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TABLE OF CONTENT

Cover

Table of Content

Prospective EFL teachers' perception toward teaching English vocabulary through poetry

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Poetry has been reported to promote language awareness and authentic learning sources. As poems are composed in carefully arranged words to form rhyming sounds with beautiful rhythm, the present study aimed to reveal EFL students' perceptions of using poetry to teach English vocabulary. As a qualitative research, the present study observed eighty-seven short essays on using English poems for improving students' vocabulary written by students in an English Language Education Department in Bali. It was revealed that the student-teachers perceived poetry to help improve students' acquisition of word form, use, and meaning. Forty-four students wrote poems that could improve students' understanding of English word forms; twenty-three students argued that poetry could improve students' pronunciation. Twenty-one participants believed poems could improve students' spelling. In terms of word meaning, a total of thirty vouched for the use of poetry for introducing figurative languages (twenty-three students), enhancing students' acquisition of colloquial vocabulary (eleven students), and familiarizing students with unfamiliar words (eleven participants). Nine students insisted that poems could be used to improve students' word use, whereas six students believed poems could display grammatical functions. At the same time, three participants recognized the use of poems for acquainting students with collocations. These results imply that future EFL teachers recognize the potential of bringing English poetry as a medium for improving their EFL students'' vocabulary, hinting at the need for further research on the systematic procedure of how to implement poetry into EFL classrooms.

Keywords: EFL, perceptions, poetry, student-teachers, vocabulary

INTRODUCTION

Literary works have been acknowledged as authentic sources for language teaching and learning (Ghofur, 2022; Gönen, 2018; Hişmanoğlu, 2005; Nanda & Susanto, 2020; Saleh & Althaqafi, 2022; Senawati et al., 2021; Sukmawan & Setyowati, 2022; Wijaya et al., 2021; Yeasmin et al., 2011). Ashirbaeva (2020) highlights that using literature is an advantageous way to involve the learner as a whole person and a good opportunity for revealing their opinion, reactions, and feelings through integrating appropriate methods and approaches for increasing their language and literature competency. Furthermore, students can acquire from literature examples of values and insights for building their characters (Blangsinga et al., 2021; Puspawati et al., 2021; Riris et al., 2023; Suwastini et al., 2020; Suwastini, Pebriyanti, et al., 2023; Suwastini, Saraswati, et al., 2023). From all the literary works students learn, poetry has been commonly taught in English (Amri & Basthomi, 2022; Antika, 2017; Mahmud, 2017; Rahimipour, 2020).

Mart (2021) argues that poetry is a semantic learning source that develops language knowledge for all levels and engages students' imagination effectively. There are several advantages of using poetry as a learning source in EFL classrooms, such as providing students with a different point of view of language, motivating students to explore the interpretation of the language context, making students familiar with figures of speech, and improving basic language skills (Baharuddin et al., 2022; Beaumont, 2022; Rahimipour, 2020).

English language teachers have consideration in selecting materials to achieve the EFL learning goal, which can communicate in a foreign language fluently (Concannon-Gibney, 2021; Keshavarzi, 2012; Lee et al., 2019). Teachers also have to be aware of students' difficulties in learning. Alamri & Rogers (2018) reveal that the learners' most significant challenge is learning new words. Further, Harmon et al. (2018) emphasize that vocabulary is an essential language feature used to create various topics in different subject matter areas. Relating to the importance of learning vocabulary and poetry as useful teaching media, previous research already found that poetry is an influential media for improving students' vocabulary (Abida & Kuswardani, 2018; Alisaari & Heikkola, 2017; Antika, 2017; Marcus-Quinn, 2016; Suwastini & Dewi, 2023). Poetry is seen as authentic and flexible material that will provide students with various activities with its integration with teaching strategies. Muthmainnah et al. (2020) emphasize that most students prefer learning English with poetry because they need material with a rich vocabulary and know word meaning and use of English words.

According to Mudzielwana (2016), teachers should develop a deep level of word knowledge and exposure to the meaning and form in communication for students. Besides, Kalogirou et al. (2019) mention the classroom principles for vocabulary learning, such as opportunities for incidental and intentional vocabulary learning, active strategy to involve students' participation in vocabulary learning, and training new vocabulary for long-term memory. Aspects of vocabulary learning must be introduced to students (Brown, 2011). Brown (2011) divides vocabulary elements into word form, meaning, and word use. In teaching vocabulary, teachers have to reach the goals of vocabulary teaching, such as students know the written and spoken form of words, the meaning of a word based on the context, and word order to produce a meaningful sentence. Student teachers must prepare language teaching awareness for students.

In the meantime, English Language Education students have two roles: as student teachers and college students who learn poetry as literary works and teaching media. Therefore, it is crucial to know their view on using poetry as teaching media, especially teaching vocabulary as an essential language feature. It is crucial because they must develop their language competency, be exposed to the different teaching materials of a textbook, and engage students with creative learning activities.

The present research aims to analyze the perception of English Language Education students on using poetry as teaching media for teaching vocabulary. The present research used synthesized theory about classifying vocabulary elements from Brown (2011) and Harmer (2003). This study is expected to shed light on how future teachers view the role of literature, especially poetry, in improving students' vocabulary and their English proficiency in general.

METHODS

The present research used an analysis model from Miles et al. (2014). This interactive data analysis model concurred simultaneously, including data collection, condensation, display, and conclusion drawing, as shown in Figure 1.

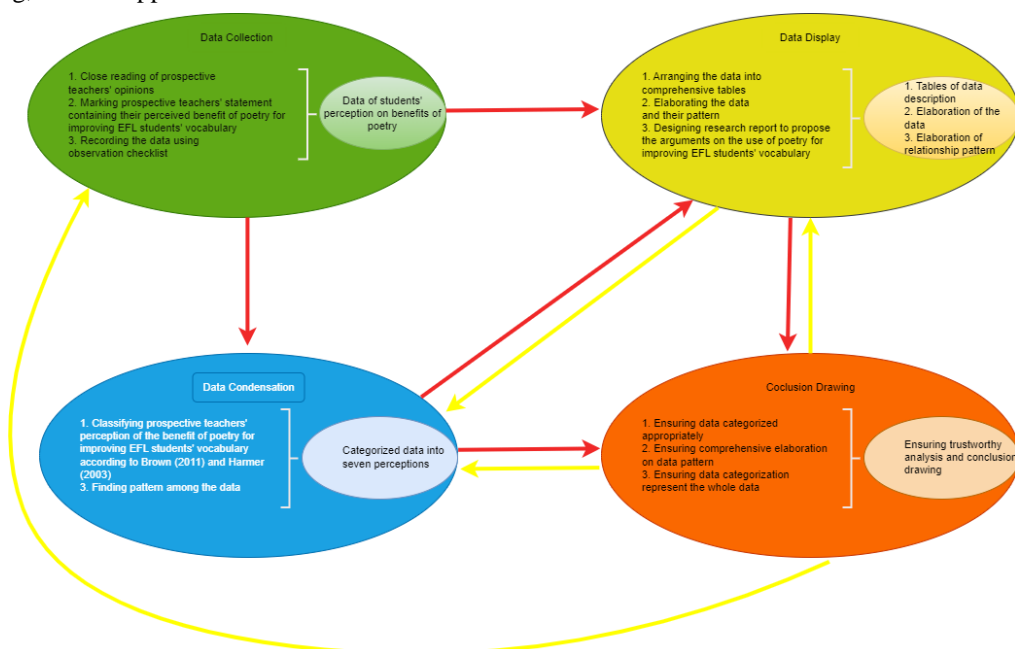**FIGURE 1** | Research procedure adaptation from Miles et al. (2014)

The data was collected from eighty-seven final essay projects from English Language Education students about their view on poetry to teach vocabulary. The researchers, as the main instrument, close-read the result regarding the students' opinions related to the perceived benefit of poetry for improving students' vocabulary.

Data tabulation was made to map out the data. After that, the data were classified into seven perceptions, namely pronunciation, spelling, figurative language, colloquial language, unfamiliar words, grammatical function, and collocation in the data condensation. In the data display, the tabulation was arranged into comprehensive tables. At this step, elaboration was made following the data and their pattern regarding prospective teachers' opinions on the benefits of poetry for improving students' vocabulary. The previously classified perception was elaborated and interpreted in displaying the data based on Brown (2011) and Harmer (2003) theories. Those perceptions were grouped into word form, word meaning, and word use. The last was concluding the view on students ' perception of using poetry to teach students vocabulary. During the conclusion drawing, the researchers went through the categorization and data categorization repeatedly to ensure trustworthy analysis. Thus, the research procedures were simultaneous conduct of data collection, data condensation, data display, and conclusion drawing.

RESULTS AND DISCUSSION

The results of the present study revealed that eighty-seven participants had different perceptions of using poetry to teach English vocabulary. There were seven views on the use of poetry to teach vocabulary. They perceived that poetry could improve students' pronunciation, practice students' spelling, introduce the figure of speech, introduce colloquial language, help students analyze unfamiliar words, introduce grammar functions, and practice collocation. The present research classified each perception into three classes: word form, meaning, and word use. The data is presented in Figure 2.
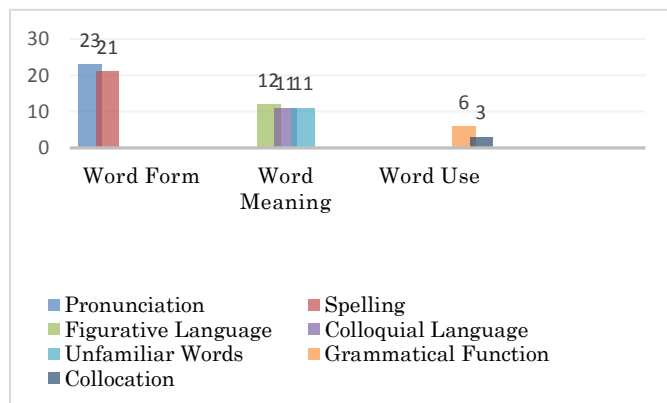

FIGURE 2 | English Language Education Students' Perception in Teaching Vocabulary with Poetry

Referring to the diagram above, most students believed poetry could train pronunciation. It means students can pronounce words better while learning to read poetry. Only three participants perceived that collocation in poetry could improve students' vocabulary. Few saw that the combination of words could develop students' vocabulary. Based on the diagram above, the perceptions were classified into three classifications based on the underlying theories used in this paper, which were from Brown (2011) and Harmer (2003). Further, the discussion of the results in the present study presented three aspects of vocabulary by Brown and Harmer.

Mardali & Siyyari (2019) reveal that teachers generally believe vocabulary includes lexical instruction in memory, meaning, and function. As a result, vocabulary-teaching activity emphasizes remembering with referential materials. This finding is supported by Nanda & Susanto (2020), who argue that most teachers rarely use authentic materials in teaching vocabulary even though the students need examples of the tangible form and use of the words. Further, in vocabulary knowledge, Brown (2011) emphasizes word form, word meaning, and word use, while Harmer (2003) highlights word meaning, word use, and grammar. Brown (2011) explains that the word form includes whether it is the spoken or written form of the words, while word meaning, concept, referents, associations, and word use contain grammar function, collocation, and register. Harmer (2003) mentions that word meaning includes its denotation and connotation, word use such as idiom and collocation, while grammar rules word use. Based on both theories, it can be synthesized that three elements in teaching vocabulary must be included: word form, word meaning, and word use.

Vocabulary elements such as word form, meaning, and use (Brown, 2011; Harmer, 2003) were found in the participants' perception of teaching vocabulary through poetry. Their perceptions were classified into these vocabulary elements. Perceptions in improving students' pronunciation and spelling were classified into the word form. Introducing figurative speech, collocation, and unfamiliar words in poetry were classified into word meanings. In contrast, perceptions about grammar function and collocation were classified into word use. The discussion of those classifications was as follows.

Word Form

According to Brown (2011) and Harmer (2003), word form deals with how the word is formed into spoken and written language. The respondents' perceptions of improving pronunciation and spelling in writing were included in this definition. Twenty-three out of eighty-seven participants perceived pronunciation, and twenty-one of them viewed students' spelling in written form. Hong (2018) argues that poetry creatively integrates language and literacy learning in line with the participants' choices. It means that poetry

creatively supports students' vocabulary learning with the integration of language skills and literacy. Spelling and pronunciation are part of literacy learning. They are also included in receptive and productive skills because the students will produce a written text through spelling with their vocabulary and correctly pronouncing the poem.

Improving Students' Pronunciation

Twenty-three out of eighty-seven students perceived that poetry could direct students in pronouncing vocabulary better. Most participants view poetry as a guide in pronouncing words because of its effectiveness and elements. A respondent argued, "The things that can improve students' pronunciation are the elements of the poem such as the rhyme, rhythm, and meter" (P. E19). While the other viewed "… reading poetry out loud train foreign language students to produce stressed sound appropriately." (P. F24). The elements of poetry in improving pronunciation are also stated by Mart (2021). Mart reveals that students' ears quickly catch rhythms and sound structures in poetry. Therefore, listening to or reading poetry develops new vocabulary and pronunciation. Further, a study from Kanonidou & Papachristou (2019) about using song, lyrics, and poetry supports the students' views in the present study. The study results reveal that vocabulary and pronunciation are the skills facilitated by song, lyrics, and poetry without minimizing the other aspects of language. It is because songs, lyrics, and poetry are seen as enjoyable and engaging, bringing creativity to classroom activities and connecting with students' daily lives. Besides, Bowen & Marles (1992) explain that speaking without rhythm and intonation in learning pronunciation is impossible. Therefore, they propose to give students a short poem or prose text to train students' rhythm and intonation in pronouncing words.

The other views from the respondents that can be highlighted were about the approaches to improving pronunciation by integrating poetry as a learning media. There were two different opinions about the approaches to teaching pronunciation with poetry. The first perceived "The approaches that the EFL teacher can use are 1) the communicative approach; listening and imitating; 2) minimal pair practice where we can provide examples of similar problematic sounds in the target language; 3) excessive pronunciation techniques to students who are lacking in pronunciation" (P. E13). The other participant argued, "Using poetry in the classroom with listen and repeat the method and reading aloud method is an effective way to improve students' pronunciation" (P. F27). Based on those previous argumentations, even though there were examples of repeating pronunciation, they tried to construct and produce proper pronunciation. Relating to this construction, constructivism can be integrated with poetry as

media to teach pronunciation to produce proper pronunciation (Suwastini & Dewi, 2023; Ugwuozor, 2020). The opposite explanation was found by Jones (1997), who states that the pronunciation teaching approach is not only about listening and repeating but beyond the instructional method. Jones (1997) mentions two aspects of teaching pronunciation that must be addressed. They are psychological and sociological dimensions. It must be noticed because students' personality, emotion, value, and socio-cultural environments affect their pronunciation of words. Further, Acton in Jones (1997) adds that preparing students with those dimensions is necessary because how individuals pronounce has much to do with their personality and emotions at any given time.

Referring to the opposing arguments above, poetry as media in pronunciation teaching activities can give a solution in integrating those previous argumentations. Literary text can help students imagine fictional people, events, and even their own experiences through language, and they can feel part of the text (Cushing, 2018). Williams (2018) also reveals that the spoken form of poetry can help students encourage their expression, honor their voices and experiences, and support cultural pedagogy. Through poetry, as media to learn pronunciation, they can construct their emotion using rhythm and intonation. Besides, Jones (1997) also argues that speakers can control their nerves or inner states by training their pronunciation with a familiar text based on their daily context.

Practicing Students' Spelling

Kreiner et al. (2002) state that spelling is a component of writing skills. Their findings indicate that spelling errors are perceived as lower writing ability. It means that spelling affects students' writing skills. In the written language, the sensitivity of word occurrence frequency, letter sequences, and spelling patterns (Brown, 2011; Weth & Wollschläger, 2019). Kelly & Gaytan (2020) mention that five writing stages align with students' spelling development. The first stage is the 'precommunicative stage' in which students write random letters that do not represent sound or meaning. The second stage is the 'semi phonetic stage' when the spellers know the letters that represent sound. The third is the 'phonetic stage,' in which the spellers spell the word in the way of its sound. The next stage is the 'transitional stage,' where the spellers start to think about how the word appears visually. The last stage is 'correct' or 'dictionary' spelling, which is the stage where the spellers have already developed over the years with good writing. Creative, flexible, and interactive sources are needed to make spelling ability a good writing skill. Poetry provides a source to train students' spelling ability to gain good writing and vocabulary (Finch, 2003).

Poetry contains creativity, flexibility, and various formats to develop students' ability to record descriptions and visualize ideas, which links them between content and concept of writing (McWhorter & Bullion-Mears, 1997). Some respondents also mentioned the reflection of ideas. The first argued, "… they could reflect their ideas, their emotions or sense, and their vocabularies into a good writing" (P. B29). The following respondents viewed "… poem provides EFL students with opportunities to enrich their vocabulary by presenting words not included in L2 textbooks. While in many language classes, students are generally asked to learn vocabulary through memorizing and translating, poetry can be a valuable pedagogical tool in the EFL classroom that introduces the creative language and allows the combination of teaching form and content to the real-life context" (P. E3). Liao (2018) shows several pieces of evidence of poetry writing in EFL classrooms related to the real-life context that the participant mentioned. Liao mentioned that EFL students tend to write poetry based on their voices, such as their experiences and significant events. It can be said that they usually write descriptive, direct, emotional, and personal poems. Nanda and Susanto (2020) also support that this kind of literature provides broadly written material covering human issues and social background. Therefore, word numbers, word features, word frequency, and word form can be explored by students' ideas and their vocabulary production (Amri & Basthomi, 2022; Liao, 2018).

The other arguments from the respondents in improving students' spelling were about small group discussions and feedback on their writing. A respondent revealed, "… determining vocabulary in writing a poem is important. Some strategies that can be used are think-pair-share and Vocabulary Self-Strategy (VSS). In think-pair-share, the students can discuss some vocabulary they have prepared, while in VSS, they can elaborate their vocabulary, and later, they will get some new vocabulary through their friends' poetry" (P. F11). From both strategies, there were activities of exchanging information in exploring their vocabulary lists. It was in line with Issitt & Issitt (2010), who stated that small group interaction is appropriate for guiding students to write poetry. Interaction with balanced chemistry will give them the freedom to explore vocabulary. Most students usually feel comfortable discussing with their pair or in a small group (Issitt & Issitt, 2010). Besides, Moolman (2015) adds that giving attention to the vocabulary in the poetry writing process is essential for developing coherent lines and good rhymes. Conversely, a respondent argued, "The teacher must provide feedback on students' writing. …. The teacher also has to explain that they can use any words that can express themselves in poetry." (P. F26). The study about poetry writing assessment by Sundusiah et al. (2019)

highlights the importance of feedback on students' work. They explain that reinforcement from the teacher can be delivered orally or in writing. This feedback shows appreciation, suggests whether their diction and language style imitate others' work, and engages their ideas in forming their poem.

According to Mudzielwana (2016), EFL teachers should stimulate learning activities with practice in producing words within a social context that promotes vocabulary learning. It can be reflected in using poetry to produce their own words through a writing activity. Further, Marcus-Quinn (2016) emphasizes that poetry is a short and simple text to illustrate language mechanics. It showed that in poetry writing, the students must think and decide about their topic and content, exploring their vocabulary and generating whole sentences in every line. In writing a poem, the students not only produce a written form of words but also relate to its spelling and their look to form a meaning (Brown, 2011).

Word Meaning

Antika (2017) states that poetry contains powerful and sharp pictures in painting images and senses through language. Poetry offers meaningful activities that provide multi-interpretation to give students a chance to give critical reasons while interpreting the content based on its language features (Gönen, 2018; Herlina, 2016; Nishihara, 2022). During the interpretation, vocabulary knowledge must be improved because the students must know the meaning of each word in the line. Dealing with this point, language features in poetry can create meaningful analysis activities. Brown (2011) and Harmer (2003) explain that in learning about word meaning, the students will identify the meaning of a word and the association of a word or the possibility of its synonym, antonym, connotation, and denotation. Based on the results of the present study, word meaning was perceived by 39% of the respondents. The reasons and discussion about kind perceptions in word meaning are seen below.

Introducing Figurative language

Pollio et al. (1990) mention the principal maxim of figurative language such as the figures of speech (i.e., metaphor, simile, irony, idiom), figurative language is not conceptually functional, figurative language in literal usage and figurative language that exists across languages, historical era, cultural grouping. Poetry contains rich figurative language to beautify language expression in poetry (Anggiamurni, 2020). As a way to say something other than an ordinary way (Anggiamurni, 2020; Pramling & Samuelsson, 2007), poetry must contain a broad vocabulary to express a particular meaning. Therefore, figurative language provides students with knowledge about its type and vocabulary used in expressing something differently.

According to O'Brien (2010), the ability to interpret figurative language reflects vocabulary knowledge and the association of relevant subschemata. Referring to that point, the respondent also highlighted that "… asking students to analyze a poem and playing games by mentioning the example of figurative language whether it is personification, hyperbole, metaphor, or simile. Then students also mention examples used in everyday language" (P. F9). From that view, figures of speech contain broad word meanings in the form of various symbolic language meanings. The other view respondent also supported that "Language in poetry is full of figures of speech, idioms, have hidden meaning, and other elements. So that students must use high abilities or harder effort to understand poetry" (P. A29). Figurative language can give language models systematically and methodically of specific linguistic features (Antika, 2017).

The other view toward improving vocabulary in the figurative language of poetry was in the integration of teaching strategy. A respondent viewed "Strategy that can be used to enhance students' knowledge in studying figurative language is by reading. Reading is a way of thinking to analyze the content of a text" (P. G24). Even though the way of thinking can be gained through reading, Burklund (1955) offers techniques to help students learn about figurative language, such as removing misconceptions, offering the relation of art to reality, and rationale of figurative speech. The last is preparing exercises that are assimilated with the imaginative association. Through that strategy, students may be able to train their figurative competence (Pramling & Samuelsson, 2007).

Students can understand figurative language by analyzing the literal meaning of the sentences before transforming the meaning behind the sentences by deriving an interpretation (Gibbs et al., 1993). Therefore, a process of vocabulary interpretation is based on its literal meaning and hidden meaning. An argument from a respondent revealed, "Students will remember the new words that exist in the poetry because of the unique and beautiful words that have hidden meaning which is challenging to be analyzed by them" (P. F20). It showed that figurative language could also attract students' learning process. Figurative language is a way to develop vocabulary and students' cognitive processes in learning.

Introducing Colloquial Language
Colloquial language means informal English, often used in daily communication (Hasanah, 2020). Colloquial can be found in poetry since this literary work is a medium to communicate or express someone's expression. In its use as language in daily communication, eleven participants perceived that vocabulary in poetry could be practiced in daily communication for the students. A respondent viewed "…. with difficult words we will be able to increase our

knowledge of vocabulary if we can enrich our vocabulary, that will make us more effective in communicating using English" (P. C19). The other view also perceived that "… asking learners to read poetry … could make them familiar with the vocabulary used in poetry and make it possible to use in real life. Finally, poetry also sharpens English learners' understanding of the meaning of each word used in the English language…." (P. F4). Thus, poetry provides media to learn about communicative language differently.

Regarding colloquial as an informal language, there must be a question about students' academic language for academic purposes. A study by Imamović-Topčić & Weger (2017) provides evidence of the relationship between colloquial language and academic language acquisition in EFL classrooms. It shows that academic language has more special linguistic performance ability; besides, in this study, the students can adapt and differentiate the use of academic and colloquial language. Colloquial language is needed in socialization; the classroom usually provides formal materials that contain formal academic language. In this case, teachers' guidance in providing students with contextual media on language learning colloquial language can also be acquired in a formal class setting (Imamović-Topčić & Weger, 2017).

Helping Students Analyzing Unfamiliar Words
Eleven participants perceived that unfamiliar words in poetry could increase students' vocabulary by finding unfamiliar words in poetry. A participant viewed, "The teacher can teach the students by asking them to read a book, …. and ask them to open their dictionary to find the meaning of the words…" (P. E8). On the other hand, a contradictory argument was found. Knight (1994) argues that a dictionary is discouraged from guessing a word's meaning; its use is suggested only as a last tool in finding the word's meaning. It causes a distraction during reading activities. Meanwhile, Lin et al. (2017) suggest providing students with contextual text in order to give students a chance to analyze the meaning of unfamiliar words directly. Based on the argumentation above, it does not mean that using a dictionary to analyze word meaning distracts learning, but it is a tool to improve learning autonomy. Further, relating to the contextual text, poetry provides contextual text that students can read and guess unfamiliar words before they find them in the dictionary.

The other participant perceived that the "… 'Engage, Study, and Active' method supports teaching vocabulary in EFL classrooms. … in the 'study' stage, students analyze the poetry by underlining and listing the types of vocabulary they found in poetry. In 'active' phase, students find the meaning of word of poetry that their friend read in the front of the class" (P. F30). It can be seen that the respondent highlighted students' active learning. Finding unfamiliar

synonyms or antonym vocabulary supports student-centered learning (López Campillo, 1995). The students actively create their meaning while teachers confirm their interpretation of an unfamiliar word they found.

Word Use

In the recent teaching activities about word use, teachers usually went straight to the textbook sources in using words and formed them into sentences. On the other hand, Cushing (2018) reveals that teachers have started to use literary work in teaching word use, especially grammatical function and collocation, which the present study highlighted. Cushing (2018) explains that poetry hits the chance in teaching practice from teachers as "gatekeepers to meaning" in the conceptual context of poetry that is "puzzled," which gives students right and wrong answers. In short, poetry gives accurate word use to be understood by the students through puzzled meaning in its figurative features. The following explanation shows the use of poetry to facilitate grammar learning.

Introducing Grammatical Function

According to Brown (2011), activities in analyzing grammatical function are explaining the pattern in a sentence, rearranging word position, and using the items in writing to create a structured and meaningful sentence. A book by Master (2017) discusses the components of grammar, such as a group of words, the verb tense system, nouns, adverbs, and sentence combining. Mastering those elements will improve the grammatical competence of students. Authentic material is an effective teaching medium for teaching the elements of grammar. Arindora et al. (2021), Suwastini, Aryawan et al. (2023), and Suwastini & Dewi (2023) argue that poetry can give direct exposure to grammatical, lexical, and syntactic knowledge besides poetry analysis; it also supports effective grammar learning before students have the automatic production of their sentences. They can analyze the use of grammatical functions before they produce and use the grammatical rules.

Six out of eighty-seven respondents perceived that poetry could improve students' grammar. Some views could be highlighted about the activities and strategies in learning to improve students' grammar. The first respondent revealed, "The activity of acquiring the things that happened in poetry will improve students' vocabulary and their ability to know sentence structure …." (P. B25). The other respondent perceived, "The teacher can use stylistic, reader-response, form-meaning response approaches to teach a lexical item or grammatical structure so the students can have a meaningful context." (P. E7). Concerning this, strategy in teaching grammar is based on teachers' view on "what grammar is" (Cameron, 1997). Students can be helped to discover its use for themselves if they are allowed to apply different

possibilities and propose a solution that might be 'wrong' rather than give the 'right' answer in advance to be applied mechanically (Cameron, 1997). It means the students must construct their structure by using the word by the possibility of using various words to produce several lines in poetry.

In learning word use, some possibilities can be caused by 'puzzled' information for students, such as various patterns used in a word, types of words to be used, and where, when, and how often this word is used (Brown, 2011). It engages creativity and critical thinking in grammar learning through poetry from those possibilities. A process of gaining receptive and productive vocabulary knowledge might occur during this process (Suwastini & Dewi, 2023; Suwastini et al., 2023; Zhong, 2018). Learning about language use is recalling and using multiple aspects of a word that contain receptive and productive vocabulary. Zhong (2018) explains that receptive vocabulary knowledge is the ability to recall multiple aspects of word knowledge in reading and listening, while productive vocabulary knowledge is the ability to use multiple aspects of word knowledge in writing and speaking. Thus, poetry as the medium for learning grammar offers an opportunity to elaborate on other interrelated language skills.

Practicing in Using Collocation

Brown (2011) states that although EFL students have already learned many useful grammatical features, their vocabulary structures make their sentences unacceptable for the content words. Therefore, Brown adds that it is crucial to increase the knowledge of collocation, where students can use any words together to create an acceptable context and meaning. A participant said, "Through analyzing poetry, the students' language awareness and critical thinking skills have improved." (P. D9). It means that through poetry analysis, students are trained to be aware of the use of words. Garba (2021) argues that collocation in poetry is unique because it is a deviation seen as an aesthetic device. Further, collocation can be defined as an arbitrary or conventional combination of words that can be divided into lexical and grammatical features (Futagi et al., 2008; Huang & Tsao, 2021; Moehkardi, 2002).

Relating to the types of word combinations, in learning vocabulary through poetry, they must decide the correct combination of words, whether it is a lexical collocation or grammatical collocation, to form a correct meaning. Besides, they also need to consider the aesthetic derivation of particular collocations in poetry. A respondent said, "Teaching students to read and evaluate each word of a text can also use short poetry. …. it is aimed for students to be able to understand the meaning of the poetry they make." (P. D25). Based on that argumentation, it might be hard for the students to decide the derivation in the literary work, but teachers must be able to give their students a suitable level of poetry. Brown (2011) supports that in giving exercises for

colocation, teachers give flexible variety and let the students feel the helpful group of words. Further, Brown (2011) adds that sentences of a foreign language are immediately learned when placed in a meaningful sequence. As poetry contains contextual meaning, Nanda and Susanto (2011) highlight that poetry exposes various norms of language use and awareness through its uniqueness.

This research implies using poetry and songs to improve students' vocabulary, especially in English language education. Moreover, referring to related articles from Suwastini et al. (2023) and Suwastini & Dewi (2023), poetry is also considered to improve speaking and reading skills. Considering that vocab is very crucial for supporting speaking and reading skills, the arguments of the two studies above underlie the argument for the importance of involving poetry in EFL textbooks in Indonesia. At the university level, especially in the English Education Study Program, prospective EFL teachers need to know how to use poetry to teach English. Hence, to be able to teach English with poetry, at least the English language education curriculum at the undergraduate level must include basic knowledge about poetry, its elements, and how English poetry is read (related to pronunciation, speed of speech, intonation, and accent through good rhythmic emphasis).

CONCLUSION

Poetry is considered contextual material for teaching English, especially vocabulary for students. The elements in poetry, such as its rhyme, figurative language, and diction, engage students in learning activities. Based on the present study, students believe poetry can help students learn vocabulary creatively. They viewed that vocabulary can be improved through pronunciation, spelling, figurative language, colloquial language, unfamiliar words, grammatical function, and collocation in poetry. These perceptions are classified into the elements in poetry. The vocabulary elements are synthesized from Brown (2011) and Harmer (2003). They propose that vocabulary contains three elements: word form, word meaning, and word use. Therefore, pronunciation and spelling are classified into word form because they are in the form of spoken and written words. Figurative language, colloquial language, and unfamiliar words are distributed into word meanings. It is because those elements are language features in the poetry that have hidden meanings based on its context. The last is grammatical function and collocation grouped into word use because it is the stage when the students use vocabulary to produce sentences. Further, poetry can be integrated into other learning strategies to create exciting activities for improving vocabulary. However, in using poetry to teach vocabulary, teachers must consider the types of poetry and

students' level. They will learn vocabulary in a short text with rich features. Thus, they learn all elements of vocabulary within contextual sources.

While vocabulary helps students comprehend receptive skills (i.e., reading and listening), it also helps students' productive skills (i.e. speaking and writing). More specifically, using poetry in EFL class could positively affect students' writing skills because of the improved comprehension and the consumption of the complex written text. As writing is the practice of jotting down ideas, having ideas from understanding poems can support students' writing process. In the meantime, exposure to the complex use of English in a poem could improve students' eloquence in their writing, affecting the quality of their writing results.

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Artificial Intelligence in English Language Teaching: Fostering Joint Enterprise in Online Communities

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This paper examines the role of Joint Enterprise within Virtual Communities of Practice (VCoP) in the realm of English Language Teaching (ELT), particularly in relation to the integration of Artificial Intelligence (AI) tools. The study focuses on the discussions in five open Facebook groups, to explore how teachers collectively navigate the application of AI technologies. The discussions reflect an effort among teachers to not only integrate AI tools into their teaching practices but also to ensure these tools are used ethically and effectively, balancing technological advancements with pedagogical soundness. The findings of the study underscore the critical role of Joint Enterprise in fostering a community that is responsive to evolving educational technologies.

Keywords Joint Enterprise, Virtual Communities of Practice, Artificial Intelligence, Facebook

INTRODUCTION

The integration of Artificial Intelligence (AI) tools in English Language Teaching (ELT) marks a significant shift in education. These tools, recognized for addressing diverse learning needs and enhancing language outcomes such as vocabulary acquisition, comprehension, and pronunciation, also provide ELT teachers with support in tasks such as attendance monitoring and resource management. However, as AI tools become increasingly integrated into ELT, understanding how teachers collectively engage with these technologies becomes crucial. This study aims to explore this collective engagement, specifically within the context of Virtual Communities of Practice (VCoPs) such as open Facebook groups.

VCoPs, rooted in the principles of Communities of Practice (CoP) as conceptualized by Lave and Wenger (1991), are grounded in three key elements: Mutual Engagement, Shared Repertoire, and Joint Enterprise. Mutual Engagement refers to the collaborative participation of community members; Shared Repertoire involves the shared resources and experiences that members bring to the group; and Joint Enterprise, the focus of this study, refers to the collective goals and objectives that the community members pursue together. In the context of ELT, this Joint Enterprise is particularly significant as it involves the collective understanding and implementation of AI tools – a fast expanding area of education that requires joint investigation and adaptation.

The relevance of focusing on Joint Enterprise in VCoPs, particularly in relation to AI in ELT, lies in the unique insights it provides into how online communities collectively navigate new technologies. This collaborative dimension is key to understanding AI tool use and community perception. A case in point is the research by Keuk and Kimura (2015) in Cambodia, which found that Joint Enterprise was a crucial factor in the development of true communities of practice within ELT research. Their findings highlight the necessity for teachers to have a common purpose and shared objectives to foster strong communities of practice. By collaborating towards shared goals, teachers can effectively share knowledge and support each other, underscoring the importance of Joint Enterprise in the study of VCoPs.

Other studies, such as those by Laiche and Ghaouar (2021) and Bedoya et al. (2023), have provided valuable insights into the dynamics within VCoPs and the transformative power of technology in these settings. However, these studies do not thoroughly explore the specific discussions related to AI tools in ELT. Similarly, studies by Selvi (2021) and Flagg (2022) highlight the potential of Facebook groups as VCoPs during challenging times such as the COVID-19 crisis. These studies highlight the role of these groups in facilitating interactive discussions and resource exchanges. Nonetheless, the discourse surrounding AI tools within these communities remains largely unexplored.

The main focus of this present study is to examine open Facebook groups in order to gain a better understanding of how AI tools are perceived and utilised in the field of ELT. These open groups, which are accessible and visible to everyone, operate as open classrooms, providing a distinctive level of transparency that enables public observation and learning. Such openness is essential when examining the Joint Enterprise element of VCoPs, as it allows for the dissemination of ideas and shared knowledge, even among non-members. The discussions within the open Facebook groups are considered public data (Facebook, 2020; Kosinski et al., 2015); and they provide a rich resource for understanding the implementation and challenges of AI tools in ELT.

Focusing on open Facebook groups enables this study to go beyond the traditional examination or typical analysis of the impact of VCoPs on teaching methods and student outcomes. Instead, it emphasizes collaborative learning and technology adaptability, particularly through the lens of Joint Enterprise. This exploration within open Facebook groups is pivotal in contributing to a broader understanding of how AI tools are integrated and collectively perceived in ELT practices. Examining the dynamics of Joint Enterprise in these groups, the study hopes to fill a significant gap in the literature and contribute to a broader understanding of the integration and collective perception of AI tools in ELT practices.

