

# A Mixed-Methods Study of Knowledge, Belief, and Practice Regarding Project-Based Learning of English Lecturers: A Case Study of a University in Thailand

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## Abstract

The application of project-based learning (PBL) in English class has been growing in the Thai educational setting. However, a body of literature has revealed problems regarding Thai EFL teachers and their use of PBL. Hence, this convergent mixed methods research study aimed to quantitatively and qualitatively study the relationship among English teachers' PBL knowledge, belief, and practice in the Thai university context. A total of 52 Thai EFL teachers from a language institute of an autonomous university participated in this study. All of them were asked to complete a PBL knowledge test and a questionnaire on PBL belief and practice. Subsequently, non-participatory observations and follow-up interviews were conducted to capture in-depth information on the beliefs and practices of 15 participants. Thematic analysis was used to analyze qualitative data, whereas frequency, mean, standard deviation, Pearson's product moment correlation, and multiple regression were used to analyze quantitative data.

The findings revealed glaring inconsistencies in participants' knowledge, belief, and practice. Comprehensive knowledge of PBL was witnessed in the knowledge test. Positive belief about PBL was also reported. However, the observations and follow-up interviews revealed a pattern of recurring problems and factors negatively affecting the in-class application of PBL. The study suggests revisiting the three elements as well as the customization of teacher professional development to solve underlying problems and enhance the congruence of belief and practice regarding PBL in the Thai context.

**Keywords:** Project-based learning (PBL), teacher knowledge, teacher belief, teacher practice

## 1. Introduction

To achieve English language teaching and learning improvement in Thailand, the Thai Ministry of Education sought to implement a policy primarily focusing on learner centeredness (Ministry of Education, 2008). Project-based learning (PBL), a communicative language teaching (CLT) sub-type, has been the most popular method among teachers because it allows students to integrate their English language skills, together with their creativity, into their classwork (i.e., their class project). PBL can be widely defined as a teaching method where a task (i.e., a project) and learning are concentrated to develop discussions, soft skills, language learning skills, and sense of ownership through a wide variety of activities (Legutke & Thomas, 1990; Stoller 2006).

In Thailand, PBL has gained popularity, especially in high school and university contexts where students are expected to have adequate English proficiency (Kettanun, 2015). One interesting question is whether teachers have problems during in-class PBL implementation. Marx et al. (1997) explored certain challenges regarding PBL, one of which was teachers' failure to apply key steps of PBL to their classrooms. Noom-Ura (2013) found that Thai teachers lacked PBL knowledge, which made it very difficult for them to manage their classrooms.

Certain collectivist aspects of Thai culture, such as seniority consideration and hierarchical order, have influenced Thai students' learning style in a classroom. Students largely listen to their instructor and take notes instead of actively participating in discussions (Prpic & Kanjanapanyakom, 2004). Expressing opinions or asking relevant questions is possible only when teachers allow it. Additionally, as Songsiri (2007) and Graham (2015) found, many Thai university students still lack confidence in English communication. This problem is rooted in Thai education because memorization, along with the so-called teacher-centered approach, has become

prominent in classrooms (Khamkhien, 2010; Methitham, 2009). These recurrent patterns of learning problems among Thai learners have acted as a catalyst for change in ELT teaching methodologies to improve Thai students' English communication. Teachers are viewed as seniors whom students usually comply with and pay respect to. Thus, most Thai students remain passive learners who rarely exercise their initiative to exchange ideas with teachers while studying (Thongprasert & Burn, 2003). In Thailand, there are limited seats available in prestigious universities, which leads to serious competition among students for these seats. Students' main objective is to learn English and pass exams for admission into these universities instead of communicating with others (Noytim, 2006).

The literature has depicted some Thai teachers teaching English as having low English proficiency levels and employing ineffective teaching methods (e.g., Prapaisit, 2003; Yunibandhu, 2004; Foley, 2005; Baker, 2008; Liddicoat, 2004; Khamkhien, 2010). This raises the question of whether or not Thai teachers have been successful in incorporating PBL into their practices. To answer this question, investigating Thai teachers' knowledge, belief, and actual practice in regard to in-class implementation is of particular importance. The research objectives of this study are as follows:

(1) To quantitatively and qualitatively study Thai English as a foreign language (EFL) university teachers' relationship among knowledge, belief, and practice regarding PBL.

(2) To identify the underlying factors affecting the congruence or incongruence of these three elements (i.e., knowledge, belief, and practice).

