rest came from the discipline of Art, Architecture and

Science. A simple random sampling technique was used to select the participants. Besides interviews were conducted with four English Language teachers in the three campuses in Universiti Malaysia Kelantan. Data were collected through observation, interview, and questionnaire distribution. The data were analysed with the percentage calculation by the following formula:

$$P = \frac{n}{N} \times 100\% \quad (1)$$

Description:

P = Percentage score;

n = Numbered of scores obtained;

N = Maximum score

The questionnaires for the students consisted of 10 open-ended questions to find out why they had given a yes or no answer to each question. Experts have validated the questionnaire. An example of a student questionnaire illustrated in **Table 1**.

Table 1. Sample questions on the questionnaire

Question	Answer		Reason
Do you use books, teaching materials or modules as a learning resource for you to get better writing? Why?	Yes	No	

The interview guideline of the students then addressed 4 open-ended questions (1 question about instructor method in the learning process, 1 question about learning materials, 1 question about students' challenge in understanding the content, and 1 question about the needs of the students). The purpose of the interview was to find out more about the learning process and the challenges encountered during the learning process. The interview requirements for teachers included 20 open-ended questions about teaching-learning methods, instructional tools, teachers' needs and learning outcomes.

4. Result and Discussions

Information about the learning process carried out at three campuses in University Malaysia Kelantan was collected based on observations. The instructor used the form of debate, conversation, and questioning and response during observation. The learning practices, however, are dominantly oriented at the teacher. Students' writing practices at the University Malaysia Kelantan concentrate on achieving the essay's finished version and the essay format, while process dimensions involving critical thinking capacity are not apparently equipped. Therefore, the practices of students that reflect critical thinking skills such as formulating problems, making hypotheses, evaluating, and concluding are not yet noticeable.

The questionnaire given to students was used to see students' needs for the English language Problem-based Roblox module. The questionnaire contained 10 items about learning material and students' needs for the module. In learning activities, students use online notes provided by instructors as a source of learning the writing skills (90%). Besides the textbook provided to learn grammar in writing, 76.7% of students use supporting books such as online worksheets and notes from English Language websites suggested by the instructors. From the description of the material in textbooks, worksheets and online reference notes, aspects of the content have been fulfilled, but 60.2% of students stated that there are limitations to the learning resources they use when it comes to helping them to have ideas and contents when writing essays. 70.3% of students stated that they had difficulty expanding ideas and writing longer composition using existing textbooks and online notes because the description of materials was less contextual, that do not really help them to come out with writing in critical manner leading to better writing and activating their prior knowledge that can lead to mature narrative writing. Students prefer to learn to use learning material that can guide gradually to understand the essay topic and find the solutions to the problem highlighted in the instructional material (92%). This is considered as one of the ways to train them to think critically. 77% of students state that English modules that are appropriate to the stages of stimulation, problem identification, data collection, data analysis, verification, and conclusions can practice critical thinking in writing. They can express their experience in the writing activities. Then, 80% of students stated that the development of a user-generated 3D module based on real-life problem is needed because the problem-based learning could guide them to understand the concepts of solving problem thus further reflect their opinions maturely in writing.

On the lenses of the teachers, they pointed out, in the teaching and learning activities conducted in English Language writing classroom, students cannot reflect their critical thinking skills through the writing practices in class (75.6%), and according to teachers, the ideal teaching material is a teaching material that can guide gradually in understanding the issues or the writing topic, make the students feel like they are really in the situation of the topic, and doing their best to solve the problems. Otherwise, the students had the tendency to only copy the writing contents from the other sources and the ideas in the writing were not originally come from them. They might alter a few words so that it will not be considered as plagiarism. The learning material that has been used has not guided them to think critically (86.79%). Through the observation, when teacher discussed in class on expanding the main points and supporting details of the writing essay, students seemed to

be passive and couldn't really participate actively in giving their opinion critically. It is observed that some students take the effort to search in the internet to know from the other sources regarding the topic discussed.

The data collected from filling out the questionnaire was strengthened by several interviews with students. 20 students were randomly selected to be interviewed. Based on the results of the interview, 80% of students have difficulty to write long essay without searching the ideas in the other sources because in learning activities are only listening, taking notes, and doing the practice questions as well as the format. Students are not guided to develop their own thinking on the issues raised in the essay questions through learning activities.

