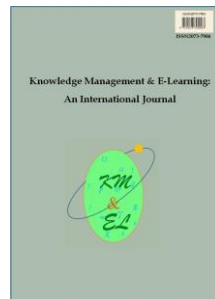

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Exploring pre-class and in-class activities in English language teaching: A systematic review of the flipped classroom approach

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Abstract: Flipped classroom is considered an effective teaching approach, and numerous systematic reviews and meta-analyses have been conducted to highlight its trends. However, there are very few review articles focusing on the perspectives of its pre-class and in-class activities in English language teaching. Thus, this paper presents a systematic review of the flipped classroom in English language teaching from the perspectives of its pre-class and in-class activities. Meanwhile, the trend of focus of the flipped classroom approach in English language teaching, the technological platforms used, and the level of education and language skills in a flipped classroom are reviewed systematically. A total of 69 published articles were analysed through content analysis. The results indicate that various activities were conducted for pre-class (e.g. watching videos, answering comprehension questions and reading tasks) and in-class (e.g. discussions, question and answer sessions, collaborative and group activities). Different technological platforms used and their features, as well as the trend of the flipped classroom, are also discussed in this paper. Lastly, it is recommended that more studies on primary learners are essential for future studies.

Keywords: Flipped classroom; English language teaching; Trend of flipped classroom; Pre-class activities; In-class activities

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1. Introduction

For people in many countries, English proficiency is crucial for their survival in society (Peng, 2019). Hence, in order to assist them to master the English language well, effective and innovative approaches are in high demand. In alignment with the 21st-century learning, there has been a greater emphasis on student-centered classrooms and technology-enhanced language learning in the current teaching approach. In fact, English language teaching (ELT) has progressed and transformed since the emergence of technology. Despite the progress, traditional teacher-centered classrooms and lecture-based learning are still prevalent, especially in the Asian English teaching environment, often leading to passive learning. This has sparked an interest in innovative approaches like the flipped classroom, which shifts traditional in-class activities (e.g., lectures) to pre-class activities (e.g., video lectures), allowing more time for active learning in the classroom (Doman & Webb, 2016).

The flipped classroom, also known as the inverted classroom, represents a modern and increasingly adopted teaching approach (Sharom & Kew, 2022). In this model, tasks typically done in class, like presenting content, are shifted to be done at home, while traditional homework activities are carried out during classroom time (Bergmann & Sams, 2012; Sohrabi & Iraj, 2016). The growing interest in studying the flipped classroom model stems from its focus on enabling teachers to facilitate rather than just transmit knowledge, placing the responsibility for learning on the students, who must manage their learning speed (Hwang et al., 2015). Talbert (2023) asserted that prior to class, students would be given online information to help them study the topic in advance, hence freeing up class time, which would have been spent on delivering the topic, for students to participate in activities that involve active learning instead. The course material might be delivered via lecture videos, PowerPoint presentations, PDFs, or reading activities assigned before class. Class sessions will then focus solely on collaborative group work, enhancing the students' ability to work together efficiently. The studies confirm the effectiveness of the implementation of the flipped classroom approach in many subject matters, including English (Sharom & Kew, 2022).

Although several studies have explored the flipped classroom model (Fisher et al., 2024; Santhanasamy & Md Yunus, 2022), there remains a gap in understanding the specific pre-class and in-class activities, as well as the technological tools that make this approach effective in ELT. This study aims to fill these gaps by systematically reviewing the literature on flipped classrooms in ELT, focusing on these under-explored areas. Therefore, the research questions for this study are as follows:

RQ1: How and what kind of activities have been used and designed for pre-class and in-class stages in flipped English classrooms?

RQ2: How and what kind of technological platforms have been used in flipped English classrooms, and what are their features?

RQ3: What is the trend of implementation of flipped classroom research in terms of education level, language skills and its focus?

2. Literature review

2.1. Technology in language learning and flipped classroom

The use of technology in language learning usually revolves around Computer Assisted Language Learning (CALL), Mobile Assisted Language Learning (MALL) and blended learning. Larsen-Freeman and Anderson (2011) agreed that technology can enhance teaching and learning. The use of technology to enhance language skills is likely to significantly motivate learners to study the target language. Many researchers (e.g. Barrot, 2021; Hashim et al., 2019; Shih, 2011) believed that technology has brought about many positive changes and advantages to language learners. In particular, there is a rising research trend on flipped classroom in ELT after 2014 (Turan & Akdag-Cimen, 2020), which shows that many teachers and researchers are quick to adapt with the advancement of technology in ELT.

The flipped classroom model has become more well-known as an approach that focuses on student-centered learning. It shifts traditional lectures to pre-class activities such as watching lecture videos, to give more autonomy to the students to engage with the content before attending the class. This approach emphasizes independent and collaborative learning with teachers being the facilitators (Sams & Bergmann, 2012). The incorporation of diverse technological tools that support this flipped classroom approach leads to its widespread use in English language teaching (Zainuddin & Attaran, 2015). Since the flipped classroom emphasises communication and collaboration, it aligns with the goal in English language teaching, thereby solving the issues faced by both English as a second language (ESL) and English as a foreign language (EFL) learners (Hung, 2018; Xu, 2019).

The flipped classroom model utilises technology to reinforce both pre-class and in-class activities, with a strong emphasis on the integration of digital tools within language learning. According to Lepkova et al. (2024), there are various technologies used in the flipped classroom. For example, Learning Management Systems (LMS) refer to different educational platforms like Moodle, Google Classroom, and Edmodo that consolidate various teaching and learning supports where teachers can upload teaching materials like video and reading assignments, track student progress, and facilitate communication. Additionally, the flipped classroom is well-aligned with these platforms as they provide flexibility for the students to access the learning material at any time and anywhere, supporting the asynchronous mode of delivery. Video tools platforms used in a flipped classroom, such as YouTube, Edpuzzle and institutional video, are usually used to host lecture videos or instructional content for the students to view before class. For instance, Edpuzzle makes it incredibly easy for instructors to embed quizzes into videos to ensure students' participation in pre-class activity. Using video is primarily important in a flipped classroom as it enables the students to have the autonomy of their learning and prepare for more interactive in-class activities.

