



 Duansheng Huang¹
 Premeuree
Chaumthong²⁺
 Yudhi Arifani³

^{1,2,3}Department of Education and Society, Institute of Science Innovation and Culture, Rajamangala University of Technology Krungthep, 10120 Bangkok, Thailand.

¹Email: 669240200131@mail.rmuth.ac.th

²Email: premeuree.c@mail.rmuth.ac.th

³Email: yudhi.a@mail.rmuth.ac.th



(+ Corresponding author)

ABSTRACT

Article History

Received: 1 June 2026

Revised: 27 August 2026

Accepted: 24 September 2026

Published: 22 October 2026

Keywords

Cognitive engagement
Facilitation teamwork
Interests
Learning motivation
Vocationally relevant skills.

In particular, this literature review examines the application of the FC concept in the educational area, focusing primarily on output perspectives but paying relatively little attention to the engagement process within out-of-class collaboration. In this way, the paper explores the extent to which flipped classroom strategy contributes to students' learning engagement in online project-based learning in history from both students' and teachers' perspectives. To do this, mixed-methods research was used. The study involved 120 students and three history teachers engaged in an 18-week FC-OPBL intervention program. Specifically, the quantitative data collection included administration of the perception questionnaire, and qualitative data were obtained by means of interviewing 20 students and three teachers. While teachers revealed slightly higher perceptions compared to those of the students, the Mann-Whitney U test revealed that there were no major differences in the perceptions of the two groups, indicating that both parties agreed on the usefulness of FC-OPBL in history learning. Qualitative results demonstrate that pre-class online preparation helps students gain initial historical knowledge, whereas in-class group projects allow for further discussion, interpretation, problem-solving, and historical knowledge integration with vocational identity. In addition, the results of the interviews demonstrate that pre-class preparation, online materials, group projects, and teacher guidance help students acquire historical knowledge, become more motivated, engage in peer communication, and reflective.

Contribution/Originality: This study is original in integrating a flipped classroom with online project-based learning in history courses and examining the approach simultaneously from students' and teachers' perspectives. Unlike prior studies focusing on either flipped learning or project-based learning, it reveals how their integration shapes engagement in online historical learning.

1. INTRODUCTION

The rapid growth of digital technologies, coupled with an increased focus on student-centered education, has led to the creation of educational designs that are more interactive, adaptive, and significant (Çelik et al., 2026). In this respect, the evolution of the flipped classroom has become increasingly popular among scholars because it moves direct teaching out of the classroom setting and allows for interaction, problem-solving, collaborative inquiry, and higher-order thinking during face-to-face sessions (She & Lai, 2026). The flipped classroom design makes it possible for learners to interact with study materials independently before attending class and to participate in classroom activities in a more proactive way (Lo & Hew, 2017; Pan, Lai, & Kuo, 2023). When supplemented with digital tools,

online project-based learning takes advantage of technology-mediated collaboration and resource sharing, making project development more adaptive (Bolívar, Triviño Jaimes, & Gonzalez, 2025; Sánchez-Muñoz, Carrió, Rodríguez, Pérez, & Moyano, 2022).

Historical studies are one of the essential components of Chinese vocational education because of the need to cultivate civic-mindedness, cultural identity, historical thinking, and knowledge of social development among the students (Akçayır & Akçayır, 2018; Lim, Jawawi, Jaidin, & Roslan, 2023). Nevertheless, it is hard for vocational students to realize the importance of history for career readiness and professional skills development since conventional lectures based on memorizing facts and preparing for tests are used as pedagogies in history courses in vocational education (Tang, Painho, & Vorobeva, 2026). Thus, the students do not have many chances to work on the interpretation of historical issues, connections between past events and current society, and integration of historical knowledge with professional identity and ethical norms in workplaces. Due to such difficulties in realizing the relevance of history for their future jobs, the students might demonstrate low participation and engagement (Tang et al., 2026). To solve this problem, the present research focuses on the perceptions of the students and teachers about the flipped classroom strategy designed to implement online project-based learning in the history course in Chinese vocational education. There is little information about the learning process formed through the implementation of the combination of flipped classroom and online project-based learning strategies (Al-Hoorie & Vitta, 2023; Arifani, Hidayat, Mulyadi, & Wardhono, 2020; Pan et al., 2023; She & Lai, 2026; Yu, Zhang, & Zhang, 2023). Moreover, there is a lack of data about the behavioral, cognitive, and emotional engagement of the students while participating in the history learning process.

2. LITERATURE REVIEW

2.1. Principles for Designing Flipped Classroom Courses

A flipped classroom is an instructional design in which the actual instruction takes place outside the classroom to enable collaboration, cooperation, and high-level learning inside the classroom (van Alten, Phielix, Janssen, & Kester, 2020). In Chinese vocational history lessons, students prepare for the lesson by watching videos and reading digital texts, timelines, questions, and source documents. Preparation provides students with understanding, inquiry, and reflection before they engage in any in-class activities. A flipped classroom is especially relevant for vocational learners, as they might consider history lessons abstract, exam-oriented, and unrelated to their professional future. Self-paced study reduces dependence on teacher-based lessons and opens up the possibility of linking historical knowledge with vocational identity, ethics, civic awareness, and the professional environment (Shih & Tsai, 2017).

Flipped teaching in history classes usually includes three stages, namely pre-class preparation, in-class activities, and post-class consolidation. Pre-class preparation involves the use of digital resources and the completion of preparatory assignments to help students identify topics for discussion (Olana, Bacha, & Lemma, 2026; Shih & Tsai, 2017). In class, teachers lead discussions, debates, case analyses, role-playing, and project presentations to develop historical thinking, collaboration skills, interpretive abilities, and problem-solving skills among students (Shih & Tsai, 2017). After class, students review materials, improve their project work, reflect on the learning process, and consolidate their learning using online platforms. Designing an effective course in flipped history classes calls for flexibility in learning, learner-centered activities, purposeful content selection, teacher scaffolding, and constructive feedback. Teachers are very important for tracking student progress, helping students interpret sources, and linking historical learning to civic, cultural, and professional virtues (Shih & Tsai, 2017). With the help of online platforms and collaboration tools, the flipped classroom approach can improve engagement among vocational history learners.

2.2. Online Project-Based Learning in History Courses

Project-based learning is an educational strategy that involves learners in designing, implementing, and evaluating projects addressing relevant problems and real-life situations (Bae, Craig, Xia, Chen, & Hmelo-Silver,

2021; Çelik et al., 2026). In the field of history teaching, project-based learning allows learners to study historical events, analyze source materials, identify historical and current issues, and generate learning outcomes such as electronic timelines, documentaries, exhibits, reports, posters, or presentations (van Alten et al., 2020). Project-based learning gives learners opportunities not only to listen to lectures and remember facts but also to research historical problems and apply their knowledge of history in their lives and professions.

The benefits of online project-based learning are enhanced through the use of technology to assist with planning projects, communicating, sharing resources, collaborating, and providing feedback. Students can use technology to access various historical sources, communicate with their peers, submit their draft projects, receive feedback from the lecturer, and edit their work even outside class hours (Shih & Tsai, 2017). In this case, the use of technology provides increased opportunities for interaction and facilitates further learning outside the confines of the traditional classroom environment (Lim et al., 2023; Pan et al., 2023; van der Eem, van Drie, Brand-Gruwel, & van Boxtel, 2023).

