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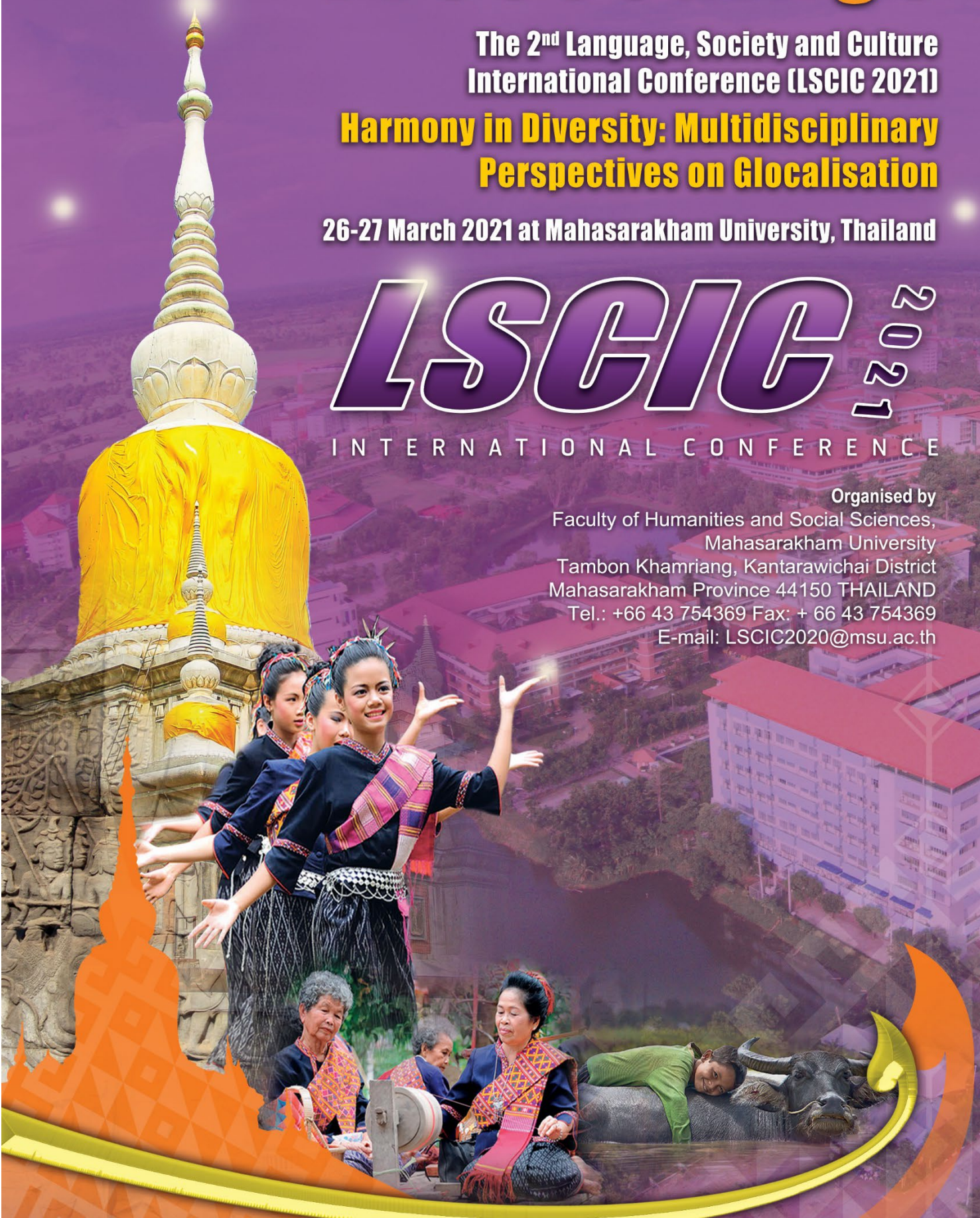

PROBLEM-BASED LANGUAGE LEARNING: THE DEVELOPMENT OF STUDENTS' LISTENING PROFICIENCY AND THEIR PERCEPTIONS

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Abstract

Developing students' listening skills is a prerequisite to the success of communication and employment. However, when listening skill has not always been a focus in the context of classroom teaching, listening comprehension remains problematic among students. This study examined the impact of Problem-Based Learning (PBL) on the development of students' TOEIC listening test and looked at their perceptions. This study involved 103 EFL Thai students at Aviation Personnel Development Institute (APDI), Kasem Bundit University. The data were collected from TOEIC listening test scores and a 5-point Likert questionnaire. The data results were analysed using the Statistical Package of the Social Sciences to find mean ($\bar{x}$) and standard deviation (S.D.). In addition, the study examines the difference between pre- and post- test scores using a paired sample t-test, which was run and analysed to indicate where significant difference is apparent. The findings showed a positive impact of PBL towards students' listening proficiency. Students also positively perceived PBL programme (m=39.4, SD= 0.91). The findings provide some practical guidelines for PBL implementation in tackling listening comprehension issues.

Keywords: Problem-based Learning, TOEIC listening test, Students' perceptions

1. Introduction

Thailand has been using a standardized English test for the entrance exam (known as GAT-PAT) to test students' language capability on vocabulary, reading and grammar. It leads to an impact on the English curriculum courses taught in many schools. Teachers put emphasis on the areas mentioned on the test paper over the communicative skills. Their top priority is to prepare their students to receive adequate scores in order to get into a higher education successfully. Once students enter into a college level, many face challenges trying to understand lectures that are given in English. Listening skill is often viewed as the most difficult language skill to learn among L2 learners (Hasan, 2000; Graham, 2003). One of the causes may derive from the fact that learners are not taught how to learn listening effectively (Vandergrift, 2007). Furthermore, teaching materials used for undergraduate students are considerable in (lower/upper) intermediate level in which little to no instructions given on how to tackle listening tasks and it is assumed that students would be able to acquire listening skill on their own. Consequently, students struggle to comprehend the listening input and this problem has never been solved despite how crucial English communicative skills are for students' future careers.