METHODS

This study employs a qualitative case study design, focusing on the discussions related to the use of AI tools in ELT within five open Facebook groups. These groups form the bounded system for an in-depth examination, as outlined by Baxter and Jack (2008) and Creswell and Poth (2017). The researcher adopted a non-intrusive lurking approach (Nonnecke & Preece, 2000), observing without joining the discussions, to maintain data authenticity and respect the open nature of these publicly accessible groups.

Data were collected from five open Facebook groups namely Teaching & Learning with ChatGPT (and AI), AI for English Teaching (Korea Edition), Emerging Technologies in Language Education, ChatGPT for Teachers, and ChatGPT for Language Learning. The data collection focused on posts and comments about AI tools for ELT. Only posts that generated comments, indicative of collective knowledge construction, were included, aligning with VCoP principles of collaborative learning (Wenger et al., 2002). This resulted in 235 initial posts and 1,712 replies collected up to 19 May 2023, following the principle of data saturation.

Posts and comments from these open groups are public data, as per Facebook's privacy policy (Facebook, 2020) and Kosinski et al.'s (2015) guidelines, suitable for research. To maintain ethical standards and participant privacy, the study employed an anonymization process. Usernames from Facebook were replaced with initials, e.g., "Lee Richard" became "LR," or "Jose Arya Coleman" became "JAC" ensuring individual confidentiality while preserving data integrity for analysis. Four experienced university teachers independently verified the anonymized data's accuracy and relevance, aligning with ethical research practices.

This study, utilizing a thematic analysis approach, concentrated on the Joint Enterprise aspect within the VCoP framework. This focus enabled an in-depth examination of how English language teachers in the Facebook groups collectively navigated their understanding and application of AI tools, as well as the communal handling of challenges and concerns related to these tools.

RESULTS AND DISCUSSION

This thematic analysis is structured around two principal themes that reflect the concept of Joint Enterprise in the context of AI tools' integration into ELT. The first theme, AI Tools Understanding and Usage, encompasses a detailed exploration of the groups' collective comprehension, acceptance, utilization, critique, and various specific aspects such as AI Tool Acceptance, Comparison, Critique, Demonstration, Diversity, Experimentation, Assessment, Limitations, Performance, Potential, Queries, Suggestions, as well as broader discussions on the Anticipation of AI's Impact, Critiques on Current Teaching, Queries on Plagiarism Detection Tools, and Rubric Application. The

second theme, Concerns and Challenges, addresses the community's shared concerns, ethical considerations, and challenges, including over-reliance on AI, ethical use, dealing with AI tools, expressing struggles and hope, potential misuse, questioning AI competency, and the value of teacher presence. This structure aims to provide a comprehensive overview of the community's joint efforts to navigate the complexities of AI tool integration in education.

AI Tools Understanding and Usage

AI Tools Understanding and Usage delves into the complex landscape of how English language teachers perceive, adopt, and apply AI tools in their teaching practice. This theme encapsulates codes such as AI Tool Acceptance, AI Tool Comparison, AI Tool Critique, among others.

AI Tool Acceptance

English language teachers in Facebook groups have notably accepted AI tools, aware of ongoing debates yet ready to integrate these technologies. In Emerging Technologies group, PR remarked on the complexity of AI tools: "Banning it... is an extreme reaction... not a good long term solution." RMO expressed enthusiasm for VR-based AI tools: "I'm getting 100 of them for our new Virtual reality project." In ChatGPT for Teachers group, DDL criticized academia's resistance to AI: "...shows how old fashion these institutions are!" ANE emphasized adaptation: "Evolution, adapt or be left behind!", while RHA stressed AI's inevitability: "It's out there now... So, we have to reconfigure how we teach." These perspectives underline AI tools' importance in modern education and the willingness of teachers to evolve their methods to include these technologies.

AI Tool Comparison

In the AI Tool Comparison section, discussions in groups namely the Emerging Technologies group and the ChatGPT for Teachers group focused on comparing various AI tools for functionality, efficiency, and effectiveness, crucial for selecting suitable educational tools. In the Emerging Technologies group, FAK noted a comparison between language tools: "Similar to Duolingo, but Drops is more into audiovisual learning. Also memorizing." SSM provided a detailed comparison of virtual reality hardware like Oculus Quest 2 and Samsung GearVR, sharing, "With regard to the Quest 2 itself, it's really good... I also have the Samsung GearVR... prefer it over the finicky and temperamental HDK2." In the ChatGPT for Teachers group, JWI questioned the automation in grading: "Is it [using ChatGPT to mark students' works] no different than using a scantron?" These dialogues highlight the importance of thorough analysis and peer discussions in choosing AI tools for the classroom, aiding teachers in understanding the balance between technical specs and user experience, and reflecting on the degree of automation in teaching.

AI Tool Critique

In the AI Tool Critique theme, members from Facebook groups such as Teaching & Learning with ChatGPT (and AI), Emerging Technologies, and ChatGPT for Teachers, expressed criticisms of AI tools, highlighting challenges in their implementation and the need for refinement. From Teaching & Learning with ChatGPT (and AI) group, OP criticized AI for producing generic responses: "Generic prompts, give generic answers." In Emerging Technologies group, SSM noted both potential and drawbacks of ChatGPT and Bard, pointing out their closed, profit-oriented nature and issues like biases and inconsistencies: "I've been playing with ChatGPT and Bard... shows that with the potential come some pretty big risks." In the ChatGPT for Teachers group, CB discussed ChatGPT's limitation in information verification: "I was playing around with ChatGPT... it couldn't tell me what research article it came from," while SKE highlighted issues with critical thinking and citation accuracy: "I have found that the justification piece of ChatGPT is not good because AI does not do critical thinking." These critiques underscore the necessity for ongoing evaluation and enhancement of AI tools to better serve teachers' needs and integrate effectively into educational practices.

AI Tool Demo

In the AI Tool Demonstration theme, teachers in the ChatGPT for Teachers group effectively demonstrated AI tools' application in the classroom, bolstering understanding of their practical teaching benefits. HP used ChatGPT for ESL teaching, responding to a query with a list of ten ESL strategies, highlighting the tool's versatility in offering diverse learning activities: "I brought your question to ChatGPT. Here is the prompt and response..." This instance within the group not only display AI tools' functions but also provides practical examples for educational application, fostering a collective knowledge base and encouraging peer exploration and adoption of AI in teaching practices.

AI Tool Diversity

In discussions on AI Tool Diversity in groups like the Emerging Technologies group, ChatGPT for Teachers group, and AI for English Teaching (Korea Edition) group, teachers delved into the array of AI tools, their distinct features, and diverse English language teaching applications. PR from the Emerging Technologies group shared an extensive list of 185 digital resources, illustrating the variety of tools for language teaching: "Teachers love... sharing a link to a cool app, tool, or site... Over the years, I have curated a list of over 185 such resources." In the ChatGPT for Teachers group, JS highlighted the utility of ChatGPT and Grammarly for ESL students: "ChatGPT can be used like Grammarly - both which I recommend to my university students." AD from AI for English Teaching (Korea Edition) noted the rapid emergence of new AI tools adaptable to Korean language: "So many sites are popping

up now that can be useful... some of which are very adaptable for using Korean language." These conversations underscore the extensive range of AI tools in English language education, stressing the importance of understanding each tool's unique capabilities for optimal use in teaching and learning contexts.

AI Tool Experimentation

In the AI Tool Experimentation theme, teachers in groups like the Emerging Technologies group and ChatGPT for Teachers group explored and tested various AI tools, showing innovation in education. In Emerging Technologies, DHO tested Q-chat's quiz mode for its handling of language inconsistencies: "I played around with Q-chat briefly in quiz mode... it's definitely promising." PR used ChatGPT to simulate non-native English errors, noting its potential for learning activities: "While this kind of thing could be used as a learning activity... it might also be quite tricky to tell that a student had not written it themselves." In ChatGPT for Teachers, ALK used ChatGPT for story writing but preferred crafting her own stories due to limitations in AI content: "It's done the job-but much like other beginning decodable-they're not great sentences... I always resort to writing my own." JMc explored speech recognition for IELTS questions, indicating a readiness to experiment with AI's unconventional uses: "Playing with speech recognition and IELTS questions... it's going well..." These instances demonstrate teachers' active engagement with AI tools, highlighting their willingness to innovate and the tools' potential in enhancing teaching and learning.

AI Tool in Assessment

In the AI Tool in Assessment theme, teachers in groups like the Emerging Technologies group and ChatGPT for Teachers group examined the use of AI for student evaluation, discussing its potential and challenges in educational assessment. In the Emerging Technologies group, LPH described using speech-to-text and automated assessment with Eduling Speak: "I'm working on using speech to text... with my app Eduling Speak... with minutes of speeches of all kinds," highlighting AI's efficiency in assessing spoken language. In the ChatGPT for Teachers group, RCG suggested incorporating AI in lesson planning for content understanding checks: "Part of lesson planning will perhaps need a discussion aspect in the future..." GT also from ChatGPT for Teachers, noted challenges with AI-generated tests: "ChatGPT will create a test, but many of the questions are not valid because there is more than one correct option." These discussions underscore the intricate balance of AI's potential to streamline assessment with the necessity for its refinement for effective educational integration.

AI Tool Limitations

Discussions in the Emerging Technologies group have focused on the limitations of AI tools in education, particularly their handling of language. VJA humorously noted AI's potential to generate inappropriate content: "500-word essays of offensive and inappropriate ideas (with citations) it is then!" highlighting its inability to discern content appropriateness. PR discussed machine translation limitations, especially between English and Japanese: "The tech does not yet work well enough to replace human language ability... Continuous translation in Google Translate... not available in J-E yet." SBI echoed this with a similar experience. MPO emphasized the need for human oversight in machine translation in fields like healthcare: "Machine-translated output still needs to be checked... The HCW using the device should be able to notice when the device is not accurate." These dialogues highlight the limitations of AI in complex language tasks and the ongoing need for human supervision, suggesting a cautious approach to AI adoption in education, recognizing its benefits but also its current inability to fully replace human skills and judgment.

AI Tool Performance

Discussions in Facebook groups such as in ChatGPT for Teachers group have focused on the performance of AI tools in education, highlighting their strengths and limitations. LAK in ChatGPT for Teachers group emphasized the need for critical use of AI tools, especially regarding factual accuracy: "It's just a language model... It's not able to check itself for factual accuracy." EL discussed machine translation, noting a specific AI tool's superiority over Google Translate: "I went to a workshop that said it is more accurate than Google translate." Conversely, JR from the same group highlighted AI's inaccuracies in grading, suggesting its limitation to providing revision suggestions rather than grading content: "Everything I've tried has been inaccurate when it gets to actually grading." These discussions reflect varied opinions on AI tool performance in educational contexts, acknowledging their utility but also the necessity for human oversight and critical engagement, particularly in nuanced tasks like grading.

AI Tool Potential

The transformative potential of AI in education has been a prominent topic in Facebook groups such as Teaching & Learning with ChatGPT (and AI), Emerging Technologies, and ChatGPT for Teachers group. In Teaching & Learning with ChatGPT (and AI) group, BL noted AI's inevitable growth in education: "This tech will only grow... 'AI won't replace people, people with AI will replace people without it'." This view underscores AI's importance in future educational landscapes. In the Emerging Technologies group, TKA marveled at Duolingo's AI model, Dolingo Max: "I am astonished! Dolingo Max... by Duolingo is here..." suggesting its potential to revolutionize language learning. In ChatGPT for Teachers, ZSO predicted AI's

rapid growth in education: "In a very short space of time, AI feedback... will be very difficult to distinguish from that from human teaching staff..." implying AI's capability to match or surpass human teaching. These discussions reflect a consensus on AI's significant, transformative role in education, highlighting its emerging necessity in teaching and learning.

AI Tool Query

Queries about AI tools' functionality, usage, and effectiveness have been prevalent in groups like Emerging Technologies and ChatGPT for Teachers groups, highlighting teachers' eagerness to integrate AI in education effectively. In Emerging Technologies group, IBOU questioned ChatGPT's ability to generate unique reports: "Could ChatGpt generate different reports... that is tricky even for a human teacher?" In the ChatGPT for Teachers group, SHA asked about ChatGPT's creative content generation: "Can chatgpt write stories?" LLr questioned its language versatility: "Does it [learnt AI] work only in English language?" and RWP was curious about its grading potential: "So it [ChatGPT] can grade your essays????" These inquiries reflect teachers' desire to fully understand AI tools' applications and limitations, crucial for enhancing AI's effective use in education.

AI Tool Suggestion

In Facebook groups, teachers actively discussed suggestions for improving AI tools in education, demonstrating their dedication to refining AI-based teaching methods. In the Emerging Technologies group, DRA suggested a new feature for Zengengo to support independent speaking practice: "Why won't Zengengo add a feature of scripted dialogues with the computer... This would allow students to practise speaking on their own." This idea aims to enhance the tool's utility and fun for students. In the ChatGPT for Teachers group, FA desired more human-like interactions from AI tools, particularly Large Language Models: "YES! Human interaction is the next level for human knowledge construction. I hope AI/LLM will enforce all of us to step on that level at last!" indicating a wish for AI to foster natural communication. These discussions underscore teachers' active role in shaping the future of AI tools, with their suggestions offering crucial insights for developers to meet real classroom needs.

Anticipation of AI Impact

In Teaching & Learning with ChatGPT (and AI), Emerging Technologies, and ChatGPT for Language Learning groups, discussions have revolved around AI's future impact on education and teaching. In Teaching & Learning with ChatGPT (and AI) group, NVT anticipated significant changes due to AI: "Assume that 10 years from now, AI tech... will be mainstream... How will learning be different? And how will the role of teacher change?" predicting a shift towards personalized learning and the need for data literacy among teachers, but also expressing concerns about the

digital divide. In Emerging Technologies group, DGZS discussed the impact of machine translation on language learning: "Too much money is being put into this... We will soon have universal translators and the pool of students will hugely decrease." CNE noted the need to rethink evaluation methods in light of AI's capabilities: "What if the AI write the entire assignment?... AI will make obsolete." Meanwhile, BT from ChatGPT for Language Learning group remained optimistic about AI's role in language learning. These discussions highlight both excitement and apprehension about AI's role in education, pointing to a future where teachers must adapt and develop new skills to leverage AI effectively, while also navigating its challenges.

Critique on Current Teaching

In the Emerging Technologies and ChatGPT for Teachers groups, there were critical discussions on current teaching practices, focusing on AI tools integration. In Emerging Technologies group, CGL discussed the challenge of integrating frequent use of language learning platforms into students' routines: "6 times a day [to log into the platform] sounds like... changing their daily routines/habits." COB questioned the need for traditional homework: "Why do they need homework? Is it really necessary?" In ChatGPT for Teachers group, AR commented on some teachers' reluctance to use AI for marking: "It feels like someone fearing to lose power above the students." VKO suggested a constructive approach to AI use in assessments: "Detecting AI use is counterproductive - redesign your assessments." These conversations indicate a need to rethink teaching methods in response to AI integration, focusing on student workload, routines, and the potential of AI in enhancing learning and assessment.

Query on Plagiarism Detection Tools

In the Emerging Technologies and ChatGPT for Teachers groups, there was notable discussion on using plagiarism detection tools for AI-generated content, highlighting teachers' concerns about academic integrity and the challenges of these technologies. In Emerging Technologies group, SSV adopted a cautious approach to AI's impact on integrity: "I am changing all my assessed tasks to be in no way reliant on AI... Students are going to cheat in the same way they always have, and [I] will not tolerate it." In ChatGPT for Teachers group, BG asked about tools for detecting AI use: "Which software do you use to check for plagiarism and the use of AI?" An anonymous teacher shared a case of a plagiarism tool falsely flagging a student's work as AI-generated, underscoring the issue of false positives. These discussions reflect teachers' concerns about plagiarism tools' accuracy in distinguishing human from AI-generated work and the ethical dilemmas in incorporating these technologies into education.

Rubric Application

In the ChatGPT for Teachers group, teachers discussed using AI tools for creating and applying rubrics in student assessments. CT highlighted the efficiency of an AI tool in formative assessment and rubric creation: "And if you want to create a full-on formative assessment it will also create the rubric for you." This example demonstrates the tool's capability to streamline assessments. Similarly, HP shared their use of ChatGPT for rubric creation: "Have you tried asking ChatGPT exactly what you wrote?... Please create a rubric for evaluating student writing (ESL)... Output: Sure, here is a basic rubric... based on a 1-5 point scoring system." HP's experience underscores the ease and practicality of AI in generating tailored rubrics, a task usually demanding for teachers. These discussions reflect an increasing interest in leveraging AI tools for assessment tasks, emphasizing their potential to enhance efficiency and adaptability in creating rubrics for various educational contexts.

Discussion for AI Tools Understanding and Usage

The integration and exploration of AI tools within these Facebook groups embody a paradigm of Joint Enterprise, as defined in the VCoP framework. This communal enterprise transcends mere adoption of new technologies; it represents a concerted effort by English language teachers to engage with AI in a manner that is reflective, critical, and collaborative.

These virtual spaces are not just platforms for sharing resources but are evolving into pivotal forums for Teacher Professional Development (TPD), as highlighted by Carpenter & Krutka (2015) and Wenger et al. (2002). In these groups, teachers are not passive recipients of information. Instead, they actively engage in discussions that delve into the ethical, pedagogical, and technological aspects of AI integration, echoing the findings of Baskara (2023), Esmaeili et al. (2016), and Song et al. (2017). These discussions often revolve around ensuring responsible usage of AI tools, addressing concerns such as privacy and professional dignity. A distinctive aspect of these discussions is the focus on AI's potential in automating aspects of teaching and learning, such as scoring and feedback. The advantages of these systems, as noted in studies by Ferris (2010), Hyland & Hyland (2006), and Moore & Kearsley (2012), are acknowledged, particularly their role in providing timely and individualized feedback while minimizing human biases (Shermis & Burstein, 2013; Zhang, 2021). However, teachers in these groups are also aware of the challenges posed by AI, such as the potential overshadowing of the human element in education. This awareness resonates with the concerns raised by Huang et al. (2021) and Pardo et al. (2018), who advocate for a balanced approach to ensure AI tools complement rather than replace the unique capacities of human teachers.

The notion of Joint Enterprise is further exemplified in the collective efforts among teachers to integrate AI tools effectively into their teaching practices. These efforts mirror the transformative potential of technology in educational settings, as outlined by Flagg (2022) and Laiche and Ghaouar (2021). Teachers in these groups actively share their experiences and strategies, contributing to a dynamic

knowledge base that benefits the entire community.

In essence, these Facebook groups serve as microcosms of the broader educational environment, where the principles of VCoP are vividly manifested. The discussions within these platforms encapsulate complex dynamics, ranging from ethical considerations and TPD to the indispensable human element in education. This collective engagement in Joint Enterprise not only enriches individual teaching approaches but also strengthens the community's capability to adapt to and shape the future of education in the digital era.

In conclusion, the exploration of AI Tools Understanding and Usage within these ELT Facebook groups, through the lens of Joint Enterprise, highlights the critical role of collaborative engagement in effectively integrating AI tools in educational practices. It showcases how these communities, by collectively navigating the intricacies of AI integration, are playing a pivotal role in shaping pedagogical practices in the era of digital technology.

Concerns and Challenges

Concerns and Challenges offer a nuanced examination of the hurdles, reservations, and issues that English language teachers face while integrating AI tools into their educational practices. This theme encapsulates codes such as Concern about Over-reliance on AI, Ethical Use of AI Tools, among others.

Concern about Over-reliance on AI

In the ChatGPT for Teachers group, discussions about AI tool usage in education revealed concerns about potential over-reliance and its implications. JFRL highlighted apprehensions about high-performing students using AI tools like ChatGPT for convenience: "Our dual credit English teacher has the best students... using ChatGPT because it's easier," pointing to the risk of students sidestepping learning efforts. JT expressed anxiety about AI's impact on teaching jobs: "Why would anyone want to pay me to have conversations with them anymore... Is this not the beginning of the end for my job?" TT raised societal concerns: "Students will lose their value. Humans will be AI dependent in the very future," suggesting future over-dependence on AI. These conversations in the teacher community reflect both enthusiasm and caution towards AI integration in education, highlighting the need to balance AI's benefits with its potential drawbacks in terms of student reliance and the broader teaching profession and societal norms.

Ethical Use of AI Tools

In ELT, discussions in Facebook groups like Emerging Technologies and ChatGPT for Teachers have underscored the ethical considerations of using AI tools in education, revealing complex ethical challenges. In Emerging Technologies group, JTO cautioned against accepting AI-generated content as factual, emphasizing critical scrutiny:

"AI... have been used to generate fake webpages... We are going to have to be a lot more suspicious about everything we see on our screens." This highlights the ethical dilemma of ensuring information credibility and fostering critical thinking among learners. In ChatGPT for Teachers group, CNE discussed the ethical implications of AI completing assignments: "What if the AI write the entire assignment?... Teachers should now be thinking about different ways to evaluate students." YIR also criticized the uncritical use of AI in assignments, stressing responsible usage: "Copying and pasting sentences... is not homework. It is a waste of student time and teachers' time." These discussions within the ELT community indicate increasing awareness of AI's ethical complexities, emphasizing the need to maintain ethical practices, ensure content authenticity, and adapt pedagogical approaches in the evolving educational landscape.

Challenges Dealing with AI Tools

In Facebook groups like Teaching & Learning with ChatGPT (and AI), discussions highlight the varied challenges teachers face in integrating AI tools into teaching, spanning technical limitations to cultural and pedagogical factors. HZP from the group pointed out technical challenges in subject-specific contexts: "It's not too good at math and we are starting out with English," indicating AI's subject-related limitations and the need for development. NVT addressed cultural and regional challenges, particularly in Vietnam: "Students in Vietnam lack self-learning skills... their preference is traditional classroom," highlighting the influence of cultural dynamics on AI tool adoption and effectiveness. These discussions underscore that AI integration in education involves more than technology; it intersects with societal norms and learning attitudes. The effective use of AI in education relies on addressing these multifaceted challenges, requiring both technical improvements and cultural adaptability to ensure meaningful integration in diverse educational settings.

Struggles and Hope

Discussions in groups like Emerging Technologies and ChatGPT for Teachers highlight the mixed emotions of struggles and hope surrounding AI tool adoption in education. SMc from Emerging Technologies group voiced concerns about financial constraints in implementing AI tools for many students: "Can you explain how you set this [SpeechCoach] up and how much it costs?... 600 students might be outside our budget, which is 0," illustrating the balancing act between technology adoption and budget limits. Despite this, SMc's interest indicates hope for integrating such tools. In ChatGPT for Teachers group, KST addressed the complexities of plagiarism detection with AI content, calling for policy changes: "Turnitin should be used as evidence, not proof... There needs to be changes at a policy level." This reflects both the challenges of current AI limitations and optimism for future improvements. These conversations show educators confronting financial and technological hurdles, policy issues, and the hope for AI's transformative potential in teaching and learning,

underscoring the complex but forward-looking journey of AI integration in education.

Potential Misuse of AI

In Facebook groups like Emerging Technologies and ChatGPT for Teachers, teachers are increasingly concerned about the potential misuse of AI tools in education, particularly by students, impacting learning integrity and ethics. SMc from Emerging Technologies group expressed frustration over AI tools' incorrect application: "There is a lot that the AIs can and do do that is not doo doo... people are using it wrong." PR highlighted risks with AI interfaces like Caktus AI facilitating dishonest practices: "The Caktus AI UI seems specifically designed to help students cheat..." In ChatGPT for Teachers group, JO noted that some students misuse AI for language learning by merely replicating responses: "However, some learners are just stealing [the] model and regurgitating the language it creates." These discussions underscore the challenges in ensuring AI tools enhance learning appropriately and the need for clear guidelines and ethical considerations to prevent misuse. Teachers and developers share the responsibility to create an environment where AI is used responsibly, supporting educational integrity.

Questioning AI Competency

In Facebook groups like Emerging Technologies and ChatGPT for Teachers, teachers critically scrutinize the competency, accuracy, and effectiveness of AI tools in education. They actively discuss the reliability and limitations of these tools, keen to understand their real impact on teaching and learning. In Emerging Technologies group, SSM critiqued YouTube's auto transcripts, especially their handling of accents, highlighting AI's limitations in language processing: "Personally, I don't find YouTube's auto transcripts to be that reliable…" MBU in the same group emphasized the need for empirical evidence to validate the effectiveness of AI tools like ChatGPT: "However, self-reported claims about using ChatGPT to write/develop written assignments improving understanding need to be tested empirically." In ChatGPT for Teachers group, KKA expressed disappointment with ChatGPT's generic responses in book analysis: "I don't think AI did an [analysis] at all here…" and MA questioned its ability to evaluate writing improvements accurately: "Try asking the difference between the two writings and do not told chatgpt what had improved." These discussions show teachers critically appraising AI tools, exploring their potential while questioning their efficacy and appropriateness in educational settings, essential for their responsible integration in education.

Value of Teacher Presence

Discussions Emerging Technologies and ChatGPT for Teachers groups emphasize the vital role of teacher presence alongside AI tools in education. Teachers agree that while AI enhances teaching and learning, their human element remains crucial for best outcomes. In Emerging Technologies group, DDE questioned AI's impact on learning quality: "Pupils might prefer the robot, but what impact does it have on the quality of their learning overall?" highlighting the necessity of teacher guidance. TLA observed the importance of teacher assistance in interpreting AI feedback: "The feedback was very good, but the student needed my help to understand the feedback." In ChatGPT for Teachers group, PM stressed the teacher's crucial role in evaluating student performance, even with AI assistance: "it [is] imperative that the teacher does the marking..." MKE noted that "the understanding of the student's individuality and the processing that the student is performing should be assessed by the person". These discussions assert the irreplaceable value of teachers in AI-integrated classrooms, recognizing their role in providing nuanced understanding, interaction, and guidance, fundamental for effective teaching and learning.

Discussion for Concerns and Challenges

The discourse in open Facebook groups vividly encapsulates the Joint Enterprise aspect of Virtual Communities of Practice (VCoP), particularly in addressing the concerns and challenges associated with the integration of AI tools in education. This collective endeavor extends beyond mere adoption of new technologies, encompassing a broader commitment to address the multifaceted ethical, pedagogical, and societal implications brought by AI integration.

Teachers within these groups have collectively voiced concerns about an over-reliance on AI tools, echoing the VCoP's concept of Joint Enterprise that emphasizes shared norms and collective goals. Fears of AI replacing human intellectual effort in learning processes and potentially taking teacher roles reflect a unified stance among teachers toward preserving the integrity and efficacy of educational processes.

Ethical considerations, particularly concerning data privacy and the potential for student misuse of AI tools, have been at the forefront of these discussions. Teachers critically dichotomize ethical issues, contributing to a collective ethical deliberation that contrasts traditional top-down approaches of policy dissemination. This approach aligns with Carpenter and Krutka (2015)'s findings on the role of online platforms in fostering collaborative TPD.

Simultaneously, there is a balanced view towards educational technology, with collective calls for empirical validation of AI tool efficacy. This critical perspective is in line with Selwyn (2016)'s advocacy for empirical rigor in evaluating educational technologies. The discussions within these groups also stress the irreplaceable role of human teachers in ensuring emotional intelligence and personalized understanding—factors yet to be fully replicated by AI technologies.

Moreover, these Facebook groups serve as collaborative platforms for improving pedagogical strategies, resonating with Lee and Perret (2022)'s recommendations for professional development programs. Teachers share resources and experiences, pointing toward an evolving pedagogical approach that combines traditional and novel strategies. This aspect of Joint Enterprise is crucial, as it underscores the value of collaborative learning and problem-solving among teachers, which is also supported by empirical evidence from Vazhayil et al. (2019).

The discussions within these groups are not merely platforms for sharing materials; they represent active spaces where teachers critically evaluate and collaboratively produce knowledge. This extends beyond the basic framework of VCoP by including rich discussions on ethics, evidence-based practices, and the complex role of AI in teaching. The complexities discussed hint at potential trajectories for future scholarly investigation, particularly in exploring the balance between AI utility and teacher involvement.

In summary, the Concerns and Challenges discussions related to AI tools in these Facebook groups encapsulate a shared journey of teachers within the framework of Joint Enterprise. This journey is characterized by mutual concerns, ethical contemplations, and a collaborative effort to address challenges, integral to effectively harnessing AI technologies in education while preserving the core values and efficacy of the teaching profession. This collective endeavor highlights the critical role of community-driven efforts in navigating the complexities of AI integration in education, ensuring that these technologies enrich the learning experience in alignment with the fundamental principles of effective teaching.

CONCLUSION

The present study enriches the theoretical framework of Virtual Communities of Practice (VCoP), particularly within the ELT field as it increasingly intersects with AI technologies. The concept of Joint Enterprise, traditionally understood as the shared domain of interest among community members (Wenger et al., 2002), has been expanded in the context of this study. It now encompasses not only the collective goal of integrating AI tools into teaching practice but also a shared commitment to ethical considerations and critical awareness in the use of these tools.

This study's findings highlight that Joint Enterprise, a key element of Virtual Communities of Practice (VCoP), is evident in the diverse roles assumed by community members. These roles include those who share information, seek knowledge, critics, and learners. This variety of roles enhances the richness of the community's interactions, particularly in discussions around AI tools.

A distinctive aspect of this Joint Enterprise is the collective effort towards responsible and ethical use of AI tools. The community's discussions are focused not just on utilizing AI in teaching but on doing so in ways that are supported by evidence and research. This approach ensures that the adoption of AI tools is not only innovative but also methodologically sound and ethically grounded.

Moreover, the community's careful examination of AI tools acts as a form of control. It prevents quick, unthoughtful decisions. This joint effort underlines the importance of informed decision-making in the technological advancement within ELT.

Implications of this study suggest that peer discussions and exchanges, as witnessed in the Facebook groups, should be integral to teacher training programs. These interactions provide real-life insights and practical strategies, supplementing formal training with firsthand experiences and adaptive approaches in AI tool integration. This recommendation underscores the value of experiential learning in professional development, encouraging a more holistic approach to teacher training in the age of digital technology.

In recognizing the limitations of this study, such as its focus on specific Facebook groups, future research could explore the application of these findings in other digital platforms and contexts. This would further elucidate the evolving dynamics of VCoP in diverse educational settings, particularly as they relate to the integration of emerging technologies in ELT.

ACKNOWLEDGEMENTS

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English Learning Management System (ELMS) in the post-pandemic era: Comparative study

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In the post-pandemic era, virtual English educational environments are replacing the role of traditional classroom instruction. Due to the technological revolution and the COVID-19 pandemic, English learning has evolved considerably in recent decades in educational parties at the higher education levels in Indonesia, especially English Language Teaching, have offered various new options. ELMS is referred to as a program that may optimize the ease of English learning while promoting sustainable learning at home, particularly for lecturers who must provide English teaching-learning during the challenging periods of the COVID-19 pandemic. Existing previous studies confirmed that acceptance of the ELMS in higher education may vary from one country to another. This paper attempted to answer questions dealing with students' engagement in learning and the usage of ELMS in Indonesia compared to other countries. The study surveys online polling and measures their acceptance and preference of ELMS in Indonesian higher education. The findings showed that as a sustainability program in higher education, ELMS had favorable impacts during the COVID-19 outbreak and was recognized as user-friendly.

Keywords: English learning, English Learning Management System (ELMS), post-pandemic, comparative study

INTRODUCTION

The technology revolution has introduced new opportunities for learning via the internet, which has led learning to significantly change in recent decades. Due to the technological revolution and the COVID-19 pandemic, educational parties at the higher education levels have offered various new options for English learning as sustainability. Sustainability in English learning refers to the setting and mode of instruction where still in the context of the COVID-19 pandemic, direct interactions between students and lecturers are not possible, which makes it difficult to carry out instructional tasks such as the distribution of English teaching materials (Alturki & Aldraiweesh, 2021). When Large-Scale Social Restrictions (PSBB) were applied proportionally in the world, especially in Indonesia since April 2020 as a result of the regulation issued concerning the implementation of Education in Coronavirus Disease Emergencies, Ministry of Education and Culture No. 4 of 2020 has forced academic practitioners in higher level education such as students to act as sustainable actors at home and lecturers as distribution learning machines (Maru et al., 2020). In fact, the disparity between students from rural or disadvantaged backgrounds who tend to be less conversant with computers and those from more fortunate backgrounds who have greater exposure to the internet was widened (Ali et al., 2023). Starting here, the English Learning Management System, further called ELMS, a piece of software application or web-based technology used to implement and monitor a particular English educational process has newly begun its era to integrate into the new adaptation of the pandemic COVID-19 as sustainability learning

ELMS is a crucial web-based invention for creating an online English learning environment, including discussion boards, forums, chat features, online grade uploading, online review, file sharing, task management, syllabi, scheduling, notifications, and curriculum schedules. It performs tasks like data storage and course administration are essential components to managing the learning process by making it simpler to deliver virtual education, also known as e-learning which provides educational materials without restrictions on location or time constraints (Anza et al., 2019). ELMS has made it possible for students and lecturers to share information and resources at anytime and anywhere related to the course during the lockdown. ELMS offer some simple basic features in the e-learning process including limiting access to authorized users, providing various forms of educational information, sharing up-to-date information, and offering various forms of communication services, also it offers benefits as well as drawbacks as a platform for online interaction in an English educational setting (Aldiab et al., 2019; Memon et al., 2019). As one of the most innovative and extensively used learning frameworks for education in the teaching-learning process, ELMS also offers a newer form of learning environment for students and a wonderful supplementary for lecturers (Rachmawati, 2021). Several famously open-source ELMS among students in higher educational institutions can be listed such as Google Classroom, Schoology, Canvas, Moodle, Claroline, Dokeos, Docebo, ATutor, and Olat (Ilham Maliki et al., 2021). Even after COVID-19, the Indonesian educational system is actively and consistently implementing online learning to foster the learning process.

In the present era of digitized learning, ELMS has emerged as sustainable learning which has become the more practical and accessible method of the large-scale education revolution which helps to enhance classroom teaching, and learning methodology, and evaluate the student's performance (Muruthy & Yamin, 2017). Even the majority of universities in the world use ELMS, the same software is used in the corporate setting for data storage and automatically documenting employer or employee records (Aldiab et al., 2019; Muruthy & Yamin, 2017; Indra Gunawan et al., 2020; Munir, 2010; Ardillah et al., 2019; Kasim & Khalid, 2016; Veluvali & Surisetti, 2022). In Asia, especially Indonesia, the English educational system has faced obstacles for so long in providing and supporting the integration of technology due to some huge gaps including (1) inadequate understanding of the notion of e-learning, (2) lack of design of any e- English learning strategy, (3) constant practice of traditional teaching-method, (4) no training linked to the use of e-learning method even though many institutions still struggle with IT literacy, (5) no allocation for the development of e-learning method, (6) lack of IT expertise among academic practitioners, and (7) the list is open to further expansion. As stated by Clark (2016), the procedure, technique, method, and learning content had a main role in making e-learning successful. In the post-pandemic era, many educational parties have reported to continue use ELMS as their learning sources because the ELMS allows teachers and students the flexibility to study and receive information related to assignments and learning activities at specific times. Even though some studies mentioned its drawbacks of ELMS include everyone's limitations in adopting technology, a slightly higher initial cost of device learning, the unsuccessful delivery of values and norms, the inability to maximize the process of monitoring student activities during learning, and the possibility that the instructional design of learning in the ELMS will fail to satisfy the needs of teachers and students (Agustina et al., 2021; Singh et al., 2021; Wibawa & Suharjo, 2021; Jamilah & Fahyuni, 2022). Using ELMS, students are stimulated to develop the ability to acknowledge events, issues, responses, and repercussions in a theme that includes academic, technical, and financial components. However, priority problems identified from the existing previous research studies are the influence of students' engagement on learning and the usage of ELMS. This research presents the construct of Indonesian students' engagement in learning and the usage of ELMS. The research's findings will help the institution determine whether ELMS should be integrated as a sustainable teaching method in Indonesian higher education.