## **2. Review of Related Literature**

### *2.1 PBL*

PBL originated in the early 20th century. John Dewey, a renowned American philosopher and educational reformer (Fallik et al., 2008), initiated it. This instructional approach highlights doing tasks as a part of learning content, developing essential skills, and increasing a sense of belonging to the project and the classroom. Learning through action to gain hands-on experience is a crucial aspect of positive learning among learners (Fallik et al., 2008). PBL can be based on a variety of conventional learning and teaching notions, such as action-based learning. Democratic and social behaviorist theories can be merged with PBL because students normally learn and construct a target project as a group rather than as individuals (van Lier, 2006). Mutual engagement and shared decision-making play a vital role among students conducting a project.

PBL also interweaves Piaget's cognitive development theory and Vygotsky's zone of proximal development (Vygotsky, 1978; Grant, 2002). PBL enhances students' ability to exercise their creativity and develop learning autonomy through projects. It helps them develop vital skills and gain content knowledge on their own rather than through the teacher. Regarding the self-learning concept, PBL directly supports cognitive development theory (Brown, 2000). Further, PBL increases communication within a project group. From a constructivist perspective, social interaction generally comes from key project creation processes. Prime examples of these processes are brainstorming, exploring, and negotiating. New knowledge can be expanded through such social interactions (Grant, 2002).

According to Thomas (2000), a number of scholars have provided varied definitions of PBL, many of which pinpoint its key characteristics. PBL is essentially an approach wherein traditional, short-practice, teacher-centered classrooms have shifted enormously toward classrooms with dynamic learner-centeredness. Furthermore, Yew and Schmidt (2009) confirmed that PBL augments students' creativity and interaction levels, allowing them to obtain new knowledge and skills and apply them to any interdisciplinary courses. Unlike rote learning, PBL provides opportunities for students to think of ways to solve problems analytically and construct a target project as an innovative product (Zajkov & Mitrevski, 2012). This makes their learning much more meaningful and independent (Frank et al., 2003; Yoon, 2001; Blumenfeld et al., 1991).

To achieve in-class PBL implementation, teachers must follow four primary steps (Stoller 1997; Markham et al., 2003): (1) starting the project, (2) developing the project, (3) reporting the project, and (4) assessing the project. From the beginning, teachers should allow students to think freely to come up with core ideas for their projects. This practice also enhances learner centeredness and collaboration (Elam & Nesbit, 2012). A teacher can act as a facilitator during the project development to reassure students that they are on the right track in terms of their plans. While developing the project, students should have opportunities to learn and master essential skills, interact with peers, and experience real-life situations (Baker, 2008).

PBL principally culminates in an end product or an outcome (i.e., students' target project; Haines, 1989; Helle et al., 2006). For the third step, a classroom should provide its students with space for project presentation (e.g.,

oral class presentation, bulletin board). Last, teachers can conduct various assessments of their students' projects. Feichtner and Davis (1992) suggested both formative and summative assessments for grading and providing students with comments as well as ways to make useful improvements. Teacher observation is also encouraged during project development. Diaries, interviews, and portfolios can provide substantial evidence relating to formative assessment.

According to the literature, the benefits of PBL implementation are as follows: (1) students' motivation, (2) learning and achievement, (3) creativity, (4) enjoyment, (5) collaboration, (6) critical thinking and problem-solving skills, and (7) in-class engagement (e.g., Elam & Nebsit, 2012; Downing et al., 2009; Zhou, 2012; Yalcin et al., 2009; Morgil et al., 2008; Nation, 2006). Additionally, the challenges facing PBL are as follows: (1) large class size, (2) conflict in group work, (3) time and resource constraints, (4) negative beliefs about PBL among teachers and students, (5) limited assessment types, and (6) heavy teacher workload (e.g., Blummenfeld et al., 1991; Grant, 2002; Stauffacher et al., 2006; Marx et al., 1997). Researchers should further examine teachers' knowledge, belief, and practice regarding PBL to resolve these challenges (e.g., by developing sustainable plans for their professional development within their institutions).

## *2.2 The Relationship Among Teacher Knowledge, Belief, and Practice*

According to Darling-Hammond and Bransford (2007), teacher knowledge acts as a useful indicator of teachers' effective instruction. It is argued that English language teaching requires profound knowledge of specific teaching methods as well as teaching strategies to potentially enhance students' communicative skills (Borg, 2003). Teacher knowledge in one particular case is important, and it should be reassured for quality in teaching. Apart from teacher knowledge, teacher belief plays a pivotal role in shaping teachers' integration of their knowledge into their actual practice (Darling-Hammond et al., 2005). It also affects teachers' decision-making, relying largely on their background knowledge and work culture (Kynigos & Argyris, 2004).

