

## THE EFFECT OF PRACTICE-INQUIRY THEORY INTEGRATED IN BLENDED ENGLISH PERSONALIZED LEARNING ON STUDENTS' ATTITUDE

Ge Shigang<sup>1</sup>

\*Mohd Shahril Nizam bin Shaharom<sup>1</sup>

Chin Hai Leng<sup>1</sup>

[1] Faculty of Education, Universiti Malaya

\*nizamsaril@um.edu.my

**Abstract:** Since the post-COVID-19 era, institutions around the world have gained experience in digital teaching. In this study, the purpose is to promote an active English reading attitude within blended learning environments via the promotion of practice inquiry. Well-designed quasi-experiment exploration was used in AnShun No.2 high school in China for 12 weeks, and a total of 216 secondary pupils from the intact class were randomly allocated to EG and CG groups. Contrasting educational innovation samples t-test of between-group results revealed significant differences, with a positive attitude increase of 5.79 in EG. Admittedly, the intellectual value and comfort calculations have increased to  $M=2.69, p=.002$  and  $M=2.21, p=.001$ . Also, slight increases are evident in dimensions of anxiety ( $M=.41, p=.036$ ) and practice values ( $M=.48, p=.044$ ). Student attitudes are positive since the fulfillment derives from the innovative reading method. Give a practical example of blended pedagogy in secondary instruction. Using practical classroom pedagogy, trainers can stimulate the trainees' interest in learning English and further optimize their self-determination.

**Keywords:** Blended Learning, Practice-inquiry Model, Chinese Secondary Students, English reading Attitude, Educational Innovation

### INTRODUCTION

Amidst the journey of secondary education, institutions around the world are gaining experience with hybrid models of teaching and learning while pushing for more flexible and blended learning (BL) models (Ashraf et al., 2022). To improve English instruction, BL combines typical face-to-face classrooms with internet-based activities in various instructional scenarios (Rasheed et al., 2020). However, recent research has pointed out that BL learning is challenging for managers to grasp because learners vary in their learning situations, and there is no one-size-fits-all learning strategy based on different learning styles (online or offline). Saud Alahmadi and Muslim Alraddadi (2020) highlight that virtual classrooms, video conferencing, and self-paced training are among the contemporary learning modalities that have emerged with the rise of e-learning. In an attempt to facilitate English learning and teaching during the current pandemic, a wide range of virtual classrooms have been deployed, connecting educators and students through online platforms and assistive devices, thus enabling the sharing and exchange of ideas (Malkawi et al., 2021).

Under China's coping strategy, the vast majority of educational institutions and schools have been equipped with the necessary conditions for online learning and possess a certain degree of online learning experience (Jiang et al., 2023). In contrast, there are two important limitations to the application of these solutions in blended learning. Firstly, the ability of teachers themselves to conduct blended instruction is limited (Jiang et al., 2023). Secondly, designing a hybrid learning teaching mode for secondary education is challenging due to a lack of educational techniques (Ashraf et al., 2022). Furthermore, the program's determination should consider the instructional technological capabilities and computational literacy of administrators and students, but this decision frequently overlooks the unique requirements of each trainee (Chien & Hwang, 2022). These studies indicate that students benefit from a sound approach strategy, goal setting, knowledge search, experience integration, and real-world solution application process, as these factors have proven to be more effective in promoting student motivation and impacting curriculum performance.

As part of a blended learning program, traditional classrooms are combined with online campaigns, including contexts that rely on the self-determination of young people and teacher guidance, to enhance English teaching.

This innovation is being implemented in Chinese high schools to adapt to the era of digital blended training. Based on the above context, the research objectives of this project are:

- To assess the impact of respondents' attitudes towards practice-inquiry blended learning in the secondary English curriculum, both with and without its inclusion.
- To what extent of the respondents' attitudes towards practice-inquiry blended learning.
- To observe classroom dynamics and the effectiveness of blended teaching methods during secondary education English classes.

## LITERATURE REVIEW

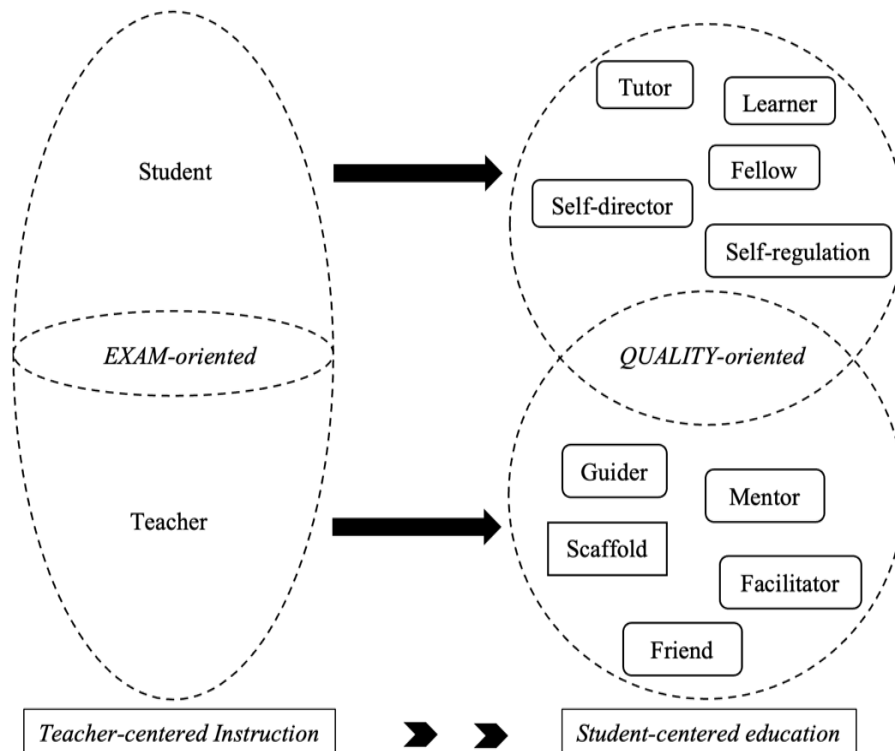
### *Blended Learning and Practice Inquiry Model*