METHODS

Since the last decade, several authors have centered on the ELMS subject using a range of new trends and approaches. This current research is conducted through a qualitative research framework. Using a survey method through Google Forms, 160 Indonesian students in higher education who actively applied ELMSs in their distance teaching-learning process due to the COVID-19 outbreak from April 2020 to June 2022 were listed as participants. The participants are shown in Table 1.

TABLE 1 | Number of Students based on Provinces

No	Provinces	Numbers
1	East Java	58
2	West Java	26
3	West Kalimantan	20
4	East Kalimantan	18
5	North Kalimantan	13
6	South Sumatra	10
7	East Nusa Tenggara	8
8	Papua	7
	Total	160

The content of the survey was adapted and developed to suit this research's goals as stated in (Agustina et al., 2021; Alturki & Aldraiweesh, 2021; Lin et al., 2018). The questions mostly addressed ELMSs the students have experienced in 2 years of the pandemic including benefits, challenges in implementing the ELMS and overall highlights of the usage of ELMS. Since the survey was given to not only English Department students but also students from other departments, the survey was given using the Indonesian language and the English language described in the following data analyses.

Questions asked by the authors include:

1. The implementation of the English Learning Management System (ELMS) during the pandemic will be most efficient as learning can be accessed anywhere, and anytime.

2. By using ELMS, the cost will be most cheaper compared to traditional face to face learning

3. ELMS makes lecture activities such as quizzes, tasks, lecture material, and interactive discussions between lecturers and students will be easier.

4. ELMS is the most powerful online application during the pandemic.

The results of the survey are illustrated in table 2.

5. ELMS is an easy way for students to submit tasks, and data analysis, gain information, and yet the system somewhat becomes a personal assistant for students to avoid lateness or forgetfulness.

6. By using ELMS, students will find it easy to find lecture material and compose the material for the next lecture program.

7. ELMS is a learning system that uses cutting edge technology which provides learning more efficiently, as they provide pictures, videos, including audio and animation.

TABLE 2 | The result of the survey

	Question						
	1	2	3	4	5	6	7
Very Agree	127	121	153	141	147	113	151
Agree	33	21	7	19	13	34	9
Less Agree	0	18	0	0	0	13	0
Disagree	0	0	0	0	0	0	0
Very Disagree	0	0	0	0	0	0	0

RESULTS AND DISCUSSION

Related to the first research question on the influence of Indonesian students on learning engagement, this research finding revealed that Indonesian students at higher educational levels are aware of ELMS usage. In line with (Lin et al., 2018), the current research findings showed ELMS has positive responses in terms of behavioral, emotional, and cognitive engagement. Constant answers to "Strongly agree" pointed out by most of the participants in those three phases could reflect the successful ELMS rather than the face-to-face method. ELMS is classified as a system that can be adapted and reused easily according to the student's current needs. It can be simplified to the advantages of ELMS as one-way access to all the information includes flexibility, centralized learning, streamlined training process, and sophisticated learning content. Beyond that, ELMS still covers a lot of issues in Indonesia because the more favorable traditional teaching method may become a major problem for educational practitioners.

As for the second research question on how the usage of ELMS in Indonesia, this current research found that comparing the United States and Canada in Figure 1 (Kuran et al., 2018); Saudi Arabia in Figure 2 (Aldiab et al., 2019); and South Africa in figure 3 (Badaru & Adu, 2022), there were some ELMS systems nominated as the most used in Indonesia namely Google Classroom, Schoology, Moodle, and other ELMS as shown in figure 4.
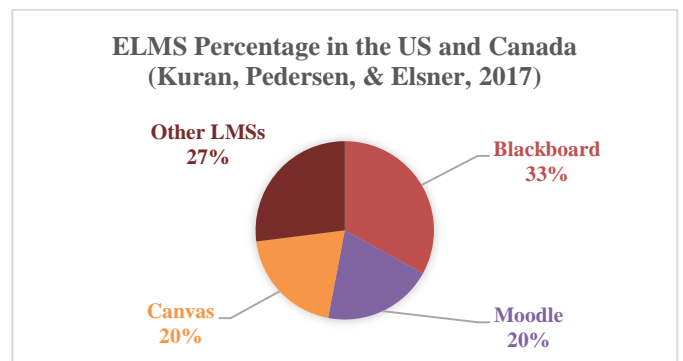

FIGURE 1 | ELMSs in the US & Canada

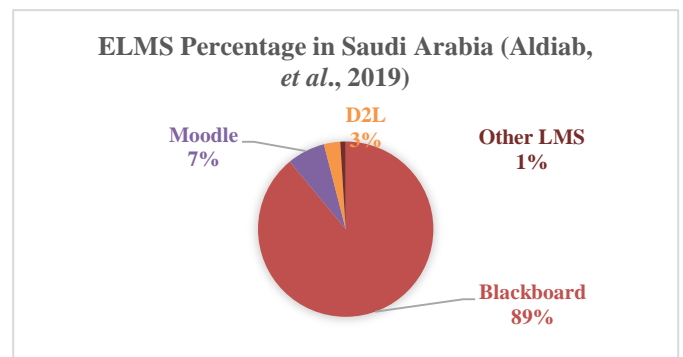In the US and Canada, the most common ELMS used is Blackboard

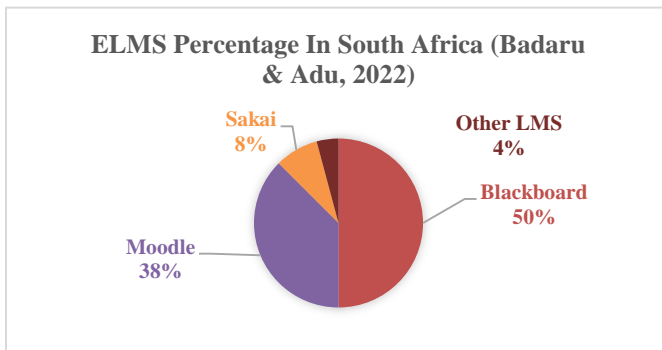
FIGURE 2 | ELMSs in Saudi Arabia
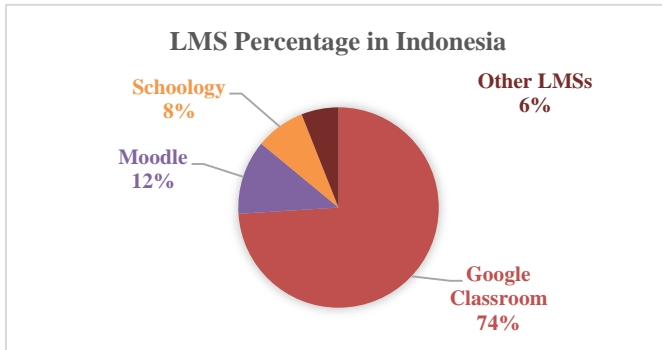
FIGURE 3 | ELMSs in South Africa

FIGURE 4 | ELMSs in Indonesia

Figure 1 up to Figure 4 show a comparison of several chosen ELMSs based on how well-known they are and used in higher education institutions around the world. Recent findings in Figure 4 indicate that Google Classroom is used in most universities in Indonesia due to several factors. Firstly, exposure to the internet in Indonesia has been ranked as the highest because Indonesian telecommunications companies actively promote internet access connections at relatively affordable rates, which considerably supports the country's interest in the internet (Sukmayadi, 2019).

Secondly, Indonesia was ranked as the world's largest market for Android-based smartphones (Airlangga, 2018) and its user usually implements various educational technology applications due to the Distant Learning (DL) process such as Google Classroom (Fitria, 2020; Ketut Sudarsana et al., 2019; Suhroh et al., 2020). Usually, Android smartphones require their users to have a Google account to register their smartphone. As part of G Suite for Education, Google Classroom is also tied to Google Drive, Calendar, Forms, Hangouts, Meet, Docs, Sheets, and Slides, including Gmail which means Google Classroom enables both educational parties to get free services provided by Google so they can be more productive and meaningful in the DL (Rao & Vijayalakshmi, 2022). Next, many companies, institutions, and communities in Indonesia use Google Drive as an in-one solution where they put all documents to be managed automatically (Novita et al., 2022). Based on the data submitted by the students in an online survey, more than 74% of the students answered

"yes" to each question addressed in response to a question regarding how easy the ELMS program especially Google Classroom can be classified as a user-friendly category. It can be predicted that integrated technology has rapid potential in Indonesia but it must be correctly inserted into the curriculum and implemented accordingly (Rahman et al., 2022).

The students' engagement on the ELMS activities, using Google meeting, during pandemic era is very enthusiastic. They always come on time and actively participate in the ELMS activities. It is different from the other parts of the countries that are not using Google classroom or Google meeting as ELMS.

CONCLUSION

Based on the results of the research and the descriptive data, it is evident that Indonesian students at higher educational levels exhibit positive responses towards the usage of ELMS, with 74% of them preferring the Google Classroom application for Distance Learning (DL) processing and supporting online learning methods in the post-pandemic era. ELMS facilitates access to various learning resources without time constraints, fostering a deeper understanding of subjects. In higher education institutions, educators and practitioners should be encouraged to expand their classes to actively engage with social media and deliver up-to-date content readily available. Additionally, future research should focus on the comparison of ELMS usage in Indonesia with other countries such as the US, Canada, Saudi Arabia, and South Africa. The findings reveal that while the US and Canada have embraced online learning environments even before the pandemic, students there find ELMS less pressurizing, user-friendly, and efficient. In Saudi Arabia, ELMS facilitates convenient remote learning and interaction among students and lecturers, enhancing confidence in the learning process. South Africa experiences easier learning methods and the creation of engaging courses, reducing costs and fostering creativity in teaching and learning. Further studies should explore how ELMS adoption can be optimized in various educational contexts globally.

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Blended learning intervention on the students' reading comprehension achievement with different personality traits

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Reading is one of fundamental receptive skills that students should master in language acquisition. In fact, many students struggle in reading even they have mastered language acquisition. Non linguistics factor, for instance personality traits affects the student's reading comprehension process. The research objectives are (1) to identify the effectiveness of blended learning and conventional learning instruction in improving EFL students' reading comprehension with different personality traits and (2) to explore the differences in students' impressions regarding integrating blended learning instruction in the EFL class. This research employs a mixed-methods approach. Sixty-six participants of SMA N 1 Pulau Morotai participated in this study as a sample. Research instruments utilize the Eysenck Personality Test (EPI) to determine students' personality types. The TOEFL prediction test is used in the reading comprehension test, and a semi-structural interview is used for the qualitative instrument. In addition, analyzing the data uses Independent T-test and N-Gain Interpretation Test. The descriptive method is utilized to analyze the qualitative data. The finding shows that the average learning outcomes of mix introverted-extroverted students who use blended learning were higher compared to those of mix introverted-extroverted students who use traditional learning models. Unfortunately, even though both had different learning outcomes, these learning models were generally regarded as ineffective due to the N-gain score being less than 40%. As seen from the interview result, blended learning models were regarded as multi-way instructional models that accommodated students' needs despite an inadequate internet connection, enhanced reading comprehension, fostered students' technological proficiency, and provided efficiency and adaptability.

Keywords: blended learning, personality traits, reading comprehension achievement

INTRODUCTION

English is a major foreign language to learn in the Indonesian educational system today, from elementary school to university level, because English plays a significant role in globalization. It is demonstrated by a significant increase in interest in teaching and learning English in Indonesian elementary (Prastiwi, 2015; Zein, 2016, Zein, 2017), secondary (Widodo, 2016; Putra & Lukmana, 2017), and tertiary schools (Riyanti, 2017; Zacharias, 2016).

As a result, the Indonesian Ministry of Education seeks to prioritize English language education in public and private institutions, emphasizing the necessity of mastering receptive

and productive English skills. This attempt is executed by making continual policy modifications addressing the integration of English into the school curriculum. These reforms are intended to ensure that English maintains a required subject at all school levels and focus on mastery of language acquisition (Silalahi, 2016).

Reading is one of the most fundamental receptive skills to master in language acquisition. Despite their prominent role in reading, many students struggle with reading even when they have mastered linguistic skills. Numerous non-linguistic factors influence the reader's reading comprehension process. Thus according to Andres (2002), non-linguistic factors such as emotional and mental human behavior significantly influence language learning.

Additionally, two variables considered to be the most influential in reading and its effects on the comprehension process are the reading and text variables. Motivation, personality, reading strategies, and self-esteem are indicators of reading variables. These indicators have gained prominence in recent years, significantly impacting foreign language and second language learning. In this context, the personality trait is an indicator that significantly influences the reading variable (Andres, 2002).

Furthermore, educators need to understand their students' personality types; this helps teachers understand class dynamics and facilitate appropriate and effective learning activities understanding each student's personality type enables teachers to explain why they choose different task approaches for their students (Wilz, 2000). According to experts, personality has been demonstrated to be a factor that affects EFL performance (Revola, 2016). Indeed, most second-language educators believe that students with adaptable personalities are more likely to succeed at learning a second or foreign language than students with introverted personality types. According to a study, Individuals with introverted traits tended to have lower levels of extraversion and scored lower on the extroversion trait (HemmatNezhad et al., 2014). Indeed, students taught by extroverted teachers achieved significantly better performance compared to students taught by introverted teachers (Dost et al., 2017). Faisal (2019) claims there is a significant association between extraversion and English as a Foreign Language (EFL) learners. Furthermore, individuals with extraversion traits are known to have significant effects on English language proficiency. Safdarian et al., (2014) reveals that Introversion is strongly correlated with strategies for reading. It indicates that students' differences in extraversion and introversion must be considered to understand their utilization of reading strategies.

It is recognizable that personality has a significant impact on the process of language acquisition. As a result, an educator must design and implement an effective learning method for EFL students. However, the learning process has changed dramatically in recent years. At the same time, the teacher-centered learning paradigm has shifted to a student-centered learning paradigm by incorporating educational technology (Agrahari, 2016). Integrating technology into the educational process promotes student-centered and self-directed learning (Adinda & Mohib, 2020).

Smaldino et al., (2019) demonstrated the importance of analyzing learner characteristics to effectively use educational technology and revealed that user characteristics affect behavioral technology acceptance. Another research has focused on the characteristics of learners that influence their performance outcomes. They have examined emotional intelligence, adaptability, personal traits, and achievement in the case of digital learning (Berenson et al., 2008). Thus, educators should design an effective learning environment by integrating various educational technologies to facilitate learning activities and meet student needs and individual characteristics. There is no doubt that blended is a popular learning model among EFL students and educators alike. Because blended learning is considered capable of accommodating a variety of student characters, some students prefer face-to-face instruction while others prefer synchronous and asynchronous instruction. Rybushkina & Krasnova (2015) emphasized that students are not entirely suited to a traditional learning environment due to individual differences in their learning abilities. Blended learning benefits the language acquisition process by facilitating an optimal and enjoyable learning experience for English. Krasnova & Ananjev (2015) highlight several benefits of the blended learning model in this case, including the flexible learning process, personalization, and interactivity, all of which originate from the blended learning component.

Additionally, this learning model's advantages include collaboration, spontaneity, and direct feedback from traditional learning components, all of which are covered by blended learning. Furthermore, the characteristics of this learning model are providing a meaningful learning experience for students, motivating the students, and flexibility (Rybushkina & Krasnova, 2015). The critical point is that blended learning strengthens students' reading comprehension abilities (Kheirzadeh & Birgani, 2018). Moreover, the blended learning environment fosters student satisfaction with learning, autonomy, and motivation to improve reading comprehension skills (Saeheng, 2017).

There has been an increase in studies on learner personality related to online learning in the latest years. The literature review explores the blended learning model's application in a second language setting. Three major themes are explored in this qualitative research: student involvement in various environments and activities, student perceptions, and the outcomes of these combinations (Hamilton, 2018). At the same time, another study demonstrated the impact of team teaching and blended learning strategies for teaching students with various personality types to speak fluently. Whereas in a team teaching class, two teachers teach, the teacher incorporates both face-to-face and synchronous online learning in a blended learning class (Mazizah et al., 2021).

Compared to non-academic achievement, personality significantly affects students' online learning attitudes toward virtual learning approaches (Dikaya et al., 2021). Significant factors affecting the efficacy of e-learning have been identified as learner characteristics (Lee et al., 2014).

Personality has a significant impact on the success of online learning in terms of overall academic outcomes, retention rates, and learner satisfaction with online and mixed approach-based instruction (Bolliger & Erichsen, 2012). Another previous study analyzed perceived student satisfaction by personality type in blended and online learning environments (Vasileva-Stojanovska et al., 2015). Mofrad (2017) tries to determine writing practice's efficacy in a blended learning approach. Mofrad's research indicated that extroverts outperformed introverts and that learners in a blended learning environment outperformed those in a traditional learning environment.

Furthermore, while blended learning is integrated using a face-to-face and synchronous system-based learning model, to fill the gap, in this most recent alternative study, the researcher primarily uses two learning models: face-to-face interactions and asynchronous systems. It is associated with low internet connectivity in schools located in limited-resource areas, which will serve as the research locations. Offline applications that utilize asynchronous systems, for instance, Screencast-O- Matic, Flipbooks, and pre-recorded videos via zoom, will be used as instructional media. Moreover, the researcher is concerned about the relationship and differences in reading comprehension achievement between students with mix introverted-extroverted personality types using the blended learning model.

By emphasizing personality traits as one of the external factors affecting students' reading achievement, this proposed teaching approach will address the insufficiency of experimental research in this area of blended EFL classrooms, particularly in the case of the limited research area. Blended learning instruction is another option for implementing it in an EFL class. It emphasizes students' interactive communication with groups or peers in the classroom and how students establish their knowledge of the text while reading.

Besides, incorporating blended learning instruction in the EFL class makes it easier for teachers to deliver material and improve students' reading comprehension skills with different personalities. The use of asynchronous-based applications assists students who have difficulty communicating in class in understanding the material in-depth, particularly introverted students. Students with extroverted personalities can also improve their comprehension of the studied reading text. Incorporating blended learning encourages students to learn independently and on their own time. This learning model is based student-centered, allowing students to feel more at ease than in traditional learning contexts. The importance of this research is to encourage students to study independently and to control the reading process by themselves so that students can discuss with groups or peers without hesitation and pressure. The teacher facilitates to control and guidance of students' learning progress.

Furthermore, blended learning improves students' reading comprehension skills with introverted and extroverted personalities. In that case, EFL students have a positive view of the application of blended learning,

particularly in border areas. So, the teacher can apply this learning model to EFL classes and other classes that prefer practical courses. Through this research, teachers should emphasize external factors that affect student success in the teaching and learning process.

Additionally, this study is concerned with (1) identifying the effectiveness of blended learning and conventional learning instruction in improving EFL students' reading comprehension with different personality traits and (2) to explore the differences in students' impressions regarding integrating blended learning instruction in the EFL class.

METHODS

Participants
The research population comprised all seventh-grade students at SMA N 1 Pulau Morotai. Although there were 83 participants, only 66 participated in this study as a sample. A sample size of 66 was determined using Krejchie- Morgan's table for finite population sizes. Whereas 33 students were grouped introverted traits and 33 were categorized into extroverted traits. The researcher used Krejchie- Morgan's table with a 5% error rate to select the sample. The research setting included experimental and control groups. Both groups were taught by the same English teacher and used the same reading textbooks during the same instructional period. Still, the primary difference between the two groups was how they were taught using blended learning or not. Eight weeks are allotted to each group in this study. Meetings were scheduled twice a week for 45 minutes each session, both for the experiment and control group.

Instrument
This research employed a mixed-methods approach. This research applied both qualitative and quantitative methods. More precisely, quantitative research addressed quantitative research questions, whereas qualitative research highlighted qualitative research questions. In quantitative research, the research adopted a quasi-experimental design. It was a non-equivalent controlled group design comprised of two separate groups. One group served as the experimental class, while the other served as the control class. In qualitative analysis, on the other hand, the descriptive method is used.

Instrument of Personality traits (questionnaire)
In table 1, Eysenck Personality Inventory test was used to collect data in this study. The EPI comprised 39 items (including positive and negative statements) and focused exclusively on the introvert-extrovert dimensions following the examined issues. The measurement scale was a Likert scale with five estimation scales: strongly agree (5), agree (4), doubtful (3), disagree (2), and strongly disagree (1). The overall duration of the test was approximately 40 minutes.

Instrument of Reading Test
The researcher employed the TOEFL prediction test in the reading comprehension test. The researcher used the TOEFL prediction test because it was a standardized test with high reliability and validity. Students had 55 minutes to complete the TOEFL prediction in the reading comprehension test.

TABLE 1 | Eysenck Personality Inventory (EPI) Measurement

Dimension	Sub Dimension	Indicators	Items	Total of Item
Extroverted Introverted	Activity	Physical Activity	1, 8, 25, 27, 28, 29, 39	7
	Sociability	Speed of moving	2, 3, 4, 6, 9, 11, 13, 15, 22, 23, 33, 34, 40	13
	Risk-Taking	Happy to find friends, meet lots of people	7, 19, 24	3
	Impulsiveness	Courage to take risks	26, 30, 32, 35	4
	Expressiveness	Tendency to act suddenly	5,10,12, 14, 16,17,18, 21,36, 38	10
	Reflectiveness	Rarely use consideration	31	1
	Responsibility	Express feelings	37	1
Number of items				39

Interview

Interviews were conducted to ascertain students' responses to integrating blended learning into their reading comprehension class. In this study, a semi-structural interview was used.

Procedure

The researcher assessed each participant's personality before classifying them into control and experimental groups. The researcher utilized the Eysenck Personality Inventory (EPI) test to determine students' personality types; this test was chosen because it encompassed individual personality types. After identifying the differences in student personalities, half of students with introverted and extroverted personalities were directed to the experimental group, while the rest of students with introverted and extroverted personalities were selected for the control group.

The pre-test

The researcher administered a pre-test to both classes to collect data. Furthermore, the Pre-test was used to determine the students' prior knowledge of reading comprehension before beginning treatment. There were 50 reading comprehension questions with multiple-choice tests.

The experimental group's treatment

The experimental group was directed to carry out reading activities in the reading comprehension learning process by first explaining reading strategies, introducing new vocabulary, identifying main ideas and supporting ideas, interference questions, detail questions, and overall review questions. This group was taught using a blended learning model. Furthermore, in the blended learning model, students were taught using traditional instruction or face-to-face learning instructions for three meetings, the Screencast-O-Matic application for two meetings, the pre-recorded Zoom application for three meetings, and flipbooks for two meetings. The class was designed for interactive learning activities such as peer reviews, group discussions, and presentations during the learning process.

The control group's treatment

Students in the control group received instruction relatively traditionally without being connected to blended learning. The control group participated in reading comprehension activities using the same material as the experimental group. The teacher introduced the material via lecture and then directed students' attention to practice questions. The teacher divided students into peer groups and facilitated group discussions while they worked on practice questions. The teacher then encouraged the control group students to practice using the newly acquired vocabulary and grammar and expressed themselves verbally. Additionally, students were asked to summarize the text's main ideas.

The post-test

A post-test was used to compare the effects of instructional interventions on students' reading comprehension learning outcomes (Blended learning vs. conventional learning instruction). The post-test was administered in the same manner as the pre-test. After obtaining post-test results from both groups, the researcher used an independent T-test to compare the pre-test and post-test results between the two groups.

Analytical Method

Identifying the effectiveness of blended learning and conventional learning instruction in improving EFL students' reading comprehension, the researcher conducted the normality test through Kolmogorov Smirnov to know whether the data were distributed normally and to identify whether the data were homogeneous or consistent; the Homogeneity test was employed through the One-way ANOVA formula. In addition, analyzing the data used Independent T-test, with the criteria if the significant level was lower than 0.05 ($\alpha= <0.05$), it meant that Hi was accepted. Finally, the researcher carried out an N-Gain interpretation. Normalized Gain (N-gain score) was used to determine the effectiveness of a learning method in the control and experimental classes. The N-gain score test was utilized since the independent sample t-test revealed a significant difference between the experimental group's average post-test value and the control group's post-test value. Regarding the interpretation category, the N gain score based on a percentage was divided into four categories, namely ineffective ($<40\%$), Less effective (40%-55%), moderately effective (56%-75%) as well as effective (>76). The descriptive method was used to explore the differences in students' impressions regarding integrating blended learning instruction in the EFL class. The researcher describes the result through the content analysis method in analyzing the data.

RESULTS AND DISCUSSION

The effectiveness of blended learning and conventional learning instruction in improving EFL students' reading comprehension

TABLE 2 | Normality Test

	Class	Kolmogorov Smirnov		
		Statistic	df	Sig.
Students Learning Outcome	Pretest Experiment Group	.142	33	.090
	Posttest Experiment Group	.150	33	.057
	Pretest Control Group	.142	33	.089
	Posttest Control Group	.108	33	.200*

The data in table 2 depicted that the sig value was higher than 0.05; it can be said that the data were distributed normally.

TABLE 3 | Homogeneity of Variances Test

Levene Statistic	df1	df2	Sig.
.603	1	64	.440

The table 3 showed that the sig value was 0.440, whereas the r-table with a significance level of 5% was 0.235, so the sig value was higher than the r-table (0.440 > 0.235). It meant that the data were consistent or homogeneous.

TABLE 4 | Independent t-test for experiment and control group

		Levene's Test for Equality of Variances		t-test for Equality of Means						95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference		Lower	Upper
Students learning outcome	Equal variances assumed	.603	.440	2.679	64	.009	3.879	.986		.986	6.771
	Equal variances not assumed			2.679	63.022	.009	3.879	.985		.985	6.772

On the output table 4 above, the sig (2-tailed) value was calculated as 0.009 less than 0.05. It can be concluded that the average learning outcomes of students with mixed introverted and extroverted personalities who use the blended learning model were higher than those with mixed introverted extroverted personalities who use conventional learning models.

TABLE 5 | N Gain Test

		Mean	Minimum	Maximum
N-Gain Percent	Experiment Group	34.8603	2.04	59.62
	Control Group	32.1844	11.11	54.10

Referring to the N-Gain score (table 5) in the percentage form and based on the results of the N gain Score test calculations, the average N gain score for the experimental class utilizing the blended learning model for students with mixed introverted and extroverted personality types was 34.8603 or 34%, with a minimum score of 2.04 and a maximum score of 59.62. The average N-gain score for the control class using conventional learning models was 32.1844, or 32%, with a minimum score of 11.11 and

a maximum score of 54.10. Using blended learning models for students with mixed introverted and extroverted personality types and conventional learning models for students with mixed introverted and extroverted personality types to improve reading comprehension skills in second-grade students of SMA Negeri 1 Pulau Morotai were generally considered ineffective.

Students' impressions regarding integrating blended learning instruction in the EFL class
Strengthening reading comprehension aspects
In comparison to other aspects of reading, vocabulary had grown the most. In the vocabulary test questions, students were required to find words that were synonyms for those in the question. It helped students increase their knowledge of the material, particularly the text's vocabulary. The researcher claimed that the type of question, vocabulary, had the strongest impact, whereas students only needed to find the appropriate words to respond.

"After being taught using a blended learning model, I believe I can easily recall the taught vocabulary" (p1.1).

In addition, the blended learning model stimulated the brain so students could retain the vocabulary being taught.

"The learning application's instructions stimulated my brain, especially during the warm-up session, and I believe it encourages me to be more enthusiastic about memorizing words" (p2.1).

"In the reading text displayed by the application, unfamiliar words are highlighted, making it possible for me to remember them"(p3.1).

"Because I was not interacting directly with the teacher, I felt less anxious and less pressured when studying on my own after being taught using the blended learning method"(p4.1).

"I am impressed to learn reading subject using the blended learning model because I do not feel carefully monitored by the teacher, making it easier for me to comprehend reading material quickly" (p9.1).

According to the preceding explanation, students' reading comprehension changed after being taught using the blended learning method. Students were better at recalling the reading material's vocabulary. However, two students encountered difficulties when using conventional learning methods. Students tend to feel less convenient and more closely monitored during teaching and learning. The characteristics or personality of a student affect his or her level of anxiety when conventional learning methods were employed. This learning model enables teachers to rapidly assess student progress and think logically about how to differentiate and personalize instructional systems.

On the other hand, specific information derived the least benefit from other aspects of reading. Following the implementation of the blended learning model, the main idea and supporting idea were developed. The supporting ideas offer a lot of useful information regarding the main idea. Therefore, students must carefully read the text to ensure they did not miss any information; therefore, the blended learning model played a significant role in enhancing these aspects of reading. There were participants in the study who said;

"I can better understand reading aspects such as identifying main ideas, supporting ideas, references, comprehending vocabulary, and making interferences, particularly in reading"(p6.2).

"With the blended learning method, it is easier for me to understand aspects of reading such as identifying main ideas and supporting ideas" (p7.2).

Encourage student's technology proficiency
The majority of participants agreed that inserting several learning applications based on asynchronous systems helped the students become proficient in technology. However, the students had never previously experienced e-learning media in English lessons. They only learn through conventional learning processes. Thus, the blended learning model enthusiastic students about both aspects, learning English subjects and educational technology.

"I am more familiar with the taught technologies because I have never been taught them before" (p3.4).

"Some applications are not only used to cover teaching materials but there is also an application that is used for quizzes and group and individual assignments, allowing me to acquire resources of technological expertise" (p1.4).

Similarly, other blended learning participants were believed to offer new perspectives on mastering technology and facilitate students' comprehension of the provided content.

"In addition to encouraging me to comprehend reading materials and easily memorize vocabulary, blended learning encourages me how to utilize educational technology"(p7.4).

"This learning model provided me with multiple benefits. In addition to understanding my knowledge, I am also knowledgeable about technology. Thus, my curiosity was piqued, and I was eager to learn anything I could about high-tech"(p4.4).

"Blended learning has provided me with knowledge of educational tools, making it easier for me to cultivate and comprehend the material" (p8.4).

Based on the description, the blended learning model encouraged students to advanced professional technologies. Although students were initially unfamiliar with the applied learning applications, they quickly grasped them through an asynchronous system-based application.

An asynchronous system provides efficiency and flexibility
Since the applications used were based on an asynchronous system, blended learning provided students with the flexibility to repeat the material being taught, allowing them to learn at their own pace. With this system, students could strengthen their comprehension of reading materials, foster enthusiasm, and self-confidence, and promote learning independence and a sense of responsibility. Despite the limitations of electronic device ownership, the application-based learning process ran smoothly. A few students made contrastingly strong arguments regarding this point.

"In my opinion, it makes it simpler for me to repeat lessons and comprehend the material that the teacher provides" (p3.8).

"Blended learning gave me the flexibility to learn generally from a low-income family with limited electronic device ownership, allowing me to share electronic devices with my siblings"(p4.8).

"The result is that I can distinguish between the main idea and the supporting ideas; however, the blended learning model enables me to study anywhere and at any time, and the asynchronous system enables me to review the reading material without hesitation or pressure from the teacher or classmate" (p4.7).

"Several reading-related applications allow me to study independently and with a strong commitment to completing individual tasks while allowing me to study

according to my mood and without any pressure from the teacher." (p6.7).

A multi-way instructional model and the advantages it offers

Blended learning, which combined technology and face-to-face instruction, had been deemed feasible by some students for use in the instructional process.

"I believe this method is highly implementable, particularly if conventional learning is combined equally with technological learning" (p1.10).

"combination learning models such as adopting electronic devices and conventional learning method is better than one-way instructional models"(p3.10).

P6 and P7 emphasized that blended learning using a two-way instructional system made learning more engaging and encouraged students to express their thoughts.

"Face-to-face learning puts too much pressure on me, making it difficult for me to comprehend the material presented; therefore, I believe that blended learning, which is dominated by the use of application tools, allows me to explore the knowledge I have and express my ideas without being embarrassed by having to meet face-to-face with classmates or teachers"(p6.8).

"In my opinion, this learning system comprises two main components: face-to-face and application-based. This learning system is intriguing because, during the face-to-face learning process, the teacher divides students into large or pair groups so that I can share knowledge about the material. In contrast, the material is packaged very well when using the application. It is so engaging that it generates great curiosity about the subject matter"(p7.8).

Other students reported that the blended learning model could facilitate the learning process despite a poor internet connection.

"My opinion is that the majority of the applications used are asynchronous, allowing me to gain knowledge even when my internet connection is poor"(p8.8)

"I originate in a rural area, and blended learning based on an asynchronous system accommodates my study needs despite an inadequate internet connection"(p9.8).

Based on the findings, it was known that the average learning outcomes of mixed introverted and extroverted students who use blended learning were higher compared to those of mixed introverted and extroverted students who use traditional learning models. Unfortunately, even though both had different learning outcomes, these learning models were generally regarded as ineffective due to the N-gain score being less than 40%. As seen from the interview result, blended learning models were regarded as multi-way instructional models that accommodated students' needs despite an inadequate internet connection, enhanced reading comprehension, fostered students' technological proficiency, and provided efficiency and adaptability.

This study is consistent with (Kheirzadeh & Birgani, 2018). The findings of this study indicate that blended learning has a substantial positive impact on the reading comprehension of Iranian English language learners. Therefore, Kheirzadeh & Birgani (2018) stresses the significance of utilizing the blended learning model to enhance language proficiency. In previous studies, Kheirzadeh & Birgani (2018) did not consider personality traits as one of the external factors that significantly affect student achievement in reading comprehension when using the blended learning model. Although the results of this study are identical to those of previous studies, students' performance in reading comprehension improves after applying the blended learning model.

Another previous study by R. Zhou & Chen (2020) to determine students' perceptions of the application of blended learning during the pandemic-19 era revealed that two-way learning was more effective than one-way learning. Students argued that face-to-face and online systems should be applied equally to encourage students' flexibility and independence during dramatic shifts in study schedules during the pandemic. In addition, a detailed syllabus assists students in organizing their schedules effectively. On the other hand, reading assignments are less appealing to students than online quizzes, homework assignments, and videos. It differs from the feedback provided by students in the most recent study. Where application-dominated learning is preferable to face-to-face learning, which triggers student interest in technology-based learning, this learning model has never been implemented. Some students believe that this system reduces anxiety and does not involve direct pressure from the teacher during the teaching and learning process. Due to the limitations of the internet network, blended learning with an asynchronous system is generally well-received by students, although learning with a synchronous system can also be implemented.

Indeed, Al-Mubireek (2019) found that students are generally enthusiastic about implementing digital tools for language learning. It was in line with the study had been conducted by Basri et al., (2021), who voiced out that educational technology could enhance the students' ICT skills. In recent years Educational technology has seen a slight increase, and it is regarded as flourishing and well-suited for the technological age (Sulisworo et al., 2016; Zhou et al., 2020).

Furthermore, the blended learning model assists teachers in evaluating student progress and determining appropriate learning systems (Schechter et al., 2017; Hilliard, 2015). The shifting model is the most prevalent method for optimizing the performance of blended learning (Dziuban et al., 2018). Two-way instruction, such as face-to-face and online models, enhances student performance compared to one-way instruction. Teacher involvement is the most effective mediator in blended learning (Müller & Wulf, 2022). Incorporating digital educational tools into the classroom encourages students to become more autonomous learners; thus, the teacher's role shifts from a dominant lecturer to a mentor, guide, or instructor (Archibald et al., 2020).

A previous study on mixed learning in secondary and higher education has identified four critical success factors: (1) the significance of teacher education, (2) the educational tools' technical operation, (3) the programs' effectiveness in terms of student achievement, (4) the significance of recognizing blended learning as little more than simply incorporating technology into instruction unless it is about integrating student-directed and teacher-directed, traditional and digital classroom instruction (Vaughan, 2014).