Another vital element is teacher practice. Teacher practice can be grounded collectively in multiple factors, such as teacher knowledge and belief (Shulman, 1987). It can be revealed partially through teacher belief (Kynigos & Argyris, 2004). It refers to what a teacher "does" instead of what they "know" or "think," that is, teacher knowledge and belief (Lampert, 2010). To establish a link among teachers' knowledge, belief, and practice, their practice needs to be further examined. Investigating teacher knowledge, belief, and practice will help enhance teachers' professional development, especially in the context of PBL application in Thailand.

Teachers' knowledge, belief, and practice are believed to be intertwined. Each element plays overlapping roles in shaping teachers' instructional practices. These elements form the mosaic of teacher identity in one particular context. Teacher knowledge is of particular importance in teachers' instructional practice and behaviors (Basturkman, 2012; Farrell & Bennis, 2013). Teacher knowledge in this study pertains to knowledge for teaching EFL and PBL, which differs greatly from general teacher belief (Borg, 2003). EFL teachers are believed to possess intercultural knowledge, language skills, and intercultural awareness. Moreover, pedagogical content knowledge is vital for teachers to implement an instructional approach such as PBL (Borg, 2003; Grossman & Shulman, 1994).

As Darling-Hammond et al. (2005) stated, teacher knowledge affects teachers' actual practice. Teacher belief is also connected to these two elements. Teacher belief generally reflects teachers' attitudes and experiences, and at times, it tends to contrast with verified facts (i.e., knowledge as a self-perpetuating construct). Belief is unlikely to change and become inconsistent (Pajares, 1992). Teacher belief is associated with teacher practice (Calderhead, 1996; Thompson 1992). Knowledge and belief can collectively shape teacher practice (Kunter & Baumert, 2006), accounting for the complex relationship among the three elements.

Teacher belief should be investigated alongside actual practice; otherwise, it could give rise to the phenomenon of "telling half the story" (Kane et al., 2002). Research into teacher belief has been questioned on the grounds of whether its methodology is valid or not. It lacks information about teacher practice as the confirmation of the congruence or incongruence of belief and practice. The current study's researchers argue that teacher knowledge and belief regarding PBL affect teacher practice in the classroom. Thus, the current study is seeking to investigate the three elements to obtain detailed information for teachers' professional development and PBL in-class implementation improvement.

This research revisits Thai EFL university teachers' knowledge, belief, and practice regarding PBL, the teaching method believed to assist in improving students' communicative English language skills. Additionally, other factors of teachers' actual practices will be revealed to understand the interplay among teacher knowledge, belief, and practice. The congruence or incongruence of the three elements will be accounted for.

### 3. Methodology

The current study employs a convergent mixed-methods research design to determine teachers' knowledge, belief, and practice regarding in-class PBL implementation. The design will provide a clear understanding of the phenomenon because it uses both quantitative and qualitative data (Onwuegbuzie & Leech, 2006; Creswell, 2008). In this study, quantitative data are obtained through a teacher knowledge test and a questionnaire on teacher beliefs. Qualitative data are obtained through classroom observations and post-observation interviews.

#### 3.1 Population and Samples

The population in this study consisted of 52 English teachers (seven native and 45 non-native lecturers) working at the language institute of an autonomous university located in Northern Bangkok, Thailand. All 52 samples were recruited. To comply with the university's policy, the institute urged its academic staff to create a variety of general English and English for specific purposes courses where the PBL approach should be applied. This university's context was particularly relevant to the study objectives because the staff consisted of university teachers, and PBL implementation was one of the requirements of the institute and the university.

#### 3.2 Research Instrument, Data Collection, and Analysis

The research instruments were the (1) teacher knowledge test, consisting of 39 true-false items assessing teachers regarding their PBL knowledge; (2) Teachers' Belief Scale, consisting of 29 five-point rating items of teacher belief; and (3) Teachers' PBL Practice Scale, consisting of 28 three-point rating items assessing PBL implementation behaviors in class. Three experts in the field of English language teaching checked all items in the research instruments in terms of their content validity.

Regarding data collection, all 52 samples were asked to undertake the teacher knowledge test, Teachers' Belief Scale, and Teachers' PBL Practice Scale during the first semester of academic year 2020 (August–December). Subsequently, 15 participants volunteered to be individually interviewed and observed in class to deeply understand their insights. Before data collection started, all participants were requested to read a summary of the data collection procedures and sign a consent form. Pseudonyms were used to anonymize the data.