With the inclusion of the flipped-classroom model, the application of online project-based learning produces a coherent learning process. Pre-class learning helps learners gain basic historical facts, which are necessary for undertaking projects. Class time provides opportunities for discussion, inquiry, collaboration, and instruction. Post-class consolidation will help learners perfect their projects and reflect on their learning processes (She & Lai, 2026). It is expected that this integration will make learners more engaged in the learning process because participation, reflection, collaboration, and critical thinking are necessary (Han, Ji, Jin, & Choi, 2026; Olana et al., 2026).

From the students' standpoint, this approach can increase their engagement by enhancing autonomy, clarifying their roles in the learning process, and offering more opportunities to combine history studies with practical concerns (Al-Hoorie & Vitta, 2023). For teachers, the proposed model can provide an organized way to monitor students' readiness, manage projects, and evaluate both the learning outcomes and process (Shih & Tsai, 2017). Therefore, analyzing both students' and teachers' perspectives is necessary to explore how flipped-classroom-based online project-based learning fosters engagement in vocational history education. This emphasis will help address a limitation of previous studies, which have focused mainly on students' learning outcomes, satisfaction, or performance, while other dimensions of engagement have not been sufficiently explored.

2.3. Synthesis of Flipped Classroom and Project-Based Learning Studies

The findings of previous studies on the flipped classroom and OPBL in different contexts have generally been positive, despite the uneven amount of empirical research conducted in each case. In South Korea, Han and Na (2025) conducted a study involving a project-based flipped classroom in a cooking practice class and found positive results in terms of student satisfaction. However, the study did not examine the progression of engagement from pre-class to during-class and post-class activities, as it was based on a survey of 19 students. Similarly, Prasad and Raturi (2026) concluded that flipping improved the performance of 72 mechanical engineering students in project-based assessments, while measuring engagement only indirectly through perceptions, interactions, and performance.

The research conducted in Taiwan by Lai, Hsieh, and Yang (2025) is an example of a contribution to the literature regarding behavioral engagement in team-based flipped classrooms. Nevertheless, their focus is not on all aspects of learning engagement and is limited to team norms and behavioral engagement. Regarding Kazakhstan, research conducted by Borasheva (2026) demonstrates the effectiveness of using Telegram in flipped ESP classes in terms of improving students' motivation and participation levels; still, this paper does not pay much attention to teachers' perspectives or other process-focused characteristics of engagement. The aforementioned facts can be explained by analyses and syntheses indicating that most research on blended and flipped learning focuses on outcomes, satisfaction, or students' achievement and engagement levels (Naing, Whittaker, Aung, Chellappan, & Riegelman, 2023).

Critical synthesis of the existing literature indicates that there are four major shortcomings. Firstly, engagement is considered mostly as a final result rather than as a complex learning process facilitated by preparation,

collaboration, inquiry, revision, feedback, and reflection. Secondly, many researchers give priority to the views of student participants, but not to those of teachers or to their approaches to facilitation, assessment, and classroom management (Oknaryana et al., 2025; Shih & Tsai, 2017). Thirdly, some researchers report positive outcomes using measures such as satisfaction surveys, achievement tests, and self-reports; however, these measures do not explain how engagement develops. Fourthly, project-based flipped learning is mostly analyzed from the perspective of one participant, such as the teacher or student, resulting in a biased interpretation of FC-OPBL engagement-based learning and preventing its analysis as a dynamic process. Therefore, the research questions are formulated as follows:

1. How do students and teachers perceive their students' engagement levels across the cognitive, affective, and behavioral learning domains during the implementation of combined flipped classroom and project-based learning in a Chinese history course? Is there a significant difference between students' and teachers' perceptions?
2. How do Chinese students and history teachers perceive a combined flipped classroom and online PBL experience?

3. METHOD

3.1. Design

The current research adopted an embedded experimental mixed-methods design to investigate the perceptions held by the students and teachers regarding the effectiveness of using FC to facilitate OPBL in the history class. Quantitative data were collected to evaluate the students' perceptions of their engagement levels before and after the intervention, while qualitative data were used to understand the experiences of both the students and teachers related to the learning process. Data collection was conducted at three different stages according to the principles of embedded experimental mixed methods: before the intervention, during the intervention, and after the intervention. Before the intervention, initial interviews with the students and teachers were conducted in order to identify the learning requirements and develop the FC materials and activities. During the intervention, data sources such as online learning activity records, discussion notes, project artefacts, and reflective feedback from the students were collected to measure the students' engagement throughout the learning process.

3.2. Participants

The sample consisted of 125 second-year undergraduate students enrolled in a mandatory online history course at the university. The course was designed to improve students' knowledge of history, inquiry, collaboration, and project-based problem-solving skills by using a flipped classroom model along with online project-based learning (FC-OPBL).

It was a two-credit course that ran for two hours a week over an 18-week semester. Before the online meeting, students were expected to work with instructional materials and do their preparation, and during class, they discussed, collaborated, analyzed historical sources, and engaged in project activities. Over the course of the semester, students worked in groups and developed history projects, which included the presentation of historical facts digitally, historical case studies, creation of timelines, problem-based inquiries, etc. Out of the initial 125 participants, three students dropped out, and two did not complete their assignments; thus, 120 students were left for further analysis. The qualitative phase had 23 participants, among them 20 students who took part in the FC-OPBL course, who were purposefully selected, as well as three teachers who were teaching the course. In order to be interviewed, students should have been active in their online pre-class preparation, participated in project activities, done post-class reflection/project evaluation, and been willing to discuss their experience. Teachers were interviewed because of their direct involvement in FC-OPBL activity design, organization of student collaboration, and assessment of students' historical learning outcomes.

4. INSTRUMENT

4.1. *Perceptual Learning Questionnaire*

Adapted from the scales created by van Alten et al. (2020) and Shih and Tsai (2017), the PLS was modified to fit the flipped OPBL approach used to teach Chinese history. It seeks to measure students' perceptions of learning in the context of preparing for class through online activities, collaborating in historical investigations during class time, and reflecting online on projects after class (Arifani, Jumadi, Wardhono, Arifin, & Ma'ruf, 2023; Shih & Tsai, 2017; van Alten et al., 2020). To establish content validity, the items were modified according to the nature of instruction under the flipped OPBL framework in Chinese vocational education. The five identified subscales include perceived learning effectiveness in Chinese history, learning motivation, interest in historical inquiry, vocational skill development, and facilitation of teamwork.

According to Bloom, Krathwohl, and Masia (1956), the expected outcomes could be classified into three categories based on their learning domains: cognitive outcomes, affective outcomes, and skill outcomes. Cognitive outcomes involved students' understanding of historical events, cultural development, and the relationship between history and vocational education. Affective outcomes included students' motivation, interests, cultural awareness, and internalization of vocational values through history learning. Skill outcomes focused on students' ability to work cooperatively, engage in historical research, use online materials, produce projects, and develop vocational projects related to history. Regarding reliability, the Cronbach's alpha value for the total scale was 0.92, whereas the Cronbach's alpha values for the five subscales ranged from 0.84 to 0.94 (see Table 1).