Several studies have been conducted to understand better how personality type affects learning. Personality type can impact a student's learning process. Introverts are more likely than extroverts to apply what they have learned in one class to another and achieve higher grades, which allows students to work at their own pace. Introverted individuals outperform extroverted individuals. Introverts may exhibit cautiousness, the capacity for focused solitary work, and the ability to produce ideas independently (Boroujeni et al., 2015). In a series of threaded discussions, Lee & Lee (2006) examined the interactions between different personality types (extroverts, introverts, and mixed). According to the findings, extroverted and mixed group participants posted significantly more messages than introverted groups. The findings show that extrovert-only and introvert-and-introvert groups interacted more socially, interactively, and cognitively than groups with only introverted members. In addition, the mixed groups had a higher level of metacognitive interaction than the other groups.

Furthermore, another finding revealed that the average learning outcomes of introverted students who use blended learning differ from those of extroverted students who use traditional learning models. Many factors contribute to success or failure. Students may favor one educational setting if their personality dictates that preference. However, incorporating face-to-face and online instruction is preferred by some students. In contrast, several students may prefer a hybrid approach, while others may prefer a more flexible approach incorporating face-to-face and online instruction. Harmonies with Keshavarz & Hulus' statement (2019), they said that students' personality influence their learning preferences. Extrovert students typically favor blended learning, while introvert students do not. Teachers should be cautious not to force introverted students with diverse learning preferences to participate in blended learning. Indeed, Kintu et al., (2017) clarifies that two principal factors determine the effectiveness of blended learning: student characteristics and learning design through advanced technologies.

According to the findings of Manal (2021), Introverts preferred online courses, while extroverts and perceivers preferred classroom instruction. Extroverted are more likely to miss out on social interactions when taking classes online. Introverts cited anxiety as a reason for their tense state during class. According to research, online learning was more appealing to intuitive than in traditional classroom settings (Daughenbaugh et al., 2002). Although students with an analytical style had a higher sense of community in a blended course, those with an intuitive style felt less

connected. Significant factors affecting the efficacy of e-learning have been identified as learner characteristics (Varela et al., 2012). Personality has a significant impact on the success of online learning in terms of overall academic outcomes, retention rates, and learner satisfaction with online and mixed approach-based instruction (Bolliger & Erichsen, 2012). A subsequent study Keller & Karau (2013) discovered a significant correlation between learner personality and online learning perceptions based on engagement, career value, overall evaluation, anxiety/frustration, and preference for online courses. Thus, the personality factor is considered critical for online learning.

Despite the researcher's best efforts to avoid bias in this study, this research has a number of flaws. This study focuses on improving students' reading comprehension on the dimensions of introvert and extrovert personality; ambivert students are excluded. In addition, the researcher did not include control variables in the measurement of variables, thereby choosing to leave open the possibility that external factors caused the calculation results to be biased. It is perhaps that future researcher who conduct similar studies will include aspects not covered in this study.

CONCLUSION

To sum up, According to studies, the blended learning model can provide enhanced learning results for introverted students even though this learning approach is generally less effective. The blended learning paradigm also has various benefits, including flexibility, the capacity to meet the demands of students, enhanced reading comprehension, increased student technology abilities, efficiency, and adaptability. The pedagogical value of blended learning is based on the idea that these findings can be used to inform the design of learning models that consider external factors influencing learning improvement. In addition, blended learning utilizing an asynchronous system application can accommodate the learning needs of students regardless of internet network or economic constraints. Moreover, the blended learning model aims to equip students to learn through virtual devices in order to pique their interest in the taught material. Thus, this learning model inspires teachers and learning developers to design and develop innovative teaching media and encourages changes in the preparation of teaching materials that significantly impact pedagogical quality.

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The Analysis of Pronouncing Post-Alveolar Fricative Faced by the English Education Students of Tanjungpura University

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The objective of this research is to describe the percentage of post-alveolar fricative sound pronunciation acceptability among the English Language Education students in their sixth semester at the University of Tanjungpura. The scope of the study would be limited to the comparison of the first and second formants of the participants with those of the native speaker, whose formants were evaluated utilising the PRAAT software. The data was gathered from a pronunciation performance test that was conducted via an audio recording procedure. The study involved a total of 15 participants who were categorised into three distinct ethnic groups, including Indonesian Tionghoa, Dayak, and Malay. Each participant pronouncing a set of 20 words, consisting of both voiceless and voiced post-alveolar fricatives. According to the findings of the study, 1) the percentage of voiceless post-alveolar fricative sounds that were considered 'Acceptable' was 40.5%, whereas the percentage of those that were considered 'Not Acceptable' was 59.5%., 2) the percentage of 'Acceptable' pronunciation of voiced post-alveolar fricative sounds was 42%, while the percentage of those that were 'Not Acceptable' was 58%. The inference that can be drawn is that students encounter challenges when attempting to articulate post-alveolar fricative sounds.

Keywords: pronunciation, acoustic phonetic, post-alveolar fricative.

INTRODUCTION

Speaking ability is very important in English. Mastering speaking helps practise patterns of a language and for supporting good communication. There are many essential aspects in speaking that must be known and applied to communication, one of which is pronunciation. Good pronunciation is the key to success in communication, without exception in English. International students who study English are required to be able to pronounce English well in order to communicate efficiently. In addition, using proper pronunciation in a variety of circumstances may help enhance English language abilities across the board, including all of the aspects that pertain to it (Tabula et al., 2020). After acquiring greater understanding regarding the proper pronunciation of words, one will finally be able to experience this impact.

According to Richard cited in Komariah (2019), pronunciation can mean the formation of sounds in the mouth, which means that pronunciation is the sound produced by movements in the mouth. In this case, pronunciation has a vital role because if the students mispronounce a word, there will be a misunderstanding between the speakers. Learning pronunciation is not an easy thing, especially for EFL students.

Pronunciation is a skill that must be considered by students who study English as EFL students. By mastering pronunciation, little by little, students will also form good communication. Silfiani et al. (2017) states that many students are confused that, though their identical forms, words may not always sound the same.

Because they are not native speakers, there are still many mistakes made by students, especially students who are already in university. A common mistake that is often faced is the wrong pronunciation of sounds in English. Tabula et al. (2020), explain this particular pronunciation mistake can be attributed to a number of different causes, one of which is an individual's level of awareness of the correct pronunciation. This competence has a considerable impact on such a person's pronunciation skills (Tabula et al., 2020). This capability is meant to be related to the capacity of individuals who are able to differentiate between two sounds more precisely than other people and who can likewise reproduce the proper sound or pronunciation greater than the others. Phonetics is a branch of linguistics that deals with speech sound (Fromkin et al., 2011).

Several studies discuss sounds. In the context of pronouncing consonant sounds, the first is a study conducted by Untoro & Rustipa (2020), who found many English fricative pronunciation errors from English students. The results obtained were errors in the pronunciation of labiodental fricative (/f/ and /v/), dental fricative (/θ/ and /ð/), and post-alveolar fricative (/ʒ/, and /ʃ/) which were the most common. Puspita et al. (2017) furthermore conducted research pertaining to pronunciation, which seeks to determine how students with a Sambas Malay background pronounce English fricatives, including post-alveolar fricatives.

Some literature reveals the study of acoustic phonetic. In terms of acoustic phonetics, there is a study by Wulandari et al. (2018) that discusses the analysis of acoustic properties, specifically formants. Through application, the acoustic properties of a sound are contrasted using the differences between participant formants and native speaker formants as standards. This analysis was conducted with PRAAT Software. This is similar to the study conducted by Rahmatunisa & Syarifudin (2021), which used PRAAT to study intonation and stress characteristics in pronunciation. Nguyen et al., (2022, pp. 378–379) conducts research in the field of acoustic phonetics. The study focuses on the acoustic properties of fricatives, specifically examining amplitude and formant features when speaking with and without a mask. The study revealed that the acoustic characteristics of fricatives were notably reduced when wearing a mask compared to when not wearing one, namely in terms of spectral moment. In particular circumstances, there is a slight variance in amplitude and formant, indicating that each phoneme unit is produced differently in the sound production process. Phoneme unit formation is affected by phonetic context, speaking style, and prosodic qualities, which vary among individuals (Bhagath & Das, 2016). Hashimoto et al. (2018) conducted another study on the application of PRAAT in acoustic-phonetic research.

They utilized PRAAT in his research to evaluate the acoustic characteristics of post-alveolar fricatives in children with speech difficulties. Subsequent studies by Adhani et al. (2021), Situmeang & Lubis (2020), and Eldika & Zainil (2022) examined the significant challenges students faced in pronouncing English fricatives, attributing the difficulties to factors such as a lack of knowledge of the proper pronunciation of consonant fricatives. A study conducted by Putra (2019) also explores the examination of students' pronunciation issues in plosive and fricative consonants. The primary source of errors was determined to be students lack of comprehension on proper pronunciation. Elfahm et al. (2022) additionally looks at comparable fricatives in Arabic consonants.

Although the research about sounds has been conducted by many researchers, there are still some gaps that need to be filled. Based on this, the difference lies in discussing specific sounds pronunciation problems that were not discussed in detail in the previous studies which is post-alveolar fricative (/ʒ/, and /ʃ/). This discussion is premised here on students' basic competence of pronouncing post-alveolar fricative sounds, which are notoriously challenging to pronounce appropriately.

This is also demonstrated by the research that Untoro & Rustipa (2020) conducted about the number of students that incorrectly pronounce post-alveolar fricative sounds. Research involving post-alveolar fricative becomes one of the rare topics to be one of the considerations for conducting this research, considering that post-alveolar fricative is also found in many English words. Another consideration for filling the gaps is that there are rarely topics related to linguistics, especially phonetics, which English Language Education students carry out at the University of Tanjungpura. In addition, topics related to acoustic phonetic analysis, which would use PRAAT software, have never been carried out within the scope of the Tanjungpura University English Education study program.

Post-Alveolar Fricative

The term "post-alveolar"/"palato-alveolar" refers to the area situated behind the alveolar ridge and adjacent to the front of the hard palate. The tongue has a raised form, and the blade is positioned at the post-alveolar area. Fricatives are sounds created by forming a narrow opening in the mouth and allowing air to escape with numerous attempts (Rogers, 2014, p. 23). The post-alveolar region is the area between the backside of the alveolar ridge and the front part of the hard palate, situated on the roof of the mouth (Beňuš, 2021, p. 73; Carr, 2013, p. 39; Fromkin et al., 2001, p. 502, 2018, p. 196; Kelly, 2001, p. 53). Fricative refers to airflow that traverses tight areas in the human respiratory system (Carr, 2013, p. 43; Fromkin et al., 2001, p. 504). The narrow openings are formed by the motion of two articulators that contract to generate a restricted separation between them. Post-alveolar fricatives originate from the front part of the tongue shortening as it approaches the post-alveolar region, resulting in tiny gaps (Fromkin et al., 2018, p. 196).

Therefore, a post-alveolar fricative is a specific form of consonant sound. The sound is produced by the front part of the tongue moving towards the post-alveolar area. This motion forms a narrow opening that forces air to enter the lungs.

A study by Mokoagouw et al. (2022) explores how students' pronunciation of post-alveolar/palato-alveolar fricatives leads to differences in existing pronunciation. Fauzi (2021) also conducted a comparable analysis in their research. The results of this research examine the phonological variances present in the interlanguage of Indonesian learners. It is because of these variances that the majority of Indonesian students find the pronunciation of post-alveolar fricatives to be rather challenging, particularly for sounds that are pronounced in a way that is similar to one another.

METHODS

A descriptive research design was used in this study to conduct the research. The main focus of descriptive study is to discover the features of a phenomenon (Kothari, 2004). A descriptive study is also used to learn more about the conditions and settings around a current phenomenon. A descriptive study would not be complete without an analysis. Researcher should pay close attention to the aspects required for analysing the information acquired during the data analysis procedure. The researcher would describe the phonetics study particularly in articulatory and acoustic phonetic in this case. The major data used in this study would be post-alveolar fricative pronunciation. In line with that, the purpose of using descriptive research is to find out the comparison of acoustic properties between participants' first formant (F1) and second formant (F2) to native speakers' first formant (F1) and second formant (F2) in pronunciation post-alveolar fricative.

Participants

Participants was chosen based on a set of criteria and objectives (Gay et al., 2012, p. 141). As a result, the researcher chosen will have a substantial impact on the research topic. By considering how the participant's problem correlates to the research to be conducted, this issue may draw the researcher closer to the participant. The approach taken in purposive sampling is intended to obtain information that can answer research questions and research objectives to be achieved (Leavy, 2017, p. 79). The selection of these characteristics is carried out in the same proportion as the representation of the population (Kothari, 2004; Leavy, 2022).

The participants in this study were sixth-semester English language education study program students from Tanjungpura University for the 2022/2023 academic year. The total population is 71 people. Based on purposive quota sampling, researcher selected 15 participants from

four different ethnicities as quota sampling segmentation, in this case, Indonesian Tionghoa, Indonesian Malay and Dayaknese, with the same proportion based on a predetermined purposive sampling population. Researcher chose sixth-semester students for this study based on the phonetic topics mentioned in the Introduction to Linguistics course in fourth-semester and select students who graduate with a minimum grade of B as the purposive sampling. Indonesian Tionghoa students are sixth-semester students who come from a Chinese family or grew up in a Chinese culture surroundings. The same applies for Indonesian Malay and Dayaknese. Indonesian Malay students come from a Malay family background, while Dayaknese students come from a Dayak family background. In addition, the researcher chose participants for the study based on the students' level of comprehension of the fundamental idea of the discussion, which was the voiced and voiceless post-alveolar fricatives. The study would investigate the sixth-semester students at Tanjungpura University's English education study program's voiced and voiceless post-alveolar fricative pronunciation.

Data Collection

To collect data related to the pronunciation of the post alveolar fricative from the participants, here researcher used a data collection technique, specifically measurement. In this study, researcher used a pronunciation test aimed at knowing the participants' pronunciation. Researcher also used audio recording, PRAAT software and rating scale to support the process of data collection. Furthermore, to analyse the data, the researcher utilised PRAAT analysis, coding, sorting and calculating percentages.

The researcher has been records the pronunciation of the students during the research process, particularly those that focus on the voiced and voiceless post-alveolar fricative, which is designed to record all of the pronunciation test results. This is done so that the researcher can provide evidence of all of the activities that are carried out throughout the process of collecting information. In this study, researcher would use PRAAT to analyse data resulting from recordings which has been processed at PRAAT in the form of a visual spectrogram. Then, the rating scale used is the itemized rating scale based on statements representing the participants' scores to reflect on their test results. In this study, after the measurement process through the pronunciation test, an evaluation has been carried out by the evaluator with criteria based on specific standards to determine the acceptability of the participants' pronunciation.

Data Analysis

In PRAAT analysis, the researcher analysed the participants' recordings using PRAAT. In this computer software, there is an analysis related to the spectrogram of the sound that has been spoken. Through this spectrogram, there is a visualization of how the sound is. With visualization, it will be possible to analyse the available acoustic properties, such as the formant, which is the benchmark for measurement in this study. Through the information that has been analysed by PRAAT, later the frequencies associated with these sounds will be obtained, including the formant frequencies, which will later be compared between F1 and F2 participants and also native speakers.

Then the coding that is chosen should be able to summarise or retain the substance of the relevant data segment. The researcher was labelling the results of the formant analysis of the participants by referring to the standard values of the native speakers. The results of the labelling process related to standard values will be assessed through a rating scale of acceptability for each word spoken, whether it meets the criteria according to the available standard values. It has also been examined in this coding how the process of deciding acceptability is dependent on the Z-Score value of each formant participant. The Z-Score value is derived from the determination of the participant formant, native speaker formant, and previously determined standard deviation value. The standard deviation value is calculated by how far the formants of native speaker pronunciation deviate from each other in five online English dictionaries, which are used as standards for participants' pronunciation deviations: Oxford Learners Dictionary, Cambridge Dictionary, Merriam-Webster Dictionary, Macmillan Dictionary, and Longman Dictionary. Finally, acceptability can be determined by determining the standard deviation value, which also determines the participant's Z-Score score. The final Z-Score will be used to determine acceptability, which is subsequently matched with a rating scale.

This grouping process involved grouping based on the ethnicity of the participants to make it easier to sort. In this research, the first sorting process is the sorting related to the acceptability of the participant's pronunciation according to the standard values that have been grouped. The standard deviation value and the Z-Score value were also grouped according to the participant and the spoken word in which there was a post-alveolar fricative sound. After doing this, the data grouped based on each ethnicity. Then after all the sorting processes are complete, the data would be more easily grouped for the next process, namely the percentage calculation process.

Before calculating the percentage, the researcher first discovered each rating scale category on the results of the earlier pronunciation test; this step was followed by the continuation of the average score of acceptability for participants. In that case, the data would be grouped in order to find out the overall percentage value of all participants for the acceptability of post-alveolar fricative pronunciation. The findings show how many pronunciations fit into a specific rating scale out of a total of 300. The data has been compiled to calculate the percentage. The data has been combined again after determining the percentage on each rating scale for each formant to obtain the average value of the two percentages. It is also established that pronunciations that fall within the Excellent to Fair range are classed as Acceptable, while those that fall within the Poor to Within Limitation range are considered Not Acceptable by determining the range of formant native speaker values obtained at the initial stage.

RESULTS AND DISCUSSION

This section presents the outcomes of the conducted research as described by the researcher. Following the audio recording process that was conducted to gather data on the pronunciation of post-alveolar fricative sounds commonly used in communication, the researcher proceeded to analyse the acceptability of such pronunciations. This was achieved by comparing the formant, or resonant frequency in the vocal tract, of both the participants and a native speaker. The present study utilises five online dictionaries, specifically Oxford Learners Dictionary, Macmillan Dictionary, Longman Dictionary, Merriam-Webster, and Cambridge Dictionary, as the basis for the pronunciation of native speakers. The process of frequency comparison shall be subjected to analysis through employment of the computer software PRAAT. The software has the capability to generate a graphical representation of the acoustic waveform in the form of a spectrogram. The visualisation of formants can be achieved through the use of the spectrogram.

The current analysis executed data gathered from the pronunciation of the post-alveolar fricative by a sample of 15 participants. The study involved the recitation of a set of 20 words for voiceless sounds and another set of 20 words for voiced sounds of the post-alveolar fricative. The participants were instructed by the researcher to record the outcomes of their individualised pronunciation of the designated words. All of the words that have been prepared contain voiceless and voiced post-alveolar fricatives. The post-alveolar fricative sounds demonstrate similar features and characteristics, despite their distinct positions and phonetic compositions. This points out the analysis that has been carried out. Prior to conducting the audio recording process for pronunciation evaluation, the researcher provided the participants with information regarding the research objectives and methodology.

This was done to ensure that the participants were adequately prepared for the task at hand and to minimise any potential impact on the accuracy of the pronunciation results.

Standard Formant Value

Prior to defining the outcomes of the participants' formants, the researcher started with the formants of the native speaker, which would be shown via a table representation. The acceptability of the participant form is determined by highlighting the range of formants from native speakers, which may vary due to the use of five different online dictionary sources and result in several different form deviations. Subsequent to acquiring understanding of the range of formants, the mean formant

value (as mentioned in Table 1 and Table 2) is also calculated, which can be considered as the 'acceptable' standard for the suitable pronunciation of the previously obtained range outcomes.

The outcomes derived from the analysis of formant participants through the utilisation of PRAAT software are subsequently contrasted with those of formant native speakers. This analysis will be predicated on the standard deviation of the formant of the source native speaker, which is the benchmark value for comparison. The research findings indicate that a considerable number of students demonstrate deviations from the standard native speaker pronunciation values when pronouncing voiceless and voiced post-alveolar fricative sounds. There exist 300 distinct pronunciations for voiceless sounds and an equal number of 300 pronunciations for voiced sounds.

TABLE 1 | Standard Formant Value Voiceless Post-Alveolar Fricative

No.	Words (ʃ)	First Formant (F1)	Second Formant (F2)
1	Fishing (/ˈfɪʃɪŋ/)	1873 Hz	2651 Hz
2	Shore (/ʃɔː(r)/)	1708 Hz	2433 Hz
3	Share (/ʃeə(r)/)	1856 Hz	2709 Hz
4	National (/ˈnæʃnəl/)	1820 Hz	2655 Hz
5	Show (/ʃəʊ/)	1848 Hz	2578 Hz
6	Position (/pəˈzɪʃn/)	1643 Hz	2657 Hz
7	Information (/ˌɪnfəˈmeɪʃn/)	1855 Hz	2684 Hz
8	Additional (/əˈdɪʃənl/)	1932 Hz	2674 Hz
9	Dish (/dɪʃ/)	1820 Hz	2539 Hz
10	Ash (/æʃ/)	1717 Hz	2469 Hz
11	Flash (/flæʃ/)	1723 Hz	2413 Hz
12	Rush (/rʌʃ/)	1730 Hz	2587 Hz
13	Crash (/kræʃ/)	1817 Hz	2512 Hz
14	Trash (/træʃ/)	1721 Hz	2516 Hz
15	Brush (/brʌʃ/)	1797 Hz	2545 Hz
16	Ship (/ʃɪp/)	1826 Hz	2598 Hz
17	Shirt (/ʃɜːrt/)	1805 Hz	2581 Hz
18	Sheep (/ʃiːp/)	1888 Hz	2608 Hz
19	Recreational (/ˌrekriˈeɪʃənl/)	1709 Hz	2661 Hz
20	Assumption (/əˈsʌmpʃn/)	1840 Hz	2489 Hz

The voiceless post-alveolar fricative sound is represented by 20 words. The results of the known formant mean values from the PRAAT software were used to generate these 20 words. The first formant (F1) and the second formant (F2) are the two formants

that each word has. It would be compared between the participant's formants and the two formants of the voiceless post-alveolar fricative used by native speakers of these 20 words.

TABLE 2 / Standard Formant Value Voiced Post-Alveolar Fricative

No.	Words (ʒ)	First Formant (F1)	Second Formant (F2)
1	Visions (/ˈvɪʒn/)	2196 Hz	2904 Hz
2	Genre (/ˈʒɒnrə/)	1004 Hz	2515 Hz
3	Treasure (/ˈtreʒə(r)/)	1856 Hz	2814 Hz
4	Usually (/ˈjuːʒuəli/)	1921 Hz	2671 Hz
5	Measure (/ˈmeʒə(r)/)	2011 Hz	2798 Hz
6	Decision (/dɪˈsɪʒn/)	1447 Hz	2738 Hz
7	Illusion (/ɪˈluːʒn/)	1945 Hz	2804 Hz
8	Fusion (/ˈfjuːʒn/)	2031 Hz	2836 Hz
9	Division (/dɪˈvɪʒn/)	1901 Hz	2678 Hz
10	Erosion (/ɪˈrəʊʒn/)	1834 Hz	2711 Hz
11	Enclosure (/ɪnˈkləʊʒə(r)/)	1965 Hz	2782 Hz
12	Pleasure (/ˈpleʒə(r)/)	1864 Hz	2853 Hz
13	Leisure (/ˈleʒə(r)/)	2033 Hz	2851 Hz

14	Invasion (/ɪnˈveɪʒn/)	2066 Hz	2679 Hz
15	Explosion (/ɪkˈspləʊʒn/)	1816 Hz	2711 Hz
16	Massage (/ˈmæsɑːʒ/)	1755 Hz	2597 Hz
17	Confusion (/kənˈfjuːʒn/)	1946 Hz	2632 Hz
18	Occasion (/əˈkeɪʒn/)	1951 Hz	2734 Hz
19	Camouflage (/ˈkæməflɑːʒ/)	1851 Hz	2570 Hz
20	Sabotage (/ˈsæbətɑːʒ/)	1812 Hz	2565 Hz

Z-Score

Upon calculation of the standard deviation for individual words, the Z-Score can be derived (as shown in Table 3). This statistical measure represents the expected value that provides an estimate of the degree of deviation of the mean data point. The calculation of Z-Score can be performed by using a specific formula:

$$Z = (x-\mu) / \sigma$$

Z = Z-Score
x = Observed Value (Formant Results From Participants)
μ = Standard Value of Native Speaker
σ = Standard deviation

Subsequently, the acceptability results were acquired with the help of a Z-Score-based comparison with the following criteria:

TABLE 3 / Z-Score Category

Category	Criteria of Z-Score
Excellent	(-1) – 1
Good	(-1.5) – (-1.1)
Fair	(-2) – (-1.6)
Poor	(-2.5) – (-2.1)
Very Poor	<2.5
Within Limitation	>1

The voiced post-alveolar fricative sound is represented by 20 words. The results of the known formant mean values from the PRAAT software were used to generate these 20 words. The first formant (F1) and the second formant (F2) are the two formants that each word has. It would be compared between the participant's formants and the two formants of the voiced post-alveolar fricative used by native speakers of these 20 words.

The outcomes of the participants' voiceless pronunciation with the first formant reveal that 72 pronunciations were classified as Excellent, 13 as Good, 19 as Fair, 16 as Poor, 90 as Very Poor, and 90 as Within Limitation. Regarding the second formant, the Excellent category had 113 instances, while the Good category had 14 instances, the Fair category had 12 instances, the Poor category had 3 instances, the Very Poor category had 13 instances, and the Within Limitation category had 145 instances. Upon identifying the suitable pronunciation categories, the proportion of each formant in the participant's pronunciation was determined.

The first formant's outcomes for the Excellent categorization were determined to be 24.0% in the voiceless sound, while the ratings for Good, Fair, Poor, Very Poor, and Within Limitation were 4.3%, 6.3%, 5.3%, 30.0%, and 30.0%, respectively. In relation to the second formant, the findings indicate that the Excellent category accounted for 37.7% of the results, while the Good category were responsible for 4.7%, Fair for 4%, Poor for 1%, Very Poor for 4.3%, and Within Limitation for 48.3%.

Based on the data presented, it can be inferred that the cumulative proportion of the outcomes is as follows: 30.8% for the Excellent, 4.5% for the Good categorization, 5.2% for the Fair categorization, 3.2% for the Poor categorization, 17.2% for the Very Poor categorization, and 39.2% for the Within Limitation categorization (as mentioned in in Table 4).

TABLE 4 | Total Percentage Voiceless

	Excellent	30.8%
	Good	4.5%
	Fair	5.2%
Total Percentage:	Poor	3.2%
	Very Poor	17.2%
	Within Limitation	39.2%
	Total	100%

Moreover, in the voiced pronunciation, the outcomes of the first formant displayed scores of 76 in the Excellent category, 14 in the Good category, 10 in the Fair category, 12 in the Poor category, 108 in the Very Poor category, and 80 in the Within Limitation category. Regarding the second formant, there were 122 results categorised as Excellent, 22 as Good, 8 as Fair, 6 as Poor, 18 as Very Poor, and 124 as Within Limitation.

Then, the results of the voiced sounds revealed that the first formant obtained a high percentage of Excellent category ratings at 25.3%, followed by Good at 4.7%, Fair at 3.3%, Poor at 4%, Very Poor at 36%, and Within Limitation at

26.7%. In the second formant, the distribution of results was as follows: 40.7% were classified as Excellent, 7.3% as Good, 2.7% as Fair, 2% as Poor, 6% as Very Poor, and 41.3% as Within Limitation.

The findings indicate that 33% of the total number of participants falls under the Excellent category, while 6% are classified under the Good category. The Fair and Poor categories both account for 3% of the sample, respectively. Moreover, 21% of the sample falls under the Very Poor category, while 34% are classified under the Within Limitation category (as mentioned in Table 5).

TABLE 5 | Total Percentage Voiced

	Excellent	33.0%
	Good	6.0%
	Fair	3.0%
Total Percentage:	Poor	3.0%
	Very Poor	21.0%
	Within Limitation	34.0%
	Total	100%

Discussions

This study aims to find the percentage of post-alveolar fricative pronunciation of Sixth-semester English education students' at Tanjungpura University in the academic year 2022/2023. Based on the research findings, it was found that the majority of students still found it difficult to pronounce the post-alveolar fricative. This was indicated by the deviation of the formant frequency of students' pronunciation compared to formant native speakers. As mentioned in the background related to students' ability to distinguish between two sounds, the findings show that some students' pronunciations deviate from post-alveolar fricative sounds to other sounds. The research findings align with what has been mentioned in the background, which states that students have difficulty pronouncing sounds because they are not familiar with them. This affected students' awareness of pronouncing sounds properly, including post-alveolar fricative pronunciation.

In the first formant (F1) of voiceless sound, the majority of the students' voiceless pronunciation was classified as 'Very Poor' and 'Within Limitation', indicating a significant deviation from the standard pronunciation of a native speaker. The results indicate that the students' pronunciation in the second formant (F2) was primarily characterised by the 'Within Limitation' category, which suggests that the participants' formant values surpassed the range of formants obtained from the standard of deviation. The results revealed that the majority of the students presented poor pronunciation in voiced sound as well, as demonstrated by their classification in the 'Very Poor' category for the first formant (F1). This suggests that their

formant values were significantly lower than those of a native speaker. In contrast to the first formant (F1), which failed to show significant differences across categories, the second formant (F2) displayed a notable disparity. Specifically, the 'Within Limitation' category demonstrated the highest F2 values, while a considerable number of participants also demonstrated F2 values getting within the 'Excellent' category, indicating a pronunciation form that closely approximated that of a native speaker.

Following collecting the percentages for each pronunciation category of the participant, proceed with the categorization of the groups that are considered 'Acceptable'. The researcher categorised the accepted categories into categories ranging from Excellent to Fair. The previous claim is grounded on the usage of the Z-Score range, specifically ranging from -2 to 1. This range serves as an indicator that the outcomes obtained continue to be considered acceptable and fall within the standard values. Categorising individuals as "Not Acceptable" due to their pronunciation's formant falling outside of the standard numerical range that represents a poor pronunciation, particularly for those who are classified as Poor and Within Limitation.

TABLE 6 | Acceptability (Voiceless)

Acceptable	40.5%
Not Acceptable	59.5%

TABLE 7 / Acceptability (Voiced)

Acceptable	42.0%
Not Acceptable	58.0%

Based on the findings of the analysis, the researcher arrived at the conclusion that English Language Education students in their sixth-semester at Tanjungpura University encountered difficulties in correctly articulating voiceless and post-alveolar fricative sounds. Specifically, many students struggled with distinguishing between post-alveolar fricative sounds (/ʃ/) and (/ʒ/) and alveolar fricative sounds (/s/) and (/z/), which are similar in position, but the first two are produced slightly behind the later one. The confusion between the pronunciation of post-alveolar fricative and alveolar fricative is frequently seen. The variation in resonant frequency values, also known as formants, is attributed to the disparity in position. The post-alveolar fricative and alveolar fricative exhibit distinct first and second formants. It is noteworthy that these formants are frequently employed for assessing an individual's articulation. The formants mentioned earlier are subject to inter-individual variation owing to the distinct characteristics of the vocal tract that differ across individuals.

The findings of this study may only be generalised to the English student population at Tanjungpura University, which is one of the limitations of this study. In the case of pronunciation, data gathering methods that are restricted to voice recordings might not be able to capture relevant non-audio factors. In addition, the limits of formant analysis when utilising the PRAAT programme can make it difficult to gain a comprehensive knowledge of the phenomenon of post-alveolar fricatives in pronunciation. Furthermore, the utilisation of data analysis techniques that are restricted to coding, sorting, and the calculation of percentages may restrict the capability to capture more substantial components as well as individual factors that can influence the acceptability of the pronunciation.

There is the potential for future research in this area to cover a wide variety of topics that are attached. Comparative demographic research has the potential to broaden the scope of the study by comparing English students from different educational institutions or universities in order to evaluate differences in the acceptability of the pronunciation of post-alveolar fricatives. Additionally, a full understanding of the factors that influence the acceptability of pronunciation can be obtained by integrating a number of different methods of data collection, such as direct observation, interviews, and surveys. In addition, computational research has the capability of integrating acoustic analysis with computational approaches and artificial intelligence in order to get a more comprehensive and effective comprehension of the patterns of pronunciation of post-alveolar fricatives. It is possible for neurolinguistic research

to explore how the brain processes and comprehends pronunciation, as well as the factors that influence the degree of difficulty or simplicity of pronunciation. Through the investigation of these research topics, it is predicted that a more extensive and comprehensive understanding of the acceptability of the pronunciation of post-alveolar fricatives would be achieved. In addition, this investigation may result in the development of methods for improving pronunciation competencies in English education, particularly through research that focuses on acoustic qualities being investigated.

CONCLUSION

The researcher discovered the percentage of students who demonstrated voiceless post-alveolar fricative pronunciation. The findings revealed that 31% of students were categorised as Excellent, 5% as Good, 5% as Fair, 3% as Poor, 17% as Very Poor, and 39% as Within Limitation. The researcher determined the percentage of cases of voiced post-alveolar fricative pronunciation among students, revealing a distribution of 33% for the Excellent category, 6% for the Good category, 3% for the Fair category, 3% for the Poor category, 21% for the Very Poor category, and 34% for the Within Limitations category. The findings indicate that the criteria for acceptable pronunciation fall within the range of Excellent to Fair categories, as it aligns with the standard range of pronunciation among native speakers. Specifically, the analysis reveals that the voiceless post-alveolar fricative was pronounced properly 40.5% of the time, while the voiced post-alveolar fricative was pronounced properly 42% of the time. Conversely, the outcomes pertaining to pronunciation that were deemed not acceptable fall within the Poor to Within Limitation range. Specifically, 59.5% of the voiceless post-alveolar fricative sounds and 58% of the voiced post-alveolar fricative sounds were pronounced in a way that is unsuitable.

Drawing from the previous description, the researcher concluded that a substantial percentage of sixth-semester students enrolled in the English Language Education programme at Tanjungpura University during the academic year 2022/2023 are still having difficulties when precisely reciting post-alveolar fricatives, thereby resulting in a deviation from the standard pronunciation of native speakers.

Based on the findings discussed above, the researcher would like to provide the following suggestions: (1) The English Language Education Study Programme at Tanjungpura University is expected to establish a pleasant atmosphere for students to enhance their proficiency in pronunciation.

(2) The researcher intends to offer suggestions to English Education students regarding increasing their level of awareness concerning the significance of phonetic and phonological learning. (3) The researcher intends that this study can serve as an idea of reference for future researcher who are interested in investigating the same subject matter. In light of the limitations faced by the researcher in this particular study, it is recommended that future researcher explore additional sub-fields within the field of phonetics.

Through a better understanding of the difficulties that university students experience when pronouncing post-alveolar fricatives, this study makes a substantial contribution to English language study programmes. Based on these findings, it appears that the implementation of a curriculum that is more efficient, teaching methods that are more focused, and the incorporation of technology into learning can ultimately improve the quality of English language education and the outcomes for students at Tanjungpura University and other institutions of a similar nature.

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Measuring Critical Thinking Skills through Writing Performance Assessment: The Profile of EFL Students' Critical Thinking Skills

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This study tries to find the profiles of EFL students' critical thinking skills in writing problem-solution expository essays within wetland themes. It employs a descriptive design with quantitative approach by utilizing a validated writing test. The subjects of the study were 40 students of the English Language Education Study Program of the University of Lambung Mangkurat, Indonesia, who were enrolled in the Academic Writing courses. The essay produced by each student was measured based on the depth of cause-and-effect analysis, the logic of the argument given, the viability of the solution, and the validity of evidence used to support the argument. The findings reveal that the subjects' critical thinking skill is categorized as medium since the mean score on the test of critical thinking is 11.38. Particularly, they have a high level of critical thinking in the aspects of analyzing the issue (3.03) and providing viable solutions (3.18). It indicates that they are able to distinguish the cause of a problem and the consequences as well and consider the causes and consequences when they propose a solution. However, their skill in providing argument is medium (2.85) whereas their skill in providing the evidence is low (2.33). These findings suggest that the subjects need to be trained in providing arguments and sufficient evidence through leading questions, discussion, and reading relevant sources. It implies that the study program needs to develop a teaching model that facilitates the students to practice their critical thinking skills.