For data analysis, quantitative data gained from the test and scales were analyzed using frequency, mean, standard deviation, Pearson's product moment correlation, and multiple regression. Qualitative data obtained from the interviews and observations were analyzed using thematic analysis.

### 4. Findings

Most of the teachers, or forty-six out of fifty-two (88.5%), had never attended PBL training. Only six (11.5%) had any experience of PBL training. The findings, both qualitative and quantitative, are presented in four parts: (1) teachers' knowledge regarding PBL, (2) teachers' beliefs regarding PBL, (3) teachers' practices regarding PBL, and (4) the relationship among these three variables.

For *teachers' knowledge regarding PBL*, the true-false PBL knowledge test was administered to participants. Table 1 shows the percentages of EFL teachers who correctly and wrongly answered each item of the test. The results showed that the majority of teachers mostly understood PBL concepts (the percentage of correctness ranged from 67.3% to 100%). However, they misunderstood some PBL concepts.

Table 1. Teachers' knowledge regarding PBL

PBL knowledge test	Item	% of correctness (100%)	
		Range of percentage	Mean of percentage
Concepts of PBL (10 items)	1–10	17.3–98.1	70.01
Activities in PBL (6 items)	11–16	55.8–94.2	79.50
Assessment and evaluation in PBL (7 items)	17–23	88.5–100	92.04
PBL regarding teachers (3 items)	24–26	92.3–100	95.50
PBL regarding students (4 items)	27–30	59.6–92.3	71.63
Benefits of PBL (4 items)	31–34	90.4–98.1	94.25
Challenges and limitations of PBL (3 items)	35–37	71.2–88.5	82.07

From the quantitative data regarding teachers' knowledge about the concepts of PBL, it was found that some teachers had no idea how to use PBL in their English class. They needed more PBL training. Moreover, they could not differentiate between PBL and task-based learning. Thus, they were sometimes not sure what they did in class was right or wrong. Some teachers, especially young teachers, who had a PBL background were willing to use PBL in class.

*Extract 1*

*Honestly, I don't know to use PBL in my class. The language institute should provide a training course for us if they want us to teach students with PBL. They did once, but I had a class, so I missed it. (Lecturer 2)*

*The language institute requires us to implement PBL in class. But I have no ideas about it. I even can't tell you the differences of PBL, task-based learning, and problem-based learning. Maybe what I always did in class probably were PBL, I guess (Lecturer 5)*

For teachers' beliefs regarding PBL, the five-point rating scale was used to rank the degree of teachers' beliefs regarding PBL: (a) highest level of beliefs ( $M = 4.50-5.00$ ), (b) high level of beliefs ( $M = 3.50-4.49$ ), (c) moderate level of beliefs, or not sure of beliefs ( $M = 2.50-3.49$ ), (d) low level of beliefs ( $M = 1.50-2.49$ ), and (e) lowest level of beliefs ( $M = 1.00-1.49$ ). The quantitative results showed that EFL teachers highly believed in PBL's ability to encourage students' autonomous learning and self-directed learning as well as promote a great learning environment.

Table 2. Teachers' beliefs regarding PBL

Beliefs regarding PBL	Item No.	Number of item(s)			
		Range of mean score	Moderate level of belief (Not sure)	High level of belief	Highest level of belief
Concepts of PBL (3 items)	1-3	4.2-4.6	0	1	2
Activities in PBL (6 items)	4-9	2.6-4.2	2	4	0
Assessment and evaluation in PBL (2 items)	10-11	3.1-3.2	2	0	0
PBL regarding teachers (6 items)	12-17	2.5-3.8	2	4	0
PBL regarding students (5 items)	18-22	2.5-4.1	4	1	0
Benefits of PBL (2 items)	23-24	3.9-4.1	0	2	0
Challenges and limitations of PBL (5 items)	25-29	2.8-3.6	3	2	0
Overall beliefs about PBL (2 items)	30-31	4.0	0	2	0
Total			13	16	2

The qualitative results were consistent with the quantitative ones. Teachers admitted that PBL is a policy of the language institute implemented in language courses. It aims to enhance students' academic and autonomous learning. Hence, they believed that PBL can be used in their English classes to promote students' academic achievement and self-directed learning.