Table 1. Dimensions, subscales, number of items, and reliability coefficients.

Dimensions	Subscales	No. of items	Reliability
Cognition	Perceived learning effectiveness in Chinese history	6	0.91
Affection	Learning motivation	6	0.94
	Interest in historical inquiry	5	0.85
Social and Skill	Development of vocationally relevant skills	6	0.84
	Facilitation of teamwork	4	0.84
Total scale		27	0.92

4.2. *Semi-Structured Interview Protocol*

An interview protocol employing a semi-structured approach was designed to explore the perspectives of learners and teachers on the use of the flipped classroom and online project-based learning (OPBL) activities in Chinese history lessons. The interview guide was designed to guide the discussions while allowing interviewees to elaborate on their learning processes, difficulties faced, and suggestions they could offer. The main questions focused on included: (1) How do you perceive the use of flipped learning activities in the context of each unit of Chinese history lessons? (2) How do you find the pre-class self-learning activities, such as watching video lectures, analyzing historical materials, and completing pre-class assignments? (3) How do you perceive the in-class participatory learning activities, which include historical discussions, source analyses, collaboration, and project development? (4) How do you perceive the post-class review activities, which include reflection, giving feedback, revising, and consolidating historical knowledge?

4.3. *Procedure and Data Collection*

This research was conducted over 18 weeks in a vocational history class in China. The research employed a flipped learning model through an online project-based learning design approach. Pre-class activities included access to online resources such as videos, readings, historical documents, maps, questions, and museum-related information. Students were required to complete brief activities, such as quizzes, notes, timelines, and reflective journal entries, that would allow them to gain basic historical knowledge. In-class activities included explanations of key concepts by the instructor, clarification of misconceptions, and collaboration on project tasks. These included analysis of historical

case studies, discussions of vocational values, creation of vocational and heritage products, and development of digital stories or history projects. Post-class activities allowed for the online continuation of project tasks through journal submissions, progress reports, revisions, peer reviews, and reflections (Shih & Tsai, 2017; van Alten et al., 2020).

Data were collected throughout the 18-week intervention period. Quantitative data were collected through a student learning engagement survey administered after implementing the flipped OPBL approach. The survey measured student engagement in terms of behavior, cognition, emotion, and sociability in the class. In addition, records of online learning activities, including video completion, quiz participation, online assignment submissions, discussion forum posts, and project uploads, were collected from the learning platform.

Qualitative data were collected through semi-structured interviews with selected students and teachers. Interviews with students focused on understanding their opinions about online learning before class, collaborative activities during class, project-based learning in history, interaction with peers, and reflective activities after class. In contrast, interviews with teachers covered topics such as instructional design, class facilitation, learner participation, implementation problems, and the importance of flipped OPBL in Chinese vocational history teaching.

Table 2. The procedures of FC-OPBL approaches.

Week	Topic	Pre-Class (Online)	In-Class (In-Person)	Post-Class (Online/In-Person)
Pre-questionnaire of				
1	Course orientation and Chinese vocational identity	Watch course introduction and read syllabus	Discuss history learning goals and vocational relevance	Reflect on personal learning expectations
2	Introduction to Chinese historical development	Watch short video on major historical periods	Create a timeline of Chinese history	Submit timeline summary
3	Ancient Chinese civilization and craftsmanship	Read materials on agriculture, bronze, and handicrafts	Group discussion on ancient skills and modern vocations	Post reflection on traditional craftsmanship
4	Confucian values and vocational ethics	Watch video on Confucianism and work ethics	Debate responsibility, discipline, and respect in workplaces	Write a short ethics reflection
5	The Silk Road and trade skills	Study maps and trade routes	Analyze the role of merchants, transport, and communication	Upload group mind map
6	Traditional technology and innovation	Read cases on papermaking, printing, and tools	Connect ancient innovation with modern technical education	Submit innovation comparison
7	Historical cities and local industries	Watch local history video	Discuss regional economic development in China	Prepare project topic proposal
8	Mid-course project planning	Review online project guidelines	Form groups and design history-based vocational projects	Submit project plan
9	Modern China and industrial transformation	Watch lecture on industrialization	Discuss factories, labor, and technical skills	Write learning journal
10	Education reform and vocational training in China	Read policy-based materials	Compare traditional education and vocational education	Submit comparison notes
11	Historical figures and professional values	Watch assigned biography videos	Present historical figures related to diligence and innovation	Peer comment online
12	Cultural heritage and tourism-related vocations	Explore digital museum resources	Design heritage-based vocational service ideas	Upload project progress
13	Local history field-based learning	Collect online materials on local heritage	Conduct in-person discussion or mini field observation	Submit observation notes

Week	Topic	Pre-Class (Online)	In-Class (In-Person)	Post-Class (Online/In-Person)
14	History, technology, and digital presentation	Watch tutorial on digital storytelling	Develop project products such as posters, videos, or exhibitions	Revise project output
15	Group project consultation	Review feedback online	Teacher-guided project mentoring	Submit improved draft
16	Project rehearsal	Prepare presentation slides online	Practice group presentation and receive feedback	Finalize presentation
17	Final project presentation	Upload final project materials	Present history-based vocational learning project	Complete peer evaluation
18	Course review and reflection	Review all online materials	Discuss learning engagement and vocational relevance	Submit final reflection

Table 2 presents the 18-week implementation procedures of the FC-OPBL approach across three sequential learning phases: pre-class online preparation, in-class face-to-face activities, and post-class online activities. The pre-class phase provided students with preparatory learning materials, including instructional videos, readings, historical resources, project guidelines, and digital learning materials, to establish the conceptual foundation required for subsequent classroom activities. The in-class phase emphasized active and collaborative learning through discussions, debates, timeline construction, project planning, field-based activities, presentations, and teacher-guided mentoring, thereby connecting historical knowledge with vocationally relevant contexts. The post-class phase extended the learning process through reflections, learning journals, project submissions, peer comments, project revisions, and evaluations, enabling students to consolidate their understanding and progressively develop history-based vocational projects.

4.4. Data Analysis

In the current study, perceptions of engagement among students and teachers in relation to the FC-OPBL Chinese history course were analyzed using three engagement domains: cognitive, affective, and behavioral engagement. The levels of engagement in the current study were interpreted based on the following criteria: a mean score between 1.0 and 2.5 indicated a low level of engagement, a score between 2.6 and 3.5 indicated a moderate level, and a score between 3.6 and 5.0 indicated a moderately high to high level. To analyze group differences, the Mann-Whitney U test was used because the groups were independent and the measurement scale was ordinal.

The qualitative data collected through semi-structured interviews were analyzed via thematic analysis to understand participants' experiences with respect to FC-OPBL. The areas of analysis included aspects such as preparation for flipped learning, online inquiry into history, collaboration on project work, the teacher's role in facilitating the work, peer interactions, digital challenges, motivation, and learning outcomes. The analytic process involved five steps: familiarization, coding, development of themes, review, and refinement. A structured coding framework based on the three engagement domains and FC-OPBL was used by two coders, with any differences discussed.

5. FINDINGS

Research Question (RQ1): How do students and teachers perceive students' engagement levels (cognitive, affective, and behavioral learning domains) during the implementation of combined flipped classroom and project-based learning in a Chinese history course? Is there a significant difference in perceptions between students and teachers?