Test of English for International Communication (TOEIC) score is one of common job requirements for airline business in Thailand. Some airline organizations require a minimum TOEIC score starts from 550 out of 990 total score. Thai Airways, for instance, demands 600 while Bangkok Airways requests for a minimum of 650 for the position of flight attendant. Not only for the position of flight attendant, but other positions in airline industry also require or prefer candidates with TOEIC score. It is inevitable that higher

TOEIC score is a more conducive element for opportunities to work in airline business. Aviation Personnel Development Institute (APDI) of Kasem Bundit University, therefore, aims to encourage their students to meet the basic requirement of English proficiency to be able to apply for positions in airline industry.

According to ETS Worldwide report regarding TOEIC listening test score from 2017-2019, the report revealed that Thai test takers received the mean scores (out of 495) of 278,277, and 282 respectively. Thai learners have underperformed listening proficiency test comparing to other neighbouring countries, for instance, the Philippines (393,390,389), Malaysia (358,360, 343) and Burma (313 for 2019). These scores signified that "learners are not able to comprehend main ideas, objectives, and basic context of extended spoken when it is necessary to connect" (TOEIC listening score descriptor, 2008). Although listening skill is regarded as the first vital macro skill in Second Language Acquisition (Renukadevi, 2014), listening skill has not been an emphasis in the classroom and research on developing listening pedagogy still receives scant attention from researchers.

Communicative competence which are listening and speaking skills have always been the crucial requirements in Airline Business. This leads to different language teaching methods employed to English classes to enhance speaking and listening skills. However, the limitation of English class time and little attention paid to listening practice are considered as factors which are conducive to poor performance in TOEIC test. Problem-based language learning which consists of some characteristics is, therefore, chosen to tackle with the challenges in TOEIC listening test. Problem-Based Learning (PBL) has been widely used and studied in the field of medical education, engineering, chemistry, physics, and geography. However, language education, particularly in ESL or EFL context has just paid attention to PBL in the latest century. PBL in language studies have been conducted on, for instance, learner's metacognition and writing skill, speaking proficiency, reading comprehension, motivation as well as social interactions improvement while an empirical evidence of PBL effects towards learners' listening proficiency is sparse still (Ansarian & Teoh, 2018). Thus, a study to assess effect of PBL on listening proficiency should be accordingly conducted.

A variety of teaching methods have been used to teach other different language skills in classroom, but the receptive listening skill is commonly neglected. Listening is, perhaps, perceived as a skill which cannot be taught, and learners are supposed to acquire the language naturally. Thus, less-skilled students are usually left to deal with listening problems on their own (Renandya & Farrell, 2011). This study, therefore, intended to implement Problem-Based Learning (PBL) to investigate its effectiveness on improving English listening skill.

2. Review of literature

Problem-Based Language Learning

According to Woods, Hall, Eyles, and Hrymak (1996), the concise definition of PBL is quoted as 'problem drives the learning'. It shifts from lecture-based towards task-based method by giving a problem to students to solve collaboratively. The process requires students to be aware of what they already know, what necessary to be aware of, the learning objectives and the agreement with the group members. The knowledge is learned individually but shared collaboratively with the group. The knowledge acquired from learning is then used to find an answer to the problem proposed and reflected on it. Torp and Sage (2002) explained further that the problem presented are used to guide the learning through probing questions and challenging students' cognition. Students recognize, examine, and do the required actions to answer the problems.

Assessing the ill-structured problem proposed is the start of learning process. Students engage in this process and teachers assist them, usually through feedbacks when necessary (Hmelo-silver, 2004). Students, then come up with selected strategies to

find an answer to the problem. Each student proposes his/her own ideas individually and later they discuss in group to reach an agreement on applications to solve the problem. At the end of the process, students not only acquire the knowledge from all processes undertaken, but they also practice high-order thinking skills along the way. It is a vital long-term benefit for students (Ansarian and Teoh, 2018). To understand PBL process, it is necessary to be aware of PBL main features. Ansarian and Teoh (2018) reviewed and presented them as following.

(1) The main problem – it should be in the 'ill-structured' form. An ill-structured problem would engage students' cognition into the learning and solving the problem. A problem triggers inquiry and students are required to seek for resources or strategies to answer to the problem. Thus, the problem, according to Jonassen & Hung (2008 as cited in Ansarian and Teoh, 2018) should be open-ended, challenging with a certain level of complexity, contextualize, suitable for their schema and cognition. Problem is, indeed, 'a learning stimulus' in PBL.

(2) Self-direct learning (SDL) – it is considered as a main PBL feature. It encourages the growth of a person, and freedom (Savin-Baden & Major, 2004). Students are required to evaluate the problem, generate ideas, examine information and apply the knowledge obtained. These processes promote learner autonomy as it is vital in learning.

(3) Collaborative learning – group work allows students to have mutual engagement, discussions, negotiations, summarization and integration of information. These are all learning opportunities. Teachers should also be aware that they act more likely to be group members and teachers could assist students on learning strategies when it is necessary.

(4) Facilitation in Problem-Based Learning – students benefit from finding answers themselves to the challenges they face. Facilitation, thus, crucial in assisting them through their learning process. Facilitation leads to learning opportunities to solving the proposed problem. To do this, students have to rely on their own competence. The main facilitator in PBL is the teacher. Teacher could guide students on self-learning process, students, on the other hand, could also help each other through collaborative work.

(5) Reflection – it is viewed as a powerful PBL process. When students reflect their learning, they could identify mistakes and avoid repeating them. Reflection should be done when encounter different situations and processes.

(6) Integration – this process allows students to integrate the knowledge obtained from both interdisciplinary and intra-disciplinary.

(7) Self-Assessment – it improves independent cognitive thinking skills, autonomous learning and motivation. Students could identify their learning goals, gaps and later evaluate what they need to reach their learning goals.