*Extract 2*

*The language institute promotes PBL to be used in class a lot. This is just like a language education policy something like that, so I think it's work; otherwise, it will not be introduced like this. But when to conduct class online with PBL, it is another story. It's hard to run PBL class. (Lecturer 6)*

*Thai learners are familiar with a lecture teaching style. They just wait for answers and make note. When they have to shift their learning style to an active one, a teacher needs to put too much effort and endeavor including time spent on PBL. But the results will be great if we ignore any workloads of ours and students. (Lecturer 9)*

*We were indirectly taught to think critically and creatively in American context, so PBL is designed for that purpose to promote Thai students to be autonomous in language learning. I strongly believe that PBL can*

*improve their self-directed learning. It works! (Lecturer 11)*

For teachers' practice regarding PBL, the three-point rating scale was administered to participants according to their practice frequency: high level of practice (M= 2.50- 3.00), Moderate level of practice (M= 1.50- 2.49), and Low level of practice (M= 0.00-1.49). According to the quantitative results shown in Table 3, it indicated that most of EFL teachers practiced PBL in an English classroom at the moderate level.

Table 3. Teachers' practice regarding PBL

Practice regarding PBL	Item No.	Number of item(s)			
		Range of mean score	Low level of practice	Moderate level of practice	High level of practice
Activities in PBL (9 items)	1–9	2.0–2.7	0	5	4
Assessment and evaluation in PBL (2 items)	10–11	1.8–2.0	0	2	0
Practice regarding teachers (3 items)	12–14	1.7–2.3	0	3	0
Practice regarding students (5 items)	15–19	1.3–2.5	1	3	1
Benefits of PBL (2 items)	20–21	2.3	0	2	0
Challenges and limitations of PBL (4 items)	22–25	1.7–2.2	0	4	0
Overall beliefs about PBL (1 items)	26	2.1	0	1	0
Total			1	20	5

The qualitative results, like the quantitative results, also showed a moderate or average level of PBL practice of teachers in class. There were many factors affecting PBL practice at the language institute, such as material and resource support, class size, content-based courses, and classroom culture.

### *Extract 3*

*I did some PBL in class, but not all, because you have to imagine that no one supports you such as PBL textbooks and resources. If you want to run PBL in class, you need to find these yourself . . . They have a PBL training course sometimes, but we need supporters. (Lecturer 7)*

*My course is relatively a content-based course. I need to cover everything within this course. Personally, spending too much time on working around the content is wasting time rather than giving them the exact answers and rules, I think . . . Think of a big class with a mixed ability of students, too. Asking them to work together, especially those from another major, is impossible. (Lecturer 8)*

*I think the classroom culture, Asian culture, is hard to understand for me as a foreign teacher. They seem to be silent without doing nothing that possibly affects PBL activities in my class sometimes. (Lecturer 11)*

*Some majors prefer a lecture and exam-oriented style without doing things too much. When assign them to work a project, their facial expressions changed, reflecting I am putting too many workloads and burdens for them. A negotiation is made by them to reduce mentioned workloads . . . I don't know, maybe some teachers have to please students to avoid any negative feedbacks and evaluation from students at the end of the course. (Lecturer 12)*

*There are many teaching techniques nowadays like problem based, active learning, flipped classroom etc. It's up to you to choose not only PBL. If you ask me about PBL, of course, I have a project work as one of the course assessments. I use many teaching techniques in my class, and PBL is one of them I frequently used in my class. (Lecturer 14)*

*We admitted that it's not easy and difficult to change a new way of teaching and our students. There are many limitations you need to think before dealing with PBL such as an academic support from the faculty, preferred learning styles of students as we will gradually change them . . . Large class size is another challenging thing. (Lecturer 15)*