The application of online instruction integrated with the physical classroom to become blended learning has always been controversial (Adhi et al., 2022; Ashraf et al., 2022; Goh & Yang, 2021; Liu, 2021). Proponents argue that this approach combines traditional learning methods with online learning, providing a more convenient and effective way to achieve optimal learning outcomes. Adhi et al. (2022) applied the ASSURE and design models to Islamic universities, demonstrating that combine the instructional e-learning to complete face-to-face learning simplifies the learning process. Furthermore, a survey conducted by Liu (2021) among college learners from China revealed that compared to conventional instructional methods, blended learning resulted in higher levels of attitude, instruction, comprehension, and overall effectiveness. It also contributed to improving participants' proficiency and well-rounded skills. Despite the increasing pace and evolving nature of skill teaching in the 21st century, traditional training techniques like rote memorization and exam-based instruction still dominate Chinese education (Zhang & Koshmanova, 2021). Blended learning serves as a valuable resource for education and application in management courses for higher education students, offering both theoretical insights and practical significance.

On the contrary, there are also objections to the application of the teaching design in practice. Schools and educators should select one or multiple blended learning approaches based on the equipment infrastructure and the information literacy levels of both trainers and trainees. However, this decision is frequently not well-informed. From the aspect of Goh and Yang (2021), an analysis of 92 students' samples indicates that pedagogical decisions must be carefully balanced by instructors since complex reasons. Educators lack the energy to match the new teaching model, and teaching preferences cannot take into account the specific needs of all students. Ashraf et al. (2022) made a systematic review of Chinese higher education and revealed the emerging difficulties about both technical and pedagogical issues while designing a BL course. According to the survey report, most lecturers or language teachers teach online through oral explanations, along with presentations or of displays online resources simply by projecting language learning materials through instructional equipment.

Practical inquiry is rooted in experience but also involves imagination and reflection upon that experience and practice. A series of practice-inquiry narratives from recent studies indicate that technical tools can be infused with purpose and meaning through creative engagement and inquiry, as opposed to creating arrangements that confuse or disengage participants (Ogegbo & Ramnarain, 2022; Thorn & Willcox, 2022). Inquiry-based learning should involve a collective effort, rather than being the expansion of a single person or a one-way transmission from isolated teachers. Instead, participants collaborate to create meaningful discourse, reflect, and communicate mutual understanding (D R Garrison, 2019). The creation of a shared world complements the cognitive aspects of individual understanding, bridging the gap between action and contemplation, as well as between perceiving facts and exploring ideas. This approach assists high school students in transitioning between the concrete and abstract realms.

Blended learning styles are tailored to practical needs, with a focus on integrating online resources into classroom teaching, thereby shifting the focus towards a more student-centered approach (see Figure 1). This type of learning emphasizes real-world problem-solving and encourages active cognitive, emotional, and aesthetic attitude. It avoids creating barriers that may hinder young people's initial interest in reading and prevents them from merely focusing on discrete information generated by straightforward answers to questions. The outcomes of teamwork within an internet-based educational setting progress through four stages of critical thinking and cognitive presence: project initiation preceding exploration of English reading practices, integration of language knowledge, and resolution (D Randy Garrison et al., 2001).



*Figure 1.* The Roles of Teachers and Students Transformation

### ***Pupil Attitude with Personalized Reading***

The mental state involving positive or negative representations encompasses learners' continuous internal reactions and views towards the English reading learning system, which includes feelings of comfort or anxiety (Muhammad Farshad et al., 2020). It can also be assessed and elucidated through factors such as attention, emotional state, and willpower post-training, encompassing intellectual and practical value (Shunsuke, 2020). Furthermore, the results indicate that individual differences, rooted in sociocultural and psychological perspectives, can influence one's language learning status. To facilitate and motivate learners in their reading endeavors, language learning activities should be diversified, spanning in-person physical settings and digital platforms. Educational technology serves as a valuable auxiliary tool, aiding teenagers in making informed choices and modifying their behaviors and circumstances (Rivas et al., 2019). Attitudes play a significant role in language course learning, with a negative attitude diminishing the willingness to proactively engage in learning and interaction. Practical measurements have been identified for various aspects, including anxiety, comfort, and intellectual value, all of which constitute variables used to gauge students' reading attitudes towards English (Shunsuke, 2020).