As discussed, some main features of PBL enable some advantages as follows: students' motivation is risen, the real world and learning process is connected, the critical thinking skills are stimulated, the learning process is encouraged as well as evaluated the outcomes through their understanding, not from the replication (Norman & Schmidt, 1992; Torp & Sage, 2002; Uden & Beaumont, 2006 as cited in Azman & Shin 2012).

Problem-based language learning model suggested by Ansarian and Teoh, (2018) is presented as figure 1.

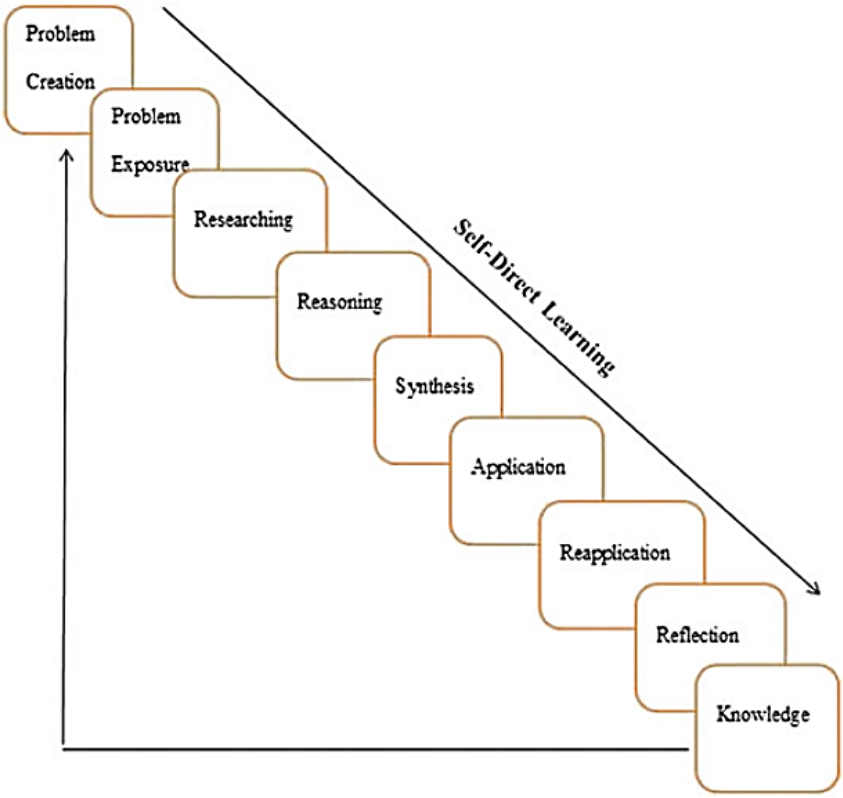

Figure 1: PBL in language model proposed by Ansarian and Teoh (2018)

As seen from the PBL model, real life problem which is a trigger of the whole process is crucial. Azman & Shin (2012) suggested that teachers or educators should consider the following factors when designing problem for students to work on. They should consider the lesson context, cultural focus, content, the connection of context, culture and content, level of research required for learners, reasoning, authenticity of the questions, first language and how it affect the problem interactions and roles of students play in PBL. Another point to note is the ill-structured form of problem. They asserted that the problem structure is not only limit at the formation of problem, but also how it is presented. The following figure illustrated how problem could be presented ranks from the low structuredness to high structuredness. Teachers could take this problem presentation methods in mind when selecting and presenting a problem to students.

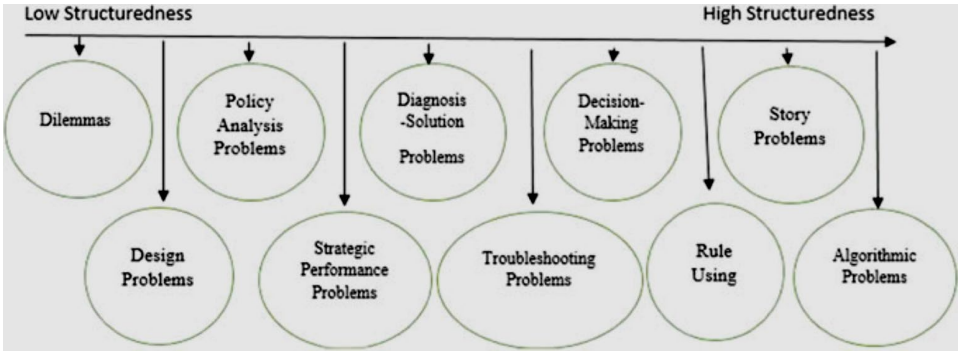

Figure 2: Problem presentation methods, Jonassen (2000)

The information and context provided should be suitable to learners' cognition, for instance, providing excessive information could demotivate advanced level students.

Throughout the process, students are required to research and reason as they have to do the problem analysis, seek for solutions, apply and discuss the outcomes. Once students gather necessary information, they do group discussions and negotiations. They have to work collaboratively to select which pieces of information should be included and which one should not. Next is synthesis which is one crucial element refers to how the solving process is formed. Application is considered as a PBL product. Students apply the knowledge obtained from their learning and make use of it. Students work together on providing answer to solve the ill-structured problem. Feedbacks from their peers and teacher are given at this stage. The feedbacks could be an approval or a request to make some changes to their answers. Reapplication on the model is only required when there is a number of corrections are made. Next, reflection is a stage when students could evaluate their own work and identify any drawbacks. Finally, knowledge which is the product of PBL process. It is the result of how students solve the problem proposed. PBL is perceived as a constructivist learning approach, thus, the knowledge obtained is perceived and formulated by the learners. The model proposed does not include the role of teacher and other beneficial skills that students may acquire during the process. Thus, a conceptual framework which locate where teacher's role and focuses on the actual practice to solve the problem should be accordingly studied to apply in language classroom.