To answer the first research question raised, the Mann-Whitney U test was used to examine each dimension of the perceptual learning scale and its constituent items, determining whether statistically significant differences existed between the two groups' perceptions. Effect sizes and confidence intervals were also provided to indicate the magnitude and reliability of the differences.

Table 3. Students' and teachers' self-reports of learning effectiveness (Cognitive engagement).

Items	Participants	M	SD	Mann-Whitney U	p	Effect Size	CI Margin (Low±High CI)
Pre-class self-study activities, such as watching history videos and reading historical materials, improve my learning	Students	3.50	0.74	1123.0	0.245	0.26	0.18 (-0.08) (0.44)
	Teachers	3.60	0.81				
Searching for and analysing historical sources online improves my learning	Students	3.55	0.81	1150.5	0.302	0.32	0.24 (-0.08) (0.56)
	Teachers	3.65	0.85				
Participating in online project-based learning tasks improves my learning	Students	3.45	0.71	1098.0	0.179	0.24	0.17 (-0.07) (0.41)
	Teachers	3.55	0.76				
Group discussions and collaborative interpretation of historical issues improve my learning	Students	3.60	0.61	1200.5	0.207	0.28	0.19 (-0.09) (0.47)
	Teachers	3.70	0.72				
Preparing charts, timelines, or visual explanations of historical events improves my learning	Students	3.50	0.76	1110.0	0.246	0.23	0.19 (-0.04) (0.42)
	Teachers	3.60	0.80				
Presenting group history projects and receiving feedback improve my learning	Students	3.55	0.80	1146.0	0.222	0.29	0.22 (-0.07) (0.41)
	Teachers	3.65	0.76				

The perceptions of learning effectiveness among students and teachers in the FC-OPBL history course are shown in Table 3. Generally, the respondents had moderately positive perceptions of the learning activities in several aspects, including self-preparation before class, analysis of online sources, project activities, collaborative interpretation, visual representation, and group presentation.

Teachers provided slightly higher average ratings than students on all measures, indicating a perception of greater effectiveness. The highest scores were received for group discussion and collaborative interpretation of historical problems, implying that collaborative learning was seen as the most effective activity. However, the Mann-Whitney U test showed no significant differences between the groups (all p-values were above .05 and had small effect sizes). The data suggest that students' and teachers' perceptions of the effectiveness of FC-OPBL learning are generally similar.

As is evident from Table 4, both teachers and students had positive perceptions of learning motivation in the FC-OPBL history class. The teachers' average scores were higher than the students' on all items, especially those related to online searching for history-related information and group history projects. This indicates that teachers had more positive perceptions of the motivational aspects of FC-OPBL than students did.

However, the results of the Mann-Whitney U tests show no statistically significant differences between the two groups' responses, as all p-values were above 0.05. The effect sizes were small, indicating minimal differences between the two groups.

Table 4. Students' and teachers' self-report of learning motivation (Affective engagement).

Items	Participants	M	SD	Mann-Whitney U	p	Effect Size	CI Margin (Low±High CI)
Watching pre-class videos and reviewing digital learning materials increased my motivation	Students	4.08	0.63	510.00	0.164	0.15	0.25 (-0.08) (0.40)
	Teachers	4.25	0.52				
Searching for historical information online helped increase my motivation	Students	4.11	0.61	498.00	0.130	0.16	0.26 (-0.10) (0.42)
	Teachers	4.31	0.48				
Participating in online project-based history tasks increased my motivation	Students	4.16	0.58	536.00	0.259	0.12	0.24 (-0.12) (0.36)
	Teachers	4.29	0.50				
Discussing historical sources, timelines, and key events with classmates increased my motivation	Students	4.03	0.66	474.00	0.079	0.19	0.26 (-0.07) (0.45)
	Teachers	4.28	0.46				
Using computers and online platforms for history learning activities increased my motivation	Students	3.94	0.72	555.00	0.348	0.10	0.25 (-0.15) (0.35)
	Teachers	4.06	0.61				
Presenting group history projects increased my motivation to learn, explain, and reflect on Chinese history.	Students	4.10	0.64	486.00	0.102	0.17	0.26 (-0.09) (0.43)
	Teachers	4.33	0.49				

Table 5. Students' and teachers' self-reports of learning interests (Affective engagement).

Items	Participants	M	SD	Mann-Whitney U	p	Effect Size	CI Margin (Low±High CI)
FC-OPBL increased my interest in constructing historical knowledge through pre-class preparation, online inquiry, and project activities.	Students	4.07	0.62	462.00	0.061	0.20	0.26 (-0.06) (0.46)
	Teachers	4.34	0.45				
FC-OPBL enhanced my interest in learning Chinese history	Students	4.12	0.60	444.00	0.040	0.22	0.27 (-0.05) (0.49)
	Teachers	4.42	0.43				
FC-OPBL encouraged me to explore historical topics, events, figures, and sources more actively.	Students	4.18	0.57	520.00	0.197	0.14	0.24 (-0.10) (0.38)
	Teachers	4.34	0.47				
FC-OPBL made classroom learning in the history course more engaging.	Students	4.20	0.59	480.00	0.090	0.18	0.26 (-0.08) (0.44)
	Teachers	4.46	0.41				
FC-OPBL increased my curiosity about the relationship between historical events and contemporary society.	Students	4.06	0.65	430.00	0.028	0.23	0.28 (-0.05) (0.51)
	Teachers	4.39	0.44				
FC-OPBL is a suitable teaching strategy for improving my interest in learning Chinese history.	Students	4.22	0.56	570.00	0.431	0.08	0.23 (-0.15) (0.31)
	Teachers	4.31	0.48				

Table 5 reveals that both students and teachers share a positive perception of learning interest in the FC-OPBL history class. As shown in the table, teachers report marginally higher mean ratings than students regarding the effectiveness of FC-OPBL in enhancing students' learning interest. According to the Mann–Whitney U test, there are two items for which students' ratings are significantly lower than those of teachers: "FC-OPBL enhanced my interest in learning Chinese history" ($p = 0.040$) and "FC-OPBL increased my curiosity about the relationship between historical events and contemporary society" ($p = 0.028$). Therefore, teachers perceive FC-OPBL contribution to students' interest in Chinese history and their historical curiosity as slightly more positive than students do. However, the effect sizes for these items are small, suggesting that the actual difference between the two groups is

not substantial. In general, FC-OPBL is viewed favorably by both students and teachers as a teaching approach that fosters students' interest in Chinese history and historical inquiry.

Table 6. Students' and teachers' self-reports of vocationally relevant skills (Social and skill engagement).