Keywords: critical thinking skill, EFL students, writing, students' performance

INTRODUCTION

The ability to think critically is an ability that is seen as increasingly important for students to have in today's digital era where people can access much information easily (Lun et al., 2010). Moreover, living in the era of multicultural societies, human mobility, the advancement of digital and technology, social networking, innovations and inclusiveness has become more demanding for 21st century citizens, particularly for students (Saleh, 2019), to not to completely believe the available information on the Internet. The changing nature of technology not only provides us with better teaching techniques or methods, but also contributes the need of thinking critically (Turan et al., 2019). Hence, students need to select the information and critically analyze the causes and effects before they make a decision. In addition, students need to prepare themselves to face the increasingly dynamic world of work and society (Braun et al., 2020; Raslan, 2023).

As revealed in the research, having critical thinking skills will help students in their studies and in filtering any information before making decisions and sharing information with others (Changwong et al., 2010; Szabo & Schwartz, 2011). Therefore, explicit instructions on critical thinking in tertiary education is becoming essential (Wang & Seepho, 2017) and that teachers can implement vary of teaching strategies to facilitate students' development. Previous research shows various teaching strategies implemented in EFL classrooms to facilitate the development of students' critical thinking skills like group discussion, concept mapping, and analytical questioning (Wang & Seepho, 2017).

Defining critical thinking skills has been made by scholars and each has similarity and distinctions as well. Critical thinking is the ability that a person has in thinking rationally and systematically. In the report compiled by the National Council on Measurement in Education (Lai & Viering, 2012), critical thinking skills are high-stage abilities consisting of problem-solving and decision-making skills. Skills included in this ability are the ability to select information, analyze a problem, analyze the cause and effect of a problem, propose alternative solutions to a problem, and propose the most appropriate solution. Critical thinking skill is a multifaceted construct defined as the abilities to evaluate evidence, analyze arguments, understand implications and consequences, develop sound arguments, and understand causation and explanation (Liu et al., 2014). This ability is achieved through a thinking process (Braun et al., 2020) that requires sufficient time and practice (Szabo & Schwartz, 2011).

Critical thinking is the process of a person's thinking in analyzing and evaluating information and producing arguments correctly so as to provide better information by outlining the results of observation, experience, and communication (Paul & Elder, 2002). This skill is manifested through three levels of critical thinking namely critical analysis which require one's ability in understanding an issue and deducing meaning, critical reflection which demands one's skills in reasoning and considering all the consequences, and critical alertness which requires one's ability in questioning his or other's thinking by evaluating the activities that have been done and actions needed in the future (Oser & Biedermann, 2019). Hence, it is represented through one's abilities in solving problems in daily life and professional settings in which careful judgment is needed.

There are several indicators that specify a person has the ability to think critically. As described in the National Council on Measurement in Education (Lai & Viering, 2012), critical thinking indicators are as follows: the ability to analyze arguments, the ability to draw conclusions deductively and inductively, the ability to provide judgment, the ability to solve problems, and the ability to make decisions. If it is associated with the field of English learning, especially the skill of writing problem-solution expository essays, critical thinking skills are shown by the ability of students to analyze problems, evaluate the cause and effect of a problem, and propose a solution that is considered most appropriate supported by good arguments

and valid evidence. Explaining writer's reason by providing evidence to support it is a way of reasoning in writing arguments which requires one's skills in thinking critically (Lin, 2018). These indicators are important; therefore, teachers should consider when they assess their students' critical thinking skills through essay writing.

Another indicator that can be used in measuring students' critical thinking skills is the indicators proposed by (Facione, 2015). There are six indicators, namely the ability to: (1) interpret an experience and event, (2) analyze a problem in the form of exploring a problem and finding the causal relationship of each factor, (3) draw conclusions, (4) evaluate or assess something, (5) explain an event based on concepts, methods, and strong considerations, and (6) organize themselves in terms of understanding a problem. Essentially, critical thinking encompasses cognitive skills and dispositions that are necessary (Lun et al., 2010). This implies that being able to think critically is the skill that can be trained and developed.

However, in the context of English as a Foreign Language (EFL) classroom, developing critical thinking skills is challenging because of language proficiency issues. Studies reveal that students' language proficiency plays essential role in showing their critical thinking skills like verbal reasoning (Lun et al., 2010) and providing sufficient evidence from resources that support their critical-thinking performance (Manalo & Sheppard, 2016). Nevertheless, research on EFL learners with homogeneous language proficiency show that their critical thinking ability affects the quality of their writing with regard to the coherence, use of grammar, and organization (Golpour, 2014). This finding is in contrast with a study showing that there is no significant correlation between EFL learners' critical thinking skills and their argumentative writing performance (Pei et al., 2017).

The challenges in developing critical thinking skills in a foreign language suggest that EFL teachers work extra hard that is to facilitate their students in becoming proficient in the target language while at the same time developing their critical thinking skills. In fact, studies show that EFL teachers can facilitate their students by using analytical questions and concept mapping (Wang & Seepho, 2017) or using thought provoking questions, different groupings, displaying students' work, and modelling critical thinking (Al-Kindi & Al-Mekhlafi, 2017) that led to critical thinking before asking them to perform verbal reasoning or writing arguments. Similarly, to facilitate the development of critical thinking skills, teachers are suggested to establish a learning atmosphere that is potential for enquiry, question essential concepts, and evaluate reasons through interaction with the teacher and the classmates (Zhao et al., 2016) and through systematic analysis and open-mindeness (Snyder & Snyder, 2008). Furthermore, (Li & Liu, 2021) suggest that it is essential to engage EFL teachers in designing the course that facilitate the development of students' critical thinking skills since teachers know best about their students' thinking activities.

Critical thinking skills can be trained and measured through essay writing activities such as critical writing (Al-Kindi & Al-Mekhlafi, 2017) and problem-solution expository essays (Jumariati et al., 2021) using real-life issues that are unsolved yet. This is due to the characteristics of expository essays of typical problems that allow students to practice and demonstrate the ability to analyze problems, find the cause and effect of a problem, determine alternative solutions to problems, and provide one of the most appropriate solutions. In the same line, (Lin, 2018) postulates that writing decision-making, problem-solving and making arguments involves the writer's critical thinking. She further asserts that writing requires students to think over and develop ideas into a piece of writing. All of these characteristics are relevant to the indicators of critical thinking ability. In the same vein, (Braun et al., 2020) assert that measuring critical thinking skills through performance task will yield in more authentic representations of students' skill. Additionally, utilizing real-life issues to work with in performance test will adequately facilitate learners to think critically (Oser & Biedermann, 2019).

Based on the above explanation, it is crucial to conduct research to measure EFL students' critical thinking level as the starting point for EFL teachers to facilitate the development of their students' skills in thinking critically. Being informed about students' critical thinking skills is essential for both teachers and students to know the learning progress and learning improvement (Braun et al., 2020). Unfortunately, this has not received sufficient attention particularly in the teaching of EFL in Indonesia let alone in Kalimantan Island. In fact, a study to investigate the profile of EFL students' critical thinking skills is essential to develop suitable learning materials and improve the teaching-learning strategies that facilitates the students to be successful learners in higher education where critical thinking skills is fundamental. Hence, this study tries to find the profiles about EFL students' critical thinking skills in writing problem-solution expository essays at the English Department of Universitas Lambung Mangkurat, South Kalimantan. This is essential because the profiles of students' critical thinking skills will serve an important information for the university in depicting the students' abilities in thinking critically and in improving the teaching and learning process that facilitates the development of students' critical thinking skills.

METHODS

Research Design

This study employs a descriptive design with a quantitative approach to find the profile of students' critical thinking skills in writing expository essays on problems - solutions. The profile is obtained through measurements, namely writing test and analytical scoring rubric that have been developed and tested valid and reliable.

Research Participants

The subjects of this study were 40 students of the English Language Education Study Program of the University of Lambung Mangkurat in Banjarmasin, Indonesia. The subjects were intact classes enrolled in the Academic Writing Course where the critical thinking skills are trained through essay writings as stated in the syllabus of the course. The course consisted of four classes which were then randomly selected due to time constraint.

Research Instruments

This study applies two main instruments, namely writing test and its analytical scoring rubric. As part of validity and reliability, the researchers used content validation techniques by consulting experts regarding the test content and assessment rubrics. The content validity is focused on elements of critical thinking skills that include the depth of cause-and-effect analysis, accuracy of problem solutions offered, arguments given, and sources of evidence/facts cited. Furthermore, this study used inter-rater reliability by involving 2 raters in evaluating the students' writings. The writing test was carried out in a meeting after they learned about how to write problem-solution and practice writing the essay in the middle of the semester. Meanwhile, the Academic Writing Course is held in 14 meetings during one semester in the forms of lecture, discussion, practice writing, and class conference. The procedure of this study is shown in Figure 1.
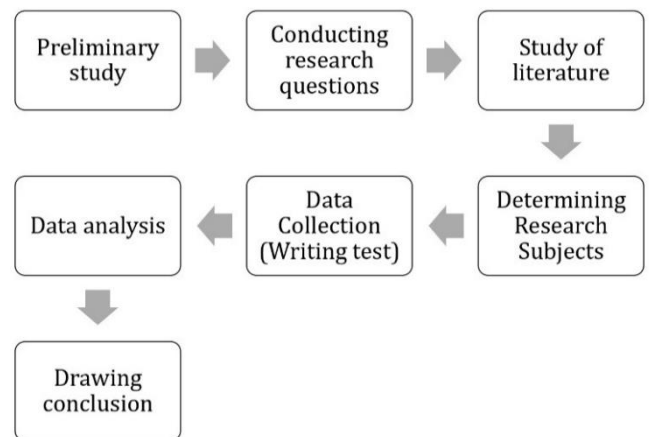
Figure 1 | Research Process

Meanwhile, Table 1 displays the prompt of the writing test used in the study.

TABLE 1 | Writing Test

Write a five-paragraph essay by choosing one of the topics below. Remember to cite properly in the body of your essay and write the list of the references that you use to support your argument. You have 3 hours to write the essay.

(a) South Kalimantan is surrounded by many small and large rivers, peat, and other wetland forms. Unfortunately, the society has a low awareness on the cleanliness of the environment. They often throw garbage in to the rivers which shallows the rivers and causes flood. Write a five-paragraph essay to discuss about the detailed problems occur due to littering the rivers and propose solutions to solve it.

(b) The fire of forest and peat lands in Indonesia, including Banjarmasin, is a serious problem which affect many people not only in Indonesia but also neighboring countries. The fire is mainly due to the people habit of land clearing for palm oil industry and building houses, hotels, or factories. What are actually the problems caused by this fire and what solutions can you propose? Write a five-paragraph essay to discuss the detailed problems that occur due to wetland fires and offer solutions to solve it.

(c) South Kalimantan is a developing province. Buildings and industries are being built everywhere including the palm oil plantation. These clearing and functions diversion activities use large area of wetland which eventually endanger the ecosystem of wetland and humans' life. Write a five-paragraph essay to discuss the detailed problems occur due to wetland functions diversion and offer solutions to help restoring wetland functions.

The essay produced by each student are measured based on the following indicators: (1) depth of cause-and-effect analysis, (2) logic of the argument given, (3) accuracy of the solution offered, and (4) validity of evidence used as support for the argument. Table 2 shows the scoring rubric used in the study

TABLE 2 | Scoring Rubric

Components	Criteria & Scores			
	Very Good (4)	Good (3)	Moderate (2)	Poor (1)
The depth of cause-and-effect analysis	The root causes of problems and their consequences are explained and criticized	The root cause of the problem is not described in detail even though the consequences of the problem are described in sufficient detail	The root cause of the problem and the effect of the problem are not described in detail	The root cause of the problem and the effect of the problem are not outlined; The linkage of each component is not strong
The logic of the argument	The proposed solution is logical, workable and cost-effective	The proposed solution is logical but less practical to implement	The proposed solution is less logical and impractical/ cost-effective	The proposed solution is illogical, complicated to implement and not cost-effective
The accuracy of the solution	The arguments given are logical and strong because all evidence/facts are clear and relevant	The argument given is logical and strong enough (there is only 1 relevant evidence/fact)	The arguments given are less logical and lack strong evidence/facts are irrelevant)	The arguments given are illogical and not strong because they are based only on personal opinions
The validity of evidence	All cited evidence/facts are included and derived from credible sources	All cited evidence is listed but there is 1 evidence coming from a non-credible source	Some sources of evidence are not listed so the author's argument is dubious	There is no source of evidence/ fact cited by the author

Table 2 shows that the scores for each indicator range from 1 to 4; the highest is scored 4 while the lowest is 1. Then, the scores from each indicator are summed up into one final score in which the highest score is 16. The category of the students' scores in writing test is depicted in Table 3 below.

TABLE 3 | Category of Students' Scores in Writing Test

Scores	Category
13.00 – 16.00	Very High
11.50 – 12.99	High
10.00 - 11.49	Medium
5.00 – 9.99	Low
1.00 – 4.99	Very Low

Meanwhile, to reveal the students' skills in each component of critical thinking indicator, the score is classified by using the category in Table 4 as below.

TABEL 4 | Category of Critical Thinking Skills Scores

Scores	Category
3.50 – 4.00	Very High
3.00 – 3.49	High
2.50 – 2.99	Medium
2.00 – 2.49	Low
1.00 – 1.99	Very Low

RESULTS AND DISCUSSION

The data collected through writing test was then analyzed in order to find out the level of students' critical thinking skills pertaining to the depth of the analysis, appropriacy of the solution, depth of the argument, and evidence used to support the argument. The scores in each component were summed up into a final score. Table 5 displays the scores obtained by each subject from Rater 1 and Rater 2.

TABLE 5 | Students' Scores on Critical Thinking Test

	Subjects' Initials	Scores	
		Rater 1	Rater 2
1.	NA	14	13
2.	KMA	12	12
3.	AJ	10	10
4.	AS	12	12
5.	DAZ	15	14
6.	EL	13	13
7.	KLP	13	13
8.	LKDM	14	14
9.	NSH	15	14
10.	Nw	12	12
11.	Nay	12	12
12.	DNM	14	14
13.	MA	12	12

14.	FWN	10	10
15.	SAS	12	12
16.	RT	12	12
17.	RNA	12	12
18.	SAL	12	12
19.	TZH	11	11
20.	TAW	11	11
21.	TRP	13	13
22.	YHA	10	10
23.	Alf	8	9
24.	AW	9	9
25.	HEP	8	9
26.	HPL	9	9
27.	JRE	11	10
28.	MAH	11	11
29.	MIA	9	9
30.	RE	14	14
31.	MRd	11	11
32.	MRf	11	11
33.	IK	9	9
34.	EODS	11	11
35.	AMP	9	9
36.	GAH	11	11
37.	AF	11	11
38.	ASM	11	11
39.	DW	12	12
40.	AP	10	10
	Mean Score	11.4	11.35
Total Mean Scores		**11.38**	

Based on the data in Table 5, the mean score is 11.38 which falls into the category of medium referring to the category in Table 1. This score represents that the subjects' level of thinking critically is in average position.

Subsequent to calculating the mean scores, the scores from each component of critical thinking were also analyzed in order to reveal on what component the subjects perform the highest score and the lowest one. The findings of each component are displayed in the Table 6 below.

TABLE 6 | Students' Scores on Each Component of Critical Thinking

No	Subjects' Initials	Scores from The Two Raters			
		Analysis	Solution	Argument	Evidence
1	NA	3	4	3.5	3
2	KMA	3	3	3	3
3	AJ	3	3	2	2
4	AS	3	3	3	3
5	DAZ	4	4	3.5	3
6	EL	3	4	3	3
7.	KLP	3	4	3	3
8	LKDM	3	4	3	4
9	NSH	4	4	3	3.5
10	Nw	3	3	3	3
11	NAy	3	3	3	3
12	DNM	3	4	4	3
13	MA	3	3	3	3

14	FWN	3	3	2	2
15	SAS	4	3	3	2
16	RT	3	3	3	3
17	RNA	3	3	3	3
18	SAL	3	3	3	3
19	TZH	3	3	3	2
20	TAW	3	3	3	2
21	TRP	4	3	3	3
22	YHA	3	3	2	2
23	Alf	2	3	2	1.5
24	AW	3	3	2	1
25	HEP	2.5	3	2	1
26	HPL	2	3	3	1
27	JRE	2.5	3	3	2
28	MAH	3	3	3	2
29	MIA	3	3	2	1
30	RE	4	3	4	3
31	MRd	3	3	3	2
32	MRf	3	3	3	2
33	IK	3	3	2	1
34	EODS	3	3	3	2
35	AMP	3	3	2	1
36	GAH	3	3	3	2
37	AF	3	3	3	2
38	ASM	3	3	3	2
39	DW	3	3	3	3
40	AP	2	3	3	2
	Mean Score	3.03	3.18	2.85	2.33

Table 6 indicates that the mean score for analysis is 3.03 which is classified as high while the mean score for solution is 3.18 that is classified as high, too. Then, the mean score for argument is 2.85 which is categorized as medium whereas the mean score for evidence is 2.33 which is categorized as low.

The critical thinking skills of the subjects of the study were measured through a writing test with four indicators derived from (Facione, 2015) namely the depth of analysis of the problem, the viability of the solution proposed, the depth of the argument, and the credibility of the evidence proposed. The performance test on critical thinking skills that has been carried out shows that the subjects of the study perform medium level of critical thinking skills as shown by the mean score of the test that is 11.8. The use of performance test in this study is in line with the theory that using performance task to measure students' critical thinking skills is appropriate as it can produce a reliable depiction of students' skills (Braun et al., 2020; Oser & Biedermann, 2019). This is to say that the subjects' scores in essay writing in this research

represent their skills in thinking critically pertaining to their skills in analyzing the cause and effect of a problem, proposing a viable solution, providing logic arguments, and supporting their arguments with sufficient evidence.

Specifically, the subjects showed high level of critical thinking in analyzing the issue indicated by the score 3.03 and providing viable solution indicated by the score 3.18. They were able to distinguish the cause and the effect of the real-life issues in wetland societies. For instance, the subjects considered the challenge in making the society aware of the cleanliness of the rivers in Banjarmasin and thus they proposed the government not only to provide various trash bins but also to remind the society through banners and television commercial break. Some of the subjects wrote that giving punishment for people who litter in the rivers might not be effective. These aspects were taken into their consideration and thus they provided viable solutions such as maximizing the socialization and conducting contests with rewards for clean environment and rivers. This indicates that the subjects consider the cause of the dirty rivers and they consider the consequence also. As stated by (Lai & Viering, 2012) and (Facione, 2015), one indicator of being able to think critically is the ability to analyze a problem and the causal relationship of each factor. The possible reason for this is the use of real-life issues as the topics that they write enable them to explain what causes the problem and the effects that the problem brings to society. As revealed in studies, familiarity on the topic of writing may enhance students' writing performance (Lin, 2018).

However, in the component of providing argument, the subjects showed medium level of ability while in the component of providing evidence the subjects had low level of skill. Their writings showed that the arguments were not supported with sufficient evidence. For example, in an essay that the subject argued on the use of punishment as an effective way to reduce people littering the rivers, the writer did not provide information about the real situations nor expert's judgement about the punishment. The writer did not support his argument by providing the document of the punishment and the real condition in the society. Another example is from an essay that supports the idea of increasing the socialization through setting up banners in public places. The writer of the essay did not provide sufficient evidence showing that socialization can increase society awareness; the writer uses his personal judgment in convincing the readers. This may be due to the lack of skills in using evidence as the support of writer's arguments or the time limit the students had in writing the essay.

As asserted by (Lin, 2018), explaining writer's reason by providing evidence to support it is a way of reasoning in writing arguments which requires one's skills in thinking critically.

Henceforth, the subjects of the study were students of English as a foreign language; therefore, their lack of English proficiency may be the possible reason for their lack of skills in providing arguments and evidence in their essays. As suggested by previous research, students' language proficiency plays essential role in showing their critical thinking skills like verbal reasoning (Lun et al., 2010) and providing sufficient evidence from resources that support their critical-thinking performance (Manalo & Sheppard, 2016). Critical thinking demands working memory which requires adequate language proficiency that enables good use of cognitive skills as critical thinking skills (Manalo & Sheppard, 2016). Therefore, teachers need to facilitate their students in developing their critical thinking skills for instance through training on systematic analytic and open-minded (Snyder & Snyder, 2008) and through interactions that make them enquiry, question essential concepts, and evaluate reasons (Zhao et al., 2016). These, at the same time, are given sufficient attention while they facilitate their students in developing their English language skills.

CONCLUSION

The findings reveal that the subjects' critical thinking skill is categorized as medium. Particularly, they have a high level of critical thinking in the aspects of analyzing the issue and providing viable solutions. It indicates that they are able to distinguish the cause of a problem and the consequences as well and considering the causes and consequences when they propose a solution. However, their skill in providing argument is medium whereas the skill in providing the evidence is low. These findings suggest that the subjects need to be trained in developing their skills in providing arguments and sufficient evidence through questioning, discussion, and reading relevant sources. It also implies that the study program needs to develop a teaching model that facilitates the students to practice their critical thinking skills through enquiry learning, project-based learning, and problem-based learning. Nevertheless, this study involves a limited number of subjects, that is 40 students from two classes of Academic Writing Course. Therefore, further research involving larger samples is recommended in order to gain more comprehensive findings on EFL students' critical thinking skills level.

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Mixed methods approach in researching EFL learners' motivation

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As mixed-method approach has gained renewed interests of researchers, a review toward the use of mixed-method to investigate EFL learners' motivation will contribute as a help for future researchers. The present paper attempts to provide a systematic review by synthesizing research articles related to EFL learners' motivation which used mixed-methods as their research approach. After screening 3,092 research articles on the aforementioned topic, 16 research articles were included into a final systematic map for analysis. An in-depth review shows that questionnaires and sequential explanatory approach are mostly used by the researchers to investigate EFL learners' motivation. Although selected studies were conducted in different countries with diverse theoretical backgrounds, the majority of studies were directed toward university students, resulting in lack of studies on younger EFL learners. The implications for future studies are also discussed for the consideration of researchers in the near future.

Keywords: mixed methods approach, EFL learners' motivation, EFL learning, research instruments

INTRODUCTION

There are several approaches taken by researchers to obtain their data. One of them is mixed method approach. Although it has been argued that combining methods in scientific research has a long history and called with several terms such as 'triangulation method', combining methods, or 'multiple methods' (Maxwell, 2016; Timans et al., 2019), mixed method approach has been gaining popularity in recent years (Ponce & Pagán, 2015; Teddlie & Tashakkori, 2011), especially in the field of education in order to minimize the shortfalls of both quantitative and qualitative methods. In this sense, mixed method approach integrates both quantitative and qualitative methodologies (Hanson et al., 2005). Mixed method approach has been gaining popularity and used by numerous researchers (Creswell & Creswell, 2017; Dunning, Williams, Abonyi & Crooks, 2008).

Although both qualitative and quantitative methods have been refined to avoid certain shortfalls (Cameron & Miller, 2007), each method is not without apparent weaknesses. For instance, although quantitative method can be used to draw a general conclusion or findings for social patterns (Bawks et al., 2022; Bliss, Gallagher, & Perez-Prado, 2003), it has been argued that this method is inflexible, myopic, mechanistic and limited to the realm of testing existing theories (Toor, 2008). On the other hand, despite being beneficial for various exploration and interpretations of data (Polit, Beck & Kluwer, 2018), qualitative approach may leave out contextual sensitivities and pay more attention toward meanings and experiences (Silverman, 2017). Mixed methods approach is created to reduce the weaknesses of both approaches (Salehi & Golafshani, 2010). In addition, integrating both approaches gives readers more confidence in the findings of the studies (O'Cathain et al., 2010) and makes researchers become more certain with their findings (Coyle & Williams, 2000).

The above points show why mixed methods approach has become more popular than mono method.

Related to its popularity, mixed methods research also seems to be popular for investigating the phenomenon in EFL (English as a Foreign Language) learning (Pardede, 2019). The present study will use the term EFL in lieu of other terms such as ESL (English as a Second Language) or ESOL (English for Speakers of Other Languages) because the present study focuses on investigating studies which analyze teaching and learning phenomena in non-English speaking countries. The limitation is conducted to provide a more focused discussion. Regarding mixed method approach, Lamb (2007) argues that mixed methods approach is suitable for investigating motivation due to the complex nature of motivation. Several studies have used mixed methods approach to investigate motivation (Adara & Haqiyah, 2021; Golaghaei & Arefinezhad, 2015; Kormos et al., 2014). McKim (2017) even argues that numerous studies have attempted to evaluate a mixed methods study but they found no articles which specifically discussed the criteria for measuring a mixed methods article. Furthermore, she argues that it seems important to understand the perceived value of a mixed methods study. Thus, there seems to be an urgency to investigate the use of mixed-method, especially in the field of EFL learners' motivation and its effectiveness for supporting learning.

Nevertheless, there is a lack of studies which specifically investigate the use of mixed methods approach in the investigation of EFL learners' motivation. Thus, the present paper aims to investigate research articles which applied mixed methods approach toward EFL learners' motivation in order to provide deeper insights to researchers who may want to use mixed-method approach in the near future. In addition, the present study will contribute to fill the lack of studies which specifically reviews the use of mixed-method approach for investigating EFL learners' motivation. Such review will provide deeper insights for future researchers.

Following are the research questions for the present study:
1. How have mixed-methods approaches been used to investigate EFL learners' motivation?
2. What research instruments, motivational variables, and research designs are mostly used to investigate EFL learners' motivation?

METHODS

Research Design

The present study uses a systematic review approach to obtain its data. In this sense, systematic review can be defined as a method to critically appraise, summarize and synthesize the retrieved information (Dempster, 2011; Hanley & Cutts, 2013; Petticrew & Roberts, 2006). It can be said that a systematic review should be able provide critical summary on relevant field by synthesizing existing studies. Therefore, in order to provide focused discussions, the present study applies several inclusion criteria. Firstly, the present study uses research articles which analyze EFL learners' motivation using mixed methods approach, excluding other studies on EFL learners' motivation which only applied quantitative or qualitative studies. Therefore, the keywords used for the present study are EFL learners' motivation mixed method. Secondly, the present study uses ERIC database to look for the prospective studies. The selection of database was based on the availability of studies. Next, only publications in English were included. Because the present study focuses on discussing research articles, it excludes doctoral thesis. In addition, the present study excludes studies which investigate either motivation of teachers or pre-service teachers because it only focuses on EFL learners in order to provide more focused discussions. Besides that, the present study eliminates theoretically-based articles or review articles. The present study only uses studies which were published from 2017 to 2021 to provide discussions from the latest studies. Screening process is discussed in the next section.

FIGURE 1 | Flowchart of selection process
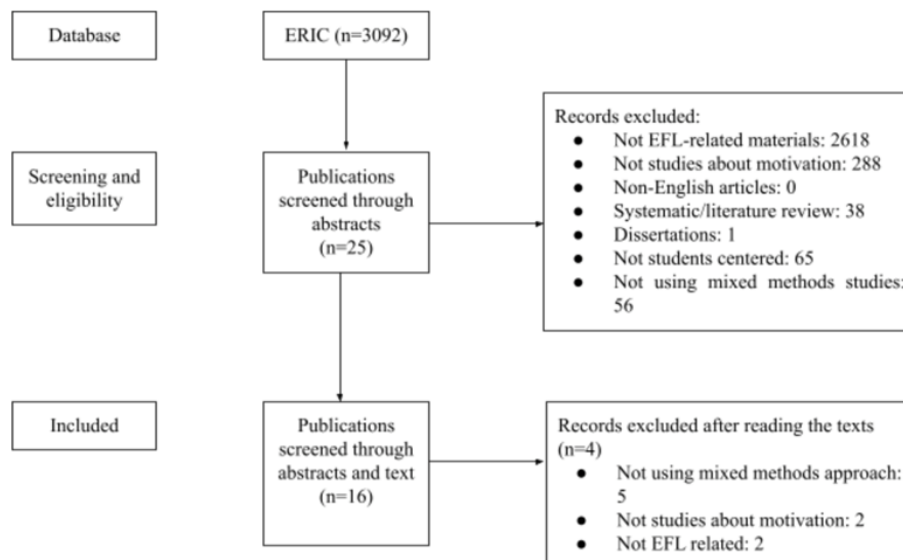
Screening Process

The screening process is conducted through abstract screening in order to find the most relevant studies. After identification and screening processes, the selected research articles go through eligibility process. In the latter stage, research articles are checked based on its data adequacy and writing quality. Eligible research articles must be written in concise and grammatically correct manner. In regards of the above criteria, the initial search in the database using keywords, EFL learners' motivation mixed method, yielded 3,092 research articles. After the selection process, sixteen research articles are included into the reviewing process. Figure 1 describes the identification and selection process of studies for the present study.

RESULTS AND DISCUSSION

The current state of art regarding mixed methods approach for investigating EFL learners' motivation

Table 1 describes an overview of the included publication in terms of authors, year of publication, aims of studies, research setting, data collection methods and summary of relevant findings.

TABLE 1 | Summary of findings

No.	Author, year, country	Aims	Educational levels/research design	Research Instruments (types of questionnaires, e.g online or paper, interviews, etc)/number of participants	Summary of relevant findings
1.	Okay & Balçıkanli 2017, Turkey.	The study investigated whether motivation influenced learners' perceptions of teacher/learner responsibilities and learner decision-making abilities.	University/explanatory sequential design	• AMTB and a set of questionnaires adapted from Chan, Spratt & Humphreys (2002) (not described). • Open-ended questions. • 144 participants.	The findings suggest that highly-motivated students consider themselves good or very good in their decision-making abilities than low-motivated ones. Nevertheless, there was no relationship between the levels of motivation and students' perceptions of teacher/learner responsibilities.
2.	Sasaki, Kozaki, Ross, 2017, Japan.	The study analyzed the effects of various motivational variables on 1,149 Japanese university students' reading proficiencies.	University/explanatory sequential design.	• Questionnaires (not described)/1,149 participants. • Secondary Level English Proficiency [SLEP] • In-depth interviews/28 participants.	The results indicated that despite having similar growth rates in reading ability in the first year, the participants differed in terms of motivation. Students who took extra action outside the required classes to improve their L2 proficiency were ones who belonged to classes with high normative career aspirations among classmates. The findings suggested that despite being less motivated in the beginning, students would be more motivated and take action to realize their language learning goals

					if they were surrounded by classmates with higher motivation.
3.	Shah, 2017, Saudi Arabia	This study investigated students' motivation toward EFL learning. Furthermore, the study focused on investigating the effects of learning experience such as teachers' pedagogical practices, group dynamics in the classrooms, and English language courses	University/explanatory sequential design	• A set of questionnaires adapted from Guilloteaux and Dornyei (2008) (not described)/300 participants. • Open ended, exploratory interviews/8 participants.	The findings revealed low levels of motivation among the participants. The findings demonstrate a need to select better quality teachers and recommended the provision of in-service teacher training opportunities which focus on developing motivational strategies for L2 classrooms.
4.	Bui, Man & Teng, 2018, Hong Kong	The study analysed the motivation of a group of Japanese and English language learners in a summer course at a university in Hong Kong.	University/explanatory sequential design	• English learning motivation and Japanese L3 learning motivation questionnaires (not described)/61 participants. • Semi-structured interviews/8 participants.	The findings showed that the participants perceived L2 English learning as a school subject and a practical tool for academics and career. It was instrumentality, rather than integrativeness, that motivated the students to learn English. On the other hand, they learned Japanese because they had more cultural interest, positive learning experience, self-confidence, and positive attitudes.
5.	Lamb & Arisandy, 2018, Indonesia	This study investigated how metropolitan youth in Indonesia were using English online, how this related to their global motivation to learn English, and in particular how it related to their attitudes to classroom English lessons.	University/explanatory sequential design	• A 56-item questionnaire (not described)/308 participants. • Semi-structured interviews/4 participants.	The results show that students favor entertainment and self-instruction rather than socially-oriented activities when they learn English online. The results show that students have positive attitudes toward classroom learning.
6.	Jafari Pazoki & Alemi, 2020, Iran	The study investigated factors that influence engineering students' motivation to learn technical English in ESP courses.	University/exploratory sequential design	• Semi-structured interviews/40 participants.	The findings of this study indicated five motivational components to learn technical English; 1) ideal-self, 2) ought-to-self, 3) instrumentality promotion motivation, 4) learning conditions, and 5) learning

No.	Author/Year	Study focus	Setting/Design	Data collection	Findings
				• A 28-item questionnaire adapted from Taguchi, Magid, & Papi (2009) (not described)/152 participants.	experience. Besides indicating students 'negative attitudes and low motivation to ESP learning experience, the findings showed that academic levels influence students 'motivation.
7.	Ma, Wannaruk, Lei, 2019, Thailand.	The study analysed the relationship between EFL learners' motivation and their willingness to communicate.	University/explanatory sequential design	• AMTB & L2 WTC questionnaires (not described)/126 participants. • Open-ended questions	The results indicated high levels of motivation among the participants. However, instrumental motivation was shown to be the most noticeable. In addition, the levels of instrumental motivation had a positive correlation with the participants' willingness to communicate in English. However, the majority of the participants were shown to be more eager to communicate with their friends than teachers because they considered it easier to communicate and understand.
8.	Lee & Lee, 2019, South Korea.	This study investigated the role of the L2 motivational self system on L2 willingness to communicate (L2 WTC) by Korean EFL university and secondary students.	University and high school/explanatory sequential design.	• L2 motivational self-system and L2 WTC Questionnaires (not described)/117 participants. • Focus group discussions/9 participants. • In-depth individual interviews/5 participants.	The findings demonstrated that high school students exhibited stronger *ideal L2 self* and *ought-to L2 self*, as well as a higher level of L2 WTC inside and outside the classroom. On the other hand, university students, demonstrated a stronger sense of *ideal L2 self*, had a higher level of L2 WTC in both communicative settings.
9.	Dağgöl, 2020, Turkey	The study investigated academic motivation and learner empowerment from the students' perspectives and on the probable relationship between them. 150 vocational high school students who took English as a compulsory course constituted the	High school/explanatory sequential design.	• Academic Motivation Scale and Learner Empowerment Scale/150 participants. • Open-ended questions.	The study found a moderate level of perceived learner. Besides that, there is a positive correlation between academic motivation and learner empowerment. In addition, the findings showed a significant relationship between academic motivation and learner empowerment.

		participants of the study.			
10.	Ye, 2020, China	The study investigated the differences in motivation of higher-achieving, average-achieving and lower-achieving junior secondary students in China.	Secondary school/explanatory sequential design/	• Language Learning Orientations Scale-Intrinsic Motivation, Extrinsic Motivation, and Amotivation Subscales (LLOS-IEA) developed by Noels et al. (2000) (online)/773 participants. • Semi-structured interviews/12 participants.	The findings of Ye's (2019) study showed significant differences and similarities in motivation among the three-group students. While the low-level students showed the highest level of a motivation and were least intrinsically motivated to learn English, higher-achieving students were shown to be extrinsically motivated.
11.	Tusmagambet, 2020, Kazakhstan.	Applying an experimental study, the study investigated the effects of audiobooks' intervention on the development of reading fluency in terms of reading speed, reading comprehension, and motivation to read among a group of EFL Kazakhstani EFL learners.	High school/explanatory sequential design.	• Motivation for reading questionnaires adapted from Wigfield & Guthrie (1997) (not described)/28 participants. • Semi-structured interviews/7 participants.	The findings showed that the experimental group outperformed the control group in reading speed but there is no difference in motivation levels between both groups. The findings showed that the use of audiobooks may not increase students' motivation but it can improve overall positive attitude and reading comprehension.
12.	Tsai, 2020, Taiwan.	Using an experimental method, the study investigated the effects of augmented reality technology on students' English vocabulary learning performance and instructional materials motivation.	Elementary school/explanatory sequential design.	• English vocabulary tests. • An instructional materials motivation questionnaire adapted from Keller (1997) (not described)/42 participants. • Structured interviews/8 participants.	The results indicated that the experimental group experienced more improvement in the instructional materials motivation than the control one. Despite the advantages, there are still some obstacles to using augmented reality in the classrooms and teachers must be aware of them before integrating augmented reality to the classrooms.
13.	Ghounane, 2020, Algeria	The study investigated students' motivation to learn English using academic platforms such as Moodle, Google Classroom, Facebook and Zoom.	University/explanatory sequential design.	• A set of online questionnaires/90 participants. • Semi-structured-interviews/8 participants.	The study compared SNS tools and found Facebook as the most motivating social media for students. However, the study found that participants prefer to use Moodle for teaching and learning activities because

					it allows classroom interaction and teachers ' feedback. In addition, the diverse choice of learning management system motivates the participants.
14.	Cong-Lem, 2020, Vietnam.	The study examined the effects of implementation of a portfolio-based listening course on EFL learners' motivation and skill development.	University/expla natory sequential design.	• L2 Listening Motivation Scale (not described)/60 participants. • Listening comprehension tests. • Semi-structured interviews/4 participants.	The findings indicated that the portfolio-based program improved participants' motivational orientations, especially their self-efficacy and learning control beliefs as well as their L2 listening accomplishment.
15.	Zarei, Ahour, Seifoori, 2020, Iran.	The study was a quasi-experimental one which analysed the influences of teachers' oral corrective feedback strategies on learners' learning motivation as well as attitudes and perceptions toward teachers' feedback strategies.	University/expla natory sequential design.	• Learning motivation questionnaires adapted from Taguchi, Magid & Papi (2009) (not described)/54 participants. • Semi-structured interviews/21 participants. • Preliminary English test.	The findings of inferential statistics indicated the differences on the feedback types in respect to their effectiveness on learning motivation. In addition, it seems more effective to use emergent feedback than other feedback types when raising learners' learning motivation.
16.	Sameen, Farid, & Hussain, 2021, Pakistan	The study investigated the impacts of code-switching on motivation of a group of EFL learners.	University/expla natory sequential design.	• A set of questionnaires (not described)/95 participants. • Open-ended questions.	The findings showed that code-switching could minimize the loss of motivation among students. However, the frequent use of code-switching could lead to poor language skills as students rely too much on code-switching.