Ansarian and Teoh (2018) stated an interesting point that when PBL is adopted into language learning, it is believed to be more complex than in other areas of education. It is derived from the fact that language is not only a tool, but also the objective in PBL class i.e. students use the language in order to learn it (Larsson, 2001). Therefore, the conceptual framework proposed should ensure content and language knowledge work in harmonization. Below is the PBL conceptual framework (Adopted from Azman & Shin, 2012) to employ in a language classroom.

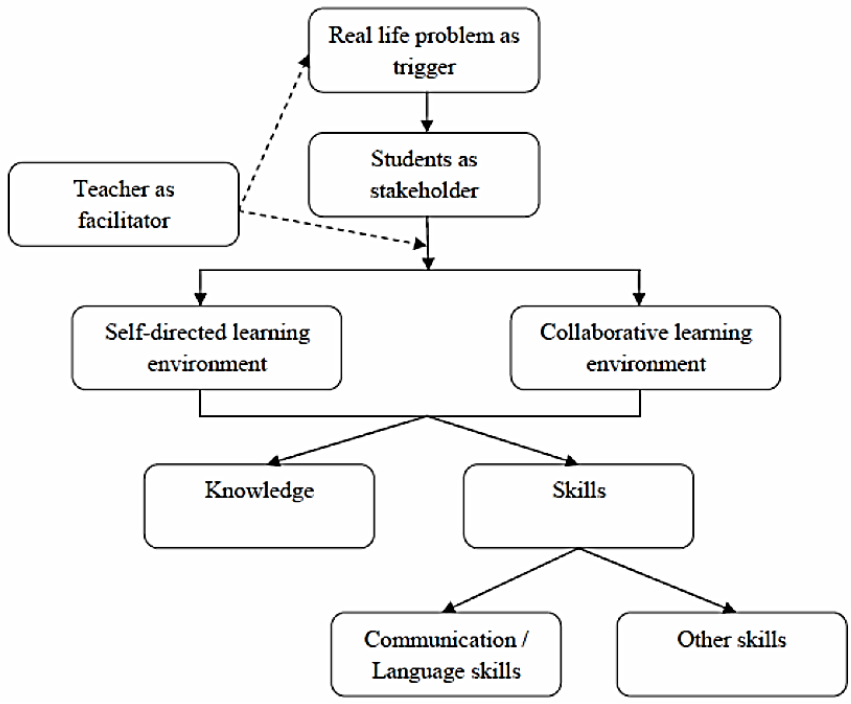

Figure 3: PBL conceptual framework in language classroom (adopted from Azman & Shin, 2012)

From this figure, it captures the main elements of PBL as previously discussed. The ill-structured problem is revealed and trigger students' thoughts. Then, students are

grouped, and the problem is presented as students own it. Teachers in PBL process are performed as facilitators to provide guidance. However, teachers should take into account that they must not provide answers to students. Students, then, plan their own self-learning and group learning. They have to work on potential resources, solutions, and any information which is conducive to problem solving. Students communicate, share, and discuss with their group members in order to solve the problem (Azman & Shin, 2012).

Listening and Why Is It Difficult?

Listening is a complex process which enables human to comprehend the listening input (Rost, 2001). It consists of top-down and bottom-up processes which complement each other on comprehension.

Bottom-up occurs when we listen to the spoken text at the acoustic level e.g. discriminate between similar sounds in order to facilitate subsequent top-down processing (Lynch & Mendelsohn, 2010). Top-down processing is the opposite to bottom-up since it focuses the listening process as a whole, especially, for the interpretation of meaning. Anderson and Lynch (1988 as cited in Lynch & Mendelsohn, 2010) called this process 'active model-builder' since "listeners actively formulate hypotheses as to the speaker's meaning and confirm or modify them when necessary" (p.184). Basically, when listeners want to interpret the spoken input, they rely on their prior knowledge or 'schema'. Schema or schemata (plural) can be 'the network of knowledge on different topics' (content schema) and academic (textual) knowledge. These blend in top-down processing strategies; predicting and inferencing to interpret the utterances heard.

Listeners are required to use bottom-up knowledge i.e. linguistic knowledge in order to decode the input. What is more, they must blend the contextual and prior knowledge in top-down process to successfully interpret the listening input. Therefore, listeners must have linguistic, contextual and prior knowledge in order to comprehend the utterance. Another challenge is the nature characteristic of listening input which is 'one shot nature'. It means listeners have only one chance to process the input, additionally, the stress, tones, volumes i.e. prosodic cues also lead to difficulties in listening (Lynch & Mendelsohn, 2010).

Listening is classified into two main types: they are 'one-way listening or reciprocal' and 'two-way listening or interactional' (Brown and Yule, 1983 as cited in Lynch & Mendelsohn, 2010). Fundamentally, the main objective of 'transaction' is to transfer the information whilst interaction is to maintain the social relation. When people communicate with each other, it consists of these two elements.

1) One-way listening

One-way listening or the transaction function has been widely used in L2 classroom. It is viewed necessary since students should be able to listen to lectures/ lessons. It is, thus, resulted in the following term 'listening in order to learn'. Listening pedagogy involves cognitive content, decontextualization, formal language, activities after listening practice. What's more, one-way listening involves listening for entertaining purposes e.g. movies, radio or TV. The language use for this function is rather informal or 'spoken variety'.

2) Two-way listening

Oprandy (1994) mentioned that two-way listening is considered as 'listening-and-speaking'. It involves daily interactions e.g. conversations and discussions. When listeners get involved in the speaking role, it creates some good and bad effects. The advantages can be that it provides chances to get rid of doubts or solve the problems. However, it also creates pressure to give proper responds, process and interpret the input correctly.

To understand how listening comprehension process is, below is a model of listening Vandergrift and Goh (2012) based on the cognitive view.