A comprehensive analysis of the literature concerning customized instructional adjustable content advocates reveals that personalized reading can foster a shift in learning attitudes, facilitated by a virtual device environment (Raj & Renumol, 2022). To incite reader engagement, particularly among young individuals who possess a heightened awareness of their own levels and needs, reading for pleasure is emphasized (Kucirkova & Cremin, 2018). Personalized reading involves leveraging provided resources to acquire new knowledge, comprehend the world, enhance cognitive abilities, and cultivate expertise in various disciplines. This process assimilates information from a spectrum of blended educational paradigms. In essence, the individualization of English reading learning comprises two fundamental components (Han, 2012). The first aspect pertains to self-study, which entails autonomous learning aided by digital devices and network resources to enhance understanding and knowledge. The second facet involves social learning, wherein individuals acquire experiences and knowledge through virtual interactions, integrating into groups, and engaging in communication and collaboration with fellow group members.

**Research Design**

The actual research design illustrates two processes: PIBL instruction and a parallel quasi-experiment with non-participatory observation (Figure 2). To facilitate convenience, consent was obtained from the local education department and the high school administration of a high school in AnShun. Additionally, the research process was communicated to students and their parents for ethical clearance.

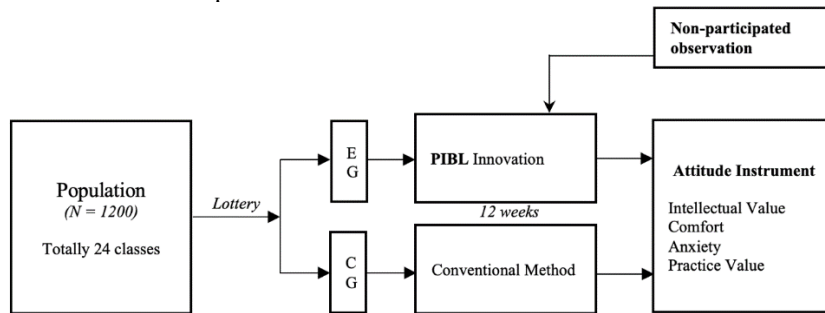


Figure 2. Actual research design

Theories that focus on the planning and creation of educational settings are combined with actual academic studies to create an innovative method. This method encompasses everything from evaluation and layout to execution and assessment, incorporating the Practice Inquiry Framework into the blended model. A mockup, known as PIBL innovation, divides the research process into four stages.

**PIBL Educational Instruction**

Figure 3 illustrates the PIBL teaching method. It begins with the trigger event, where the teacher acts as an administrator, creating a virtual class and several discussion groups using QQ software. Facilitating group learning for network-based activities promotes the development of various interpersonal relationships, enhances self-presentation, and improves communication skills among classroom participants. These abilities do not develop in isolation but require continuous interaction and feedback. The foundation lies in dynamic team collaboration and accumulating contact and interaction with team members. It's important to note that learning in extremely small groups is discouraged, as it reduces individual responsibility and learner motivation, favoring common goals over individual learning objectives due to the presence of a few highly skilled members in the team.

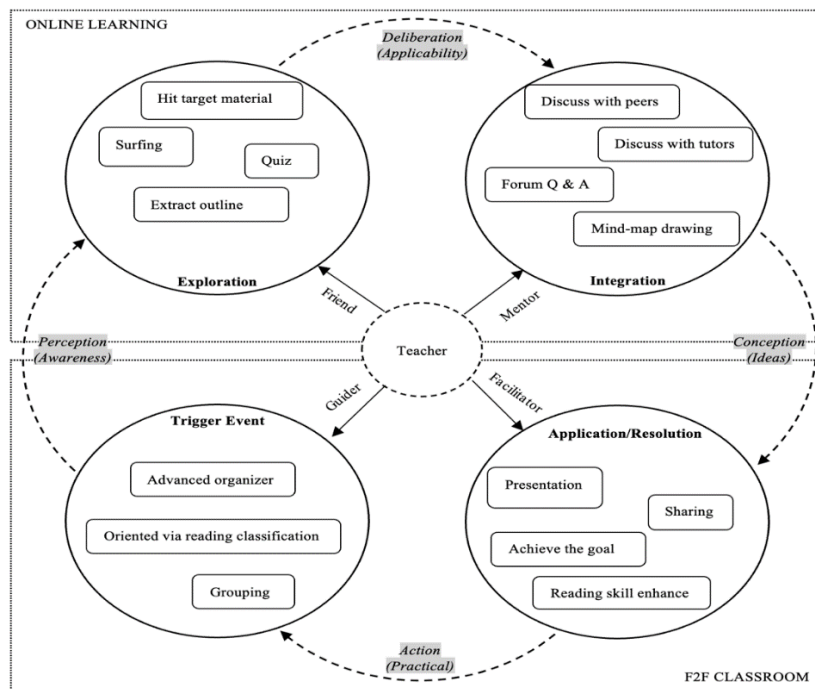


Figure 3. PIBL Educational Innovation Procedure

[55]

The second stage of the program is exploration. Each group coordinator assigns tasks to members selected by group consensus, focusing on their individual needs. Participants switch between private, reflective contemplation and social exploration of ideas. Students gain a comprehensive understanding of the reading materials and then delve into relevant information. During this stage, they make progress by targeting specific questions or problems, brainstorming, asking questions, and exchanging information among themselves through a detailed examination of the reading materials.