Items	Participants	M	SD	Mann-Whitney U	p	Effect Size	CI Margin (Low± High CI)
FC-OPBL activities in the history course helped me develop problem-solving skills when analysing historical issues, events, or project tasks.	Students	4.05	0.67	600.00	0.628	0.05	0.22 (-0.16) (0.28)
	Teachers	4.08	0.58				
FC-OPBL activities helped me improve my critical thinking skills when evaluating historical sources, viewpoints, and causes of historical events.	Students	4.13	0.61	615.00	0.739	0.04	0.22 (-0.16) (0.26)
	Teachers	4.12	0.55				
FC-OPBL activities helped me integrate historical knowledge from videos, readings, online resources, and group discussions.	Students	4.17	0.58	585.00	0.525	0.07	0.22 (-0.14) (0.32)
	Teachers	4.23	0.50				
FC-OPBL activities helped me improve my information technology skills when searching for, selecting, organising, and presenting historical information online.	Students	4.01	0.69	455.00	0.052	0.21	0.27 (-0.15) (0.31)
	Teachers	4.30	0.46				
FC-OPBL activities helped me strengthen my communication skills through group discussion, project collaboration, and history project presentations.	Students	4.09	0.64	535.00	0.254	0.12	0.25 (-0.18) (0.46)
	Teachers	4.22	0.51				
FC-OPBL activities helped me develop self-regulation skills, such as completing pre-class tasks, managing project, and reviewing my progress.	Students	3.96	0.71	500.00	0.135	0.16	0.27 (-0.18) (0.37)
	Teachers	4.18	0.57				

Table 6 shows that both the students and the teachers find FC-OPBL useful for developing vocationally oriented competencies in the history course. Regarding domains such as problem-solving, critical thinking, knowledge integration, information technology, communication, and self-regulation, both teachers and students provided positive ratings.

The teachers awarded somewhat higher ratings, especially for information technology and self-regulation. However, Mann–Whitney U tests did not show any statistically significant differences for most items, and effect sizes were small. Overall, these findings imply that teachers and students view FC-OPBL as useful for developing transferable skills.

The results regarding the impact of teamwork facilitation in the FC-OPBL history course are presented in Table 7. Both groups had positive perceptions of the teaching strategy. This means that the FC-OPBL approach enables learners to communicate, collaborate, work in teams, and complete history projects collaboratively. The mean values for teachers were higher than those for students in some categories, especially sharing responsibility and completing group activities together.

However, there were no statistically significant differences between the two groups according to the Mann–Whitney U test. This means that students and teachers have similar perspectives on the role of FC-OPBL in enhancing collaboration and learning.

Table 7. Students' and teachers' self-reports of the facilitation of teamwork (Social and skill engagement).

Items	Participants	M	SD	Mann-Whitney U	p	Effect Size	CI Margin (Low±High CI)
FC-OPBL activities in the history course enhanced my interaction skills when discussing historical topics	Students	4.14	0.60	590.00	0.559	0.06	0.22 (-0.16) (0.28)
	Teachers	4.18	0.54				
FC-OPBL activities improved my cooperative abilities when working with peers on history-related project tasks.	Students	4.21	0.57	610.00	0.701	0.04	0.22 (-0.16) (0.26)
	Teachers	4.22	0.49				
FC-OPBL activities helped develop my team spirit through shared responsibility, mutual support, and collaborative historical inquiry.	Students	4.18	0.59	560.00	0.375	0.09	0.23 (-0.18) (0.46)
	Teachers	4.28	0.45				
FC-OPBL activities enabled me and my classmates to complete history projects together through group planning, discussion, and presentation.	Students	4.10	0.63	470.00	0.073	0.19	0.27 (-0.18) (0.37)
	Teachers	4.36	0.44				

Research Question (RQ2): How do Chinese history students and teachers perceive a combined flipped classroom and online PBL experience?

The findings indicate that both Chinese learners and history instructors generally view the FC-OPBL approach to teaching history as interactive and learner-centered. Eight themes were identified from the interviews: pre-class interaction using flipped learning materials, online historical inquiry, project collaboration, teacher interaction, peer interaction, challenges in digital learning, motivation, and learning outcomes.

5.1. Theme 1: Pre-Class Engagement with Flipped Learning Materials

Many students noted that flipped materials prepared before class helped them better understand historical events, concepts, and background before engaging in projects in an online environment. Many students said that watching short videos, reviewing digital history materials, and completing preview work helped them participate in class discussions with clearer knowledge. Instead of listening to the teacher's explanations, students felt more responsible for preparing themselves. However, some students pointed out that advanced learning requires self-discipline, especially when the number of materials is large or when there are several subjects to complete online.

"Before class, I could watch the history video and understand the basic background first, so when the teacher discussed the project, I did not feel lost."

"The flipped materials helped me remember the timeline of historical events more clearly because I could pause the video and take notes independently."

"Sometimes I forgot to complete the pre-class task on time, but when I completed it seriously, I found the online project much easier to follow."

The same applied to the pre-class preparation, which teachers viewed as an important component of successful online PBL. It was noted that students who worked seriously with the flipped content showed increased activity during the processes of historical research, discussion, and project presentation. Moreover, teachers believed that pre-class preparation reduced the need for lecturing and provided more time to inquire, analyze, and guide the project. Quotes from teachers follow.

"Students who completed the pre-class materials were able to ask more specific questions about historical causes and consequences."

"The flipped classroom allowed me to move basic knowledge transmission outside class and use class time for deeper discussion."

"Pre-class learning was useful, but it also required careful design because some students watched the video without reflecting on its historical meaning."

5.2. Theme 2: Online Historical Inquiry

Online historical research was seen by the students as a useful tool for enhancing their knowledge of history beyond textbook learning. Through online searching, examining historical pictures, watching documentaries, and assessing information from websites, history seemed more real and supported by concrete evidence. Students said that, through inquiry activities, they had to compare various views, assess the credibility of information sources, and make their own assessments of history-related issues. The following is an account of the students' quotations.

"When we searched for different sources about the same historical event, I realized that history is not only about memorizing facts but also understanding different viewpoints."

"Online inquiry made the history project more interesting because we could find pictures, maps, and videos related to the topic."

"I learned that not every online source is reliable, so our group had to check whether the information was suitable for the project."

Teachers reported that conducting research online helped develop historical thinking abilities in their students. The learning process progressed from copying information to selecting, comparing, and analyzing it. However, teachers also said that students need help evaluating source reliability and conducting in-depth internet searches rather than merely surface-level ones. The following are some examples of teacher quotations.

"Online historical inquiry encouraged students to examine evidence rather than simply repeat textbook content."

"Some students initially copied information directly from websites, so I had to guide them in comparing sources and explaining historical significance."

"The inquiry process helped students understand history as interpretation, rather than merely fixed knowledge."

5.3. Theme 3: Collaborative Project Work

Collaborative projects were some of the most interesting components of FC-OPBL. Timelines, posters, short films, online presentations, and history reports all contributed to working together and learning from one another. All participants appreciated the fact that everyone had an equal chance to use their abilities, whether researching, making slideshows, writing scripts, or presenting research results. However, some students found scheduling and differing levels of participation among members problematic.

"Our group divided the work clearly, so some classmates searched for historical materials, some created the slides, and others prepared the presentation."

"I enjoyed the project because we could discuss historical problems together instead of studying alone."

"Sometimes one or two students did less work, but the project still helped us learn how to cooperate and solve problems."

Collaborative projects were considered key to transforming history teaching from a teacher-centered process into one in which knowledge was created. Teachers found that project-based activities increased students' discussion, negotiation, and organization of historical data. Moreover, collaboration improved communication skills, even though it required supervision.

"The project allowed students to reconstruct historical knowledge through teamwork, rather than simply receive information from me."