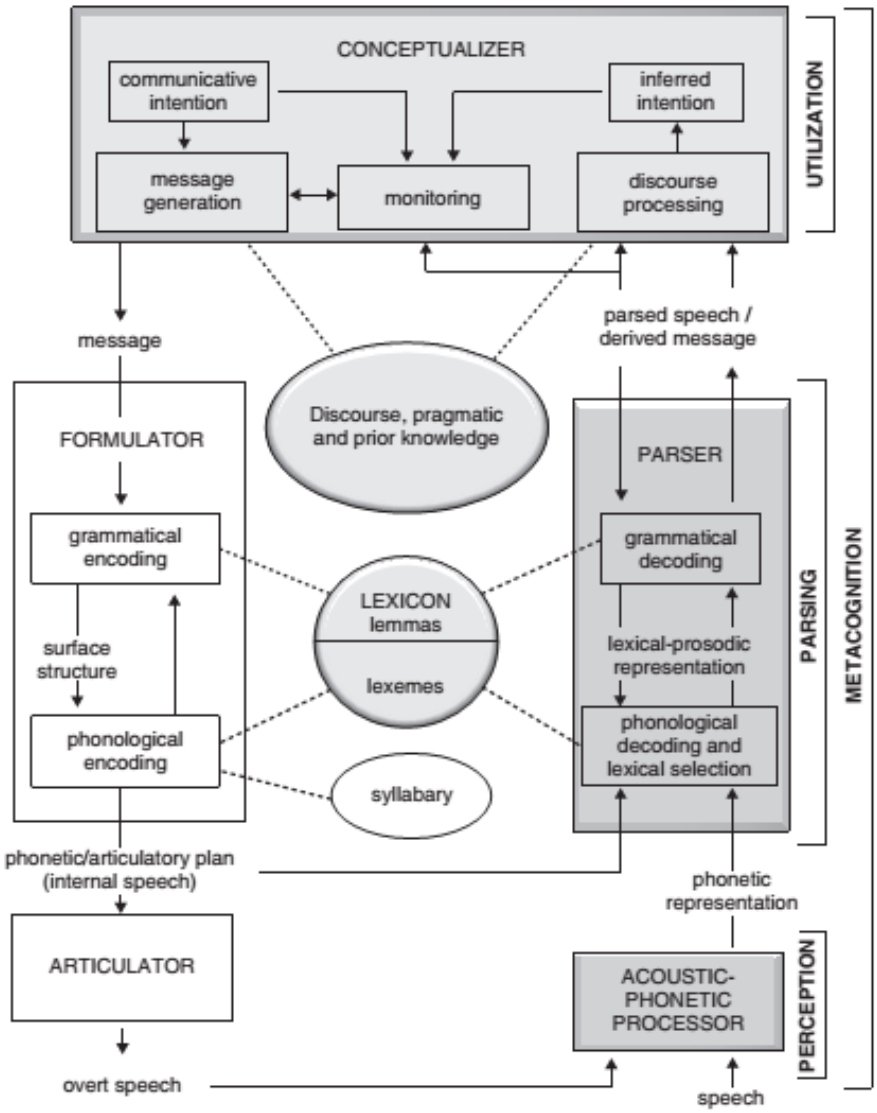

Figure 4: Listening comprehension model by Vandergrift and Goh (2012)

Santos (2016) explained the model presented of Vandergrift and Goh (2012) as an adaption of Levelt's model. With comparison, it is clearly observed the addition of conceptualiser elements, on top of the original model in which they developed their speech comprehension component, illustrated with four primary connecting components. Beginning at the lower right-hand corner of the diagram from the position of speech input, their model describes an acoustic-phonetic processor which represents an event-based process whereby the listener separates or extracts language sounds from unimportant audio input. Commonly it is understood that this bottom-up process occurs automatically as the listener gains experience in processing the given language, though we have no insight into what degree contextual audio (environmental) is included in this process of automation. What is clear is that the forwarded process of parsing speech is intermediated by a mechanic of phonetic representation, which translates into a pre-parser assistance inclusive of acoustic, linguistic and or cognitive comprehensions. Though we should also note that they acknowledge a higher degree of interference from L1 with regard to the actual perception of sounds as L2 would be deficient in non-experienced listeners. The parser components' primary responsibility is to breakdown utterances using rules of syntactic structures or semantic cues. In addition

to receiving phonetic representations in combination with internal speech resolution, the parser process relies on information from the mental lexicon which is extracted from phonological decoding. These morphophonological forms provided from the lexemes, are what allows lemmas to be grammatically or phonologically decoded (i.e. discovery of word properties). This bidirectional decoding process is governed by lexical-prosodic representation. The observation is that their model shows a bottom-up analysis, informed from top-down information provided by the listeners mental lexicon (conceptualiser). The parser process results in the mental representation of words and their derived collective meaning. Again, it should be noted that limited L2 vocabulary would almost certainly restrict any accurate segmentation of speech at this point, resulting in a reduced mental representation of the processed speech (Cutler, 2001) which may lead to misinterpretation. In considering Vandergrift and Goh's third component (the conceptualiser) we observe a process of inference and monitoring which ultimately provides a forwarded message or mental representation which is based on the parsing processes and long-term memory derived information. We also note that this utilisation process can be informed via prior knowledge in the form of intents and or elaborations to produce perceived intended meaning. Lastly, we observe the listeners process of listening regulation, or model of metacognition which involves a complex interaction of cognition processes inclusive of problem solving, monitoring, anticipation, and evaluation. In support of Brown (2001) - Vandergrift and Goh's model illustrates an understanding of parallel processing whereby one area of the model can and does influence the process of the other as illustrated in the parsing, conceptualiser and formulator processes. In the context of a listener not interacting directly with an interlocutor (one-way listening) or importantly when a listener engages in dialogue with an interlocutor, we find this model of parallel processing is valid.