The third stage is integration. Sub-groups discuss and exchange ideas via 'Ding Ding Meeting,' a digital platform. Students evaluate the quality of their ideas and workload through practical exercises related to the reading content. They also initiate online communication with professors and classmates. This stage emphasizes the importance of concluding dialogues within the research community, synthesizing ideas, and constructing meaning. Active mentoring acts as a catalyst for ongoing cognitive development and intellectual growth, enabling students to identify misconceptions, find their direction, and receive feedback and additional information. Group forums help students stay on track with the material, progress through the reading process, and maintain literacy while exploring the subject matter.

The final phase is resolution or application, marking a continuous cycle. It can involve exploring new material through exercises, predicting the challenges of retaining the reading content, or tackling new, challenging materials. Returning to the physical classroom, students have the opportunity to put their enhanced engagement into practice with clear guidelines and knowledge acquisition. If a student has grasped the usefulness of what they've learned, they may move on to new challenges at the end of this educational stage. In cases where resolution generates more questions and new triggers, restarting the process becomes necessary.

#### ***Quasi-Experimental Method and Attitude Instrument***

The quasi-experimental method is for not disturbing the samples to form two intact comprising groups (Creswell, 2012). The conventional group (CG) and the educational innovative group (EG) were randomly selected from 24 classes instructed by 12 teaching staff. The progress of the PIBL innovation in the EG spanned 12 weeks, while conventional education pedagogy was utilized in the CG. The conventional method involved choosing a population of 1200 pupils from Anshun No. 2 High School due to its background and institutional support. Simple random sampling was used to select intact classes from the 24 groups of grade 11 students. To respect the rights and interests of participants, data collections were anonymous. Pre-test measurements of attitude were distributed during the first week, and post-test data were collected during the 12th week through the digital platform named 'WenJuanXing.' The purpose of the pre-test was to control any potential threats and determine whether they would have an impact on the post-test data. The pre-intervention attitude needs to be used as a covariate.

In this study, the attitude measurement originally consisted of 26 items, which were employed by Shunsuke (2020), and the researcher altered them to adapt to the field of PIBL's effect on English reading. Attitude instruments consist of 4 subgroups: the intellectual value domain contains 10 indicators, the comfort dimension has 8 items, and 4 indicators are involved in anxiety representative status, along with 4 items reflecting the practice value for the innovative method. Items utilize a 5-point Likert scale, with five indicating "strongly agree," and one indicating "strongly disagree."

Moreover, for the validation of attitude questionnaires, six experienced high school English teachers validated the content of total items and rate each by 1 to 4 for relevance, clarity, simplicity, and ambiguity. As stated by Polit and Beck (2006), evaluating content validity for multi-item scales could utilize the Content Validity Index (CVI) generally. Moreover, scale-level (S-CVI) calculate by adding them and partitioning CVI by the quantity of the item. The content validation index value on the attitude scale appears high validation because of the .93 calculation statistic (Pallant, 2016).

Furthermore, the reliability of attitude instrument is monitored by a pilot study where 30 teenagers who never participate in this research from school X. Cronbach's alpha values are calculated by SPSS software version 26, in total instruments' reliability also generates high consistency of .91 in the range of 0.70-0.95, which is piloted on 30 pupils from school X who never participated in this PIBL project (Pallant, 2016).

#### ***Observation process***

The analytical lens method is the non-participated observation (Cooper et al., 2004), which aims to maintain objectivity in data collection by avoiding any potential biases that could arise from direct involvement in the situation. It is often used when direct participation or interaction could disrupt the natural behavior or setting of

the subjects or when ethical considerations prohibit direct involvement. The researcher observes a situation, event, or group of individuals without directly interacting with them or becoming a part of the group being studied. The researcher remains an external observer, remaining detached from the subjects of the study. The observer remains an outsider and does not engage in the activities or interact with the participants. They maintain a neutral and non-intrusive stance.

## FINDINGS

### Survey Results

Before the controlling experiment, an independent sample t-test was to assure the bias. The test results showed that the overall parameters of the experimental group ( $M=90.19$ ,  $SD=11.28$ ) were consistent with the data of the control group ( $M=90.14$ ,  $SD=11.40$ ) since  $p=.99$  and more than a significant level of .05, which confirmed that their overall attitude towards English reading was consistent and could be compared. The data before the experiment need not be used as a covariable.

108 teenagers received innovative treatment from teacher A, and the other 108 pupils were given the traditional method by teacher B. Received attitude measurement after the treatment 216 valid respondents involve in this project by data cleaning and there is no missing value (Table 1).