Table 1 shows a summary of 16 selected studies which have gone through the screening process. In terms of educational level, university was the most frequently used by the selected studies (n=12) as the setting for their studies. On the other hand, only three selected studies chose high schools and one opted elementary school as their research settings. While all selected studies used questionnaires as their research instruments, eleven studies used interviews (three in-depth interviews, eight semi-structured interviews and one structured interview). On the other hand, four studies used open-ended questions and one study used both focus group discussions as well as semi-structured interviews. Related to the research location, table 1 shows that only four studies were conducted in same countries (Iran and Japan). The rest of selected studies were performed in different countries in Asia and Africa. Nevertheless, none of selected studies were conducted in Europe. In regards of the size of participants, the majority of selected studies (n=9) can be considered as ones with relatively high numbers of participants as they involved more than 100 participants. The weight of evidence suggests that questionnaires can be considered as the most preferred research instruments for quantitative data collection while interviews, both semi-structured and structured are the most preferred method for qualitative data collection. In addition, selected studies were diverse in terms of research location. Besides that, most selected studies can be considered as large-scale studies as they included more than 100 participants.

In regards of research designs, four studies are quasi-experimental ones in which they divided the participants into experimental and control groups and conducted treatments in certain duration. Those studies conducted tests to the participants before and after the treatment. Two studies tested reading skills while one study tested all skills of English (reading, writing, speaking and listening). In addition, one study tested listening skills. 15 studies applied explanatory sequential designs while one used an exploratory sequential design. In addition, two studies adapted a set of questionnaires from Taguchi, Magid, & Papi (2009). Gardner's AMTB was also adapted by two other studies. In regards of this, four studies created their own questionnaires while 12 studies adapted existing questionnaires. It can be said that an explanatory sequential design seems to be the most preferable design while majority of mixed-method studies toward motivation tend to use adapted version of existing questionnaires than creating one.

Despite investigating motivation and mixed-methods approach as their similarities, each study uniquely analyzed other aspects related to EFL learners' motivation. Table 1 shows that two studies investigated the correlation between motivation and students' willingness to communicate in English [8, 9] while three studies analyzed the effects of technology integration to students' motivation [12, 13, 16]. In addition, several studies examined the impact of motivational variables on EFL learning [4], decision making [2], students' reading skills [3, 11] and decision to learn

English for specific purposes [7]. On the other hand, some studies investigated the impacts of several variables toward learners' motivation such as the effects of portfolio based listening materials [14], corrective feedback [15], and code-switching [16]. Besides that, studies toward motivation can be directed to the comparison between highly-motivated and lowly-motivated learners [1], global motivation as well as attitudes toward EFL learning [6], and the relationship between learners' empowerment and motivation [10]. It can be said that studies toward motivation can be investigated alongside other diverse aspects in EFL learning, indicating the possibilities of more diverse studies related to motivation in the near future.

In regards of motivation aspect, following table describes motivational variables used in selected studies:

Table 2 demonstrates that the ideal L2 self, ought-to-L2 self and learning experience have been mentioned as motivational variables in five studies. On the other hand, two studies centered their analysis on intrinsic and extrinsic motivation while attitudes have been investigated in five studies. Two studies investigated willingness to communicate whereas demotivation and language learning anxiety were analyzed in one study. It can be said that despite the differences in research location and subjects, there are similarities in motivational variables investigated by selected studies.

TABLE 2 | Motivation Variables of Each Selected Study

No	Author, year, country	Motivational Variables
1.	Okay & Balçıkanli, 2017, Turkey.	Normative career related aspirations
		The ideal L2 self
		Ought-to-L2 self
		Learning experience
2.	Sasaki, Kozaki, Ross, 2017, Japan.	Learning experience
		Teacher specific motivation
		Group specific motivation
		Course specific motivation
3.	Shah, 2017, Saudi Arabia	Learning objectives
		Learning process (in and out class)
		Outcome motivation
		Decision-making abilities
4.	Bui, Man & Teng, 2018, Hong Kong	Integrativeness
		Instrumentality
		Cultural interest
		Attitudes toward the L2
		Attitudes toward the L2 speakers/community
		Positive L2 learning experience
		L2 self-confidence
		Milieu
		Global orientation

5.	Lamb & Arisandy, 2018, Indonesia	Criterion measures
		The ideal L2 self
		Ought-to-L2 self
		Attitudes to classroom learning
		Self assessment of proficiency
6.	Jafari Pazoki & Alemi, 2020, Iran	The ideal L2 self
		Ought-to-L2 self
		Learning conditions
		Instrumentality
		Promotion motivation
		Learning experience
7.	Ma, Wannaruk, Lei, 2019, Thailand.	Learning motivation
		Willingness to communicate
		Integrative motivation
		Instrumental motivation
8.	Lee & Lee, 2019, South Korea.	The ideal L2 self
		Ought-to-L2 self
		Willingness to communicate inside the class
		Willingness to communicate outside the class
9.	Dağgöl, 2020, Turkey	Intrinsic motivation.
		Extrinsic motivation
		Personal reasons
		Nature of language
10.	Ye, 2020, China	Intrinsic motivation.
		Extrinsic motivation
		Amotivation
11.	Tusmagambet, 2020, Kazakhstan.	Students' attitudes
		Reading motivation
12.	Tsai, 2020, Taiwan.	Vocabulary learning performance
		Instructional materials motivation
13.	Ghounane, 2020, Algeria	Learners' motivation
		Learners' perception
14.	Cong-Lem, 2020, Vietnam.	L2 listening motivation
15.	Zarei, Ahour, Seifoori, 2020, Iran.	Criterion measures
		The ideal L2 self
		Ought-to-L2 self
		Attitudes to learning English
16.	Sameen, Farid, & Hussain, 2021, Pakistan	Learners' anxiety
		Motivation
		Demotivation

The present systematic review intended to provide the current state of the art on the use of mixed methods to investigate EFL learners' motivation. In regards of how selected studies applied mixed-methods approach, several aspects will be addressed in the upcoming paragraphs. Firstly, it can be seen that most studies are conducted toward university students. Unfortunately, there is a lack of studies toward younger EFL learners such as ones in early childhood age ranges. In this sense, young learners refer to language learners from 4 to 12 years old. Several factors might be the reasons. Graham et al. (2015) argue that there are some ethical challenges, dilemmas and issues when conducting research toward children and young people. In addition, as adults, researchers may find it difficult to understand children's position (Punch, 2002). Those aspects may be the causes of lack of studies toward children's motivation on EFL learning. However, researchers can overcome the obstacles by carefully reviewing the ethical considerations of involving children in their studies (Graham et al., 2015). In addition, researchers can develop good rapports with children and use appropriate research methods that can help children to be more at ease to communicate (Punch, 2002). By conducting those steps, there might be more studies toward EFL younger learners' motivation,

especially ones that apply mixed-methods as their approach. Secondly, the selected studies mostly used an explanatory sequential design compared to other types of mixed-method design. In this regard, Peacock (2022) argues that using an explanatory sequential design allows the researchers in language learning field to improve the comprehension toward complex language learning experience. In light of this, the selected studies might opt a mixed-method approach because they consider learners' motivation as something complex.

Related to the research instruments, questionnaires seem to be the most preferable method. However, using questionnaires in research needs to be done with caution. It is because as argued by Gilham (2008), questionnaire has been abused as no other single method has ever experienced it. Despite being favored due to simplicity, it can lead to several problems such as unreliable and unmotivated respondents, superficiality of answers, and overgeneralization (Dörnyei & Taguchi, 2010). Nevertheless, it is not without merits. Questionnaires can reach a large population and garner a statistical power (Jones et al., 2013), something which may be difficult to be achieved by other instruments. In order to overcome its weaknesses, it is important for researchers to conduct a pilot study before distributing the questionnaires and perform a thorough analysis of results to ensure the validity of research (Jones et al., 2013). Nevertheless, the researchers should consider using other research instruments such as observation or journals. Therefore, the researchers may gain more diverse results on EFL learners' motivation.

In regards of the research location, selected studies were performed in various countries. Despite investigating EFL learners' motivation using mixed-method approach, each selected study is totally different. Beath (2010) argues that investigating motivation of different types of learners, settings and variables is important because it will provide more insights on EFL learners' motivation. The results of present study indicate the diversity in research on EFL learners' motivation, showing the interests of researchers toward motivation and the ability of motivation to be paired with various variables and conducted in many research locations. Besides that, the results of present study suggest that an explanatory sequential approach seems to be the most favorable research designs, compared to an exploratory sequential approach. In this sense, explanatory sequential approach refers to an approach in which the researcher follows up the quantitative results with qualitative data while an exploratory sequential approach is one where qualitative findings become the basis of development of quantitative instruments (Edmonds & Kennedy, 2017). Despite the differences in the sequence of how quantitative and qualitative are administered to the participants, they are considered easier to be implemented because they facilitate the integration process (Almeida, 2017). Nevertheless, the researchers still have to consider several methodological issues such as whether quantitative or qualitative approach which has more emphasis in the study, decide the sequence of data collection and how to integrate both approaches.

By considering those aspects, the researchers may gain more insightful results.

In regards of motivational variables, selected studies have included diverse variables from intrinsic motivation to the ideal L2 self. Each variable was proposed by different theories toward EFL learners' motivation. They indicate that researchers of EFL learners' motivation have employed different theories in order to understand the phenomenon. Nevertheless, there is still lack of research toward motivation and writing skills. As one of important English skills, it seems important to explore more about writing skills and motivation. Furthermore, it seems interesting to investigate the effects of technology integration in EFL classrooms toward students' writing skills. It is because the use of technology has been indicated to result in the motivational increase of learners (Stockwell, 2013). It can be said that in spite of the diversity of theories and variables researched in selected studies, there is still a room for more studies, especially one related to the impacts of technology integration toward EFL learners' writing skills.

Contribution to Mixed Methods Research

The present study provides deeper information toward the use of mixed-method research to investigate EFL learners' motivation. The present study found that a mixed-method approach is rarely used to investigate EFL learners' motivation. There should be more research which apply a mixed-method to examine EFL learners' motivation because it may help researchers to gain insights on a complex phenomenon such as motivation. In order to attract more researchers to use a mixed-method approach, raising awareness toward the benefits seems crucial. The present study can be one of efforts to raise more awareness toward the uses of mixed-method approaches to examine EFL learners' motivation.

CONCLUSION

The results of present study suggest that when using mixed-methods approach to investigate EFL learners' motivation, researchers mostly paired questionnaires with interviews. In addition, the results indicate that researchers mostly use an explanatory sequential design when using mixed-methods approach. In this sense, mixed-methods approach is used to investigate the complicated nature of motivation. In addition the findings suggest that the selected studies investigated various variables of intrinsic motivation. Besides that, the selected studies applied different theories to analyze their premise.

Besides being researched in diverse research locations and using different theoretical backgrounds, selected studies were mostly toward university students, causing a lack of studies toward EFL younger learners. In addition, the results show that there is a lack of studies toward motivation and writing skills. Future studies need to be conducted on younger EFL learners and include the analysis of all

language skills to provide better insights on EFL learners' motivation. Besides that, other research designs such as exploratory sequential or embedded designs need to be involved more to gain more insightful knowledge on motivation.

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A sociocultural analysis of teachers' belief changes: A case of two teach-abroad EFL teachers

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This inquiry explores English foreign language (EFL) teacher beliefs in teach-abroad (TA) contexts under the umbrella of Vygotsky's sociocultural theory (SCT) of mind. Previous literature on teacher beliefs has relied mostly on quantitative survey research concerning belief as an inert variable; an internal representation of experience that is resilient to evolve. Due to the prevalence of the theory of mind or cognitive orientation under the sociocultural theory, this case study aims to examine two TA EFL teachers' changes in beliefs within a new TA context and conceptualize the teachers' beliefs from a sociocultural perspective. The participants recruited for this research EFL teachers (both pseudonyms): Ivan (male, aged 26) and Melanie (female, aged 24) attending different types of TA. Data was collected from pre- and post-TA interviews along with findings from teaching journals which implemented other triangulated methods such as teaching autobiographies and recall experiences. The findings suggest that EFL teachers' teaching beliefs continuously evolve according to their TA goals and experiences, and that their belief changes involve a remediation process that leads to different teaching actions. Their internalized EFL teaching beliefs within meaningful environments influence the success of their TA teaching.

Keywords: sociocultural theory of mind, internalization, remediation process, recall experience, belief changes

INTRODUCTION

Teacher beliefs in second language (L2) teaching are well understood as teachers' implicit reasoning about teaching, learners, classroom management, media, and teaching materials which are commonly viewed to have dominant influences on teaching assumptions and execution (Yuan & Lee, 2014). Teacher belief changes are evolutionary because they can largely be exposed and engaged with more experienced teachers, mentors, supervisors, as well as the school community and situated socio-cultural context (Fitzgerald, 2019; Yang & Kim, 2011; Yuan & Lee, 2014). Present research findings have indicated that teacher beliefs are complex dynamic systems which evolve on the basis of personal, educational, and professional experiences (Feryok & Pryde, 2012). In this regard, TA teachers' beliefs about their teaching concepts and practices can change when they participate in different socio-cultural communities, such as in EFL classrooms. Through teaching abroad, L2 teachers can reflect on their pre-conceptions of teaching beliefs and practices in new sociocultural environments, attain new conceptions of teaching, and construct new teaching practices (Johnson & Golombek, 2011).

Framed in the sociocultural theory of mind and activity (Vygotsky & Cole, 1978), this paper aims to explore EFL teacher beliefs in teach-abroad (TA) settings. We report two TA EFL teachers' teaching experiences on account of their teaching belief changes. In the area of second language teaching and learning, teacher beliefs have been widely studied from teacher cognition viewpoints (Karimi & Nazari, 2021; Lantolf et al., 2021; Ngo, 2018; Johnson & Golombek, 2011). L2 researchers have identified several foci for the study of teachers' beliefs. Commonly, they have investigated beliefs about the subject matter, curriculum, teaching behaviors, learning, and teacher professional development. In this vein, teachers' beliefs can be understood as a process in which these components interrelate and are influenced by numerous factors, such as teaching and learning experiences (Kubanyiova, 2012) Kubanyiova & Feryok, 2015), teaching practice (Lantolf et al., 2021; Kessler et al., 2021; Li, 2017; Sun & Zhang, 2021) and cultural environment (Li, 2019).

While the available literature has unveiled insightful research findings on the relationship between teacher beliefs and their relations to the aforementioned components of these beliefs, the previous studies did not address the potential of teacher beliefs to evolve in the changing context of social interactions and teaching behaviors (Yuan & Lee, 2014). It has been recommended that future studies should explore the relationship between teacher beliefs and practices in different sociocultural contexts (López-Barrios et al., 2021) and how the changes in each context contribute to the evolvement of teacher beliefs in L2 teaching (Bowne et al., 2016). Despite extensive inquiry into observable elements of teacher beliefs, research on TA teacher language education-related beliefs that seeks the unobservable dimension of teaching has not received adequate attention from L2 researchers (Borg & Sanchez, 2020).

In particular, we selected TA teachers since teacher belief changes can be seen as agentive efforts to reformulate the relationship between the teacher and the L2 teaching environment. This case study is adopted to explore TA Indonesian EFL teachers' belief changes and their impact on L2 teaching actions from a sociocultural viewpoint. By analyzing multiple qualitative data from two TA teachers, we argue that teachers' belief changes can be understood as agentive efforts to conceptualize the relationship between the teacher and the L2 teaching environment.

SCT and teacher beliefs: theoretical framework

From the sociocultural viewpoint, cognition is viewed as socially mediated and internalized through participation with others in sociocultural activities (Johnson, 2015; Ngo, 2018). A person's cognitive changes occur via the process of internalization and transformation (Borg, 2019; Johnson & Golombek, 2011). Situated in the language teaching field, SCT argues that teachers' beliefs emerge through participating in teaching and learning activities. This concept is also well-suited with the metaphors of language in teacher cognition as emergent beliefs manifested in teaching action. The contribution of SCT also accentuates the dialectic connection between thinking and doing, social

activity and individual cognition changes and social activity (Johnson, 2015; Ngo, 2018). In this vein, learning is not viewed as an accumulation of knowledge in an additive way, but as the result of sociocultural participation and transformation. This learning process is often called remediation or a change in the way that mediating tools regulate the adjustment to the sociocultural context (Cole & Griffin, 1986; Lektorsky, 2009). With regard to FL/SL teachers' beliefs, we assume that FL/SL teachers' belief changes can facilitate the process of remediation since the changes of beliefs can cause a tension between the sociocultural contexts and their perceptions. This remediation process can cause different actions.

In the field of teacher education, SCT researchers have emphasized the impact of foreign teachers (FT) on EFL/ESL teaching approaches and practices (Hauerwas et al., 2017; Moorhouse & Harfitt, 2021; DeVillar & Jiang, 2012), professional identity and teaching effectiveness, and teaching challenges (Chen & Cheng, 2010; Chong & Low, 2009; Fitzgerald, 2019; Leigh, 2019), collaborative teaching (Jacobsen, 2012) and perceptions regarding FT (Cowie, 2011; Yeh, 2005)

Recently, attention has been increasingly emphasized on the impacts of TA programs. For instance, based on a year's worth of TA data, Moorhouse & Harfitt (2021) investigated how collaborative TA program among Hong Kong pre-service teachers and China in-service teachers impacted their professional learning. Through pre-and post-questionnaire as well as reflective journals, they reported the positive impact on the TA pre-service teachers' professional knowledge necessary for teaching in the 21st century. The qualitative data indicated that they also became responsive to learners' learning needs through their adjustment to the unfamiliar context. Although, they could not explain whether the remediation or adjustment was achieved during a domestic teaching practicum or collaborative TA. From a similar viewpoint, Hauerwas et al. (2017) highlighted the intercultural development of Caucasian TA EFL pre-service teachers while attending a semester-long TA in Italian Elementary schools. Their longitudinal findings indicated that the TA pre-service teachers changed their intercultural awareness and instructional strategies. This study emphasizes cultural development more than the TA remediation of beliefs and teaching action from the sociocultural environment. Ngo (2018) reiterated teachers' beliefs should be internalized so that their beliefs can regulate and control the actions of the teaching. If not, their beliefs about teaching will be considered as stable and isolated phenomena constructed from teachers' opinions, representing less successful remediation because most researchers extracted their views from pencil-and-paper responses or online surveys. The did not see teachers' belief as agentive efforts to reconstruct the connection between the teacher and the FL/L2 teaching environment.

Informed by a socio-cultural perspective, this inquiry draws on Vygotsky & Cole's (1978) theory of mind and activity, as outlined in the previous section, to explore the hidden logic of each EFL teacher's idiosyncratic belief

evolutions and their impact on TA experiences. As indicated above, TA EFL teachers' beliefs evolvement can be facilitated or inhibited through their social interactions. A number of language teacher belief remediation types that afford a wide-ranging TA belief evolvement are presented in Table 1.

TABLE 1 | Summary of teacher belief remediation (Lektorsky, 2009)

Remediation category	The process of remediation
Dialectical process	Dialectical process refers to teachers' short-term situational and long-term developmental changes in their teaching beliefs
Expansive process	The expansive process depicts the multidirectional growth of teachers in constructing and applying new and more complex teaching strategies
Transformative process	The new teaching concepts and practices generated in an expansive learning process carried out in the teachers' future orientation

However, with a few exclusions (e.g., Leigh, 2019; Nganga, 2011; Trent, 2011), little research has been done to empirically scrutinize the TA EFL teacher belief changes and their impact on future L2 teaching behaviors, with most of the studies being limited to the theoretical field. Therefore, the core research question is formulated: How do the TA teachers' beliefs evolve before, during and after the TA program?

METHODS

Design
The present study aims to explore the two TA teachers' beliefs before, during and after the TA program and how their beliefs changed from a sociocultural perspective. This qualitative study employed a case study design since it is best suited to facilitate the construction of an in-depth understanding of unique events and deal with complex situations (Yin, 2018).

Participants and their selection
Two TA participants took part in this case study, Melanie (female, 24) and Ivan (male, 26) (pseudonyms). Melanie brought less significant teaching experience in EFL to her developing teaching practice because she did not have any prior teaching experience except for her teaching practicum which was part of her master's degree studies. In contrast, Ivan had more significantly more teaching experience in the EFL context as he became a teaching assistant for a semester during his master's degree program at the same university. The selection results also indicated that both participants had never participated in international events. Both had been taking their thesis at a private university in Indonesia and were also attending a one-semester TA program at a public university in Thailand as part of an international collaboration program. They were purposely selected based

on their university TOEIC scores and interviews indicating their capabilities in coping with challenging situations and interacting with people from different socio-cultural environments. During the TA program in Thailand, they taught a speaking class and a cross-cultural communication course to international students from China, Thailand, Vietnam, Malaysia, and Cambodia for two years. This campus had many English teachers from different countries, such as America, China, and Indonesia. As the concept of data collection in qualitative research is commonly applied using purposive sampling with a very strict criteria, this study involves only two research participants. This approach is very commonly applied in research where the focus is on in-depth analyses of small numbers of participants (see Susanto & Arifani, 2023 ; Yang & Kim, 2011).

Data collection
Interviews
The two TA teachers' beliefs and field experiences in the TA environment were investigated using semi-structured interviews (Table 2). The semi-structured interviews were conducted in three rounds. These interviews had different focuses. The interviews were conducted before, during and after the TA teaching activities. We developed the protocols for the content of the interview based on the study's objective. The protocols dealt with the changes in the two TA EFL teachers' beliefs about the TA environments and their impacting variables. The first interview was administered to unveil the teachers' pre-conceptions about EFL teaching and learning. The second interview was carried out during the fourth and eighth weeks of the TA activities. It aimed to explore their belief changes resulting from their interactions with the international students, host teachers and their involvement in various professional events (such as mentoring and teaching forums) in the TA context. The last interview was conducted a week after the TA program was finished. They were directed to recall their entire TA experiences, belief changes, and personal and sociocultural factors that influenced their beliefs. The entire interview session was recorded via audio. The Indonesian language was the primary mode of communication during the interviews as the teachers felt more comfortable sharing their TA experiences in their native language.

Teaching observation and stimulated recall interview
Each TA participant taught 16 lessons which were 100 minutes each. The two TA participants' classes were observed and videotaped during the TA program every week. During the classroom teaching observations, we also took notes regarding their changes in teaching from time to time. We held a recall interview every week with the two TA participants and a student teacher. During this session, we asked them to play their teaching videos one by one and asked them to stop the video every time they recalled their thought and belief changes in their teaching practices. This stimulated recall interview was employed based on studies by Meijer et al. (2002) and Yuan & Lee (2014).

TABLE 2 | Demographic information

Name	Age	Nationality	Years of teaching in Indonesia	Experience outside Indonesia	Credentials	English teaching certificate
Melanie	24	Indonesian	None	None	Master in TEFL	Currently undertaking TEFL course
Ivan	26	Indonesian	One semester	None	Master in TEFL	Currently undertaking TEFL course

We also collected several teaching videos and documents for further identification based on the results of our observation records, which may contradict or reflect the participants' beliefs, changes and teaching practices in their previous interviews. Successful teaching practices that also require improvement were identified in this session as well. For example, when Melanie directly answered one of the students' questions in her classroom without passing it through. We then brought it into the recall interview. In this case, Melanie was asked to reflect on the situation and explain her reasoning behind her decision.

Reflective journals

During the TA activities, we assigned the two participants to write their weekly reflective journals in Indonesian and collected them at the end of each month. Their reflective journals contained their inner thoughts and beliefs during the TA activities. The reflection questions involved participants' first impressions of teaching EFL undergraduate students at Thailand universities and the lessons they learned about teaching, the similarities and differences between EFL instruction in Indonesian and in Thailand universities, and their future teaching.

Data analysis

The researchers analyzed the data using an interpretive approach. First, the first researcher transcribed and translated the recorded interviews and recall interviews and sent the translated excerpts to the two participants to check for further revisions and comments. Next, the results of the interview transcripts from each TA teacher were reviewed to identify the specific beliefs held about EFL teaching and learning as well as the changes in belief and teaching actions. The emerging beliefs were then displayed and compared across different steps of interviews to illustrate the possible changes in each participant's belief and teaching practices.

Furthermore, the preliminary interpretations were further re-examined and re-categorized using Cabaroglu & Robert's (2000) belief changes framework. This phase aimed to shed light on how each TA teacher's beliefs changed in the TA environments. To come up with the final interpretation, the researchers conducted an across-case analysis drawing upon findings from Merriam (1998) by comparing the themes and case categories. The results of the classroom observations and videotape analyses were reviewed along with the observation notes, reflection journals, and the transcribed stimulated recall interviews to reflect the process of the two TA participants' belief changes in their TA practices. To enhance the trustworthiness of the findings, the researcher and the first co-author interpreted the data independently. Afterwards, they conducted a discussion with the two TA

teachers to reach an "intercoder agreement" (Nunan & Bailey, 2009). The first author crosschecked with the three co-authors to ensure the validity and reliability of the data interpretation. This strategy is commonly applied by professional researchers to validate their findings (see Cabaroglu & Robert, 2000, Karimi & Nazari, 2021).

RESULTS AND DISCUSSION

In this section, we explore the multifaceted and distinctive progressions of the two TA EFL teachers' belief changes and their belief conceptualizations in their new TA socio-cultural setting. The findings of the case are explained using a descriptive and analytic interpretation of how the two TA EFL teachers conceptualized their beliefs before the TA practices and how their belief changes occurred during and after the TA program.

Melanie

Melanie held a set of inconsistent conceptions of beliefs about EFL teaching and learning before beginning her TA program. She noticed that the aim of teaching English as a foreign language and its accepted practices were at odds with what she had learned. For her, mastering English vocabulary and grammatical patterns were two crucial factors in her beliefs towards being able to communicate in English fluently. As a result, her teaching practices predominantly consisted of memorizing, drilling, and translating English words and constructing them into grammatically correct sentences. However, her beliefs that EFL teaching focused on vocabulary and grammar learning were at odds with common practice there, and she was not entirely convinced that active learning and communicative methods could be applied in her classroom as all of her secondary English teachers were used to teaching primarily employing the grammar translation method (GTM). She was also worried about students' low English test scores possibly being a result of vocabulary and grammar being underemphasized in classroom teaching and learning. Inspired by her master's study course work, she changed her teaching beliefs from grammar and vocabulary-minded to active learning for communicative purposes (interview 1).

> I am so uncertain about the goals of EFL teaching, whether I have to work with a lot of vocabulary and grammatical drills or rely on active learning which lets my students communicate freely using 'their English'. On the other hand, I want to boost their communicative competence because I want them to be able to speak and write well, but I also want them to get good scores on their English written tests. I do not know whether

my teaching choices will be accepted or not (Interview 1).

To support her student's understanding of vocabulary and grammar learning, Melanie believed that the use of games and interactive teaching could promote students' language comprehension. From this position, she could insert games and use teaching media in her classes:

> I often used teaching vocabulary and grammar videos to support their comprehension and to introduce them to native speakers' voices from the videos. When I feel that they get bored, I ask them to play scrabble or dabble in my English class to provoke their motivation (Interview 1).

Before the TA program, Melanie illustrated her hesitation toward the necessity for understanding and applying innovative teaching strategies as she felt that the games and interesting teaching media were enough for her to support her classroom teaching and to satisfy students learning needs:

> I think teachers don't need to learn various teaching strategies as they can use various teaching aids and games to keep their teaching innovative (Interview 1).

Melanie's participation in the TA program noticeably influenced her belief changes about EFL teaching and learning. Through discussion with her TA mentor, Andrew (pseudonym), an American lecturer who taught at the TA university for more than ten years, she learned about the feasibility of active learning and communicative teaching approaches, as well as other aspects of EFL teaching such as confidence, independence, and critical thinking skills. She felt more 'open-minded' to employing the two approaches in her TA classroom (interview 2). Melanie was convinced that her previous conceptions of teaching vocabulary and grammar were not useless since she could help her students in the TA classroom with grammar and vocabulary problems (Interview 2).

> During the discussion with my TA supervisor, I was impressed with his explanation about active learning and the importance of a communicative teaching approach to enhance student's critical thinking and confidence to participate in classroom teaching (reflective journal).

Melanie's ongoing reflection made her realize that there was another important aspect of EFL teaching. She was aware that as an EFL teacher, she should not rely on 'perfect grammar' teaching, but she should promote her students' confidence, independence, and critical thinking skills in the classroom.

> I will try to make my students more independent learners. So that they do not just listen to my 'classroom speech' and ask them to do various tasks. I will focus on helping them be brave and confident to speak up, ask questions and express their ideas. (Interview 3).

Melanie's initial belief changes about EFL teaching took place due to the ongoing interactions during her TA experiences (such as with the TA mentors, international students, and other host teachers in the TA environment) and her personal journal reflections; she steadily abandoned her outdated and diverged views about EFL teaching objectives and approaches. She began to adopt an innovative belief in EFL teaching that "mixed her old views of vocabulary and grammar teaching into the umbrella of active and communicative teaching approach" (Interview 3). Furthermore, Melanie's beliefs about EFL teaching and learning underwent further changes throughout the TA program. In the early weeks of teaching in this program, while Melanie understood the importance of games and videos in her class, she had difficulty in maintaining students' attention. One time, she had played an Indonesian cow race video and a puzzle with goal of strengthening her students' vocabulary and arousing their interest and engagement (Lesson observation). She had imagined that the Indonesian cow race would be applicable and could captivate her international students' interest and engagement. Unfortunately, her attempt was unsuccessful as most students did not watch the video, and they considered puzzle game too easy, and she had run out of ideas on how to change her teaching strategies. Reflecting on this failure, Melanie commented:

> I got a good lesson today: implementing video games is not enough in my class. I have to design active learning, but I do not know how. (Recall Interview 1).

In the journal reflection, Melanie internalized that showing interesting videos to students is not insufficient in EFL teaching. When Melanie participated in discussions with all of the L2 teachers in the program, she brought up her teaching difficulties with the videos and games. In this monthly teaching forum, one of the host teachers suggested that she connect her lessons more broadly to students' real-life experiences. Furthermore, another host teacher recommended implementing project-based learning (PBL) to support her active teaching conception. As Melanie reflected:

> Every Thursday afternoon at the end of the month, we regularly conducted roundtable discussions and reflections about our teaching activities led by one of the TA teachers from the host university. We shared and discussed our teaching activities and any related issues (Interview 2).

After the regular discussion, Melanie prepared her next meeting using project-based learning as suggested at the teaching forum:

> So, in the following meeting, I made serious efforts to design a project-based learning (PBL) lesson from the video used in the class so that they could discuss and collaborate on the project and make group presentations (interview 3).

In the following TA activities, Melanie employed PBL assignments. She prepared two videos about Asian thanksgiving festivals, one from Indonesia called Sedekah Bumi, and the Chinese holiday Lunar Year. Then, she asked the students to observe and discuss the reasons behind the celebrations, similarities and differences between the two festivals and present them in groups. At the end of the teaching, she invited the students to reflect on their lessons learned from the topic and activities (Lesson Observation).

Through active participation in the teaching forum, Melanie was able to create with a design for a project so that her teaching could run smoothly. Her previous belief in "reviewing vocabulary and grammar, watching media and playing games" was replaced by a new belief that an EFL teacher must understand various active learning strategies and possess intercultural awareness. She also discovered that professional EFL teachers would never stop learning if their teaching continued to be dynamic (Interview 4).

Ivan

Differing from the first TA participant, Ivan had already internalized his existing conceptions about EFL teaching from his professional experiences before entering the TA program. As a teaching assistant at his university, Ivan had conflicting beliefs about which steps of scientific approach-based learning (observing, questioning, experimenting, associating, and communicating) should be applied. When he became a freelance teacher at a senior high school, he applied this approach as required by school regulations. Then, he tried to implement his approach again in his new position as a teaching assistant. During the questioning phase, he always asked his students some questions; he interpreted this phase as the teacher giving questions to the students (interview 1).

> I implemented a scientific approach in my class as I believed that this approach could enhance students 'critical thinking and active learning. I usually played a video; I asked them to observe and analyze the concept of politeness between two different countries before giving them some questions to discuss. (Interview 1).

To facilitate the flow of the scientific approach, Ivan believed that providing some questions could help his students understand the content of the video and its learning purposes. He also highlighted the importance of providing questions for his students to foster their understanding (interview 1).

> In my teaching video, I always prepared some questions, for instance: "find the politeness concept from the two videos!", "Do you think eye contact is allowed in Asian countries?". Then, I asked them to discuss in groups (Interview 1).

In the TA experience, Ivan's belief in the scientific approach conception was expanded through his active interaction and participation in the teaching forum discussion during his TA activities. In the discussion forum, he shared his experiences with other teachers, and one of them suggested that in the questioning phase, the teacher

should help the students propose some questions instead of giving several questions to the students. In this case, we have to put our role as a guide, helping them raise their questions (Interview 2). Thus, Ivan realized that he did the wrong conception of the scientific approach:

> I obtained an interesting lesson from the teaching forum discussion; my mentors and other teachers suggested to me that the questioning stage within the scientific approach aims to help the students to be able to raise questions after they are assigned to observe a teaching video or media. In this case, the teacher should patiently guide the students to ask some questions so that they can learn the concept behind the topic from their questions. This stage also aims to develop students' critical thinking and active learning (Interview 2).