Lynch & Mendelsohn (2010) made an assumption that listening materials used in traditional classroom were often unsuitable. They were not selected based on the level of difficulty and teachers paid too much attention to 'the topic' rather than other necessary areas. Several listening researchers have tried to analyze factors resulted in difficulty in comprehension. There are divided in 'input' and 'task' characteristics. For the input characteristics, they are resulted from: (1) language such as speech rate, unfamiliar accent, number of speakers (2) explicitness such as implicit ideas, lack of redundancy (3) organization such as events narrated out of natural order, examples preceding the point illustrated (4) content such as unfamiliar topic, number of things and people referred to (5) context such as lack of visual or other support. For the task characteristics, tasks become more challenging when they require the following: processing of more details, integration of information from different parts of the text, recall for gist rather than the exact content, for example (adapted from Buck 2001, p. 149-151) as presented in figure 5 below.

Content
- Unfamiliar topics.
- Number of things and people referred to.
- Unclear indication of the relative importance of protagonists in the text.
- Shifting relationships between protagonists.
- Abstract content.

Context
- Lack of visual or other support.

TASK CHARACTERISTICS

Tasks tend to be **more difficult** when they require:
- Processing of more details.
- Integration of information from different parts of the text.
- Recall of gist (for example, writing a summary) rather than exact content.
- Separation of fact from opinion.
- Recall of non-central or irrelevant details.
- A delayed response, rather than an immediate one.

INPUT CHARACTERISTICS

Language
- Speech rate.
- Unfamiliar accent.
- Number of speakers.
- Similarity of voices.
- Use of less frequent vocabulary.
- Grammatical complexity.
- Embedded idea units.
- Complex pronoun reference.

Explicitness
- Implicit ideas.
- Lack of redundancy.

Organization
- Events narrated out of natural time order.
- Examples preceding the point they illustrate.

Figure 5: Factors lead to listening difficulty adapted from Buck (2001) as cited in Lynch & Mendelsohn (2010)

Renandya & Farrell (2011) also pointed out the findings concluded from Buck (1995) and Field (2003). They literally looked at L2 beginners' perceptions on the root causes led to difficulties in listening and the findings elicited from Buck (1995) and Field (2003) are presented as follows; (1) 'speech is fast'. Renandya & Farrell further explained that successful comprehension is relevant to speaking rate. (2) 'speech is variable'. The 'radical phonological changes' when speaking leads to difficulties among L2 learners. To illustrate, 'What is up?' may shrink to 'Sup?'. It is shown that 'modify, drop, or add sounds' are a natural process. This creates word recognition issues among EFL learners. (3) 'word boundaries are blurry'. The boundary between words is versatile, for instance, 'the standard the hotel achieves' may be heard as 'stand at the hotel' by learners. (4) 'speech has to be processed in the real time'. The interlocutor has to process the message and respond almost immediately. It is challenging as we could not go back to the input like reading. Another study by Zeng (2007) also found similar sources of listening problems. They are speaking rate, distraction, and word recognition. The study of Zeng (2007) is presented as following.

	Sources of listening problems	%
1	Speaking rate	100
2	Distraction	95
3	Unable to recognize words they knew	90
4	New vocabulary	85
5	Missing subsequent input	80
6	Nervousness	70
7	Sentence complexity	60
8	Background knowledge	55
9	Anxiety and frustration	45
10	Unfamiliar pronunciation	40

Figure 6: sources of listening problem among EFL Chinese students (Zeng, 2007)

These are difficulties which EFL/ L2 beginners literally have to deal with; as a result, they are not able to fully understand the spoken text. Kuo (2010) raised serious yet overlooked decoding issues among EFL Taiwanese students. She found that word recognition and word segmentation caused difficulty in comprehension. An approach to tackle with these problems should be extensively studied and accordingly promoted.

Lynch & Mendelsohn (2010) concluded that listening comprehension is rather challenging for ESL/EFL learners. Researchers have made much progress to understand and to teach listening in the past four decades. However, teachers are still struggling to teach listening. They mentioned "Until relatively recently, teachers either did not teach listening at all, or attempted to teach it, but did so rather ineffectively" (p.194). They believed that it is crucial for teachers or material creators to establish a balance between listening practice and the use of strategy to improve leaners' listening comprehension.

TOEIC Listening Test

Test of English for International Communication (TOEIC) is a standardized English proficiency test. It aims to assess necessary English language skills in workplace. TOEIC tests have been widely used around the globe i.e. more than 160 countries accepted it (retrieved from https://www.ets.org/toeic, on April 2, 2021). For the listening test, it includes 100 listening test items. It is in the form of multiple-choice test with four sections: photograph, question-response, short-conversation, and short talks. Listening test requires 45 minutes to complete and the topic covered, for example, are professions, workplaces, business, trade, money, environment, health and travel. TOEIC test was viewed as one valid language assessment (Powers, 2010).

Relevant Studies

Several studies looked at students' experience on PBL. Most revealed positive perceptions towards PBL approach (Cooper & Carver, 2012; Barron, Lambert, Conlon &Harrington 2008; Fyrenius et al., 2007 as cited in Ansarian and Teoh (2018). Azman & Shin (2012) found that PBL does not only promoted collaborative and self-direct learning, but it stimulated critical thinking and importantly, improved students' confidence in using language. Almajed, Skinner, Peterson, and Winning (2016) reported that students enjoyed learning collaboratively with their peers since they are from different backgrounds. Dehkordi & Heydarnejad (2008) found that nursing students performed better through PBL process than traditional teaching approach. Ali & Abdul Kader (2004) also reported that students from law faculty had better English communication through PBL.

However, the study of Bearn&Chadwick (2010) reported that PBL created tension among learners. Ansarian and Teoh (2018) pointed out that PBL in language studies have

been conducted on motivation, perceptions as well as social interactions improvement. However, an empirical evidence of PBL effects towards learners' listening proficiency has not been paid attention to.

3. METHOD

Research Design

This study was constructed based on quantitative research design. It is a pre-experimental since there is no control group. The intervention was administered during the first semester of 2020 academic year at Aviation Personnel Development Institute (APDI) of Kasem Bundit University in Bangkok, Thailand. Below is a diagram of this study's research design.