Table 1 The Survey of Attitude Total Scores

Category	EG		CG	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Total attitude	95.94	11.58	90.16	11.23
Intellectual Value	39.62	6.22	36.94	6.29
Comfort	28.69	4.05	26.48	3.86
Anxiety	13.56	1.42	13.15	1.44
Practice Value	14.07	1.65	13.59	1.87

The attitude and its dimensions show average score and standard deviation in blended English reading pedagogy and conventional method are ( $M=90.16$ ,  $SD=11.23$ ) and ( $M=95.83$ ,  $SD=11.58$ ) respectively. Each of those second-order dimensions, intelligence value, along with comfort and anxiety, plus practice value are statistically described. The average score of these four dimensions after the intervention of EG is 39.62, 28.69, 13.5 and 14.02 separately. On the contrary, the corresponding mean scores in CG, 'Intellectual value' is 36.94, as well as 'Comfort' points equal to 26.48, plus 'Anxiety' ( $M=13.15$ ) and 'Practice Value' ( $M=13.59$ ) individually.

Table 2 Outcomes of Domains Extent

Domain	Content detail	<i>M</i>	
		EG	CG
Intellectual Value	Encountering unfamiliar expressions in English reading improves my English.	3.97	3.74
	I can improve my sensitivity to English language if I read English.	3.98	3.71
	I can develop reading ability if I read English.	3.97	3.40
	I can acquire vocabulary if I read English.	4.04	3.38
	I can become more sophisticated if I read English.	3.91	3.76
	I can learn to express myself better when I read English.	3.83	3.67
	I can acquire broad knowledge if I read English.	4.01	3.86
	I get to know about new ways of thinking if I read English.	3.96	3.77
	I get to know about different values if I read English.	3.93	3.81
	I can get various kinds of information if I read English.	4.02	3.84
Comfort	Read English is enjoyable.	3.66	3.29



	Read English is not dull.	3.69	3.37
	Read English is not troublesome.	3.67	3.39
	I feel refreshed and rested if I read English.	3.59	3.20
	I feel relaxed if I read English.	3.65	3.25
	I do not feel pressure if I read English.	3.43	3.23
	I do not feel tired if I read English.	3.42	3.29
	When I read English, it satisfies my intellectual curiosity.	3.59	3.46
Anxiety	I do not feel anxious when I'm not sure whether I understood the reading content.	3.35	3.20
	I do not feel anxious if I don't know all the words.	3.39	3.27
	When I read English, I rarely feel anxious that I may not understand even if I read.	3.34	3.31
	I don't mind even if I cannot understand the reading content entirely.	3.47	3.37
Practice value	Reading English is useful for my future career.	3.47	3.45
	Reading English is useful to get credit for class.	3.54	3.37
	Reading English is useful to get a good grade in class.	3.67	3.38
	Reading English is useful to get a job.	3.40	3.39

In terms of the intellectual value of teaching methods, we found that students showed a greater improvement in their familiarity with reading content in innovative teaching methods (3.97) compared to traditional methods (3.74). Students' sensitivity (3.89 to 3.71) and reading ability (3.97 to 3.40) also saw improvements in innovative teaching. Additionally, students favored the practice inquiry approach in blended learning for vocabulary acquisition ( $M=4.04$ ) compared to traditional methods (3.38). Furthermore, students exhibited increased sophistication (3.91 over 3.76) and better self-expression (3.83 over 3.67) with the innovative approach. They acquired broad knowledge (4.01 over 3.86) and embraced new ways of thinking (3.96 over 3.77). Their understanding of different values (3.93 over 3.81) and various kinds of information (4.02 over 3.84) also increased.

Regarding the comfort feeling associated with teaching methods, students reported an improvement in their enjoyable feelings, moving from 3.66 to 3.29. Blended personalized reading made English content less dull (3.69 to 3.37), and students found practice inquiry in blended learning for reading targeted English content less troublesome (3.67 compared to 3.39). They also felt refreshed and rested when engaging with the reading content in innovative methods (3.59 over 3.20). Students experienced a more relaxed feeling (3.65 over 3.25) and reduced pressure (3.43 over 3.23). They felt less tired when reading English (3.42 from 3.29) and exhibited greater intellectual curiosity (3.59 over 3.46).

In terms of the anxiety mind related to teaching methods, students reported a release of anxiety when they didn't understand the reading content (3.35 to 3.20). Blended personalized reading made English less anxiety-inducing (3.39 to 3.31), and they rarely felt anxious with practice inquiry in blended learning for targeted English content (3.34 compared to 3.31). Overall, students had a more relaxed mindset towards the reading content (3.47 over 3.37) after the treatment.

Regarding the practical value opinions of teaching methods, students found that reading English via the PIBL pedagogy was useful for their future careers (3.47 over 3.45) and benefited from getting credit for their class (3.54 compared to 3.37) in innovative methods. They also had more positive opinions about achieving good grades (3.67 from 3.38) and finding job prospects (3.40 in PIBL instruction compared to 3.39 in conventional methods).