On the topic of braving homelessness, average students have difficulty to reflect thoroughly on the issues because they are not living in such conditions and they never involved in any information searching on the issue. Majority of the students assume that living in homelessness is suffering and demotivating especially for children and teenagers. Based on interviews with four English Language teachers, the teacher stated that the majority of learning activities took place using lecture, question and answer methods and did not use specific learning models. This is caused by the target material that has to be conveyed quite a lot over a certain period. With a variety of considerations, teachers are more likely to explain the main ideas to students so that all materials are conveyed, not inviting students to be involved in discovering the concept of thinking independently. Thus, the process of learning activities undertaken does not support the ability to think critically. Whereas the aspect of writing practice is only limited to literacy in writing, understanding the question and format, and the other mechanism of writing. The technique of problem solving and thinking critically are not emphasised in the classroom.

Pertaining to the suggested criteria of the module, the results indicated that the students agreed that learning English language by using Roblox online games was interactive, challenging, exciting and fun. The students also recommended that the activities in the English Language Roblox Module should be easily done and accessed in all platforms including mobile phone, table and computer. Teachers also pointed out that the narrative elements that involve critical thinking skills were needed in the module to help them fostering the students to imply their problem solving skills related to real-life issues in the learning process. 94% agree on the content of the modules if it involves the process of exploration on the real-life issues, presentation, narrative elements that require students to imagine themselves be in the situations given, characters and storyline development based on the information that students get from the exploration stage, and lastly students have to create the artificial world through user-generated 3D world.

5. Suggestion

Teachers should innovate in learning activities to train critical thinking and the ability to write. Such breakthrough can be accomplished by the implementation of a problem-based model of learning. In implementing the problem-based learning model, learning activities are hoped to concentrate on students, so that the teacher has a position to guide and become a facilitator in learning, not dominating, activities. One of the reasons teachers did not incorporate the problem-based learning model in learning activities is that they do not yet have modules that are appropriate for the learning model. Many teachers do their handouts but are not specific to certain models of learning. The implementation of problem-based learning models in the classroom will be optimal if there are modules that fit the problem-based learning steps. All teachers stated that they need learning material based on PBL model, so that it could support students' critical thinking and writing literacy ability. From the lenses of students, they are really open for technology-based learning such as a user-generated 3D learning, as they suggested that it would be fun and exciting.

References

- [1] Azman, N.; Shin, L.K. Problem-Based Learning in English for a Second Language Classroom: Students' Perspectives. *Int. J. Educ. Learn* 2012, 18, 109–126.
- [2] Ali, S.S. Problem Based Learning: A Student-Centered Approach. *ELT* 2019, 12, 73–78.
- [3] Barrows, H.S.; Tamblyn, R.M. *Problem-Based Learning: An Approach to Medical Education*; Springer: New York, NY, USA, 1980.
- [4] Barrows, H.S. An Overview of Authentic Problem-Based Learning (APBL). In *Authentic Problem-Based Learning: Rewriting Business Education*; Wee, K.N.L., Kek, Y.C.M., Eds.; Prentice Hall Asia Pte. Ltd.:

- Jurong, Singapore, 2002.
- [5] Chai, Z. F., & Swanto, S. B. (2020). The Effects of Environmental Problem-based Learning Method on Malaysian Primary ESL Learners' Vocabulary Achievement. *Indonesian TESOL Journal*, 2(1), 59-70.
- [6] Chen, X. An Empirical Study of the Influence of PBL Teaching Mode on Critical Thinking Ability of Non-English Majors. *J. PLA Univ. Foreign Lang.* 2013, 36, 68–72.
- [7] Chiou, B. The Application of Problem-Based Learning Approach in English Grammar Instruction: A Pilot Study. *JLTR* 2019, 10, 446–453.
- [8] Ding, X.W. The Effect of WeChat-Assisted Problem-Based Learning on the Critical Thinking Disposition of EFL Learners. *Int. J. Emerg.* 2016, 11, 23–29
- [9] El-Omari, A.H. (2016) Factors Affecting Students' Achievement in English Language Learning. *Journal of Educational and Social Research*, 6 (2), 9-18.
- [10] Engel, C.E. Not Just a Method But a Way of Learning. In *The Challenge of Problem-Based Learning*, 1st ed.; Boud, D., Feletti, G.E., Eds.; Kogan Page Limited: London, UK, 1997; pp. 17–27.
- [11] Godwin-Jones, R. (2006). Tag clouds in the blogosphere: Electronic literacy and social networking. *Language Learning and Technology*, 10(2), 8–15.
- [12] Hashima, I., & Samsudinb, S. (2020). Practices of Problem-Based Learning (PBL) In Teaching Islamic Studies in Malaysian Public Universities. *International Journal of Innovation, Creativity and Change*, 11(10), 117-129.
- [13] Hung, W. Theory to Reality: A Few Issues in Implementing Problem-Based Learning. *Educ. Technol. Res. Dev.* 2011, 59, 529–552.
- [14] Jiriyasin, T. Enlivening EFL Discussion Classrooms with a Problem-Based Learning Approach. *J. Lang. Teach. Learn. Thailand* 2014, 47, 129–146.
- [15] Kaufman, J. C., & Sternberg, R. J. (Eds.). (2006). *The international handbook of creativity*. Cambridge, NY: Cambridge University Press.
- [16] Li, X.; Zhang, M. An Empirical Study of PBL Teaching Mode for English Majors. *J. Qingyuan Polytech.* 2018, 11, 66–70.
- [17] Mastroberti, P. (2020). International Conferences Interfaces and Human Computer Interaction 2020; and Game and Entertainment Technologies, Developing A Digital Game With High-Ability/Gifted Students In A Low-Income Public School: A Brazilian Experience. 144-152
- [18] Ming, T.S., Ling, T.S., & Jaafar, N.M. (2011) Attitudes and Motivation of Malaysian Secondary Students towards learning English as a Second Language: A Case Study. *The Southeast Asian Journal of English Language Studies*, 17(1), 40 – 54.
- [19] Peters, E.E. Shifting to a Student-Centered Science Classroom: An Exploration of Teacher and Student Changes in Perceptions and Practices. *JSTE* 2010, 21, 329–349.
- [20] Petersen, S. A., Divitini, M., & Chabert, G. (2008). Identity, sense of community and connectedness in a community of mobile language learners. *ReCALL*, 20(03), 361–379.
- [21] Poikela, E.; Poikela, S. *PBL in Context-Bridging Work and Education*; Tampere University Press: Tampere, Finland, 2005.
- [22] Ryan, R. M., & Deci, E. L. (2020). Intrinsic and extrinsic motivation from a self-determination theory perspective: Definitions, theory, practices, and future directions. *Contemporary Educational Psychology*, 101860. doi:10.1016/j.cedpsych.2020.101860
- [23] Savery, J.R. Overview of Problem-Based Learning: Definitions and Distinctions. *IJPBL* 2006, 1, 9–20.
- [24] Sternberg, R. J. (1999). A propulsion model of types of creative contributions. *Review of General Psychology*, 3, 83–100.
- [25] Sternberg, R. J., & Grigorenko, E. L. (2007). *Teaching for successful intelligence: To increase student learning and achievement* (2nd ed.). Thousand Oaks, CA, US: Corwin Press.
- [26] Sternberg, R. J., & Lubart, T. I. (1995). *Defying the crowd: Cultivating creativity in a culture of conformity*. Free press.
- [27] Sternberg, R. J., & Lubart, T. I. (1999). The concept of creativity: Prospects and paradigms. In R. J. Sternberg (Ed.). *Handbook of creativity* (pp. 3–15). New York: Cambridge University Press.
- [28] Sun, Y. C. (2010). Developing reflective cyber communities in the blogosphere: A case study in Taiwan higher education. *Teaching in Higher Education*, 15(4), 369–381.
- [29] Vygotsky, L. *Mind in Society*; Harvard University Press: London, UK, 1978.
- [30] Wang, C. PBL Application of PBL in Teaching English Spoken Language. *Theo. Obse.* 2016, 8, 176–177.
- [31] Wong, D.K.P.; Lam, D.O.B. Problem-Based Learning in Social Work: A Study of Student Learning Outcomes. *Res. Soc. Work Pract.* 2007, 17, 55–65.
- [32] Wong, K.-T., Hwang, G.-J., Choo Goh, P. S., & Mohd Arrif, S. K. (2018). Effects of blended learning pedagogical practices on students' motivation and autonomy for the teaching of short stories in upper secondary English. *Interactive Learning Environments*, 1–14. doi:10.1080/10494820.2018.1542318

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- [33] Wu, T.-T., & Wu, Y.-T. (2020). Applying project-based learning and SCAMPER teaching strategies in engineering education to explore the influence of creativity on cognition, personal motivation, and personality traits. *Thinking Skills and Creativity*, 100631. doi:10.1016/j.tsc.2020.100631
- [34] Zhang, L. An Empirical Study on the Application of PBL Model in College English Teaching. *Coll. Engl.* 2015, 12, 4–9.
- [35] Zhang, J.; Lin, H. An Empirical Study on the Influence of PBL Teaching Model on the Critical Thinking Ability of Non-English Majors. *JLTR* 2018, 9, 1293–1300.
- [36] Zheng, G. Analysis of PBL Teaching Mode for Developing Students' Potential for Autonomous English Learning. *Educ. Sci.* 2011, 27, 40–43.
- [37] Zhou, Z. An Empirical Study on the Influence of PBL Teaching Model on College Students' Critical Thinking Ability. *ELT J.* 2018, 11, 15–20.