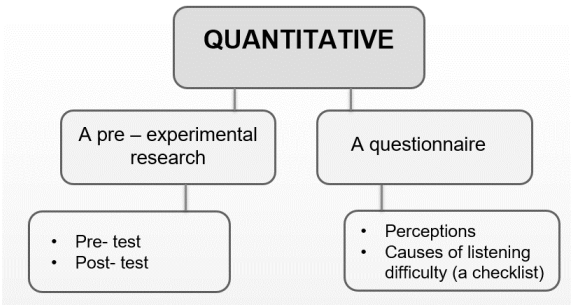

Figure 7: a quantitative research base design

Participants

The participants in this study were 103 students who received TOEIC listening score of 5-270 from TOEIC pre-test. From the score range, they are considered less proficient in listening skills, according to TOEIC score descriptor. They enrolled in the Communicative English for Airline Business III which is a compulsory course. This course is designed to improve overall communicative language skills. They were both male and female with 20-21 years of age.

Instruments

This study consists of two data collection tools: (1) The Test of English for International Communication (TOEIC) test to assess the participants' listening proficiency. It is used as a pre- and post-test. TOEIC Test which includes of 100 listening comprehension test items. It is a multiple-choice test with four sections: photograph, question-response, short-conversation, and short talks. TOEIC listening test requires 45 minutes to complete. (2) The Self-Assessment Questionnaire adapted from Azman & Shin (2012) to explore students' perceptions on PBL approach employed during the intervention. (3) Listening Problem Checklist adapted from Zeng (2007).

Procedures

All students enrolled in Communicative English for Airline Business III are required to take TOEIC tests. Both tests were administered by TOEIC organization or Center of Professional Assessment (Thailand) company and arranged in the first academic year of 2020.

At the beginning of the intervention, all participants were provided with mean scores of TOEIC test i.e. TOEIC test score statistics were presented to them to as a problem and they were later divided into groups of three to four members. All group were required to discuss on 'causes that make TOEIC listening test difficult' and 'how do we solve these problems?'. Participants were required to submit the results from group discussions which consists of both top three of 'causes' and 'materials' to tackle TOEIC listening difficulties. Participants were also required to complete the listening problem checklist individually. During the intervention, students were encouraged to do self-

directed learning and collaborative groupwork from time to time. Online platform i.e. MS Teams was prepared for online interactions among the team members including the teacher. Data was collected from week 6 to week 15 which is 10 weeks in total. At the end of the semester, all participants took TOEIC test used as the post-test and it was administered in the same way as pre-test. Below is an illustration of how PBL program was carried out.

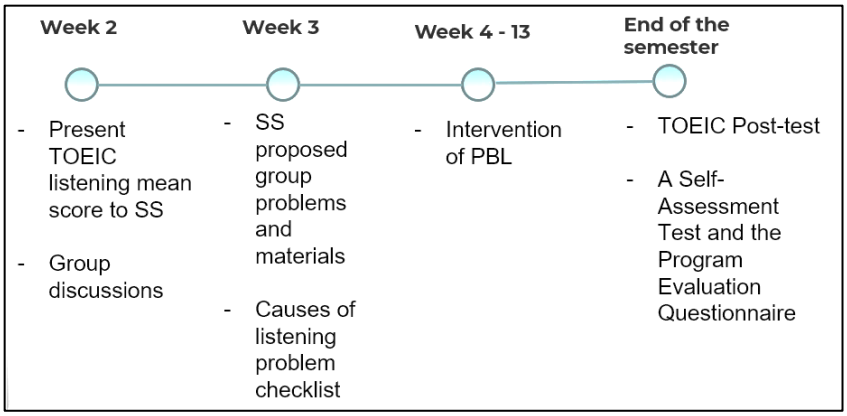

Figure 8: PBL procedure facilitated in this study

Data analysis

The data results were analysed using the Statistical Package of the Social Sciences to find mean ($\bar{x}$) and standard deviation (S.D.). In addition, the study examines the difference between pre- and post- test scores using a paired sample t-test, which was run and analysed to indicate where significant difference is apparent.

4. Findings

1. Can PBL implementation improve students' listening proficiency on TOEIC test?

Students' listening proficiency development

For this section, a comparation between TOEIC pre- and post-test scores to assess students' development after PBL intervention.

Table 1. A comparation between TOEIC pre- and post-test scores

	Mean	N	Std. Deviation	Std. Error Mean
Pre-test	185.53	103	60.228	57.738
Post-test	202.86	103	57.738	5.689

A paired sample t-test indicated that the quality of the Problem-Based Language Learning had statistically significant difference between pre-test (term 1) and post-test (term 2), $P<0.05$. However, the high S.D. dispersion rate of pre-test (60.2) and post-test (57.7) signified that there is a high level of difference among test scores.

2. What are students' perceptions on PBL?

Students' perceptions on PBL approach

By using Likert scales, the obtained data were transcribed according to the following criteria: 1.0 – 1.49 means very negative; 1.50 – 2.49 means negative; 2.50 – 3.49 means moderate; 3.50 – 4.49 means positive and 4.50 – 5.00 means very positive. Overall, the data revealed that students perceived PBL positively.

Table 2: Students' perception on PBL adapted from The Self-Assessment Questionnaire (Azman & Shin, 2012)

Items	Mean	S.D.	Interpretation
1. PBL allows opportunities to apply learning to real world situations.	3.96	.98	Positive
2. The problems promoted collaborative learning.	4.44	.62	Positive
3. PBL stimulated self-directed learning.	3.80	1.07	Positive
4. I am satisfied with PBL program arranged.	4.58	.53	Very positive
5. Overall, PBL stimulated critical thinking.	4.07	.88	Positive
6. I actively participated in group meetings.	3.51	1.11	Positive
7. I was motivated to try to solve listening problems throughout PBL process.	4.06	.93	Positive
8. I could find the learning materials to solve the problem.	3.82	1.14	Positive
9. I developed my self-confidence in listening skills.	4.04	.85	Positive
10. Adequate time is given to solve listening problem.	3.21	1.06	Positive
Total	**3.94**	**0.91**	