#### ***Inferential Statistics of Attitude After Treatment***

The independent t-test was used for inferential analysis of the post-test data. Scientifically demonstrate the differences between the two learning methods, one is the conventional method, another is the PIBL innovative pedagogy.

Table 3. Method Sample T-Test of Attitudes

Content	Kolmogorov-Smirnova ( <i>p</i> )		Levene's Test		T-test				
	EG	CG	<i>F</i>	<i>p</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>
Total	.00	.00	.91	.34	5.79	1.54	3.75	214	.000
Intellectual	.00	.00	.01	.98	2.69	.85	3.16	214	.002
Comfort	.00	.00	2.55	.11	2.21	.54	4.11	214	.000
Anxiety	.00	.00	.06	.81	.41	.19	2.11	214	.036
Practice	.00	.00	.09	.76	.48	.24	2.03	214	.044

Inferential statistics of utilizing the design-based blended English reading training program (Table 6), the normal distribution existed in all classification data because the significant value of Kolmogorov-Smirnova is less than .05 (Pallant, 2016). In addition to the pupils' attitude about equality of variance error, *p* is .34 for Levene's Test (Pallant, 2016). Nothing is more important than the fact of teenagers' attitudes that met the assumption of equality with 'intellectual value' (*p*=.98), 'comfort' (*p*=.11), 'anxiety' (*p*=.81) and 'practice value' (*p*=.76).

The 216 experiment samples t-test of between-groups after the intervention results reveal that a significant difference reading attitude  $t(214)=3.75$ ,  $p=.001$  ( $p<.05$ ) occupies a positive increase of 5.79 in EG. On the other side, the intellectual value and comfort calculation are climbing noticeably to  $M=2.69$ ,  $t(214)=3.16$ ,  $p=.002$  and  $M=2.21$ ,  $t(214)=4.11$ ,  $p=.001$ . In contrast, also distinction variation in anxiety dimension  $t(214)=2.11$ ,  $M=.41$ ,  $p=.036$  after training, while practice value has a slight raise  $M=.48$ ,  $t(214)=2.11$ ,  $p=.044$ .

### Observation Results

In the 2<sup>nd</sup> week of implementation, students showed a positive response to English reading through their analytical lens. Students in the EG (Figure 4b) show that action is accompanied by a harmonious atmosphere, meanwhile, the CG always has a hard time learning (Figure 4a). EG students actively accessed and utilized online resources, including lecture notes, videos, and quizzes. This indicated an increased interest in self-directed learning. There was a noticeable increase in active participation during in-person sessions. Students seemed more engaged in classroom discussions and activities, possibly because they had access to course materials online, enabling them to prepare better. Another observation notes in 11<sup>th</sup> week, when the return to offline classroom teaching, a large area of discussion appeared in the EG (Figure 4c). From the observed mood of the students, it can be seen that the discussion has changed from a difficult face to a relaxed atmosphere. The online discussion forums were used frequently, and students appeared to engage in thoughtful discussions about course content. The quality of online interactions varied but showed a general increase in participation.



(a)



(b)





(c)

*Figure 4.* Observation Notes

## DISCUSSION

Since the results show a significant increase  $M=5.79$ ,  $p=.001$  between the comparison groups. The organized, methodical and innovative teaching method changes students' attitudes toward English reading. English reading in mixed mode enhances the competitiveness of intellectual value and has considerable practical value. In addition, it provides more comfort and releases anxiety. From the non-participated observation comparison, EG students are more delighted in English instruction discussion to the CG. Blended model instruction is the tailor reading materials to suit individual student needs and the transformation emerging in students' attitudes.

All the above evidence goes to show that the awareness of intellectual value and learning comfort is significant to raise when in the PIBL setting. The instructor is scaffolding in the digital surrounding to build an intellect exchange bridge, this is connected to Chien and Hwang (2022). Through continuous circular practice, students can assess their needs in the future, challenge the reading materials from low to high difficulty in each activity, or change the difficulty again and again, so that they can have a more accurate positioning at the beginning of each exercise (Zhang & Koshmanova, 2021). Emphasis the comfort literacy rather than the traditional blended model ignores students' group learning and does not consider individual differences. Secondary teenagers require more all-around education pedagogy to activate their interest, and trainers need to focus on attracting and interacting instead of strict supervision.

PIBL release anxiety through alternative discussion team, learners are active in group learning or work, giving students the opportunity to express their ideas and understandings to others, eliminate misunderstandings and assumptions and overcome their own fears and feelings of isolation (Liu, 2021), and to 'bargain' with peers or members to collaborate or negotiate, to work together to produce something of knowledge or to reach an agreement of integration (Ashraf et al., 2022). That is, students are grouped so that they can discuss and build knowledge from groups of what they have read. The exercises were suitable for the pupils as well since they knew exactly what they had to accomplish and were helpful in helping them understand the content. Instructors claim to know guidance and care for those whose knowledge-acquiring and problem-solving skills are mastered (Ogegbo & Ramnarain, 2022). Because awareness is created by participants in cooperative teaching and learning.