Besides, the teaching forum experience in the TA context augmented her beliefs about implementing a scientific approach in EFL teaching and learning, particularly regarding how the teacher can guide the students to make and raise questions regarding cross-culture understanding topics.

> During my third week of TA teaching, it was very hard for me to help my students design their questions. Although only some students raised their questions, asking about the general differences between politeness concepts from the video. It made me happier than before as I could implement the questioning stage more correctly than before (Interview 2).

Ivan's belief changes indicated a small 'evolution' in implementing scientific approach strategies during his TA experiences. In the TA context, Ivan and other EFL teachers in the TA context (including Melanie also) worked together to share and design active teaching and learning strategies in their TA environment. This fruitful experience in which the TA EFL teachers and other TA teachers engaged in collaboration added breadth and depth to Ivan's beliefs of active learning within the umbrella of scientific approach-based teaching and learning (interview 3).

> I feel more confident about my teaching beliefs. We need to be more careful in our EFL teaching as we should guide our students not only to be able to raise their questions but also to be able to support their critical thinking and independent learning (reflective journal).

Ivan's involvement in the teaching forum discussion and the feedback he got from his TA colleagues had reformed his prior perception that helping his students be active learners through constructing questions under the scientific approach was inadequate. He also discovered different roles EFL teachers could play in promoting students' critical thinking and learning independence (interview 4). Ivan also expanded on his conception of teaching beliefs into his reflective journal, as he wrote:

Sahiruddin Sahiruddin, Yudhi Arifani, Clinton Chidiebere Anyanwu,
Jati Suryanto

A sociocultural analysis of teachers' belief changes: A case of two teach-......

> I was thinking hard about whether the students could be independent learners if, during classroom teaching, only a few of them engaged in the learning activities. I think teaching them to be more confident in expressing ideas, giving questions, and responding to questions is crucial to support their confidence and critical thinking (reflective journal).

Through the teaching forum and interaction with other TA teachers, Ivan was also aware of the advantages and disadvantages of active teaching and learning strategies as well as an integrated approach in EFL teaching before he could finally discover and extend her beliefs and teaching conceptions.

Situated in a different EFL TA socio-cultural setting, this case study reveals that TA teachers' beliefs evolve dynamically. Such beliefs are not perceived as an isolated or stable phenomenon as they were commonly perceived and extracted through survey responses (Borg, 2019; Tanaka & Ellis, 2003; Yang & Kim, 2011; Yuan & Lee, 2014). The results of the study reveal that teachers' beliefs are dynamic, and they may change and develop in the context of a socio-cultural environment such as in a TA context. Beyond TA socio-cultural environments, several studies have indicated that L2 teachers' beliefs might evolve as a result of in-service teachers' interaction with their mentors and students during their practicum. Their beliefs may change after they actively interact and participate with their mentors (Yuan & Lee, 2014). Thus, this present study adds novelty to teachers' belief changes within TA contexts. With their teaching and learning experience as EFL teachers, the two TA teachers gradually were able to construct their beliefs about EFL teaching and professional development. As teachers enter the TA environment, their encounters with mentors, international students, and other teachers during the TA program could help shape new beliefs regarding EFL teaching.

Analyzed from Lektorsky's (2009) remediation framework, our case study shows a range of belief remediation, including dialectical, expansive and transformative change processes. Firstly, the TA participants' teaching belief remediation involved three processes: dialectical, expansive and transformative (Cole & Griffin, 1986; Lektorsky, 2009). The dialectical process concerns teachers' short-term situational changes and long-term developmental changes in their teaching beliefs. Through dialectical processes, the TA teachers focus on their continuing belief changes brought about by inner and outer influences (Lektorsky, 2009; Yang & Kim, 2011). For instance, Melanie's beliefs in active learning and communicative teaching approaches evolved after the dialogues with her mentor in the TA environment, which opened up to her the idea of applying the two approaches to her future TA lessons. Melanie's short-term belief changes in her teaching strategies occurred during her intensive dialogues with her mentor when she asked for suggestions regarding her existing view of vocabulary and grammar teaching since she reported feeling unsatisfied with her

initial TA practices. After receiving thorough and acceptable advice from her mentor, Melanie planned to change her teaching strategies in the TA context. In this case, changing her teaching beliefs indicated short-term changes, and changing her teaching strategies in the following TA practices demonstrated long-term developmental changes.

Similarly, Ivan was influenced by his previous misunderstanding of designing a scientific approach in his lesson plan. In the lesson plan, he wrote that the teacher gave some questions to the students regarding the concepts of politeness from different countries at the questioning stage. His mentor explained that the content of the questioning stage should reflect students' ability to propose some questions for further discussion within their group. Knowing this situation, Ivan showed his agreement and changed his beliefs following his mentor's suggestion before he revised his lesson plan and learning activities for his students. These two examples have verified that the TA teachers' belief changes were impacted by their mentors in the TA context, who had more experience in teaching international students (Yang & Kim, 2011). Similarly, Yuan & Lee's (2014) study examined how pre-service teacher beliefs changed after interaction with their mentors during teaching practicum. Under different socio-cultural contexts, TA teachers' beliefs changed after participating in the TA program.

The expansive process depicts the multidirectional development of teachers constructing and applying new and more complex teaching strategies. One example can be found in Melanie's TA teaching efforts who used two different thanksgiving videos from Indonesia (Sedekah Bumi) and Chinese Lunar Year, and asked her students to discuss in groups the similarities and differences between the two thanksgiving holidays and reflect on the lessons learned from the discussion. Her expansive process indicated her new teaching strategies. She implemented group discussions and project-based learning as part of her new attempts to solve her previous teaching practices situated in the TA environments. She did a complex teaching preparation and implementation as she had to select two different teaching videos and more complex learning activities which met the students' interests. Melanie has reformed her existing beliefs in this situation by implementing novel and complex EFL teaching dimensions.

Through a regular teaching forum and daily interaction with the teachers and students in the TA environment, Ivan expanded his beliefs about EFL teachers and began to formulate innovative teaching strategies. Applying a more acceptable implementation of the scientific approach, he then prepared several guiding questions so that he would be ready to respond positively to the unpredicted situation when the students did not raise any questions. In addition, this inquiry demonstrates that TA motivates the practice of intercultural teaching practices through dialogic learning practices.

In addition, our findings also testify to the transformative impact that TA socio-cultural contexts can have on a teacher's cognitive evolution (Borg, 2019; Yang & Kim, 2011; Yuan & Lee, 2014). Framed in an SCT viewpoint,

Sahiruddin Sahiruddin, Yudhi Arifani, Clinton Chidiebere Anyanwu,
Jati Suryanto

A sociocultural analysis of teachers' belief changes: A case of two teach-......

a number of influencing variables which facilitate the processes of TA teachers' belief changes during the TA program can be identified. As new EFL teachers and members of the TA community, the TA teachers engaged in professional teaching practice in this new context with special assistance from mentors, teaching forums, and discussions with other teachers enhanced their conception and implementation of teaching. In spite of the rather short duration of the TA program, the TA teachers were provided with necessary opportunities to participate in different learning opportunities and events, such as mentoring programs, lesson studies, observations, and teaching discussion forums. These activities offer richer learning inputs for the TA teachers to consolidate, expand, and transform their beliefs about EFL teaching and teachers (Johnson & Golombek, 2011; Yuan & Lee, 2014).

CONCLUSION

In this inquiry, we have endeavored to explore the perspectives of TA EFL teachers' beliefs by framing a Vygotskian SCT viewpoint. The findings indicate that EFL teacher beliefs are constantly reconstructed in accordance with teaching goals in the context of socio-cultural interaction. From the SCT framework, EFL teachers' belief changes symbolize a remediation process between the TA teachers and the teaching environment, revealing their agentive attempts to uphold or abandon their existing beliefs of EFL teaching goals.

The study's findings suggest pedagogical implications for improving EFL teacher education. First, EFL teachers' belief changes can be seen as their agentive efforts to transform their EFL teaching process. Optimum sharing opportunities should be given to EFL teachers to actively contribute to various socio-cultural activities, such as the TA program and mentoring programs with a professional teacher from different sociocultural backgrounds. This study challenges the rampant assumptions that an exposure-rich TA context is crucial for supporting EFL teaching performance. This study indicates that unless teachers personalize the importance of TA learning based on their dynamic EFL teaching beliefs and goals, they may struggle to succeed in the TA environment. Thus, before going abroad, EFL teachers need to intensively engage with the TA community in setting clear teaching goals in order to attain satisfactory and successful TA experiences.

This case study is not without its limitations. The participants' belief transformations and development are reflected in a short period of time in the TA program. We are also aware that our qualitative case study only explores two TA teacher participants in a particular TA EFL context. Therefore, the transferability of the findings should be interpreted cautiously within similar EFL contexts. Therefore, we recommend further studies to investigate EFL

teacher belief changes using a longitudinal study involving TA participants in EFL and L2 contexts.

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The Efficacy of Blended Learning in Enhancing Oral Proficiency in Aviation School: An In-depth Investigation

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Blended learning has been identified as a highly promising instructional approach within vocational education institutions. The objective of this study is to examine the disparities in speaking skills learning strategies between traditional (face-to-face) instruction and blended learning. Additionally, the study seeks to ascertain the impact of these learning strategies on students' speaking abilities in both traditional and blended learning environments. The present study employs a quantitative research approach, utilizing an experimental design. The sample for this study comprised 120 participants, 24 participants representing Politeknik Penerbangan Medan and 96 participants representing Politeknik Penerbangan Surabaya. The results of this study suggest that the mere adoption of technology and the removal of the traditional classroom setting do not suffice in establishing an optimal learning environment for individuals learning a second or foreign language. Nevertheless, there exists a considerable opportunity to amalgamate conventional educational settings with contemporary technological advancements in order to enhance students' academic achievements across various abilities and sub-skills, with a particular emphasis on oral communication proficiency. Based on the results obtained from the study, it is possible to draw the following conclusions: 1) A statistically significant disparity exists in the proficiency of English speaking skills when employing the blended learning approach. 2) A statistically significant discrepancy is observed in the proficiency of English speaking skills for the experimental group, thereby corroborating the efficacy of post-implementation learning strategies.

Keywords: blended learning, speaking skills, vocational schools, instructional strategy

INTRODUCTION

The optimization of information acquisition and skill development in teaching and learning is achieved through the utilization of many methods, approaches, and strategies (Haleem et al., 2022). The rapid advancements in technology have had a profound impact on the behavior, attitudes, and academic performance of students, significantly influencing their learning and communication patterns within and outside the confines of the classroom. The educational approach has undergone a transformation, transitioning from a teacher-centered model where the instructor is the exclusive provider of knowledge, to a student-centered approach that emphasizes active participation and collaboration between students and teachers. Educators desiring to implement a constructive pedagogical approach, characterized by student engagement and enhanced knowledge acquisition, can achieve this objective through the integration of information and communication technologies within the educational setting.

In the present era, the field of higher education is confronted with the imperative of fulfilling escalating demands in order to facilitate students' successful adjustment in a society that is predominantly influenced by technological advancements (Singh, 2021). The present study builds upon the author's past research and aims to provide a full analysis in continuation of prior investigations. The study commenced by designing an e-module for aviation speaking preparation, aimed at enhancing the speaking proficiency of participants from Politeknik Penerbangan Medan and Politeknik Penerbangan Surabaya in the year 2022. In addition, the author conducted a study on the effectiveness of an e-module aviation speaking preparation test in enhancing aviation English speaking skills through e-learning. The findings of the study indicated a positive impact on English language learning outcomes when utilizing this particular media.

The author's ongoing research is to investigate the efficacy of a blended learning program, specifically focusing on the use of an e-module for aviation speaking preparation tests. The objective is to determine how this program can enhance students' speaking skills, by comparing it to traditional learning methods.

In order to maintain a competitive edge in the field of education, it is imperative to enhance the academic standards at Politeknik Penerbangan Medan and Politeknik Penerbangan Surabaya by implementing innovative pedagogical strategies and educational curricula. This can be achieved by integrating conventional classroom instruction with online learning modalities, as suggested by (Müller & Mildenberger, 2021; Alom et al., 2023). Failure to adapt to the constantly changing environment may result in both institutions being left behind, perhaps leading to adverse consequences for students who require a diverse range of skills and abilities.

One method that can achieve balance in teaching is blended learning (BL) or semi-attendance based learning. This teaching approach combines elements of traditional teaching with strategies typical of non-attendance based distance learning or E-learning (Jin et al., 2021; Salta et al., 2022). This method is also considered as a way to provide meaningful learning experiences, because it facilitates independent and collaborative learning (Chowdhury, 2021; Almulla, 2020). Additionally, it helps students gain a better understanding of the subject matter and develop cognitive and social skills simultaneously. The use of technology in language learning, especially in speaking skills, provides various opportunities for language learners to improve their abilities in learning languages (V. Sosas, 2021; Rochmawati et al., 2021). In addition to regular face-to-face teaching where teachers have direct control over students' learning and progress, technological developments have led educators towards a new approach to learning known as "hybrid" or "blended learning" (Omoregie & Baruwa, 2023; Omoregie & Baruwa, 2023).

Blended learning, as described by (Martanto et al., 2021; Tong et al., 2022; Rasheed et al., 2020; Dziuban et al., 2018; Anthony et al., 2022), refers to the integration of online learning or web-based

training with conventional learning and teaching approaches. Blended learning has emerged as a prominent instructional approach employed by numerous specialists and educational institutions in the field of English as a Second Language (ESL) and English as a Foreign Language (EFL). Blended learning exhibits a fundamental attribute wherein a portion of the instructional content is disseminated via online platforms, while the remainder is conveyed through in-person interactions inside a classroom setting (Chang, 2023). Online education can provide valuable assistance to traditional face-to-face learning, and conversely, traditional face-to-face learning can also enhance the effectiveness of online education. Hence, the primary objective of the blended learning strategy is to establish a cohesive equilibrium between digital access to information and in-person engagement among students (Liu et al., 2024).

Blending internet-based learning with traditional in-person instruction offers numerous advantages, yet there's a lack of research in higher vocational education, especially for enhancing English as a second language. This study addresses this gap, emphasizing the significance of language acquisition through social interactions. The significance of language acquisition through effective social interactions has been a topic of discussion among researchers, emphasizing the need to prioritize this approach over cognitive components and memory alone (Spence, 2020). Blended learning, combining online and face-to-face methods, represents a shift from traditional classrooms, enabling learning beyond physical and time constraints. Learners can access materials conveniently, aligning with effective second language acquisition approaches that transcend traditional boundaries. Blended learning aims to engage all students in the educational process.

The concept of technology integration refers to the incorporation of technology-based resources and practices in educational settings (Consoli et al., 2023). This approach aims to promote learning in various subject areas by enabling students to utilize computer and technology abilities to engage in meaningful learning and problem-solving activities. Educational technology encompasses not just physical devices, software applications, and online resources, but also encompasses systematic methodologies that facilitate the process of teaching and learning, as well as enhance overall performance. The accomplishment of this objective is accomplished by the right creation, utilization, and administration of technology resources (Javaid et al., 2022; Vinuesa et al., 2020; He et al., 2021). Technology integration refers to the process of merging technology equipment with the specific requirements and objectives of a curriculum. Technology assumes a crucial role in shaping the functioning of the classroom, with the primary emphasis of each classroom being on curriculum objectives and achievements. In the subsequent analysis, the concept of technology integration is explored via the lens of educators' effective utilization of technology in their current classroom practices, as highlighted by (Abedi, 2023).

This examination delves into the ways in which educators incorporate technology into their instructional methods, thereby reshaping these activities to align with curriculum objectives. There exists a strong correlation between foreign language instruction and the utilization of technology to facilitate the creation of courses and completion of learning tasks (Bećirović et al., 2021).

The cultivation of oral communication abilities has significance due to the substantial disparity between the number of words said and written in English, with individuals typically uttering around 100 words for every one word written (Suzuki, 2020). In interpersonal communication, it has been observed that individuals allocate approximately 45% of their time to the act of listening, 30% to speaking, 16% to reading, and 9% to speaking (Numanovich & Abbosxonovich, 2020). On the other hand, the incapacity to generate verbal communication constrains social interaction and results in a state of social seclusion (Channell & Mattie, 2023; Adams et al., 2022). Speaking can be defined as a complex activity that involves the integration of multiple subsystems (Kearney & Guenther, 2019). They consider speaking to be a fundamental ability. The act of speaking poses challenges due to the necessity of employing language in a socially suitable manner during interpersonal exchanges (Hossain, 2024). The act of speaking encompasses both verbal and nonverbal components, which encompass aspects such as pronunciation, intonation, stress, body language, and facial emotions (Del Giacco et al., 2020). The concept of speaking correctness pertains to the capacity to engage in spontaneous speech while utilizing suitable vocabulary, grammar, and pronunciation. It holds significant importance in attaining proficiency in speaking skills (Ghafar & Raheem, 2023). The utilization of speaking skills occurs in real-time, necessitating the ability to make decisions spontaneously (Ironsi, 2023; Qiao & Zhao, 2023). In addition to the aforementioned obstacle, the development of speaking abilities necessitates the incorporation of response rate timing, the elimination of hesitation, the ability to adhere to grammatical structures, and the generation of vocabulary (Annandale et al., 2021). The insufficiency in the command of vocabulary, grammar, and pronunciation leads to diminished speaking proficiency, hence warranting the inclusion of instructional interventions targeting these areas (Saed et al., 2021). Other investigation focused on the examination of techniques employed by first semester students at a vocational school to address challenges encountered during oral communication in classroom settings (Maji et al., 2022). Linguists suggest that the focus of listening comprehension should be on enhancing speaking abilities. In order to effectively engage with spoken messages, learners must possess the receptive skill of listening, which enables them to comprehend the intended meaning (Vani & Veeranjaneyulu Naik, 2023) .

The process of technology integration in the foreign language classroom has been described as the use of a computer by a learner, leading to enhancements in their proficiency in the target language (Hafner & Miller, 2021). Furthermore, the proliferation of novel technologies has resulted in the widespread adoption of technology applications within the realm of foreign language instruction. During the initial stages of foreign language instruction, computers emerged as a valuable tool for facilitating drill-based language practice. Nevertheless, the acquisition of foreign languages is commonly perceived as a communicative and interactive endeavor, facilitated by students' access to genuine language resources and engagement with others who are proficient in the target language (Han et al., 2024).

According to the findings of (Abbasi, 2020), previous research in the sector has emphasized the significant influence of technology in facilitating language acquisition. Consequently, the successful incorporation of technology in the language classroom necessitates a strong foundation in pedagogical principles and a proficient grasp of essential technological competencies. The integration of technology in the curriculum has the potential to enhance student learning and academic achievement within the classroom setting. In a more precise manner, the utilization of technology serves as the foundation for four fundamental elements of the learning process: active engagement, involvement in collaborative settings, regular contact and feedback, and access to real-world authorities. The mere integration of technology into the classroom environment does not inherently ensure the automatic resolution of educational challenges (Grassini, 2023; Xu et al., 2021). The effectiveness of technology in the teaching and learning process is contingent upon instructors possessing a comprehensive comprehension of its significance and implementation within the curriculum and classroom instruction (Yu, 2024; Major et al., 2021; Muhammad & Dabbagh, 2021).

The absence of a well-defined overarching aim and underlying logic renders the utilization of technology as an additional burden, superficial and inconsequential, hence failing to facilitate effective teaching or learning (Yu, 2024). The crucial to engage in reflective practices that examine the underlying motivations for utilizing technology in order to establish solid rationales and justifications for integrating technology (Merta et al., 2023; Crompton & Sykora, 2021; Reyneke et al., 2020). Consequently, the integration of technology can effectively facilitate student engagement in meaningful learning when well strategized and applied to curriculum activities and assignments. The necessity for purposeful creation and execution in the learning environment is emphasized (Mhlongo et al., 2023; Gramaje & Buenviaje, 2023). In online settings, learners are not passive recipients of knowledge (Rhim & Han, 2020). Instead, they actively construct their understanding of the subject matter by engaging in experiences and interacting with other individuals and surroundings. The integration of technology in educational settings, guided by constructivist principles, facilitates meaningful learning experiences (Ayse, 2018). This approach includes activities that encourage discourse, reflection, collaboration, connecting with the learning context, and transferring information. Proper use of technology enhances comprehension, structured thinking, and critical inquiry.

Technology should prioritize practical applications, written expression, interaction, and investigation.

The prevailing belief is that blended learning has consistently been the standard for students, as it aligns with the notion that learning naturally takes place through diverse interactions (Anthony et al., 2022; Su et al., 2023; Halverson & Graham, 2019). However, the integration of online and face-to-face teaching does not meet the criteria for blended training according to numerous other academics. Several scholars have made efforts to quantify the extent of online engagement that qualifies as blended learning (Huang et al., 2022). Courses that do not incorporate any online content are categorized as traditional courses (Coman et al., 2020). Courses that include 1-29% online content are classified as web-facilitated courses, while those with 30-49% online content are referred to as blended/hybrid courses. Finally, courses that consist of more than 80% online content are termed fully online courses. In contrast, (Dhawan, 2020) provide a generic definition of blended learning (BL) as instructional courses that integrate face-to-face classroom components with the judicious incorporation of technology. The phrase "technology" encompasses a range of contemporary technologies, including but not limited to the Internet, CD-ROMs, and interactive whiteboards. Table 1 presents the taxonomy of blended learning as delineated (Smith & Kurthen, 2007).

TABLE 1 | Blended Learning Taxonomy Terms (Smith & Kurthen, 2007).

Terms	Definition
Web-enhance	Courses that incorporate online materials to a limited extent, namely utilizing them for less than 30% of the course content, such as sharing syllabi and making course announcements.
Blended	Subjects employed a number of notable online activities within the context of face-to-face learning, albeit at a proportion lower than 50 percent.
Hybrid	Subjects in which online activities substitute for 50-80 percent of in-person class sessions.
Fully online	Subjects in which a significant majority, specifically 80 percent or more, of the instructional content is delivered using online platforms.

The present study adopts the definition of blended learning as outlined in the 2008 report published by the North American Council for Online Learning. The approach utilized is based around the learner and promotes interactivity, combining compelling online content with the most effective aspects of classroom engagement.

When examining BL design, the primary objective is to identify the optimal combination of learning modes that is both successful and efficient for specific learning subjects, settings, and goals (Lalian et al., 2021). Blended learning (BL) aims to achieve a suitable equilibrium between technological endeavors and in-person interactions. Consequently, it continues to hold significance in the field of language teaching, as it primarily focuses on determining the ideal combination of instructional methods to offer the most efficient language learning experience. Consequently, BL encompasses more than the mere identification of an optimal combination of technologies or the mere enhancement of students' availability to information in new media. The essence of this concept lies in the reconsideration and restructuring of the dynamic between teaching and learning. The mixed design approach seeks to optimize the advantages of several learning modalities based on the specific requirements of learners. The essential for online course management systems to include user-friendly interfaces, promote interactive discussions to foster a sense of community among learners, and incorporate effective mechanisms for expressing expectations and delivering feedback. In addition, it is imperative for educators to actively participate in the online setting in order to effectively oversee, direct, and foster purposeful educational encounters.

The significance of investigating the impact of blended learning is growing as educational technology is being integrated into foreign language classes in higher education. This study seeks to examine the efficacy of blended learning in enhancing students' speaking abilities, rather than solely examining the learning behaviors and tactics employed by teachers and students. Furthermore, this study holds significance due to the pressing need for substantial reforms in the education system to cater to the needs of the next generation. Specifically, there is a demand for the seamless integration of technology within the educational framework. Hence, the researcher intends to undertake a study titled "The Efficacy of Blended Learning in Enhancing Oral Proficiency: An In-depth Investigation". This study aimed to investigate the effects of blended learning on the enhancement of students' speaking abilities. The utilization of virtual learning, encompassing a range of multimedia and communication tools, has the potential to confer benefits through facilitating the enhancement of students' oral communication abilities. Therefore, it can be stated the problems of the research are: 1) what is the comparison between speaking learning strategies of traditional and blended learning? 2) what is the influence of speaking learning strategies of traditional and blended learning on students' speaking abilities?

METHODS

Research Design

The present study employs a quantitative research approach, utilizing an experimental design. In experimental investigations, participants are typically allocated into two distinct groups. The first group, known as the experimental group, receives blended learning methodologies, while the second group, referred to as the control group, does not get any form of treatment. The experimental group was provided with blended learning education, whereas the control group received face-to-face instruction, as indicated in Table 2. Therefore, the observed variations in their oral proficiency, as demonstrated in the post-speaking assessment, can be linked to the intervention or treatment itself.

TABLE 2 | Design of Research

Screening (pretreatment)	Group	Pre test	Treat ment	Post test
Speaking outcome	A Experim ental	O_1	X_1 Blended Learning	O_2
Speaking outcome	B Control	O_1	X_2 Normal Class	O_2

The research sample comprised 120 participants, including 24 participants enrolled in Air Traffic Control course at Politeknnik Penerbangan Medan and 96 enrolled in Air Traffic Control course and Aviation Communications course at Politeknik Penerbangan Surabaya. The samples were partitioned into an experimental group and a control group.

TABLE 3 | Data Analysis Techniques

Statement of Problem	Measure ment	Data Analysis
Comparison between speaking learning strategies of traditional and blended learning	Pretest and posttest of speaking	Test the average of two paired groups with Paired T-Test
Influence of speaking learning strategies of traditional and blended learning on students'speaking abilities	Pretest and posttest of speaking	ANOVA

Table 3 provides data analysis techniques as the comprehensive overview of the tools and materials employed in the course of the investigation. Commencing with an elucidation of the devices employed for assessing participant accomplishment, namely the pretest and posttest. Subsequently, a concise elucidation about the process of acquiring knowledge is shown, followed by an in-depth discussion on the utilization of the aircraft speaking preparation exam e-module as a primary resource by researchers in the control group. Lastly, an additional exposition is provided on the platform that facilitates the integration of blended learning tools.

To answer research question no 1 regarding the comparison between speaking learning strategies of traditional and blended learning, the researchers use a paired T-test because it is suitable for analyzing the pretest and posttest data from the same group of participants. In this research design, the same participants are exposed to both traditional and blended learning strategies, and their speaking abilities are measured before and after the treatment. The paired T-test compares the means of two related groups (pretest and posttest) while accounting for the individual differences among participants. By using a paired T-test, the researchers can determine whether there is a statistically significant difference in the speaking abilities of participants after they have been exposed to traditional learning compared to blended learning. Additionally, the paired T-test helps to control for individual variability, making it a powerful tool for detecting changes within the same group over time. This statistical test is thereby enabling the researchers to evaluate the effectiveness of traditional and blended learning strategies in improving students' speaking skills.

To answer research question no 2 about the influence of speaking learning strategies of traditional and blended learning on students' speaking abilities, the researchers use pretest and post test of speaking and analyze it using ANOVA. In this case, the researchers are comparing the influence of speaking learning strategies on students' speaking abilities between traditional learning and blended learning to tests whether there are statistically significant differences in the means of these groups. ANOVA is utilized in this research scenario to determine whether there are significant differences in speaking abilities across different learning strategies, thus providing insights into the effectiveness of these strategies in enhancing students' speaking skills.

The utilization of pretest and posttest measures is a reliable method employed to evaluate the educational achievements of the specific population under study. Standard or locally customized options are available. The primary objective of the pretest is to gather pretest measures and evaluate learning outcomes, namely the pre-existing knowledge of the two groups regarding the

targeted speaking skills, prior to their exposure to blended learning. The results of the participants pretest serve as an indicator of the first level of proficiency. In addition to assessing prior knowledge, it serves as a foundation for evaluating protest outcomes. This assessment can provide participants from both groups with an accurate evaluation of their present proficiency in spoken language acquisition. Furthermore, drawing upon the participants' prior knowledge, this study serves as a guiding framework for researchers in determining the specific subjects and tasks that will be addressed within the context of speaking skills through the implementation of blended learning methodologies. Nevertheless, the posttest, which evaluated the attainment of treatment learning objectives following an entire semester, exhibited similarities to the pretest in terms of its structure and content. On one hand, it was specifically created to gauge the learning outcomes subsequent to the implementation of online learning tools for enhancing speaking skills.

This study employed examinations to assess the speaking abilities and knowledge of participants in both the control and experimental groups, both before to and during the implementation of the treatment. Conversely, it has the potential to facilitate the evaluation of learning objectives' appropriateness and offer valuable insights into areas of speaking abilities and material that require further enhancement. The evaluation of participants' speaking abilities is conducted using an assessment criterion derived from the ICAO Language competency Rating Scale. This rubric encompasses six key components of language competency, including pronunciation, grammatical structure, vocabulary usage, fluency, understanding, and interactive skills.

The research data, consisting of pretest and posttest results for each subcomponent collected from participants, are then processed and analyzed using SPSS 25 software. Subsequently, the data is entered into the SPSS 25 software to be checked and ensured that there are no input errors, such as missing or invalid data. Descriptive statistical analysis is then conducted to describe the basic characteristics of the collected data, including statistical calculations such as mean, median, mode, standard deviation, and range for each relevant variable in the study. Furthermore, a t-test is performed to compare the means between two groups and provide information on whether there is a significant difference between the two groups. Hypothesis testing with ANOVA is conducted to provide information on whether there is a significant difference between the compared groups. After the analysis is completed, the interpretation results can be used to answer the research questions.

RESULTS AND DISCUSSION
Experimental Group
The experimental group consisting of 60 participants who were exposed to the blended learning strategy. It was observed that the average score for speaking ability was higher in the post-test, as indicated in Table 4.

TABLE 4 | Descriptive Statistics for Experimental Group

		Min.	Max.	Mean	Std. Deviation
Pre-Test (Experiment)	60	55.00	70.00	66.2000	2.76663
Post-Test (Experiment)	60	75.00	86.00	78.0000	2.30695
Valid N (listwise)	60				

Table 4 presents the results of the pre-test and post-test mean scores for the participants. It shows that the pre-test mean score was 66.20, with a standard deviation of 2.76663, indicating the average speaking ability of the group before the intervention. Following the implementation of the speaking learning strategies, the post-test mean score increased to 78.00, with a standard deviation of 2.30695. This suggests a notable improvement in the participants' speaking abilities, with a rise of 11.80 points in the mean score within this particular group. This increase indicates the effectiveness of the learning strategies in enhancing the students' speaking skills over the course of the intervention period.

Subcomponent for experimental group
The study analyzes six speaking proficiency elements scored by maximum point as follows: pronunciation (5), structure (10), vocabulary (20), fluency (20), understanding (20), and interactions (25). Table 5 shows improvements in average scores across these components, ranging from 3.3067 to 19.5000, with an overall increase from 66.20 to 78.00. Pronunciation 0.5933, structure 1.18, vocabulary 2.3533, fluency 2.34, comprehension 2.36, and interaction 2.9625 improved, respectively. Minimum and maximum scores varied between pretest and post-test phases, with an overall rise in minimum scores across all subcomponents.

TABLE 5 | Descriptive Statistics for Subcomponents (experimental group)

	N	Min.	Max.	Mean	Std. Deviation
Pronunciation1	60	2.75	3.50	3.3067	.14275
Pronunciation2	60	3.75	4.30	3.9000	.11535
Structure1	60	5.50	7.00	6.6200	.27910
Structure2	60	7.50	8.60	7.8000	.23070
Vocabulary1	60	11.00	14.00	13.2467	.55524
Vocabulary2	60	15.00	17.20	15.6000	.46139
Fluency1	60	11.00	14.00	13.2600	.55148
Fluency2	60	15.00	17.20	15.6000	.46139
Comprehension1	60	11.00	14.00	13.2400	.55087
Comprehension2	60	15.00	17.20	15.6000	.46139
Interaction1	60	13.75	17.50	16.5375	.70082
Interaction2	60	18.75	21.50	19.5000	.57674
Valid N (listwise)	60				

The experimental group receiving blended learning showed a significant 11.80 improvement in mean speaking ability scores from pre-test to post-test, with significant increases observed in all six subcomponents. Specifically, the interaction component increased by 2.4625. However, further analysis comparing these results to control groups is needed to determine the exact cause of these improvements.

Control Group

The researchers conducted a comparative analysis of the speaking proficiency outcomes between the experimental and control groups, with the aim of examining the impact of the blended learning intervention. The control group consisted of a cohort of 60 participants TABLE8who were subjected to conventional learning methodologies.

TABLE 6 | Descriptive Statistics for Control Group

	N	Min.	Max.	Mean	Std. Deviation
Pre-Test (Control)	60	64.00	67.00	65.2000	0.70830
Post-Test (Control)	60	64.00	70.00	65.9333	1.74537
Valid N (listwise)	60				

Table 6 displays the descriptive statistics. The mean score on the pre-test was recorded as 65.2000, which subsequently rose to 65.9333 on the post-test, suggesting a marginal improvement of merely 0.7333.

4.2.2 Subcomponent score for control group

In Table 7, descriptive statistics for pronunciation, structure, vocabulary, fluency, comprehension, and interaction components are presented. The Wilcoxon Signed Ranks test was used to assess statistically significant differences between pre-test and post-test scores. This choice was made due to non-normal score distributions based on the Shapiro-Wilk normality test. The findings show a prevalence of positive ratings, indicating score improvement between pairs of individuals, across all components. The p-values for all six components were statistically significant ($p < 0.05$), indicating substantial score improvements.

TABLE 7| Descriptive Statistics for Subcomponents (control group).

	N	Min.	Max.	Mean	Std. Deviation
Pronunciation 1	60	3.20	3.35	3.2600	.03542
Pronunciation 2	60	3.20	3.50	3.2967	.08727
Structure1	60	6.40	6.70	6.5200	.07083
Structure2	60	6.40	7.00	6.5933	.17454
Vocabulary1	60	12.80	13.40	13.0400	.14166
Vocabulary2	60	12.80	14.00	13.1867	.34907
Fluency1	60	12.80	13.40	13.0400	.14166
Fluency2	60	12.80	14.00	13.1867	.34907
Comprehension1	60	12.80	13.40	13.0400	.14166
Comprehension2	60	12.80	14.00	13.1867	.34907
Interactions1	60	16.00	16.75	16.3000	.17708
Interactions2	60	16.00	17.50	16.4833	.43634
Valid N (listwise)	60				

Table 7 shows pronunciation 0.0367, structure 0.0733, vocabulary 0.1467, fluency 0.1467, comprehension 0.1467, and interaction 0.1833. The findings indicate that there is no significant difference in the beginning abilities of students on the pre-test and posttest.

Initial Score of Speaking Skill: experimental (BL) versus control

Table 8 provides a visual representation of the initial language competence levels of the s in both the experimental and control class.

TABLE 8 |Descriptives Pre-Test for experimental (BL) versus control (TA)

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean Lower Bound	Upper Bound	Min.	Max.
Pre test-experiment	60	66.2000	2.76663	.35717	65.4853	66.9147	55.00	70.00
Pre test-control	60	65.2000	.70830	.09144	65.0170	65.3830	64.00	67.00
Total	120	65.7000	2.07263	.18920	65.3254	66.0746	55.00	70.00

The findings indicate that there is no significant difference in the beginning abilities of s between the experimental class and control class, as both groups obtained average scores on the pre-test. Specifically, the experimental group had an average score of 66.2000, while the control group had an average score of 65.2000 on the pre-test.

TABLE 9 | ANOVA Pre-Test for experimental (BL) versus control (TA)

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	30.000	1	30.000	7.357	0.008
Within Groups	481.200	118	4.078		
Total	511.200	119			

The study conducted in table 9 yielded an estimated F value of 7.357, with a significance level (sig) of 0.008. Based on the obtained significance value of greater than 0.05, it can be inferred that there is no statistically significant distinction in the mean initial ability score between s who will receive blended learning techniques and those who will receive traditional learning strategies.