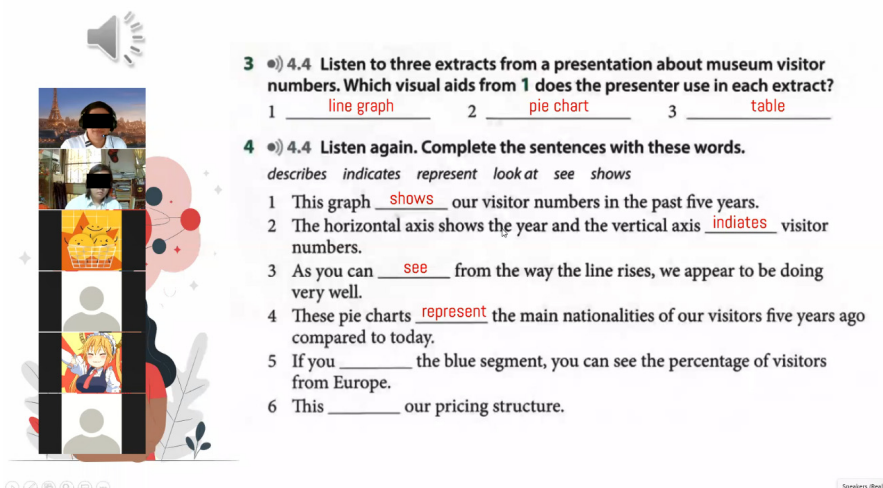
According to the classroom observation, it was challenging to use PBL while conducting an online class during the COVID-19 pandemic. All students turned their cameras off and stayed silent. Teachers thus engaged in one-way communication with these virtual classrooms. It was difficult to encourage students to actively participate in such long-distance classes. PBL seemed to be unsuccessful for Thai learners in this regard.

#### Extract 4

*When teaching online, you can anticipate that nobody turns the camera on. No one interact with you. Everyone seemed to be silent. It was hard to run PBL teaching in an online class, but we had no choice as of COVID-19 pandemic. I couldn't do much about PBL in an online class because there was no participation from them. You know the nature of Thai students, right? (Lecturer 3)*

*I had a problem to teach them online. As Thai cultures may influence their willingness to speak and participate in class, I guess. You can't expect too much from Thai college students, especially an online session . . . I have an idea of PBL and it is good for students, but what you could see from my class observation was about silence. That's why I can't run PBL smoothly and successfully in this online class (Lecturer 8)*

*The culture of Thai students . . . promoting them PBL in a normal class is challenging, but encouraging them to actively participate in an online class is more challenging . . . PBL seemed to be idealistic for Thai online class in practice, I think. (Lecturer 11)*



**3** 4.4 Listen to three extracts from a presentation about museum visitor numbers. Which visual aids from 1 does the presenter use in each extract?  
 1 line graph 2 pie chart 3 table

**4** 4.4 Listen again. Complete the sentences with these words.  
 describes indicates represent look at see shows

- This graph shows our visitor numbers in the past five years.
- The horizontal axis shows the year and the vertical axis indicates visitor numbers.
- As you can see from the way the line rises, we appear to be doing very well.
- These pie charts represent the main nationalities of our visitors five years ago compared to today.
- If you look at the blue segment, you can see the percentage of visitors from Europe.
- This indicates our pricing structure.

Figure 1. Most of students turned the camera off and remained silent without participating in the online class

(Source: Researcher)

For the relationship among teachers' knowledge, belief and practice regarding PBL, a weak correlation was found among these three variables ( $r = .329$ ). Teachers' knowledge and belief explained teachers' practice regarding PBL at 10.8% (R Squared = .108). However, no significant level, or no correlation, among these three variables was found based on a multiple regression test (Sig. = .061) (Table 4).

Table 4. A multiple regression test for correlation among teachers' knowledge, belief and practice

Model	R	R squared	Adjusted R squared	Std. error of the estimate	Change Statistics				
					R squared change	F change	df1	df2	Sig. F change
1	.329	.108	.072	.67731	.108	2.968	2	49	.061

However, the qualitative data on teachers' PBL knowledge, belief, and practice showed that these elements were interrelated. English teachers' PBL knowledge and beliefs were at a satisfactory level. However, their PBL practice was at an inconsistent level compared to their knowledge and practice. The qualitative data depicted this inconsistency among teachers' PBL knowledge, belief, and practice.

## Extract 5

*We have an idea how to use a project-based teaching in class, and I am quite sure that it might work because students can enjoy learning by doing . . . Theoretically, they can learn from what they want to know, learn and investigate with peers, and produce their own project . . . but in practice, any supports, time constraints, class sizes, preferred teaching and learning styles, etc., are also factors we need to deal with them if we want to bring PBL in class . . . What we can do is did it some, not all. (Lecturer 1)*

*PBL is an ideal concept that all teachers want to achieve, but we need to face many challenges and problems in class that directly affect our PBL teaching and learning activities. The culture of Thai students seems to be one of challenging thing we should keep in mind . . . We know and we believed that it is work, and better than the traditional one, but how to deal with and bring PBL into real classroom is more challenging . . . We need any supports in any directions. (Lecturer 7)*