The data revealed the highest mean score for item 4 (m= 4.58) which indicated that they were satisfied with PBL program arranged. Students viewed that PBL program promoted working collaboratively with others (m = 4.44). The findings are in line with the study of Almajed, Skinner, Peterson & Winning's (2016). Their study indicated that leaners were satisfied with classroom interactions and participations among their peers and their teacher. Additionally, the diversity of students' backgrounds was also conducive to satisfactory and the effectiveness of PBL approach. Students perceived that PBL program also stimulated self-directed learning (m = 3.80). Self-directed learning may appear as an opposite concept to collaborative learning. However, self-directed learning was indeed considered as a form of collaboration through the lens of sociocultural aspect (Skinner, Braunack, Mayer & Winning, 2016). What is more, students perceived that PBL stimulated their critical thinking skills (m=4.07), improved their confidence in listening skills (m=4.04) and motivated them to solve listening problems (m=4.06). Students reported the lowest mean score for item 10, time allocated to PBL program to solve listening problems (m=3.21). The findings were in accordance with a study of Azman & Shin (2012) and their participants reported that PBL program i.e. six weeks given was rather insufficient.

3. What are factors lead to difficulties in TOEIC listening test?

Factors lead to TOEIC listening test problems

Another set of findings: ten factors lead to listening problems were explored to understand problems in TOEIC listening test based on students' perceptions. The details are presented accordingly.

Table 3: Factors lead to TOEIC listening test problems adapted from Zeng (2007)

Factors lead to TOEIC listening test problems	Frequency	Percentage
1. New vocabulary	87	84.5%
2. Fast rate of speech	82	79.6%
3. Word recognition	65	63.1%
4. Time pressure	55	53.4%
5. Speech variations	53	51.1%

6. World knowledge	50	48.5%
7. Anxiety	38	36.9%
8. Unfamiliar accent	32	31.1%
9. Grammar	20	19.4%
10. Number of speakers	18	17.5%

Most students reported new vocabulary was the most problematic source of TOEIC listening test. After the new vocabulary, fast rate of speech was also their concern. This also supports some studies, for example, Zeng (2007), Buck (1995) & Field (2003 as cited in Renandya & Farrell, 2011) that L2 learners found that fast rate of speech decreases their listening comprehension. Renandya & Farrell (2011) further explained that normal speed of native English speakers' utterance is, however, generally perceived as being too fast by L2 learners. The third factor is word recognition. It refers to students are not able to recognize the words they have already known. This is also in line with the study of Kuo (2010). Word recognition is one of the top three difficulties in listening among EFL Taiwanese students. Next is time pressure. Students reported that time limitation i.e. 45 minutes for 100 listening test items leads to difficulty. Speech variations issue was found to be the fifth rated difficulty factor. This refers to when a particular word blends with other surrounding words, they become blurry. Thus, it leads to comprehension problems among L2 learners. The other factors ranked at sixth to tenth are students' schema or world knowledge (48.5%), anxiety (36.9%), unfamiliar accent (31.1%), grammar (19.4%), number of speakers (17.5%).

5. Discussion

From the findings, it revealed a positive correlation between Problem-based Language Learning and students' listening proficiency on TOEIC test. However, the high dispersion rate signified the high level of difference test scores. This should be investigated further why there is a big gap among students since they were all less-proficient listeners based on their pre-test TOEIC listening score. Listening habit journal is recommended to employ in order to look at the correlation of improved listening performance and how they learn or practice the listening materials, for instance, hours or minutes spent on learning, problems or obstacles, satisfaction towards their own learning. A study of these factors shall bridge the gap on high dispersion rate as well as enhance the validity of PBL approach study.

Students reported that they were satisfied with PBL program arranged as well as the fact that PBL program promoted working collaboratively with others. This is in line with the study of Azman & Shin (2012). Students positively perceived PBL as an approach to stimulate their critical thinking skills, improved their confidence in listening skills, and essentially, motivation to keep them learn in order to solve their listening problems. Critical thinking is, especially, crucial for 21st century learning, thus, any teaching pedagogy which stimulates high order thinking should be embedded and accordingly promoted. All in all, considered from the improved listening proficiency and overall students' perceptions, PBL approach could promote language teaching and learning.

The findings on students' listening problems towards TOEIC test could be a reference for listening skills development. Vocabulary seems to be the most concern among less-skilled students as well as the ability to recognize words they have already known. Some students did not research on effective ways to tackle these problems but proposed some practice, for example, to memorize 10 to 20 words a day. A teacher who is also a facilitator in PBL could do question probing to encourage students' deep thoughts i.e. to stimulate critical thinking to find efficient ways to solve the problem. However, teachers should not have too much involvement in this process. This listening problem exploration was primarily conducted to guide students on listening material selection when necessary. The limitations of this study are the short period of PBL interventions i.e. ten weeks to implement, practice and discuss the outcomes. Students

viewed that it is not sufficient, and some students complained to the teacher that it could sometimes be overwhelming to carry both PBL project and other assignments of the communicative course. Some students put the course assignments as their priority since PBL program was not included in the course evaluation. It is also necessary to note that teachers should ensure a well balance of learning assignments and other extra-curricular activities i.e. PBL. Students, therefore, have sufficient time to accomplish their learning goals and do not experience such cognitive burden. Another limitation is the research design. It is a pre-experimental since there is no control group for a comparation of the outcomes.

6. Conclusion

To conclude, this study suggested that PBL could be one teaching pedagogy to improve students' listening comprehension based on the improved performance after PBL intervention. Additionally, PBL approach promoted collaborative working, self-directed learning, critical thinking skills, and improved students' motivation in learning.

7. Suggestions for future studies/Implications

Further research could look at the correlation between learning hours and improved listening performance. PBL can also be adapted in solving other language areas e.g. grammar, reading, or speaking. PBL is suggested to include in prescriptive-bound curriculum on solving easy English quests in order to motivate students to engage in learning.

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