Electronic forums penetrate group collaborative activities within a group, learners can learn more about the material and develop their thinking skills. They rely on images to communicate or namely reliant on graphics for communication, alongside the preference for images, graphics and animation is far greater than text alone (Goh & Yang, 2021). Digital devices give full play to their functionality and diversity to present reading forms such as videos, slides and animations, which is also an advantage of online teaching (Raj & Renumol, 2022). Group projects are designed to expose students to high-level material that is challenging, thus stimulating more collaborative possibilities to construct multiple interpretations of the same material, or a combination of simple materials, depending on the reading ability of students. In addition, being in an online learning environment enables young people to receive timely feedback and guidance from teachers, thriving on instant gratifications and rewards, it is unnecessary to be worried about waiting for feedback, and lack the patience to continue learning.

The practice value of PBIL innovation is affirmed by teenagers. The need for practice promotes interest in learning, this is similar to Thorn & Willcox (2022). For several reasons, including their easy portability together with accessibility, mobile devices enable each member as part of a collaborative educational team to stay connected at any time and from anywhere (Adhi et al., 2022). Pupils have become more and more sophisticated in digital experience and personalized insight, especially in the aftermath of the Covid-19 pandemic. Additionally, because each device has a unique interface and set of features that enable sharing of work-related information and products, learners can better coordinate their interactions within their group. Classrooms physically break down the harm of addiction since teenagers have grown up with the Internet, along with computers and video games, as well as electronics have become completely integrated into their lives (Ashraf et al., 2022).

### **Implications**

This research changes the obsolete teaching form in the past, combines practice-inquiry of secondary teenager learning needs within blended training methods, and put the classroom back to learners in which they as the center of the classroom (D R Garrison, 2019). By applying and guiding the practical classroom pedagogy, trainers can attract trainees' attention to acquiring English knowledge and further optimize teenagers' self-determination (Kucirkova & Cremin, 2018). Additionally, these study outcomes provide Chinese educators with implications aligned with current circumstances. Instructors' responsibilities in the classroom include overseeing the teaching process, and acting as facilitators, researchers, and observers while pupils pick up new skills.

### **CONCLUSION**

The PIBL method has changed students' learning attitude compared to the traditional single teaching method and has been a significant improvement. Shift the classroom to the network to achieve further connection between teachers, students and peers. Dispel the idea that e-learning is a burden. With the optional reading mode based on their own needs, students can hit their own learning level more quickly, and teachers can also change their roles and focus more warmly on learners' communication and expression. English Blended learning makes it easier to offer differentiated instruction, providing students with content that matches their skill level and interests.

Language teachers should define students' profiles, and also learning style preferences before implementing instruction. Meanwhile, language learning strategies need to suit and create a learning environment. This is where an appropriate understanding of students' preferred learning styles and language learning strategies will contribute to greater success in language learning and language teaching. School administrators should train instructors and set up communication meetings for dual learning to create a seamless environment for trainers and trainees to use innovation. Moreover, give a strategic view of the English curriculum in Chinese high schools, while course conditions are chaotic and collaborative.

For future studies, the researcher would like to promote suggestions for comparing the use of PIBL innovation in other fields. Since various districts have various characteristics and socioeconomic backgrounds, increasing sample sizes to larger districts may be more useful for describing all demographic types. Alternatively, tying a variety of parts of schools together via the Internet, such as using a learning management system, can offer a fresh viewpoint on how to apply PIBL instruction. Further investigation or specific relationships between PIBL usage using both quantitative and qualitative research approaches to broaden the research field.

### **REFERENCES**

- Adhi, S., Achmad, D., & Herminarto, S. (2022). Developing a blended learning model in islamic religious education to improve learning outcomes. *International Journal of Information and Education Technology*, 12(2), 100–107. <https://doi.org/10.18178/ijiet.2022.12.2.1592>
- Ashraf, M. A., Mollah, S., Perveen, S., Shabnam, N., & Nahar, L. (2022). Pedagogical applications, prospects, and challenges of blended learning in Chinese higher education: A systematic review. *Frontiers in Psychology*, 12(1), 1–13. <https://doi.org/10.3389/fpsyg.2021.772322>
- Chien, S., & Hwang, G. (2022). A question, observation, and organisation-based SVVR approach to enhancing students' presentation performance, classroom engagement, and technology acceptance in a cultural course. *British Journal of Educational Technology*, 53(2), 229–247. <https://doi.org/10.1111/bjet.13159>
- Cooper, J., Lewis, R., & Urquhart, C. (2004). Using participant or non-participant observation to explain information behaviour. *Information Research*, 9(4), 1–15. <https://pure.aber.ac.uk/ws/portalfiles/portal/69769/Observation+to+explain+information+behaviour.pdf>
- Creswell, J. W. (2012). *Planning, conducting, and evaluating quantitative and qualitative Research* (4th ed.). Educational Research. <https://drive.google.com/file/d/1d5ZzlgJuCrwAyLpdBeK5dhKMZTpE2HNb/view>