Besides that, another popular communication tool used in a flipped classroom, such as WhatsApp, Telegram, and social media platforms like Facebook, is often utilised in conducting discussions outside the class. Collaborative learning, emphasizing peer interaction, which is the pillar of the flipped classroom, becomes easier with the assistance of these technological tools. Lastly, interactive and assessment tools used in a flipped classroom, such as Kahoot!, Quizlet, and Google Forms, are utilised to generate interactive quizzes and assessments to supplement in-class and before-class activities. These tools

aligned well with the flipped classroom concept, as they provide instant feedback to students, making it easier for them to assess their understanding prior to the class. These technologies are appropriate for a flipped classroom in ESL or EFL environments because they support self-paced learning, cater variety of forms and modes of content delivery (e.g., videos, quizzes, readings), and promote both individual and collaborative learning activities (Quart-ul-Ain et al., 2024).

2.2. Systematic review of English language teaching flipped classroom

As the flipped classroom approach is getting more popular, a number of systematic reviews have increased. Studies on the flipped classroom in ELT have been conducted by different researchers. This echoes with Bond (2020), who highlighted the need to conduct more systematic review studies on the flipped classroom. Table 1 shows the past systematic reviews on English language teaching and the flipped classroom. For instance, Turn and Akdag-Cimen (2020) reviewed 43 studies from 2010 to 2018 from four databases. They focused on the trends in flipped classrooms in ELT research, such as the education level, years and countries. On the other hand, Arslan (2020) reviewed 78 articles from six databases. The search period is from 2014 to 2018. The reviews focused on the trend, students' profiles and the benefits and challenges of implementing a flipped classroom in ELT. Moreover, Ngo and Md Yunus (2021) utilised only two databases, produced 18 articles from 2016 to 2020, which focused on the perception of English teachers and learners in the implementation of the flipped classroom. In addition, Santhanasamy and Md Yunus (2022) analysed 39 articles and focused on the benefits of the flipped learning approach in improving speaking skills. Kernagaran & Abdullah reviewed 29 articles from six databases and focused on the patterns in flipped learning (FL) study in the ESL context, the core conclusions of the available literature and the research gaps in the existing literature. Lastly, Ni et al (2023) investigated the impacts of the flipped classroom on learners' English learning performance using the meta-analysis method.

Based on past systematic reviews on the implementation of the flipped classroom in ELT in Table 1, there are limited studies conducted on pre-class and in-class activities. Hence, in order to make the research area more comprehensive, this study will fill the practical knowledge gap by discussing the strategies and instructions used in flipped English classrooms during pre-class and in-class activities. According to Sams and Bergman (2012), flipped learning is not about incorporating videos into a lesson, but about maximising class time and increasing the amount of time a teacher spends with pupils. By substituting direct instructions with teacher-created videos, the interaction between students and teachers can take place in the classroom. Thus, it is vital for ELT practitioners to understand the effective ways of maximizing the class time for students' interaction, as a part of active learning. An effective approach to discovering optimal practices for flipped classrooms in ELT involves examining the strategies and interactions that teachers and researchers employ both before and during class. Although Zou et al. (2020) had conducted a systematic review on flipped classroom activities, their focus was on language classrooms in general, for example, Chinese and French. The current study, on the other hand, focuses merely on ELT.

Table 1
Past systematic reviews

Study	Studies reviewed (N)	Search period	Database	Focus
Turan & Akdag-Cimen (2019)	43	2010-2018	Web of Science, Eric, Taylor & Francis and the Educational full text EBSCO	1. The trends in flipped classrooms in ELT research 2. Main findings from the available literature.
Arslan (2020)	78	2014-2018	Web of Science (WOS), ERIC, ScienceDirect, SCOPUS, IGI Global, and Wiley Online Library	1. Yearly distribution of analyzed studies in the field of EFL/ESL teaching since 2012 2. Characteristics of students in the analyzed studies within the EFL/ESL teaching domain 3. Advantages of flipped learning in EFL/ESL teaching as outlined in the analyzed studies 4. Difficulties of flipped learning in EFL/ESL teaching as described in the analyzed studies
Ngo & Md Yunus (2021)	18	2016-2020	Google Scholar and Educational Resources Information Centre (ERIC)	1. Perceptions of English language teachers regarding the implementation of the flipped classroom 2. Learners' perceptions on the implementation of the flipped classroom
Santhanasamy & Md Yunus (2022)	39	2017-2020	Scopus, Google Scholar, Educational Resources Information Centre (ERIC)	1. The advantages of using the flipped learning approach to enhance speaking skills
Kernagaran & Abdullah (2022)	29	2000-February 2021	Web of Science (WOS), ERIC, ScienceDirect, SCOPUS, ProQuest, and Google Scholar	1. Trends in Flipped Learning research within the ESL framework 2. Key findings from the existing literature 3. The research gaps in the existing literature
Ni et al. (2023)	24	January 2000 to December 2020	Web of Science, ERIC, ProQuest, Taylor & Francis Online, and Scopus	1. The effect of Flipped Teaching Concepts on English proficiency achievements among EFL students in higher education

In addition, past systematic reviews had neither analysed the technological platforms used in ESL/EFL flipped classroom nor their characteristics. It is vital to identify the trend and the main features of the platforms used in flipped English classrooms to give clear insights for instructors to choose the most suitable platform based on students' needs and the relevance of the subject. Zou et al. (2020) had analysed the learning tools used in flipped language classrooms, but they did not discuss the characteristics or the features of the platforms. Besides, their analysis focused on many languages and was not specific to ELT. Therefore, there is a clear call to conduct more systematic reviews on the flipped classroom in ELT.