*Not surprising that they always turned off the camera and react nothings to you. It's just like you talk there alone and by yourself. Even you try to ask them to turn the camera on and talk. It usually fails. They preferred to listen to your lecture passively and quietly . . . Teachers then have no ideas to encourage them to do PBL activities in online class. It's hard and difficult to change the Thai culture of learning and their preferred online learning styles. I sometimes need to give a lecture or a summary instead because of their silence and unwillingness to join any online activities. (Lecturer 9)*

*In online class, they usually have many excuses of not participating in class such as their internet connection, lack of efficient electronic devices, problems of the function of camera, or even leaving an online class without any notice. So, I honestly can't implement PBL in an online class. It's impossible to individually monitor and control every single student in a virtual class like this . . . I think I can't maximize my PBL teaching and learning in this particular class. (Lecturer 14)*

Although Table 4 showed no correlation among these three variables in terms of statistics, they had interrelations in terms of qualitative data. English teachers did have PBL knowledge and beliefs, but they poorly practiced PBL in class because of various limitations and constraints (Figure 2).

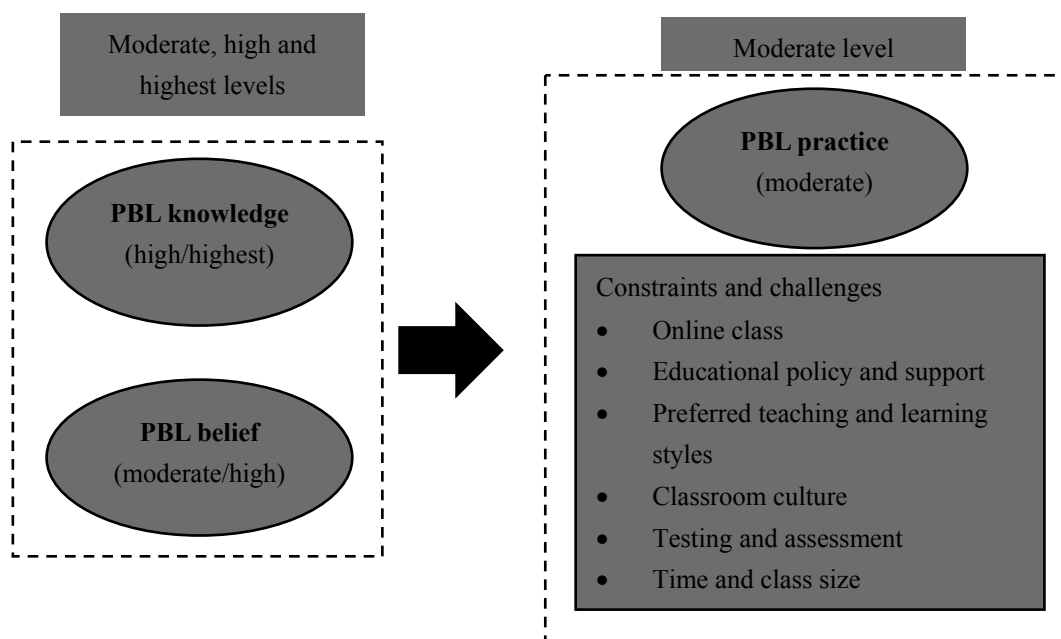


Figure 2. The relationship among teachers' PBL knowledge, belief, and practice

(Source: Researcher)



## 5. Discussion

According to the survey results, all EFL teachers mostly understood PBL concepts. This is in line with Koenig et al. (2011), who stated that teachers should have command of various teaching methods, including PBL. They should also know when and how to apply each method in class. The Thai government has emphasized student-centered teaching and learning, critical thinking, self-development, problem-solving skills, and lifelong learning (Office of the National Education Commission, 2003), all of which are relevant to the PBL approach.

EFL teachers had high and highest levels of belief that PBL can promote a positive English learning environment, autonomous learning, and self-directed learning. This aligns with Markham et al. (2003), who stated that PBL is a systematic approach that can improve language skills and help develop other skills. It is one of the most popular approaches among English teachers.