"Group work improved students' communication, but I needed to check whether each member had a clear role."

"Collaborative projects made students more responsible because their final product depended on group effort."

5.4. Theme 4: Teacher Facilitation

The students found teacher facilitation important for understanding project requirements, making sense of history-related concepts, evaluating sources, and improving their final outcomes. They appreciated teachers who provided prompts, examples, feedback, and hints during various stages of the project. The students stated that teacher facilitation helped reduce confusion during online project-based learning.

“The teacher did not just tell us the answer but asked questions that helped us think about the reasons behind historical events.”

“When our group was unsure how to organize the project, the teacher gave us suggestions and examples.”

“Teacher feedback helped us revise our presentation because we realized our explanation was too simple.”

The teacher’s role was seen not as a distributor of historical information but as a facilitator, designer, and monitor of learning. It was stated that, for FC-OPBL to be successful, teachers needed to design meaningful activities, scaffold the inquiry process, monitor groups, and provide feedback. Moreover, facilitation was seen as more difficult than traditional lecturing.

“In this model, my role shifted from explaining everything to guiding students’ inquiry and discussion.”

“I carefully prepared guiding questions so students could connect online resources with historical interpretation.”

“Facilitation took more time, but it allowed me to see how students actually understood and used historical knowledge.”

5.5. Theme 5: Peer Interaction

The participants expressed that interaction between peers helped make online history studies interesting and more engaging. This was because interaction allowed them to become aware of different ways of looking at things and how various techniques could be used to organise historical facts. Interaction also made it possible for shy students to participate gradually, as they could first exchange views within a group before presenting them to the whole class.

“When my classmates shared their ideas, I found that the same historical event could be understood from different angles.”

“Group discussion made me more confident because I could first express my opinion to my teammates.”

“Peer feedback helped our group improve the project because classmates pointed out unclear parts in our presentation.”

Similarly, teachers pointed out that peer interaction helped improve students’ engagement and communication skills. They reported that students showed a greater inclination to ask questions, answer their peers’ queries, and compare results while working in groups. Teachers also emphasized that peer interaction must have some structure to prevent passivity.

“Peer interaction encouraged students to listen to different interpretations of historical issues.”

“Students became more active when they discussed ideas with classmates before responding to the whole class.”

“Without clear structure, some peer discussions became unfocused, so teacher monitoring remained necessary.”

5.6. Theme 6: Digital Learning Challenges

Even after enjoying the experience, students faced certain hurdles in digital learning. These included internet connectivity problems, difficulty accessing the online portal, a lack of digital skills, distractions from other software, and information overload. In addition, some students found it difficult to distinguish between accurate and erroneous historical sources on the Internet.

One student stated, “Sometimes, the internet connection was unstable, so I missed part of the online discussion.”

“There was too much information online, and I did not know which source was most suitable for our history project.”

“When learning online, it was easy to be distracted by messages or other apps.”

Teachers had similar complaints as well. They mentioned that the digital divide and varying degrees of digital skills among students affected the smooth implementation of FC-OPBL. Moreover, teachers pointed out that online platforms would assist learning, provided that students had digital skills and learning activities were well organized.

“Some students struggled to use digital tools, particularly when searching for, organizing, and presenting historical information online.”

“Online learning provided many resources, but students needed guidance to avoid unreliable or irrelevant information.”

“Technology supported project-based learning, but unstable internet and distractions remained real challenges.”

5.7. Theme 7: Motivation

The students considered the learning activity using FC-OPBL (Flipped Classroom Online Project-Based Learning) more motivating than traditional history teaching. They expressed the opinion that using videos, Internet sources, collaborative work, and presentations made history teaching more engaging and relevant. Many students stated that the activities provided an opportunity to understand the importance of history in everyday life, culture, society, and current problems. However, motivation varied depending on the task's level of difficulty, the effectiveness of teamwork, and the teacher's assistance.

“I felt more interested in history because the project allowed us to explore the story behind the event, rather than merely memorize dates.”

“The online project made me want to participate because our group had to create something together.”

“When the topic was connected with real life, I felt history was more meaningful.”

Teachers observed increased motivation among students, particularly when the project topic was meaningful, inquiry-driven, and applicable to real life. They argued that FC-OPBL helped students engage emotionally and intellectually with history lessons. However, teachers pointed out that motivation depended on appropriately demanding tasks and sustained support.

“Students showed higher motivation when they could choose project topics related to historical figures, local culture, or social issues.”

“Compared with traditional lectures, students were more willing to participate because they had a visible project outcome.”

“Motivation improved, but students still needed encouragement when projects became difficult.”

5.8. Theme 8: Perceived Learning Outcomes

The students felt that the blended use of flipped classrooms and online PBL methodology improved not only their understanding of history but also their abilities to inquire, think critically, communicate effectively, work collaboratively, and become digitally literate. They felt they could improve the organization of historical chronologies, explain cause and effect, interpret information, and present their arguments more effectively.

“I learned history more deeply because I had to explain the causes, process, and influence of the event in our project.”

“This learning model improved my ability to search for information, discuss with others, and present our findings.”

“I became more independent because I needed to prepare before class and take responsibility for my part of the project.”

Positive effects on learning were also observed by the teachers; they noticed that their students had gained insight into how historical events relate to one another in terms of causation, continuity, change, and perspective. There was also marked improvement in their communication skills and use of technology in a research context. More

importantly, however, these improvements were observed only when students had completed their homework before class.

“Students’ historical understanding deepened because they had to analyze and present evidence, rather than merely recall facts.”

“The project improved students’ comprehensive abilities, including collaboration, communication, and digital learning skills.”

“The learning outcomes were stronger among students who completed the flipped materials and actively participated in group inquiry.”

The findings of the qualitative study indicate that both students and teachers viewed the hybrid approach combining the flipped classroom and online PBL in history courses positively. Students appreciated the opportunity to prepare before class, investigate historical problems online, collaborate, and develop projects. Educators considered the approach beneficial because it enabled history learning not only through reception but also through inquiry, discussion, and knowledge construction. At the same time, both groups recognized difficulties related to self-regulation, unequal participation within groups, digital literacy, internet access, and the credibility of sources.

6. DISCUSSION

From the quantitative and qualitative results obtained, it is clear that both the students and the instructors found value in the FC-OPBL history course, despite the fact that the Mann–Whitney U tests showed no statistically significant differences between the two groups on most items. In other words, both the students and the instructors perceived aspects such as flipped-class preparation, online historical investigation, collaboration, and presentations as beneficial in terms of increasing students’ efficiency, motivation, skill development, and collaboration. Since the effect sizes were very small, it is possible to assume that the practical differences between the two groups were insignificant. Such an outcome can be explained by the FC-OPBL design, which created a transparent educational framework for both the students and the instructors: the former went through the learning experience, while the latter observed improvements in the students’ preparation, collaboration, and project completion.

The reasons for the moderately positive results in terms of learning effectiveness may be found in the congruence between the principles of the flipped classroom method and historical learning needs. In the process of flipped learning, the acquisition of basic knowledge is moved to the pre-class stage, which means that in-class or online discussion time is freed up for interpretation, problem-solving, and feedback activities. In the current research, it was shown that, from a qualitative point of view, pre-class materials helped students prepare for historical inquiry and projects because they provided historical context before the students engaged in the inquiry and project processes. Therefore, the results support the theoretical perspective according to which flipped learning is not only the process of using video material but also a reorganization of time, which allows students to assume greater responsibility for initial knowledge construction and provides teachers with conditions for facilitating deep learning (Çelik et al., 2026).