3. Method

A systematic literature review (SLR) systematically identifies, selects, and critically evaluates research to address a specific, clearly defined question (Sambunjak et al., 2017). It adheres to a predetermined procedure or framework, with the criteria for the review set in advance. This study implemented a systematic review approach, a type of literature

review formulated around a specific research question, which guides the selection of relevant studies from the literature using systematic methods (Uman, 2011).

This study conducted a systematic review following the PRISMA guidelines, selecting articles from three major databases: Scopus, Web of Science, and ERIC. The search strategy was designed to capture a broad range of relevant studies, and the final selection included 69 articles. Content analysis was conducted using MAXQDA and Microsoft Excel. These databases yielded a substantial number of relevant studies using the search strings. These are reputable database with a large quantity of peer-reviewed literature: scientific journals, books and conference proceedings. Fig. 1 describes the latest 2020 PRISMA identification of studies via databases (Page et al., 2021). There are three main phases in PRISMA, which are identification, screening and included.

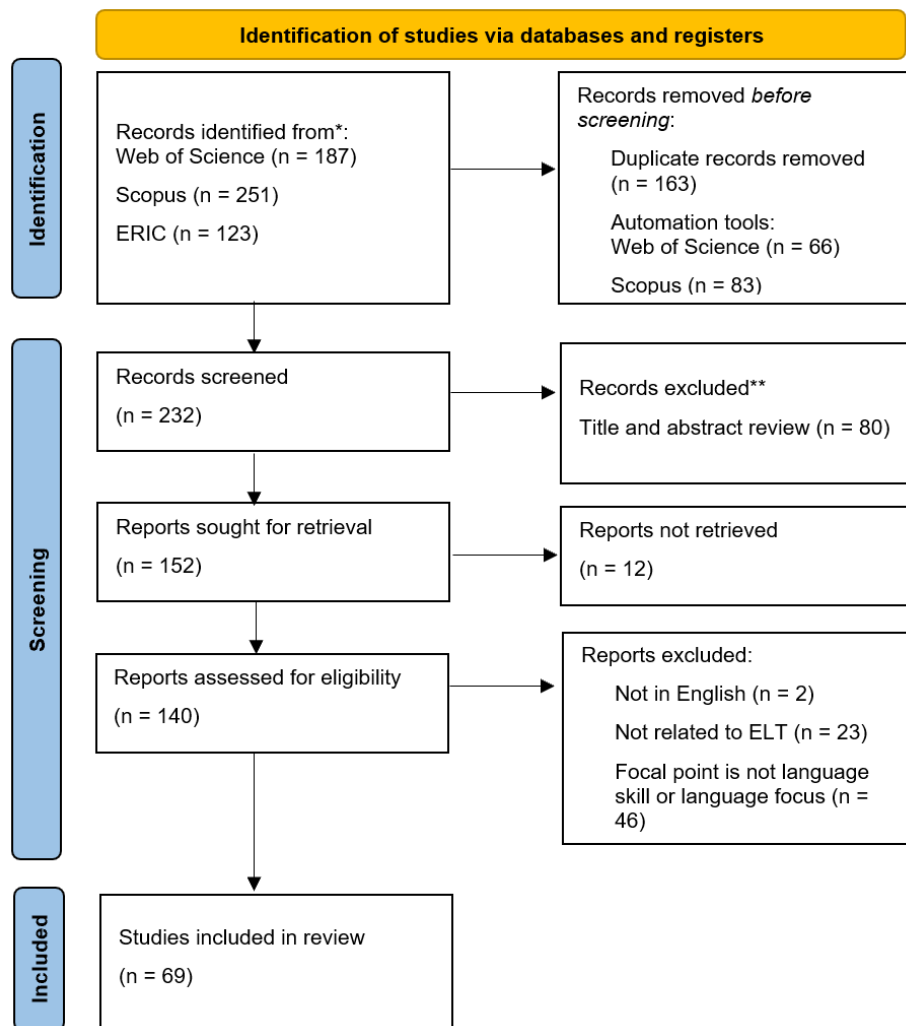


Fig. 1. PRISMA flow chart

3.1. Identification phase

Identification involves searching for synonyms, related terms, and variations of the primary keywords of the study, which are “flipped classroom” and “English as a Second Language” or “English as a Foreign Language”. This process aims to broaden the search scope within the chosen database to find more relevant articles for the review. The keywords were developed following the approach outlined in Okoli’s (2015) research, using resources such as an online thesaurus, keywords from prior studies, keywords listed by Scopus, and expert suggestions. The existing keywords were refined, and a comprehensive search string utilizing Boolean operators was created for databases like Scopus, Web of Science, and ERIC, as detailed in Table 2. Lo (2020) suggested using an asterisk as a wildcard to encompass various verb forms of “flip” (e.g., flip, flipping, flipped) and “invert” (e.g., invert, inverting, inverted), and to include both singular and plural noun forms (e.g., class and classes, classroom and classrooms). Furthermore, Boolean operators such as AND and OR were used to separate each search term, enhancing the flexibility of the search strings.

These databases are preferred due to their advanced search tools, extensive coverage of over 5,000 publications, stringent quality controls, and multidisciplinary focus. The third database, namely ERIC, was selected as the additional database. Whenever appropriate, a combination of keywords such as “flipped learning”, “inverted learning”, “ESL learners”, “EFL learners”, “ESL classroom” and “EFL context” was practised via the functions of phrase searching and Boolean operators (OR, AND). As recommended by Bramer et al. (2016), who stated that a single database is not sufficient to retrieve all references for systematic reviews. The searching process through these three databases has resulted in 561 records.