Teachers' practice of teaching activities in PBL was at a moderate and high level. A PBL policy is promoted at the language institute, and all EFL teachers must follow and apply PBL in their own classes. This is consistent with Watson and Keyuravong (2004), who stated that there is still an inconsistency between PBL policy and practice because teachers and students find PBL challenging to implement in many ways. Moreover, Thai students turned off their cameras and remained silent during online classrooms, which directly affected teachers' practice regarding PBL. This phenomenon is in line with Du et al. (2013), Thongprasert and Burn (2003), Prpic and Kanjanapanyakom (2004), Graham (2015), and Songsiri (2007) who pointed out that cultural differences can affect the dynamic of working and learning in a team. Thai students are afraid of making comments or critiques openly because doing so may be unacceptable in Thai society. This phenomenon plays a significant role in EFL teachers' practice regarding PBL in Thailand. Furthermore, various obstacles impede the conduct of a virtual class with PBL, such as weak internet connections, a lack of electronic devices, turning off the camera, and leaving the class without notice. These findings are in line with Graham (2010), who stated that a lack of resources such as materials, equipment, and teaching areas or project spaces add to the pressure of incorporating PBL into efficient learning.

No significant relationship was found among EFL teachers' knowledge, beliefs and practice regarding PBL. However, the qualitative results pertaining to teachers' PBL knowledge, belief, and practice showed that they are interrelated. Lotter et al. (2020) found a relationship between teachers' content knowledge and quality of instruction, and Darling-Hammond and Bransford (2007) showed that a teacher's knowledge is an indicator of their instruction quality. Teachers also modified their instructional beliefs to align with their beliefs about student learning and teaching. Moreover, a relationship was found between teachers' belief and their practice, consistent with Darling-Hammond et al. (2005). These authors pointed out that teacher belief plays a pivotal role in shaping teachers' integration of their knowledge into their actual practice.

Factors widely affecting the congruence or incongruence of teacher' beliefs and practice regarding PBL were educational policy and support, preferred teaching and learning styles, classroom culture, testing and assessment, and time and class size constraints. These results are consistent with Liddicoat (2004), who proposed that Thai English teachers are strongly entrenched in traditional methods of teaching, which are teacher centered. This is despite the fact that they have been introduced to new teaching approaches through the educational policy of the Thai Ministry of Education. Moreover, many EFL teachers and learners are familiar with the problems of traditional assessments (Marx et al., 1997), oversized classes (Blumenfeld et al., 1991), and time limitations (Stauffer et al., 2006; Grant, 2002).

## 6. Pedagogical Implications

The findings of this study indicated that EFL teachers who were lecturers teaching English at higher education institutions had PBL knowledge and beliefs and were willing to learn about innovations as well as adapt themselves to meet disruptive trends of teaching and learning and changing educational policies and supports. The results this study obtained with 52 English teachers (both Thai and native English teachers) may not be quantitatively generalized to the population because of the limited sample and the sampling technique. However, it could provide some insights into PBL knowledge, beliefs, and practice at the college level, which can then be transferred to relevant Thai educational settings, especially English teaching in the Thai context. Regarding transferability, EFL teachers are always ready and willing to grasp any new knowledge or innovation to update their professional practice and meet university policy requirements. However, support should always be provided to ensure the continuation of teaching innovation and PBL. Various types of educational training, both online and offline; resources; time and financial supports; and research and development resources should be provided.

The failures of PBL practice while conducting an online English class are prevalent among Thai teachers, given the class culture in Thailand and Thai students' learning characteristics. The phenomena of being silent, turning

the camera off, and showing unwillingness to participate in an online class make it problematic for EFL teachers in Thailand to implement PBL online. Passive students in PBL classes can be exposed to various types of student-centered activities, including group or pair work, which are consistent with the concepts of PBL and motivate students to work together. Thus, students have opportunities to interact with peers, which makes them feel secure. When conducting PBL online, teachers can assign students to groups in different parts of the classroom so that they can have their own comfortable learning space. Then, teachers can individually visit each group to scaffold those in need with positive reinforcement. Providing a learning and supportive environment when implementing PBL is crucial because it can help students feel more comfortable and eager to participate in PBL activities.

## 7. Recommendation for Future Research

Based on the findings and conclusions of this study, the following recommendations are made for future research: (1) a comparative study should be conducted among Thai EFL teachers, native teachers, and other English teachers in southeast Asian universities. These findings may provide more insights on PBL implementation in English classrooms throughout Asia. (2) Experimental research should be conducted by providing a project-based training or facilitation program as an intervention for EFL teachers in an experimental group. No intervention should be provided in a control group. Extraneous variables can be controlled in experimental research, helping researchers isolate the influence of the independent variable on the dependent variable while minimizing the influence of other factors. (3) Causal modelling or path analysis should be conducted to describe causal and other relationships among a set of related variables. A causal model incorporates the quantitative idea of multiple causality, according to which there can be more than one cause for any particular effect. A researcher can study the direct and indirect effects of each variable on another.

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