As seen in the results related to learning motivation and learning interest, FC-OPBL facilitated the history learning process through engaging in online searches for historical sources, collaborating on the interpretation of historical issues, and presenting projects in groups. Table 5 shows that both teachers and students held positive views of FC-OPBL in terms of learning interest. Nevertheless, two items showed statistically significant differences between the two samples. Teachers scored significantly higher on "FC-OPBL enhanced my interest in learning Chinese history" ($p = 0.040$) and "FC-OPBL increased my curiosity about the relationship between historical events and contemporary society" ($p = 0.028$). These results suggest that teachers viewed the pedagogical significance of FC-OPBL in stimulating historical interest and contextual curiosity more positively than their students did. In turn, qualitative data can explain why this occurred: students felt that the process of learning history became dependent on evidence, narration, visual sources, and social context, and became less focused on memorizing dates, while also involving a considerable workload, internet navigation, and collaboration with other group members. This correlates

with the theory of project-based learning, in which learners are considered active participants in investigating meaningful problems, collaborating with peers, setting objectives, communicating findings, and reflecting on outcomes. Moreover, the results coincide with those obtained by Pan et al. (2023) in the area of history education, as they demonstrated that the possibility-thinking project-based learning model was more effective than didactic instruction in enhancing motivation, creativity, and historical knowledge. However, in contrast to the aforementioned studies, this research adds valuable insight into how differently teachers and students perceive the affective aspect of FC-OPBL: while the former see the instructional potential of this method, the latter are influenced by both the interest and the practical challenges of working with projects and digital technology in history classes.

The results concerning competencies related to vocationally relevant skills suggest that the FC-OPBL approach was regarded as a facilitator of problem-solving, critical thinking, knowledge integration, IT literacy, communication, and self-regulation. Insights from the qualitative analysis reveal that these competencies arose from the processes of searching for sources, evaluating information, distributing project roles, creating visual products, and presenting interpretations. The results match the theoretical framework of online problem-based learning (PBL), in which learning is arranged around inquiry, artefact construction, and collaborative problem-solving rather than passive content consumption. Specifically, in history education, these competencies are important because comprehension of historical events presupposes the need to evaluate evidence, compare conflicting positions, and develop an interpretation. The same results were obtained by Bae et al. (2021), who found that PBL could promote historical thinking, provided that learners receive guidance through representational tools and teacher intervention. In addition, the current results confirm van der Eem et al. (2023)'s claim that students should possess procedural knowledge and task value to assess the credibility of historical sources.

Conclusions about teamwork show a positive attitude towards interaction, cooperation, team cohesion, and the joint completion of projects. This is because of the underlying principles of social constructivism in FC-OPBL, whereby students acquire historical knowledge through dialogue, negotiation, peer explanations, and joint artifact creation. According to the interview results, peer discussion was valuable because students received different views of the same historical event from their peers, whereas teachers argued that structured team roles were essential to ensure equal participation. Therefore, the results partially agree with those of Zhao and Li (2021), according to whom peer collaboration in the context of flipped learning includes comparison, correction, negotiation, complementation, and emotional support. The research also partially supports the results of Kokotsaki, Menzies, and Wiggins (2016), who described collaboration, communication, autonomy, and reflection as the main characteristics of PBL. However, the present research differs from overly positive views about collaboration in learning because of the identified problems of unequal participation, lack of focus, and the necessity of teacher supervision.

Moreover, the insights gained from the qualitative data about the issues facing digital learning explain why the quantitative data were good but not outstanding. The learners appreciated videos, online platforms, and digital history sources; however, they also experienced poor internet connections, distractions, information overload, and the challenge of assessing sources. Similarly, the teachers realized that FC-OPBL calls for the proper design of tasks, assistance with digital literacy skills, and facilitation of the process. All these insights are supported by the review by Lo and Hew (2017) regarding the issues of flipped classrooms in K-12 learning, and they require proper guidance, motivation, and a community of learners. In addition, the insights are supported by the research conducted by Lim et al. (2023) regarding PBL in history classes.

7. CONCLUSION

Based on the results of the study, it becomes evident that the use of FC-OPBL increases student engagement in Chinese vocational history courses. Both teachers and students have positive perceptions concerning increases in effectiveness, motivation, interest, skill acquisition, and collaboration among learners during the process of history learning through the FC-OPBL approach. The qualitative evidence confirms that the use of FC-OPBL involves

effective online pre-class preparation, which facilitates an initial understanding of the material, and in-class project-based activities, which help students become more involved in learning and collaboration. The major contribution of the study can be seen in the provision of a theoretical framework for the concept of a learning engagement checklist, which allows for monitoring students' engagement outside class. Specifically, the learning engagement checklist helps teachers trace students' participation in collaborative learning outside the classroom and provide equal participation opportunities for all group members. Practical contributions lie in the provision of a method for monitoring students' learning engagement outside the classroom. Using the learning engagement checklist, one can identify problems associated with unequal participation, passive learning, and collaboration problems and design ways to improve the quality of students' collaborative learning outside the classroom. Limitations involve the context of the particular course used in the study, the use of self-reported data, and unevenness in students' readiness for online learning and projects. Future studies should recruit larger and more diverse samples, employ experimental and longitudinal methods, and explore the influence of FC-OPBL on the development of historical thinking skills, digital competencies, and vocational skills.

Funding: This study received no specific financial support.

Institutional Review Board Statement: This study was approved by the Institutional Review Board of Mahachulalongkornrajavidyalaya University under Reference Number [MCU 8007/R.759/2024], dated [July 1, 2024].

Informed Consent Statement: Informed verbal consent was obtained from all participants. All data were anonymized to protect participants' confidentiality.

Transparency: The authors state that the manuscript is honest, truthful, and transparent, that no key aspects of the investigation have been omitted, and that any differences from the study as planned have been clarified. This study followed all writing ethics.

Competing Interests: The authors declare that they have no competing interests.

Authors' Contributions: All authors contributed equally to the conception and design of the study. All authors have read and agreed to the published version of the manuscript.

Disclosure of AI Use: The authors acknowledge the use of AI to proofread and paraphrase several parts of this manuscript. While the authors acknowledge the use of AI, they maintain that they are the sole authors of this article and take full responsibility for its content.