Table 2
Search strings for each database

Database	Search strings
Web of Science	(“flipped classroom” OR “flip classroom” OR “flip class” OR “flipped learning” OR “flip learning” OR “inverted classroom” OR “inverted class” OR “inverted learning” OR “inverted instruction” OR “flipped instruction” OR “flip instruction” OR “flip teaching” OR “flipped teaching”) AND (“esl” OR “english class” OR “English-as-a-second-language” OR “esl context” OR “ESL learners” OR “ESL Learning Environment” OR “esl class” OR “esl classroom” OR “EFL context” OR “EFL learners” OR “EFL Learning environment” OR “EFL class” OR “EFL classroom” OR “English-as-a-foreign-language”)
Scopus	TITLE-ABS-KEY (“flipped classroom” OR “flip classroom” OR “flip class” OR “flipped learning” OR “flip learning” OR “inverted classroom” OR “inverted class” OR “inverted learning” OR “inverted instruction” OR “flipped instruction” OR “flip instruction” OR “flip teaching” OR “flipped teaching”) AND (“esl” OR “english class” OR “English-as-a-second-language” OR “esl context” OR “ESL learners” OR “ESL Learning Environment” OR “esl class” OR “esl classroom” OR “EFL context” OR “EFL learners” OR “EFL Learning environment” OR “EFL class” OR “EFL classroom” OR “English-as-a-foreign-language”)
ERIC	(“flipped classroom” OR “flip classroom” OR “flip class” OR “flipped learning” OR “flip learning” OR “inverted classroom” OR “inverted class” OR “inverted learning” OR “inverted instruction” OR “flipped instruction” OR “flip instruction” OR “flip teaching” OR “flipped teaching”) AND (“esl” OR “english class” OR “English-as-a-second-language” OR “esl context” OR “ESL learners” OR “ESL Learning Environment” OR “esl class” OR “esl classroom” OR “EFL context” OR “EFL learners” OR “EFL Learning environment” OR “EFL class” OR “EFL classroom” OR “English-as-a-foreign-language”) pubyearmin:2016 pubyearmax:2022

3.2. Screening phase

This study examined all 232 chosen articles using automated criterion selection based on the database’s sorting mechanism. The selection criteria are based on the study question by Kitchenham and Charters (2007). As it is difficult for academics to evaluate all previously published works, Okoli (2015) stated that researchers should establish a time frame for

review. On the other hand, Higgins et al. (2019) noted that timeline publishing restrictions should be engaged only when it is known that linked research may have been reported during a specified time period. Following a search of the selected database, it was discovered that the quantity of research articles on flipped classrooms has been increasing steadily since 2016. Meanwhile, the reason for limiting the search to 2022 was because the searching capacity for the year 2023 only covered until June, as the year had not ended by the time this study was conducted. Therefore, based on this, the timeline between 2016-2022 was selected as one of the inclusion criteria. Furthermore, to ensure the quality of the review, only articles with empirical data and published in a journal were included. Other than that, only articles published in English were incorporated since the main focus is for ESL and EFL learners. Through the search process in the database, only articles published between 2016-2022 were taken into account; thus, 329 records were excluded. 163 duplicate articles were also excluded in this phase. The remaining 232 articles were used for the record screening. Table 3 summarises the inclusion and exclusion criteria. The criteria are literature type, language, timeline, topic, participants and focal point.

Table 3

Inclusion and exclusion criteria

Criterion	Eligibility	Exclusion
Literature type	Indexed Journal (research articles)	Non-indexed journals, Systematic literature review journals, chapter in a book, conference proceedings
Language	English	Non-English
Time line	Between 2016-2022	< 2015
Topic	Implementation of the flipped classroom approach	No implementation of the flipped classroom approach
Participants	Teaching and learning that involved ESL and EFL	Native speakers, non-ESL and EFL
Focal point	Language skills or language focuses	Not language skills or language focus

After the title and abstract review, 80 articles were excluded. 152 articles were sought for retrieval, but unfortunately, 12 reports were unable to be retrieved. Eligibility is the next step in which the authors personally review the retrieved articles to verify that all articles that remain (after the screening process) meet the requirements. 140 articles were eligible in this process. This process was done by reading the full text articles. This process excluded 71 articles that are not written in English, not related to ELT, not related to the flipped classroom and whose focal points are not language skills or language focuses. The language skills included are listening skills, speaking skills, reading skills, writing skills and listening and speaking skills. The language focuses that were considered are vocabulary and grammar.

3.3. Included phase

Following the inclusion and exclusion criteria detailed in Table 3, a total of 69 articles were ultimately selected for review. Subsequently, the data were gathered through content analysis and subjected to descriptive analysis. The studies were evaluated in relation to the research questions posed. The researchers utilized MAXQDA software and Microsoft Excel to manage the coding and categorization of the studies. In conclusion, the authors deliberated, summarized their findings, and proposed potential future research

opportunities to address the existing gaps in the literature concerning the flipped classroom in ELT settings.

4. Findings

4.1. Overview of pre-class and in-class activities in the flipped classroom

Fig. 2 shows the distribution of pre-class activities. The analysis of the pre-class activities is presented in the graph below.