- Garrison, D R. (2019). Online Community of Inquiry Review: Social, Cognitive, and Teaching Presence Issues. *Online Learning*, 11(1), 61–72. <https://doi.org/10.24059/olj.v11i1.1737>
- Garrison, D Randy, Anderson, T., & Archer, W. (2001). Critical thinking, cognitive presence, and computer conferencing in distance education. *American Journal of Distance Education*, 15(1), 7–23. <https://doi.org/10.1080/08923640109527071>
- Goh, T.-T., & Yang, B. (2021). The role of e-engagement and flow on the continuance with a learning management system in a blended learning environment. *International Journal of Educational Technology in Higher Education*, 18(49), 1–23. <https://doi.org/10.1186/s41239-021-00285-8>
- Han, F. (2012). Comprehension monitoring in reading English as a foreign language. *New Zealand Studies in Applied Linguistics*, 18(1), 36–49. [https://www.researchgate.net/publication/310952200\\_Han\\_F\\_2012\\_Comprehension\\_monitoring\\_in\\_English\\_reading\\_as\\_a\\_foreign\\_language\\_New\\_Zealand\\_Studies\\_in\\_Applied\\_Linguistics\\_18\\_36-49](https://www.researchgate.net/publication/310952200_Han_F_2012_Comprehension_monitoring_in_English_reading_as_a_foreign_language_New_Zealand_Studies_in_Applied_Linguistics_18_36-49)
- Jiang, Y., Shang, J., & Jiao, L. (2023). Review of China's online education policy, 1999–2022. *ECNU Review of Education*, 6(1), 155–182. <https://doi.org/10.1177/20965311221099581>
- Kucirkova, N., & Cremin, T. (2018). Personalised reading for pleasure with digital libraries: towards a pedagogy of practice and design. *Cambridge Journal of Education*, 48(5), 571–589. <https://doi.org/10.1080/0305764X.2017.1375458>
- Liu, Y. (2021). Blended learning of management courses based on learning behaviour analysis. *International Journal of Emerging Technologies in Learning*, 16(9), 150–165. <https://doi.org/10.3991/ijet.v16i09.22741>
- Malkawi, E., Bawaneh, A. K., & Bawa'aneh, M. S. (2021). Campus off, Education on: UAEU Students' satisfaction and attitudes towards e-learning and virtual classes during COVID-19 pandemic. *Contemporary Educational Technology*, 13(1), 1–14. <https://doi.org/10.30935/cedtech/8708>
- Muhammad Farshad, Panhwar, U. M., Jumani, S., & Sassi, S. (2020). Students' Attitude towards Reading in English at Dalian University of Technology, China. *International Journal of Innovation in Teaching and Learning (IJITL)*, 6(1), 140–158. <https://doi.org/10.35993/ijitl.v6i1.916>
- Ogegbu, A. A., & Ramnarain, U. (2022). Teaching and learning Physics using interactive simulation: A guided inquiry practice. *South African Journal of Education*, 42(1), 1–9. <https://doi.org/10.15700/saje.v42n1a1997>
- Pallant, J. (2016). *A step by step guide to data analysis using IBM SPSS (6th edition)*. Open University Press.
- Polit, D. F., & Beck, C. T. (2006). The content validity index: Are you sure you know what's being reported? Critique and recommendations. *Research in Nursing & Health*, 29(5), 489–497. <https://doi.org/10.1002/nur.20147>
- Raj, N. S., & Renumol, V. G. (2022). A systematic literature review on adaptive content recommenders in personalized learning environments from 2015 to 2020. *Journal of Computers in Education*, 9(1), 113–148. <https://doi.org/10.1007/s40692-021-00199-4>
- Rasheed, R. A., Kamsin, A., & Abdullah, N. A. (2020). Challenges in the online component of blended learning: A systematic review. *Computers & Education*, 144(1), 1–17. <https://doi.org/10.1016/j.compedu.2019.103701>
- Rivas, A., Fraile, J. M., Chamoso, P., González-Briones, A., Rodríguez, S., & Corchado, J. M. (2019). Students performance analysis based on machine learning techniques. *Communications in Computer and Information Science*, 1011, 428–438. [https://doi.org/10.1007/978-3-030-20798-4\\_37](https://doi.org/10.1007/978-3-030-20798-4_37)
- Saud Alahmadi, N., & Muslim Alraddadi, B. (2020). The impact of virtual classes on second language interaction in the Saudi EFL context: A case study of Saudi undergraduate students. *Arab World English Journal*, 11(3), 56–72. <https://doi.org/10.24093/awej/vol11no3.4>
- Shunsuke, T. (2020). Reading attitude and L2 extensive reading. *JACET Journal*, 64(1), 149–169. [https://doi.org/10.32234/jacetjournal.64.0\\_149](https://doi.org/10.32234/jacetjournal.64.0_149)
- Thorn, S. D., & Willcox, H. L. (2022). Collectively playable wearable music: Practice-situated approaches to participatory relational inquiry. *Wearable Technologies*, 3(1), 1–26. <https://doi.org/10.1017/wtc.2021.19>
- Zhang, W., & Koshmanova, T. (2021). From personal experiences of transformative learning on educational challenges and reforms in secondary school in China. *International Journal of Education (IJE)*, 9(3), 33–40. <https://doi.org/10.5121/ije2021.9304>