REFERENCES

- Akçayır, G., & Akçayır, M. (2018). The flipped classroom: A review of its advantages and challenges. *Computers & Education*, 126, 334–345. <https://doi.org/10.1016/j.compedu.2018.07.021>
- Al-Hoorie, A. H., & Vitta, J. P. (2023). The flipped classroom in second language learning: A meta-analysis. *Language Teaching Research*, 27(5), 1268–1292.
- Arifani, Y., Hidayat, N., Mulyadi, D., & Wardhono, A. (2020). Enhancing EAP learners' vocabulary acquisition: An investigation of individual SMS-based reporting activities. *Teaching English with Technology*, 20(5), 125–146.
- Arifani, Y., Jumadi, J., Wardhono, A., Arifin, S., & Ma'ruf, H. (2023). Preliminary development and validation of basic psychological needs fulfillment for ESP teachers in online instruction. *Innovation in Language Learning and Teaching*, 17(5), 877–893. <https://doi.org/10.1080/17501229.2023.2185623>
- Bae, H., Craig, K., Xia, F., Chen, Y., & Hmelo-Silver, C. E. (2021). Developing historical thinking in large lecture classrooms through PBL inquiry supported with synergistic scaffolding. *Interdisciplinary Journal of Problem-Based Learning*, 15(2), n2. <https://doi.org/10.14434/ijpbl.v15i2.28776>
- Bloom, B. S., Krathwohl, D. R., & Masia, B. B. (1956). *Taxonomy of educational objectives: The classification of educational goals. Handbook I: Cognitive domain*. United States: David McKay Company.
- Bolivar, R., Triviño Jaimes, N. R., & Gonzalez, E. A. (2025). Implementation and benefits of hybrid methodology: Flipped classroom and project-based learning in mechanical engineering courses. *International Journal of Mechanical Engineering Education*, 53(1), 102–124. <https://doi.org/10.1177/03064190231209989>
- Borasheva, A. (2026). Student engagement and language learning in a flipped ESP classroom: The role of Telegram. *Social Sciences & Humanities Open*, 13, 102382. <https://doi.org/10.1016/j.ssaho.2025.102382>

- Çelik, O. T., Candemir, B., Sağlam, M., Tunç, Y., Açar, D., & Kahraman, Ü. (2026). Focal points for digital technology integration in early childhood education: implications from practitioners' perspectives. *Education 3-13*, 54(1), 169-185. <https://doi.org/10.1080/03004279.2023.2290673>
- Han, I., Ji, H., Jin, S., & Choi, K. (2026). Mobile-based artificial intelligence chatbot for self-regulated learning in a hybrid flipped classroom. *Journal of Computing in Higher Education*, 38(1), 285-309. <https://doi.org/10.1007/s12528-025-09434-8>
- Han, S., & Na, K. T. (2025). Project-based flipped classroom method in a cooking practice class: A case study. *SAGE Open*, 15(1), 21582440251321574. <https://doi.org/10.1177/21582440251321574>
- Kokotsaki, D., Menzies, V., & Wiggins, A. (2016). Project-based learning: A review of the literature. *Improving Schools*, 19(3), 267-277. <https://doi.org/10.1177/1365480216659733>
- Lai, H.-M., Hsieh, P.-J., & Yang, F.-C. O. (2025). Team collaborative norms enhance students' behavioral engagement in team-based flipped classrooms: A multilevel analysis. *Computers & Education*, 241, 105468. <https://doi.org/10.1016/j.compedu.2025.105468>
- Lim, S. W., Jawawi, R., Jaidin, J. H., & Roslan, R. (2023). Learning history through project-based learning. *Journal of Education and Learning*, 17(1), 67-75.
- Lo, C. K., & Hew, K. F. (2017). A critical review of flipped classroom challenges in K-12 education: Possible solutions and recommendations for future research. *Research and Practice in Technology Enhanced Learning*, 12(1), 4. <https://doi.org/10.1186/s41039-016-0044-2>
- Naing, C., Whittaker, M. A., Aung, H. H., Chellappan, D. K., & Riegelman, A. (2023). The effects of flipped classrooms to improve learning outcomes in undergraduate health professional education: A systematic review. *Campbell Systematic Reviews*, 19(3), cl2. 1339. <https://doi.org/10.1002/cl2.1339>
- Oknaryana, Zona, M. A., Hayati, A. F., Marna, J. E., Handayani, D. F., Zulvia, Y., . . . Kurniawan, H. (2025). A decade of flipped learning research in Indonesia: Bibliometric insights. *Cogent Education*, 12(1), 2488158. <https://doi.org/10.1080/2331186X.2025.2488158>
- Olana, T., Bacha, K., & Lemma, A. (2026). Secondary school students' perceptions of the flipped classroom approach in biology learning. *Discover Education*, 5(1), 270. <https://doi.org/10.1007/s44217-026-01427-8>
- Pan, A.-J., Lai, C.-F., & Kuo, H.-C. (2023). Investigating the impact of a possibility-thinking integrated project-based learning history course on high school students' creativity, learning motivation, and history knowledge. *Thinking Skills and Creativity*, 47, 101214. <https://doi.org/10.1016/j.tsc.2022.101214>
- Prasad, D. D., & Raturi, S. (2026). Addressing learners' academic performance through flipped classroom strategy in project-based assessment—an evidence-based reflection. *International Journal of Mechanical Engineering Education*, 54(3), 712-728. <https://doi.org/10.1177/03064190251325256>
- Sánchez-Muñoz, R., Carrió, M., Rodríguez, G., Pérez, N., & Moyano, E. (2022). A hybrid strategy to develop real-life competences combining flipped classroom, jigsaw method and project-based learning. *Journal of Biological Education*, 56(5), 540-551. <https://doi.org/10.1080/00219266.2020.1858928>
- She, L., & Lai, L. (2026). Is the SPOCs flipped classroom model effective in enhancing student exam scores? A meta-analysis. *Interactive Learning Environments*, 34(2), 825-845. <https://doi.org/10.1080/10494820.2025.2511235>
- Shih, W.-L., & Tsai, C.-Y. (2017). Students' perception of a flipped classroom approach to facilitating online project-based learning in marketing research courses. *Australasian Journal of Educational Technology*, 33(5), 32-49. <https://doi.org/10.14742/ajet.2884>
- Tang, V., Painho, M., & Vorobeve, D. (2026). Integrating tailored generative AI into the flipped classroom: A pilot implementation in higher education. *Innovations in Education and Teaching International*, 63(5), 1435-1453. <https://doi.org/10.1080/14703297.2025.2523898>
- van Alten, D. C., Phielix, C., Janssen, J., & Kester, L. (2020). Effects of self-regulated learning prompts in a flipped history classroom. *Computers in Human Behavior*, 108, 106318. <https://doi.org/10.1016/j.chb.2020.106318>

- van der Eem, M., van Drie, J., Brand-Gruwel, S., & van Boxtel, C. (2023). Students' evaluation of the trustworthiness of historical sources: Procedural knowledge and task value as predictors of student performance. *The Journal of Social Studies Research*, 47(1), 64-76. <https://doi.org/10.1016/j.jssr.2022.05.003>
- Yu, L., Zhang, N., & Zhang, Y. (2023). Multilevel Analysis of the effects of participation, peer support, SRL and course disciplines on academic performance in SPOCs. *Interactive Learning Environments*, 31(7), 4507-4520. <https://doi.org/10.1080/10494820.2021.1974053>
- Zhao, S.-R., & Li, H. (2021). Unpacking peer collaborative experiences in pre-class learning of flipped classroom with a production-oriented approach. *Sage Open*, 11(4), 21582440211058203. <https://doi.org/10.1177/21582440211058203>

Views and opinions expressed in this article are the views and opinions of the author(s), International Journal of Education and Practice shall not be responsible or answerable for any loss, damage or liability etc. caused in relation to/arising out of the use of the content.