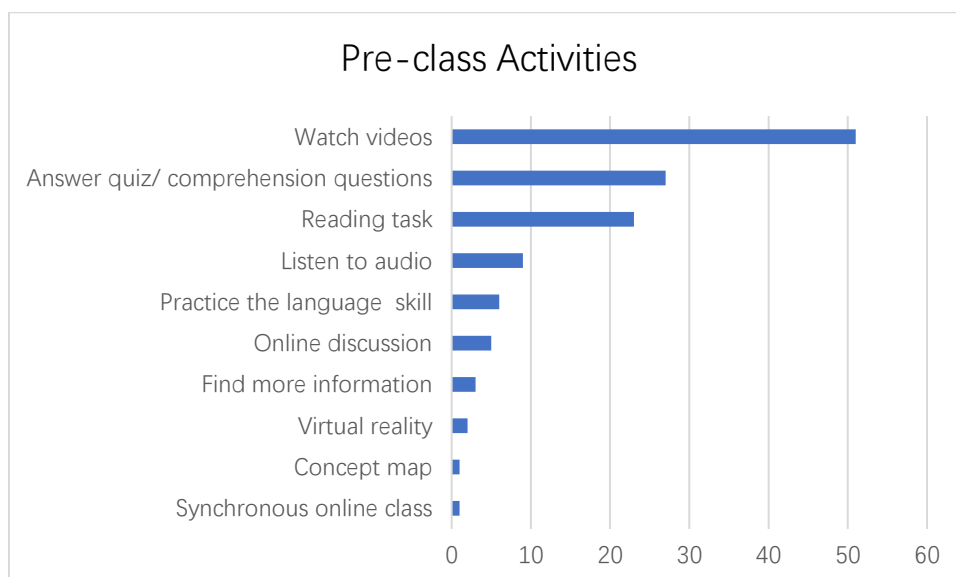


Fig. 2. Pre-class activities

Fig. 2 shows the distribution of pre-class activities. The activities done are not limited to one activity for one study. Most studies implemented various activities in the pre-class stages. Watching video records the most occurrences ($N = 51$), followed by answering quizzes or comprehension questions ($N = 27$). Reading tasks ($N = 23$) are also given by the teacher pre-class as preparation before students attend the class. The alternative of watching video, listening to audio or podcast ($N = 9$) is noted with small occurrence, followed by online discussion, finding more information, virtual reality, concept map and synchronous online class. Since pre-class activities are done outside of the classroom with no face-to-face interaction, little attention is given to collaborative activities; however, there is an increasing trend of doing online discussions to make pre-class activities become two-way interactions instead of one-way.

Fig. 3 describes the distribution of in-class activities in a flipped classroom. The analysis is presented in the graph below.



Fig. 3. In-class activities

Fig. 3 shows the distribution of in-class activities for the flipped classroom. Multiple activities could be done in a study. Discussion ($N = 24$) emerges as the activity with the highest occurrence in most studies. A discussion can be conducted in various methods, namely, small group discussion, class discussion and teacher-student discussion. Question and answer sessions ($N = 19$) between the students and teachers enable them to clarify their doubts on the topic. Language skill-based tasks ($N = 17$) refer to activities that are based on skills, such as reading comprehension, listening comprehension and essay writing. Group work activity ($N = 16$) and collaborative work activity ($N = 10$) are examples of student-centered activities. Next, worksheet ($N = 6$) and peer assessment ($N = 6$) have a small occurrence, followed by role playing ($N = 5$) and presentation ($N = 5$). Content review, quiz, and play games have a similar number of occurrences ($N = 4$).

4.2. Technological platforms in flipped classrooms

Fig. 4 describes the analysis of the technological platform utilised in the ESL and EFL flipped classroom.

For the technological platforms used in the studies, WhatsApp ($N = 11$) appears to be the one with the highest frequency. Edmodo ($N = 8$) also have a high frequency in the study. Although Facebook ($N = 5$) is meant for social media, it is also widely used in the flipped classroom setting, especially for the students in tertiary education. Institutes' LMS ($N = 4$) is the learning management system (LMS) owned by the institute. This is because most studies targeted tertiary education who have their own LMS. Thus, they do not rely on other available websites or applications. Next, Telegram and Google Classroom share the same number ($N = 4$). Unipus ($N = 3$) and EDPuzzle ($N = 3$) have small occurrences followed by Schoology, Sakai, Moodle, Line, flash drive and e-mail ($N = 2$). At least one study used WeChat and Blackboard ($N = 1$). There are 14 studies that did not mention the platform that they used.

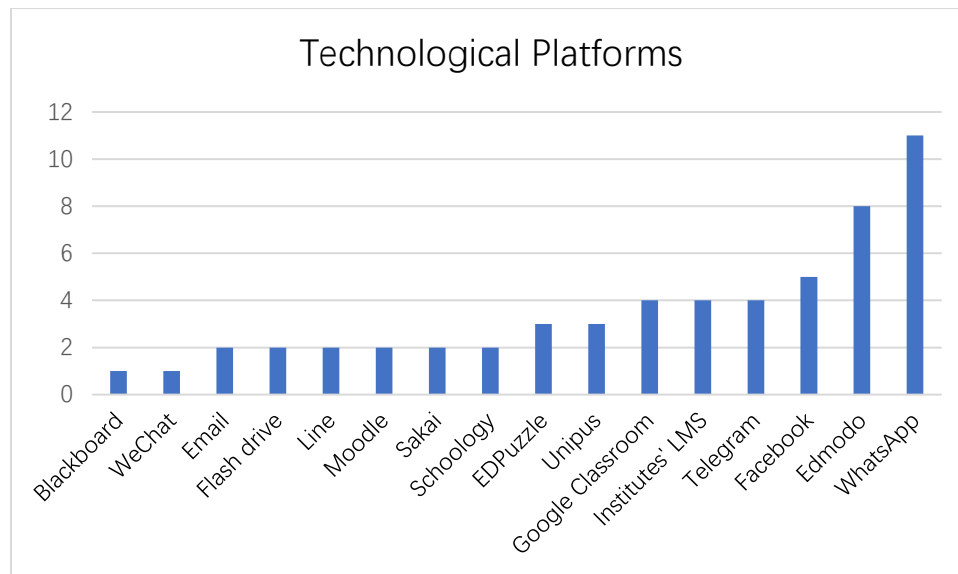


Fig. 4. Technological platform in a flipped classroom

Table 4 describes the features of the technological platform that have been analysed. The sample of articles is also provided as a reference.

Table 4

Features of the technological platform

No	Features	Frequency	Sample of articles
1.	Material can be uploaded and downloaded	21	Valizadeh & Solumpour (2020), Hsieh et al. (2017), Shaffee et al. (2021)
2.	Various material formats	8	Ginting (2018), Wu et al. (2020), Khodabandeh (2022)
3.	Online discussion	7	Lin & Hwang (2019), Ghufon & Nurdianingsih (2019), Sharonn & Na (2022)
4.	User-friendly	6	Nguyen et al. (2019), Chen & Hwang (2020)
5.	Cross-platform	6	Wu et al. (2017), Zarriashadi & Ebrahimi (2019)
6.	High popularity	4	Zou & Xie (2019), Lin & Hwang (2019), Amiryousefi (2019)
7.	Immediate feedback	4	Wu et al. (2017), Noroozi et al. (2020)
8.	Ability to record students' progress	3	Roohani & Rad (2022)
9.	Online class/meetings	3	Khodabandeh (2022)
10.	Free	3	Arifani et al. (2020)
11.	Reusability of the materials	2	Hung (2018)

Based on Table 4, the highest frequency for the features of the technological platform is that material can be uploaded and downloaded ($N = 21$). This is very important because this feature will enable the students to have autonomy over their lessons so they can do the pre-class task, anywhere and everywhere. Next, the platform should be able to share various material formats ($N = 8$), such as video, audio, files, PowerPoint slides, links and other pre-class material. Since the students would prepare for the in-class activities, online discussion ($N = 7$) features are important too. Besides, the platform must be user-friendly ($N = 5$) in the sense that it can be accessed anywhere and anytime. Cross-platform ($N = 6$) is important too, as students might access the technological platform on various devices and operating systems. High popularity ($N = 4$) and immediate feedback ($N = 4$) are also considered important features in selecting a suitable technological platform. The

platform should be able to record students' progress ($N = 4$), as it will make it easier for the teacher to monitor them. Immediate feedback ($N = 4$) is important for the teachers to give appropriate responses to students. Ability to record students' progress, can conduct online meetings and a free platform have similar frequency ($N = 3$). The reusability of the materials ($N = 2$) is important so the teacher can reuse the materials in the other classes with one click.

4.3. Trends in flipped classroom research

Fig. 5 describes the trend of education level for ESL/EFL flipped classroom analysed from the chosen articles.

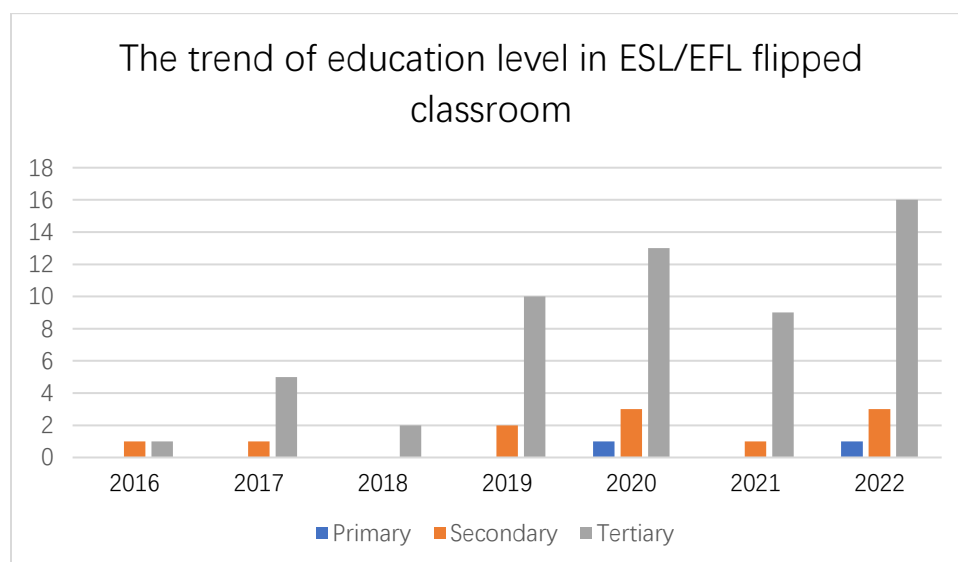


Fig. 5. The trend of education level in ESL/EFL flipped classroom

Based on Fig. 5, it can be observed that the studies of flipped classroom in the tertiary level of ESL/EFL have been significantly increasing from 2016 until 2022. More than 80% of the studies analysed are conducted towards tertiary-level students, be it from college or university. The number of studies towards secondary and primary students is still scarce. Thus, it is advisable for future studies to fill this gap.

Next, Fig. 6 displays the trend of language skills and focus in the ESL/EFL flipped classroom.

Fig. 6 shows the trend of language skills and the focus of the studies reviewed. Over the years, writing skills have been the most occurrence followed by speaking skills and grammar. From the analysis, it can be observed that reading skill has the least number of studies. There is only one study focusing on listening and speaking skills.

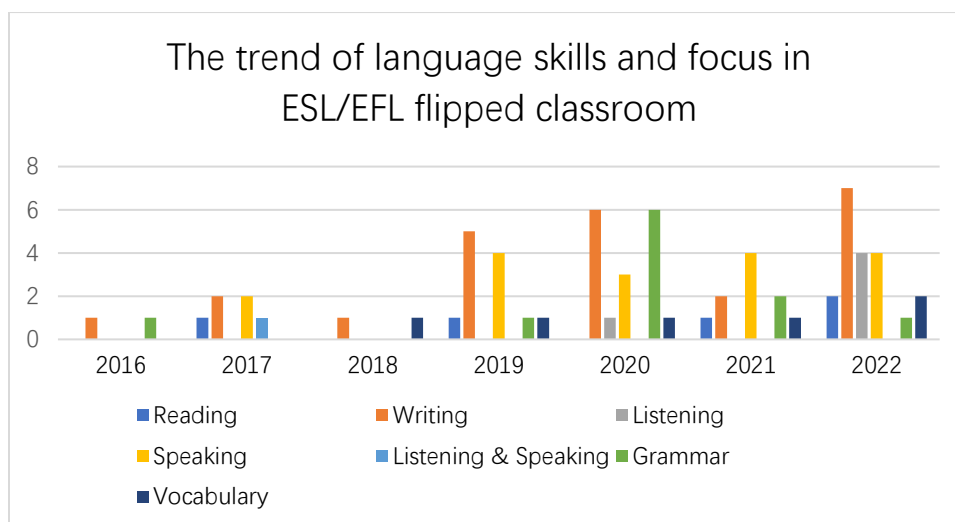


Fig. 6. The trend of education level in ESL/EFL flipped classroom

5. Results

5.1. *How and what kind of activities have been used and designed for pre-class and in-class stages in flipped English classrooms?*

Based on a systematic review, the structure of pre-class and in-class activities in flipped classrooms supports Bloom's Revised Taxonomy. According to Sharom and Kew (2022), pre-class tasks generally involve watching educational videos and answering comprehension questions to foster basic understanding levels of the taxonomy: remembering and understanding. Videos often come from various platforms, like YouTube or TED Talks, or may be developed by instructors themselves. There is an ongoing debate on whether instructors should create their own videos or use existing ones online. Sams and Bergmann (2012) suggest that new teachers might benefit from using pre-made videos, considering the technical skills required for video production.

A significant concern is the additional workload on teachers preparing these videos, which could lead to feelings of being overwhelmed. As teachers gain experience, they might opt to produce custom videos, aligning more closely with student preferences, who typically favor instructor-made videos (Long et al., 2016). This adaptation aims to better cater to individual student needs, a foundational goal of the flipped classroom model. Also, supportive administrative structures are crucial, as they can positively influence teachers' attitudes towards adopting digital media in education (Cheng & Weng, 2017). The review also highlights that only 42% of studies incorporated methods to verify students' comprehension from videos, raising concerns about the effectiveness of video-only pre-class work. Brame (2019) emphasizes the importance of assessing student understanding before class to ensure active participation during in-class activities.

Innovative pre-class activities, such as using virtual reality, have been explored to enhance student engagement with the material before in-class sessions (Sharom & Kew,

2022). Wu et al. (2017) highlighted successful participatory and collaborative pre-class activities that improved students' readiness for class. Yet, such collaborative activities are still not widely adopted. Incorporating structured pre-class frameworks like WOSQ ("Watching, Online discussing, Summarizing, and Querying") proposed by Noroozi et al. (2020) can systematically enhance engagement and preparation.

In-class activities predominantly consist of discussions, reflecting a shift from teacher-led lectures to student-centered learning (Zou & Xie, 2019). This transition is aligned with the higher cognitive levels of Bloom's taxonomy, such as application and analysis. Engaging students in discussions, problem-solving, and project-based learning allows them to apply knowledge and develop critical thinking skills (Hwang et al., 2015). Furthermore, initial class time often involves Q&A sessions to address student queries and gauge understanding, facilitating a two-way interaction that is more beneficial than passive listening. Varied in-class tasks tailored to specific language skills, like writing and speaking, help reinforce these skills through practical application (Valizadeh & Soltanpour, 2020; Yesilçinar, 2019). The flipped classroom also enables more effective group activities by leveraging students' pre-class preparation for active collaboration during class (Kusuma et al., 2021; Ghufon & Nurdianingsih, 2019). Finally, a case study by Su Ping et al. (2020) showed that dedicating class time to clarify video content and review common errors, followed by interactive activities, significantly boosts student engagement, motivation, and self-efficacy. This underscores the importance of well-structured class time to maximize learning outcomes and support continuous improvement in teaching strategies.

5.2. *How and what kind of technological platforms have been used in flipped English classrooms, and what are their features?*

Identifying and discussing technological platforms in flipped classrooms is important for us to recognise their features so that the instructor can use them as guidelines in choosing a suitable platform. Most of the studies reviewed focused on the WhatsApp application to share the pre-class materials. According to Solimani et al. (2019), WhatsApp is secure for sharing and accessing information in various formats and types. It is also easy to install and use. Uploading and downloading files is a very important feature because it is one way the instructor could share the materials for pre-lesson activities. La Hanisi et al. (2018) stated that WhatsApp has collaborative features that allow students to discuss among themselves and for the instructor to check on students' progress. It also provides unlimited messaging with no charges. Next, Facebook is one of the most popular social media sites with 2.89 billion users. According to Lin and Hwang (2018), Facebook is easily accessible by all participants, as it requires minimal computer skills and has the most essential function, which is the ability to upload and download materials. Since most of the participants are in tertiary education, the matter of privacy and security is not usually a cause of concern. However, it is a paramount aspect to ponder when selecting the best platform for primary learners. Public social media like Facebook might not be suitable since it might expose them to social media predators.

Universities usually have their own Learning Management System (LMS), which they developed themselves. The main functions of LMS are for instructors to upload learning materials and for students to download the materials. However, these systems might contain different features compared to the ones available in the market. Next, Schoology, Telegram and Moodle are also popular in the studies. These three platforms share similar traits of allowing users to upload and download materials. Ghufon and

Nurdianingsih (2019) stated that through Schoology, teachers could check students' participation and attendance. Google Classroom also has similar features. This feature is important for the instructor to keep track of students' progress before they come to class. This way, the instructor would be able to analyse students' needs and enhance the in-class activity.

Ginting (2018) stated that Google Classroom is easily accessible by students, which is aligned with the aim of pre-class activity in a flipped classroom. Through Google Classroom, students discussed in the comment sections, completing the pre-class activity (Sharom & Kew, 2022). Abdullah, Hussin and Ismail (2019) also agreed that Google Classroom is one of the most common social platforms in flipped classrooms, thanks to its ability to keep all the instructional video lectures and other materials. The instructor can also reuse the same materials for another class. It also has a mobile application, making it even easier for students as they do not have to rely on the website version entirely. A good case in point is that the mobile application would send notifications to students on their phones whenever there is new material is uploaded. That said, they do not need to purposely log in to the website to check for updates.

The most important aspect in a flipped classroom is the client, which is the students. Thus, it is crucial for the instructor to take students' familiarity with a certain platform into account before they decide to use it. For example, an instructor can choose the platform according to its popularity. In Iran, Telegram is the most popular social network with over 45 million subscribers, so the participants are already familiar with the application (Zarrinabadi & Ebrahimi, 2019). As 21st-century learning places a lot of emphasis on collaborative activities, it is also vital for the platform to have collaborative functions. Collaborative functions like forums, discussions and comment sections enable students to interact with their peers (Kew & Tasir, 2021). They can express their thoughts and opinions. This way, they will gain more knowledge on the particular topic. It could be a part of self-regulated learning, and students' autonomy would improve.

5.3. What is the trend of implementation of flipped classroom research in terms of education level, language skills and its focus?

From the trend analysis, from 2016 to 2022, most studies focused on tertiary education, which is university students. However, from 2019 onwards, there has been a rising trend in studies that target secondary school students. Nevertheless, only two studies focused on primary learners or K-12 education. This finding is different in comparison with Turan and Akdag-Cimen (2020), who found 10% of 43 articles reviewed to be related to K-12 education. This is due to the different database used. To get more diverse data, the researchers should expand the database so that more articles can be analysed. A systematic review of flipped language classrooms by Zou et al. (2020) also discovered that no study has been done on flipped language classrooms for primary learners. This is parallel with Lo (2020), who stated that there is a lack of studies in K-12 education. Wu et al. (2017) found that in flipped classroom studies, most studies focus on university students. Turan and Akdag-Cimen (2019) suggested that this may be owing to the fact that university students have better access to technology and are expected to have better self-regulation.

Besides, to conduct the study on primary learners, the researchers need to consider certain factors such as students' level of computer literacy, availability of the hardware and software, internet connection and also parents' involvement. However, the COVID-19 pandemic has forced primary learners to adapt to different kinds of teaching and learning

technology. Thus, this is the best time for researchers to explore more on the implementation of the flipped classroom towards primary ESL and EFL students. Lastly, based on the studies reviewed, there has been an increasing trend of studies on writing and speaking skills since 2016. Most studies focused on writing and speaking skills. It is believed that these skills, being productive skills, are easier to be assessed. However, more emphasis must be given to other skills as they are equally important. The findings would be beneficial for the development of flipped English classrooms and for future studies.

6. Conclusion, implications, limitations and recommendations

As a conclusion, for RQ 1, a systematic review shows that pre-class activities in flipped classrooms, such as watching educational videos and answering comprehension questions, support foundational understanding in Bloom's Revised Taxonomy (Sharom & Kew, 2022). Although creating custom videos can overwhelm teachers, it aligns well with student preferences (Long et al., 2016; Sams & Bergmann, 2012). In-class activities, often centered on discussions and problem-solving, enhance critical thinking and active learning (Hwang et al., 2015; Zou & Xie, 2019). Structured frameworks and innovative tools like virtual reality can improve engagement, though they are not yet widely adopted (Noroozi et al., 2020; Wu et al., 2017).

On the other hand, for RQ 2, choosing the right technological platform for flipped classrooms is crucial. WhatsApp is popular for sharing materials due to its security and collaboration features (La Hanisi et al., 2018; Solimani et al., 2019). Facebook is widely used in higher education but may not be suitable for younger students due to privacy concerns (Lin & Hwang, 2018). Learning Management Systems like Google Classroom and Schoology effectively manage student progress and discussions, with Google Classroom offering added convenience via its mobile app (Ginting, 2018; Ghuftron & Nurdianingsih, 2019). The platform should be familiar to students and support collaboration (Zarrinabadi & Ebrahimi, 2019).

Furthermore, for RQ 3, from 2016 to 2022, most flipped classroom studies focused on university students, with a rise in secondary school research from 2019 onwards, but very few studies targeted primary learners (Turan & Akdag-Cimen, 2020; Zou et al., 2020). This trend highlights the need for more research on K-12 education, especially considering the impact of the COVID-19 pandemic on primary learners' adaptation to technology. Additionally, while most studies emphasize writing and speaking skills, there is a need to explore other equally important language skills. For example, a study by Rahimzadeh & Gilakjani (2022) has proven the effectiveness of blended learning in improving EFL students' reading proficiency. Exploring more language skills would provide new insights into the holistic language development.

Lastly, this review identifies a gap in research on the flipped classroom's impact within primary education, part of the broader K-12 category, and suggests more studies are needed in this area (Lo, 2020; Turan & Akdag-Cimen, 2020; Zou et al., 2020). While writing and speaking skills are well-studied, other language skills like reading, listening, vocabulary, and grammar need more focus. The review is limited by its analysis of only 69 articles from three databases, covering 2016 to 2022, and suggests future reviews should explore a broader range of methodologies and include more diverse perspectives. For example, a study by Safarifard et al. (2024) explored the pedagogical theory applied in e-learning. Future reviews could expand on this in the context of a flipped classroom.

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