Final Score of Speaking Skills: experimental (BL) versus control

Table 10 provides a visual representation of the comparative speaking capabilities of s in both the experimental class and the control class at the end of the study.

TABLE 10 | Descriptive Post-Test for experimental (BL) versus control

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean Lower Bound	Upper Bound	Min.	Max.
Post Test experiment	60	78.0000	2.30695	.29783	77.4041	78.5959	75.00	86.00
Post test control	60	65.9333	1.74537	.22533	65.4825	66.3842	64.00	70.00
Total	120	71.9667	6.39187	.58350	70.8113	73.1220	64.00	86.00

The findings indicate that there are disparities in the overall performance of s between the experimental class and the control class. Specifically, the average score for the post-test in the experimental group was 78.0000, but the average score for the pre-test in the control group was 65.9333.

The analysis of table 11 indicated an estimated F value of 1043.964, with a significance level (sig) of 0.000. Based on the obtained significance value exceeding the threshold of 0.05, it can be inferred that a disparity exists in the mean final ability score between s who were exposed to blended learning strategies and those who received traditional learning strategies.

TABLE 11 | ANOVA Post-Test for experimental (BL) versus control (TA)

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4368.133	1	4368.133	1043.964	.000
Within Groups	493.733	118	4.184		
Total	4861.867	119			

The influence of speaking skills learning strategies between traditional and blended learning on students' speaking abilities

The two-tailed significance value (0.000) is less than half of the alpha level (0.025). The findings of this study indicate that there exists a disparity between the pre-test and post-test scores following the implementation of treatment/learning, specifically in relation to individuals who were exposed to blended learning strategies as opposed to traditional learning strategies. In essence, the post-test outcomes are influenced by either blended learning tactics or traditional learning strategies as shown in Table 12.

TABLE 12 | Paired Samples Test Post-Test for experimental (BL) versus control (TA)

		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	Pre-Test Experiment – Post-Test Experiment	-11.80000	3.25108	.41971	-12.63984	-10.96016	-28.115	59	.000
Pair 2	Pre-Test Control Post-Test Control	-.73333	1.45982	.18846	-1.11044	-.35622	-3.891	59	.000

The paired samples test was conducted to compare the post-test scores between the experimental group (BL) and the control group. The standard deviation for the experimental group (BL) was found to be 3.25108, while for the control group, it was 1.45982. Additionally, the mean post-test score for the experimental group was 0.41971, and for the control group, it was 0.18846. These findings suggest that there is variability in the post-test scores within both groups, with the experimental group (BL) exhibiting a higher standard deviation compared to the control group. Furthermore, the mean post-test score for the experimental group is notably higher than that of the control group. These results indicate potential differences in the effectiveness of the learning strategies employed between the experimental and control groups, with the experimental group showing a greater improvement in speaking abilities compared to the control group.

Using the information provided in Table 13, it was observed that the experimental group exhibited a substantial increase in scores, with a difference of 11.80 compared to the control group, which only showed a minor improvement of 0.7333. To assess the statistical significance of this difference in progress between the two groups, a two-sample t-test was conducted. The analysis confirmed a statistically significant disparity between the two percentages, namely 11.80 and 0.7333, resulting in a difference of 11.0667.

TABLE 13 | Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre-Test Experiment	66.2000	60	2.76663	.35717
	Post-Test Experiment	78.0000	60	2.30695	.29783
Pair 2	Pre-Test Control	65.2000	60	.70830	.09144
	Post-Test Control	65.9333	60	1.74537	.22533

Comparison of speaking ability subcomponents between traditional and blended learning on students' speaking ability.

Experimental Class

To analyze the subcomponent of oral proficiency for the speaking test, the researchers collected data from both pretest and posttest assessments. They then conducted a paired t-test to compare the scores obtained before and after the intervention. The significance value obtained from the paired t-test (0.000) is less than half of the alpha level (0.025), indicating a significant difference between the pretest and posttest scores in the experimental group. Table 14 illustrates this difference in scores, showcasing a clear disparity between the pretest and posttest results.

Tiara Sylvia, Laila Rochmawati, Susi Diriyanti Novalina

The Efficacy of Blended Learning in Enhancing Oral Proficiency in Aviation…..

TABLE 14 | Paired Samples Test for Experimental Group

			Paired Differences						
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
					Lower	Upper			
Pair 1	Pronunciation1 Pronunciation2	--.59333	.16608	.02144	-.63624	-.55043	-27.673	59	.000
Pair 2	Structure1 Structure2	--1.18000	.32770	.04231	-1.26465	-1.09535	-27.892	59	.000
Pair 3	Vocabulary1 Vocabulary2	--2.35333	.65392	.08442	-2.52226	-2.18441	-27.876	59	.000
Pair 4	Fluency1 Fluency2	-2.34000	.65178	.08414	-2.50837	-2.17163	-27.809	59	.000
Pair 5	Comprehension1 Comprehension2	--2.36000	.64708	.08354	-2.52716	-2.19284	-28.251	59	.000
Pair 6	Interaction1 Interaction2	--2.96250	.81800	.10560	-3.17381	-2.75119	-28.053	59	.000

The results of this study reveal a statistically significant difference between the pre-test and post-test scores, as evidenced by the mean and standard deviation obtained from the paired t-test analysis of each subcomponent. These findings suggest that the implementation of blended learning methodologies has a significant impact on the outcomes of the posttest assessments. Specifically, the use of mixed learning techniques has led to substantial improvements in the participants' speaking abilities, as indicated by the significant disparity between their pre-test and post-test scores. This underscores the effectiveness of blended learning approaches in enhancing students' speaking skills and highlights the potential of such methodologies to facilitate meaningful learning outcomes in language education.

Control Class

The analysis of the subcomponent of oral proficiency for the control group involved collecting data from both pretest and posttest assessments using a t-test, containing the pairs of pronunciation, structure, vocabulary, fluency, comprehension and interaction. The obtained significance value (2-tailed = 0.000) was found to be less than half of the alpha level (0.025), indicating a significant difference between the pretest and posttest values after treatment.

TABLE 15 | Paired Samples Test for Control Group

			Paired Differences						
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
					Lower	Upper			
Pair 1	Pronunciation1 Pronunciation2	--.03667	.07299	.00942	-.05552	-.01781	-3.891	59	.000
Pair 2	Structure1 Structure2	-.07333	.14598	.01885	-.11104	-.03562	-3.891	59	.000
Pair 3	Vocabulary1 Vocabulary2	--.14667	.29196	.03769	-.22209	-.07124	-3.891	59	.000
Pair 4	Fluency1 Fluency2	-.14667	.29196	.03769	-.22209	-.07124	-3.891	59	.000
Pair 5	Comprehension1 Comprehension2	--.14667	.29196	.03769	-.22209	-.07124	-3.891	59	.000
Pair 6	Interactions1 Interactions2	--.18333	.48465	.06257	-.30853	-.05813	-2.930	59	.005

These results show that there is a difference in pretest and posttest scores, as evidenced by the mean and standard deviation, after treatment with traditional learning strategies. Table 15 provides a detailed depiction of these findings, showing significant differences in the pretest and posttest scores for all components (pronunciation, structure, vocabulary, fluency, comprehension and interaction) except for the interaction component, which has a value of 0.005, slightly higher than the alpha level. These results suggest that there is indeed a notable disparity between the pretest and posttest scores following treatment with traditional learning strategies.

Comparison of speaking skills learning strategies between traditional (face-to-face) and blended learning

The experimental group demonstrated notable enhancements in average scores across various components, resulting in an overall increase from 66.20 to 78.00 in mean speaking ability scores from pre-test to post-test. Specifically, improvements were observed in pronunciation (0.5933), structure (1.18), vocabulary (2.3533), fluency (2.34), and comprehension (2.36), indicating a significant improvement of 11.80%. Conversely, the control group exhibited marginal improvements, with slight increases in pronunciation (0.0367), structure (0.0733), vocabulary (0.1467), fluency (0.1467), comprehension (0.1467), and interaction (0.1833). The mean score on the pre-test for the control group was 65.2000, which slightly increased to 65.9333 on the post-test, reflecting a minimal improvement of only 0.7333%. The results of the paired t-test indicate a statistically significant difference between the pre-test and post-test scores. The obtained significance value of 0.000 is less than half of the alpha level of 0.025, suggesting a highly significant difference. This implies that the intervention, likely involving blended learning methodologies, has had a substantial impact on the participants' speaking abilities. The mean and standard deviation obtained from the paired t-test analysis further support this finding, providing evidence of significant improvements across each subcomponent of the speaking test.

The findings of the study indicated a statistically significant disparity in the average scores of speaking proficiencies between the pre-implementation and post-implementation phases of the blended learning (BL) approach. The post-intervention speaking ability score was found to be higher than the pre-intervention score, indicating that the implementation of the BL strategy had a beneficial influence on the speaking ability performance of students in the experimental group. This finding demonstrates the effectiveness of blended learning, namely the utilization of online teaching resources such as E-Module Aviation Speaking Preparation Test, in enhancing students' speaking abilities. This phenomenon may occur due to the heightened learning desire among students when they are exposed to the same educational content through several modalities, such as technology and simulations.

The aforementioned findings are consistent with previous studies conducted (Menggo & Darong, 2022; Yudhana, 2021; Asaad Hamza Sheerah, 2020a). These studies have demonstrated the efficacy of blended learning in enhancing English speaking abilities, as well as indicating a notable improvement in overall student skills. These studies collectively demonstrate the advantages of blended learning and its efficacy in instructing diverse subjects.

In the blended learning program, feedback plays a significant role in enhancing students' speaking skills. External feedback, provided through the E-Module Aviation Speaking Preparation Test on an online platform, helps learners identify mistakes and receive suggestions for improvement. This digital platform encourages students to review and correct errors independently. Instructor feedback guides discussions and provides relevant information, while peer feedback promotes open exchange of perspectives among students. The integration of the E-Module and online activities boosts dedication to oral communication and increases teacher feedback. Asynchronous learning in the speaking class enhances flexibility and effectiveness, making speaking practice more convenient. This collaborative learning approach fosters student engagement and contributes to a student-centered educational setting. Effective pedagogical approaches are essential for motivating learners, sustaining focus on the subject matter, assessing progress, and promoting critical thinking. Such approaches drive learner motivation and involvement in the educational program.

Blended Learning promotes independent, active, and responsible learning. It empowers students to engage actively with course material, fostering a sense of ownership over their learning. Online tools enhance students' ability to express ideas confidently and organize them effectively. Differences in student performance can be attributed to increased motivation, independence, engagement, creativity, and willingness to review and revise their work. Combining in-class and online activities encourages collaboration and effectively develops speaking skills, creating an engaging learning environment.

Tiara Sylvia, Laila Rochmawati, Susi Diriyanti Novalina

The Efficacy of Blended Learning in Enhancing Oral Proficiency in Aviation…..

The influence of speaking skills learning strategies, between traditional and blended learning on students' speaking abilities.

The results of the ANOVA test for the pretest between the experimental group and the control group yielded an estimated F value of 7.357, with a significance level (sig) of 0.008. With a significance value exceeding the threshold of 0.05, it can be inferred that there is no statistically significant distinction in the mean initial ability score between s who will receive blended learning techniques and those who will receive traditional learning strategies. However, for the posttest, the ANOVA test indicated an estimated F value of 1043.964, with a significance level (sig) of 0.000. This significance value is below the threshold of 0.05, indicating a statistically significant difference in the mean final ability score between participants who were exposed to blended learning strategies and those who received traditional learning strategies. This suggests that blended learning techniques have had a significant impact on improving the final ability scores compared to traditional learning strategies.

The findings indicate a positive correlation between the use of the blended teaching learning strategy and students' performance in speaking. The findings revealed a substantial impact on the overall speaking score of students who were exposed to the blended learning approach compared to those who were not. Upon analyzing the academic performance of students that engage in blended learning, it becomes evident that there exists a statistically significant disparity in their average results. The observed phenomenon can be linked to the presence of abundant resources, particularly interactive ones, which learners perceive as being conducive to linguistic accuracy and cohesiveness. An intriguing observation pertains to the differential impact of the blended learning (BL) approach on the speaking scores of the experimental group compared to the control group. While the control group had a general increase in their mean speaking score, the BL approach group exhibited statistically significant improvements across all speaking subcomponents. This outcome suggests a potential association between the online communication materials utilized in the BL method and the observed effects on speaking proficiency.

The findings of this investigation are consistent with a number of prior studies on blended learning and computer-assisted language acquisition. Numerous studies have demonstrated the beneficial impact of blended learning on student performance (Li & Wang, 2022; Zeqiri et al., 2020), learner engagement and motivation (Tiedemann, 2020; Tong et al., 2022), enhanced accessibility and flexibility, cost-effectiveness, and the promotion of active and profound learning when compared to traditional

classroom settings (Asaad Hamza Sheerah, 2020b; Dhawan, 2020; Kamalov et al., 2023). The investigation conducted revealed that, on average, students who utilized computers as a means to enhance their speaking abilities had heightened motivation levels and demonstrated superior written work in terms of both length and quality. The findings of the study suggest that the web search instruction model proves to be an efficacious approach in enhancing students' speaking performance and fostering a favorable learning environment. It was reported that the experimental group in the study saw significant advantages in their speaking learning through the utilization of computers. The findings indicated that computers shown efficacy as an instructional tool in English as a Foreign Language (EFL) speaking assignments. The findings of their research align with those of the present study, corroborating the favorable impact of technology on students' oral proficiency.

Online learning offers several advantages for students in speaking classes. It provides flexibility, allowing students to access assignments at their convenience and complete them on their own schedules. Students take responsibility for their learning and acquire knowledge independently through interactions with peers and educators. They observe various levels of oral communication abilities, engage in discussions, and provide feedback on peers' work. This approach encourages self-monitoring and allows exercises to serve as references at the end of the course.

In the experimental group, learners engage in ongoing self-assessment and utilize feedback to foster independent learning habits. They correct errors in both classroom and online sessions using E-Module Aviation Speaking Preparation Test platform. The study reveals that Blended Learning (BL) cultivates speaking skills through collaborative and logical approaches, significantly impacting learner performance. BL proves to be an effective and motivating approach for enhancing oral communication, potentially expediting English language acquisition and enabling interdisciplinary learning. However, further research with control measures for variables like gender, major, and IQ levels is needed to validate these findings.

Research limitations

The research has several limitations. Firstly, it is confined to two aviation polytechnics, Politeknik Penerbangan Medan and Politeknik Penerbangan Surabaya, with participants from different majors, which may cast doubt on the generalizability of the findings regarding the efficacy of blended learning strategies in enhancing speaking skills. Secondly, the study relies on self-prepared online teaching strategies, potentially impacting results depending on

Tiara Sylvia, Laila Rochmawati, Susi Diriyanti Novalina

The Efficacy of Blended Learning in Enhancing Oral Proficiency in Aviation…..

student participation and other factors. Thirdly, the analysis is based on a limited dataset, warranting a larger and more diverse sample for more robust conclusions. Additionally, the duration of learning is restricted to one semester, potentially affecting data outcomes, and material design is limited to level three, suggesting the need for broader scope and replication in other courses. Moreover, the evaluation of online learning materials solely by English instructors and the researcher's dual role as an instructor may introduce subjectivity to results and bias, along with challenges such as frequent connection failures and slow internet access. Lastly, the research solely relies on pretest and posttest instruments, indicating a need for additional assessment tools for comprehensive evaluation.

Implications and Suggestions

Suggestions and implications of the study are as follows:

1. Teacher skills development: it is essential for teachers to develop skills in designing and managing effective blended learning. They should be proficient in selecting media that align with students' needs and interests and be able to integrate technology effectively into teaching.

2. Increase student motivation and engagement: blended learning can enhance student motivation and engagement, especially for shy or less confident students in communication. Using diverse and flexible teaching methods can make students more active and confident in interaction.

3. Learning material development: material designers should utilize these findings to create more interactive and varied learning materials. This may involve the use of multimedia, online activities, and virtual platforms to enhance students' learning experiences.

4. Technology infrastructure strengthening: colleges need to enhance their technology infrastructure to support blended teaching and learning. This includes providing fast and stable internet access and developing user-friendly online platforms that are easily accessible.

5. Further research: future research should further explore the use of blended learning in higher education contexts, focusing on specific disciplines and the impact of multimedia integration in speaking learning. Additionally, research can involve all education stakeholders, including curriculum designers, management, teachers, and students, to ensure effective and sustainable implementation of blended learning.

CONCLUSION

Based on the results of the study, it can be concluded that: The experimental group showed significant improvements in their average scores across different aspects, leading to a substantial rise in mean speaking ability scores from pre-test to post-test, increasing from 66.20 to 78.00. Specifically, enhancements were observed in pronunciation, structure, vocabulary, fluency, and comprehension, indicating an overall improvement of 11.80%. In contrast, the control group demonstrated minimal improvements, with slight increases in various components. Their mean score on the pre-test slightly increased from 65.2000 to 65.9333 on the post-test, reflecting a minor improvement of 0.7333%. The paired t-test results revealed a statistically significant difference between the pre-test and post-test scores, indicating the effectiveness of the intervention, likely involving blended learning methodologies, in significantly improving participants' speaking abilities. Additionally, the mean and standard deviation obtained from the paired t-test analysis further corroborate these findings, providing substantial evidence of significant enhancements across all subcomponents of the speaking test.

The ANOVA test results for the pretest showed an F value of 7.357 and a significance level of 0.008, indicating no statistically significant difference in the mean initial ability score between participants exposed to blended learning techniques and those receiving traditional learning strategies. However, for the posttest, the ANOVA test revealed an F value of 1043.964 and a significance level of 0.000, indicating a significant difference in the mean final ability score between participants who underwent blended learning strategies and those who followed traditional methods. This implies that blended learning approaches have significantly enhanced final ability scores compared to traditional methods.

Blended learning provides students with a better learning environment through various multi-media sources, such E-Module Aviation Speaking Preparation Test, that improve independent learning strategies and are reflected in their speaking achievements. This underscores the importance of incorporating blended learning approaches in language education to achieve better learning outcomes and enhance students' language proficiency. The findings of this study are in line with many previous studies showing the various benefits of blended learning compared to face-to-face teaching. Providing online resources can provide added value to students and their use can improve performance.

Tiara Sylvia, Laila Rochmawati, Susi Diriyanti Novalina

The Efficacy of Blended Learning in Enhancing Oral Proficiency in Aviation…..

Speaking lessons that use blended learning can be effective in helping English language learners improve their speaking skills according to students' needs and interests.

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Tiara Sylvia, Laila Rochmawati, Susi Diriyanti Novalina

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Social media for improving the students' vocabulary mastery in ESP Maritime English

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The ever-expanding globalization era brings with it a host of new developments in people's lives, including methods of learning, especially when it comes to increasing vocabulary in English, the universal language of communication. Economic issues are greatly impacted by globalization; as a result, trade between countries is growing quickly, and shipping is the most suitable means of transportation. Consequently, there is a growing need for proficient sailors who speak English, especially maritime English, in order to demonstrate clear communication and reduce accidents brought on by miscommunications between crew members and ships. For students in maritime schools, learning Maritime English (ME) terminology is a prerequisite to developing proper communication skills. Social media is one of the teaching strategies used with students at the maritime academy.

Keywords: social media, vocabulary mastery, ESP, maritime English

INTRODUCTION

In this age of globalization, communication in English is crucial. The individuals in charge of these activities must also be proficient in English because it facilitates the significant expansion of industrial activity worldwide. Since most cargo in this profession is transported by ship, seafarers who work closely together also need to be fluent in English. As a result, seafarers require communication on board, and since maritime professionals are multilingual and originate from different nations, English is the primary language used for this communication (Ahmmed, 2017). Furthermore, Cole & Trenkner (2008) affirmed that The international maritime community uses the English language, which is a tool for international communication, as marine English to promote seaborne trade facilitation and navigation safety. All educational institutions must implement and standardize management quality in order to contribute to increased safety. For instance, educational institutions that support sustainable quality programs and the expected ability to communicate in English are needed to support the demands of the global maritime industry (Ratnaningsih et al., 2019).

However, when it comes to Indonesian seafarers' ability to speak English both on board and ashore, there is still a major language barrier. Previous research indicates that the majority of Indonesian seafarers communicated by body language when their English vocabulary was insufficient (Riyanto et al., 2023). That is the main reason why learning language should always start with vocabulary. Several tactics must be used in Indonesian maritime education and training programs to increase students' vocabulary mastery, particularly in maritime English and English for Special Purposes. Using social media is one of these strategies, as Indonesia's internet user base is growing at a rapid pace (Pertiwi, 2022).

Additionally, this is based on a survey conducted by the Association of Service Providers Internet Indonesia (APJII), which found that Indonesia's Internet penetration rate during 2022 – 2023 reached 78.19% meaning that, out of the country's total population of 275,773,901 people, approximately there were 215,626, 156 people doing online activities during that time (VOI, 2023). Social media gives users unlimited opportunities to connect with people worldwide, which allows kids to expand their vocabulary. This possibility allows users to engage in unintentional learning through interaction. Students studying English as a foreign language can learn English (Asari, 2023). Blogs, social networks (Facebook), microblogs (Twitter), wikis (Wikipedia), video podcasts, and photo sharing (Instagram and Snapchat) are some examples of social media platforms that facilitate communication. Apps like Facebook, WhatsApp, YouTube, Twitter, and others have greatly increased social engagement and information exchange among student and teacher groups (Slim & Hafedh, 2019). Thorne (2014) also stated that social media applications allow users to cross the boundaries of their countries, connect and express themselves on a global scale.

Various studies have dealt with social media availability and the new horizons they have created, especially for the youths (Lin et al., 2016). In addition, from the aspects in education they have, researchers have called for the use of social media in the field of education (Slim & Hafedh, 2019). Using those platforms for teaching and learning includes sharing instructional resources like games, videos, and texts for reading and listening. Furthermore, since students can access them outside of scheduled class times at school or on campus, more lively discussions can take place at any time.

Some specific studies which revealed the using of social media for enhancing the vocabulary mastery were from Sabater & Fleta (2015) that discussed the findings of a novel study that used a social networking platform on a task created specifically for the purpose of practicing specialist language. An experimental study examined if using Twitter, a microblogging platform, may increase students' confidence in using ESP vocabulary within the context of blended learning. A different study found that social network-based ESP education was beneficial for ESP vocabulary mastery (Saienko et al., 2020). Therefore, this studies objective is to reveal the effectiveness of the social media in improving the students' vocabulary in ESP maritime English.

METHODS

Research Design
This study employed classroom action research (CAR) as its research methodology. Action research, which involves the participation of practitioners, laymen, and researchers, is the proper way for identifying practical problem-solving in a social setting to increase the quality of action within it (Burns et al., 1967). Additionally, action research was used to enhance the standard of instruction and learning, with a focus on the learner's motivation to acquire language

(Kusumaningrum & Binarti, 2021). This study conducted in a maritime polytechnic in Indonesia with 48 (forty-eight) students in the Nautical Department. These students were randomly assigned to a control group of 24 which is taught by the traditional method, and an experimental group of 24 taught by using social media. The instruments are the Maritime English Vocabulary Test in pretest and post-test which the format was adapted from the format test by Siregar (2020) and originally called as Vocabulary Levels Test. To standardize the test, a pilot study was conducted to calculate the reliability that was calculated by Cronbach Alpha Formula which was 0.90. The test included 40 multiple -choice items and the grades were calculated out of 40.

In order to see whether the social media able to improve the students' vocabulary in ESP maritime English, the similar vocabulary test was administered as the post-test after treatment in the Experimental group. This study was carried out in two iterative cycles: Cycle 1 (March – April 2021) and Cycle 2 (May – June 2021) with four phases which were planning, action, observation, and reflection (Hanum, 2021). The cycles of Classroom Action Research can be seen in the figure 1 below:
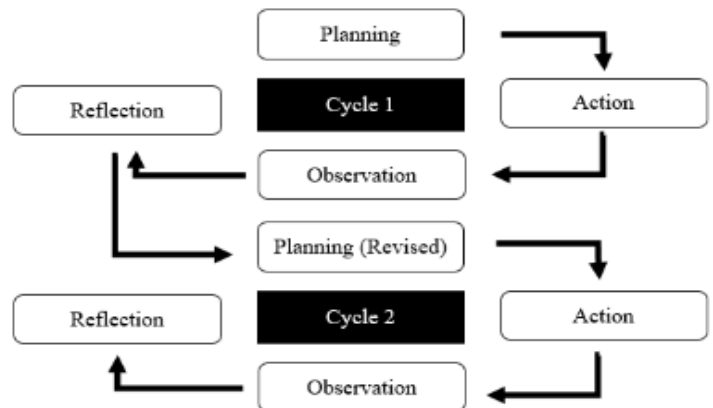

FIGURE 1 | Cycles of Classroom Action Research Model

Prior to initiating the initial cycle, the investigator carried out preliminary observations. The researcher then carried out cycle 1 again. In this investigation, two cycles were conducted. Every cycle has three meetings in it. Pre-test was the first meeting of cycle 1. Using YouTube, Facebook, and Instagram as the social media platforms, marine English vocabulary was taught during the second and third meetings. The types of emergency scenarios on board, the safety equipment on board, and the navigational equipment were the topics of these discussions. The Cycle 1 test performed after treatment in the third meeting of cycle 1. The first and second meeting of cycle 2 were used to teach maritime English vocabulary using the YouTube, Facebook and Instagram again. The third meeting was post-test.

Data Collection
Both groups have the pre-test and post-test in Maritime English Vocabulary Test. The control group doesn't use social media while the experiment does. In the experiment group, the students watch the Man Overboard procedure on YouTube, join maritime Facebook groups such as the

Dyah Ratnaningsih, Oikurema Purwati, Ahmad Munir

Social media for improving the students' vocabulary mastery in ESP ....

maritime studies organization, follow the other seafarers' Instagram who often shares their photos and activities on board, and so on. Then they can give comments or ask for further information about the activities. After that, they create the maritime vocabulary list and use them in the writing and speaking activities in the classroom. The discussions related to vocabulary are conducted during the learning process. After three meetings in cycle 2, the post-test was assigned to them.

Data Analysis

Data was collected and then processed using the SPSS software. To address the research issue, a paired sample t-test using descriptive statistics was initially conducted to determine whether word knowledge of students in the experimental and control groups differed significantly. To compare the means of the two groups in the post-test, an independent sample t-test was used.

RESULTS AND DISCUSSION

The students' activities are divided into 3 (three) phases. The first is the pretest, the learning phase in which the experiment group uses and joins social media such as Youtube, Facebook, and Instagram. This group consists of 24 (twenty-four students). Meanwhile, the control group, which has the same number of students, is learning without social media. The last phase is the posttest. The pretest and posttest related to the Maritime English Vocabulary Test consist of 4 (four) categories. They are the ship constructions (types and parts of the ship), the safety equipment on board, the deck maintenance tools, and the navigation equipment on the bridge. Each category consists of 10 (ten) questions, so there are forty questions in the test.

The data from pretest and posttest were analyzed using SPSS statistics. First, the descriptive statistics and histograms from all the tests are showed. The pretest in the control group showed that the mean is 69,08, the median is 70 with the deviation standard is 1,665. The descriptive statistic result of the Control group's pretest can be seen in figure 2 below.

		Pretest_control
N	Valid	24
	Missing	0
Mean		69.0833
Median		70.0000
Mode		70.00
Std. Deviation		1.66594
Minimum		66.00
Maximum		72.00

FIGURE 2 | Descriptive Statistic of Control group's pretest

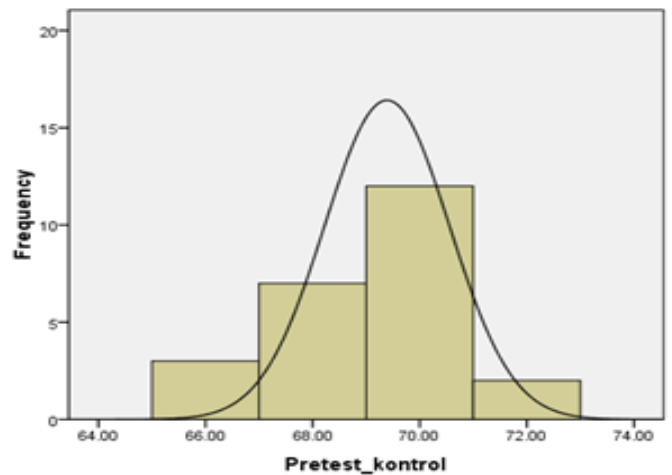Meanwhile, the histogram in figure 3 showed that most students in Control group's pretest got 70 as their score.

FIGURE 3 | The histogram of Control's group pretest

Then, in figure 4, it can be seen that the posttest in the Control group showed that the mean is 75,54, the median is 76 with the deviation standard is 2,702.

		Posttest_control
N	Valid	24
	Missing	0
Mean		75.5417
Median		76.0000
Mode		76.00
Std. Deviation		2.70232
Minimum		67.00
Maximum		80.00

FIGURE 4 | Descriptive Statistic of Control group's posttest

The following is the histogram of Control's group posttest which showed shows that the curve leans closer to score 75, this is because the score 76 dominates the scores of the students. The deviation standard is bigger than the histogram in control group's pretest because the minimum score and modus have longer distance space. The histogram is in figure 5.
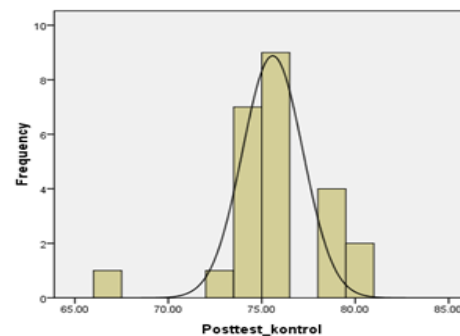

FIGURE 5 | The histogram of Control's group posttest

After that, in figure 6, the descriptive statistic of pretest in the Experiment group showed that the mean is 68,83, the median is 69 with the deviation standard is 1,761.

		Pretest_eksperiment
N	Valid	24
	Missing	0
Mean		68.8333
Median		69.0000
Mode		70.00
Std. Deviation		1.76109
Minimum		66.00
Maximum		72.00

FIGURE 6 | Descriptive Statistic of Experiment group's pretest

Meanwhile, the histogram of the experiment group's pretest in Figure 7 indicated that the curve leans closer to score 70, this was because the score 70 dominates the scores of the students.
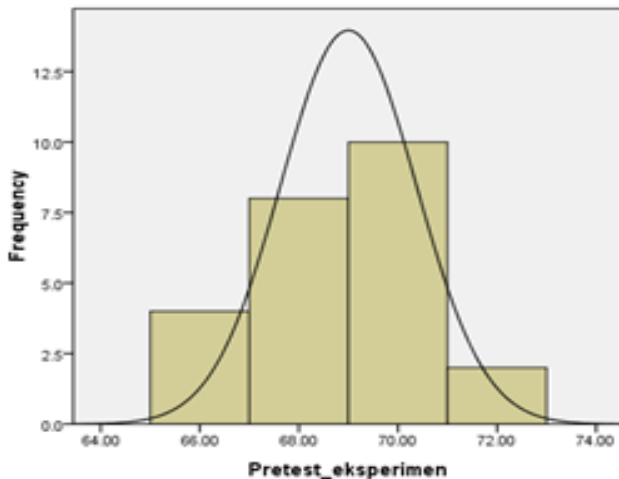

FIGURE 7 | The histogram of Experiment's group pretest

Next is in figure 8, the descriptive statistic of posttest in the Experiment group that conveyed the mean is 77,83, the median is 78 with the deviation standard is 2,697.

		Postest_eksperiment
N	Valid	24
	Missing	0
Mean		77.8333
Median		78.0000
Mode		78.00
Std. Deviation		2.69729
Minimum		72.00
Maximum		82.00

FIGURE 8 | Descriptive Statistic of Experiment group's posttest

Then, in figure 9, the histogram of the Experiment group's posttest showed that the curve leans closer to score 77,5. This is because the score 78 dominates the scores of the students.
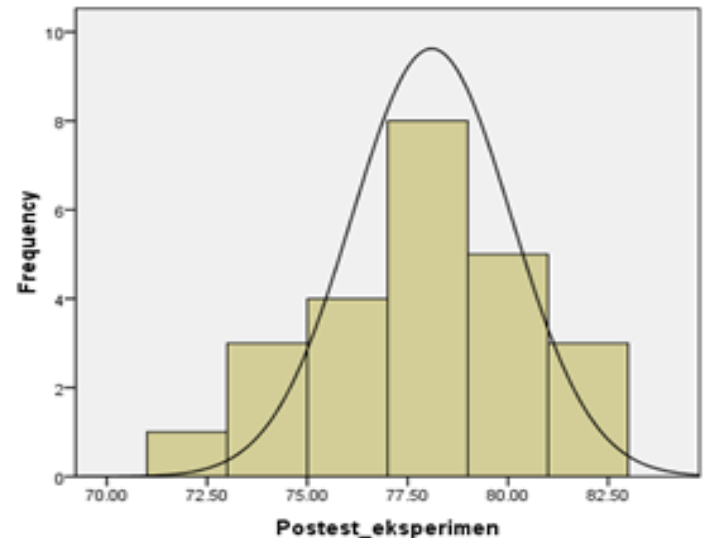

FIGURE 9 | The histogram of Experiment's group posttest

After the explanation of the descriptive statistic above, then the data were calculated to find the normal distribution of the tests are normal. The figure 10 below is the test distribution control group's pretest. The Kolmogorov-smirnov test pointed that the value is 1,432 which is greater than 0,05. So, the data in control group's has normal distribution.

One-Sample Kolmogorov-Smirnov Test

		Pretest_kontrol
N		24
Normal Parameters[a,b]	Mean	69.0833
	Std. Deviation	1.66594
Most Extreme Differences	Absolute	.292
	Positive	.208
	Negative	-.292
Kolmogorov-Smirnov Z		1.432
Asymp. Sig. (2-tailed)		.033

a. Test distribution is Normal.
b. Calculated from data.

FIGURE 10 | One sample of Kolmogorov-smirnov of Control group's pretest

Meanwhile, for Control group's posttest, the Kolmogorov-smirnov test result in figure 11 showed that the value is 0,984 which is greater than 0,05. So, the data in control group's posttest had normal distribution.

One-Sample Kolmogorov-Smirnov Test

		Posttest_kontrol
N		24
Normal Parameters[a,b]	Mean	75.5417
	Std. Deviation	2.70232
Most Extreme Differences	Absolute	.201
	Positive	.183
	Negative	-.201
Kolmogorov-Smirnov Z		.984
Asymp. Sig. (2-tailed)		.288

FIGURE 11 | One sample of kolmogorov-smirnov of control group's posttest

As a result, Kolmogorov-smirnov test in Control group's pretest and posttest indicated the result 1.432 and 0.984 which were greater than 0,05. So, the data in control group's has normal distribution.

Next is the Kolmogorov-smirnov test in Experiment group's pretest and posttest. The figure 12 below is the test distribution of Experiment group's pretest. The Kolmogorov-smirnov test pointed that the value is 1,206 which is greater than 0,05. So, the data in Experiment group's pretest had a normal distribution.

		Pretest_eksperimen
N		24
Normal Parameters[a,b]	Mean	68.8333
	Std. Deviation	1.76109
Most Extreme Differences	Absolute	.246
	Positive	.182
	Negative	-.246
Kolmogorov-Smirnov Z		1.206
Asymp. Sig. (2-tailed)		.109

FIGURE 12 | One sample of Kolmogorov-smirnov of experiment group's pretest

While in the Kolmogorov-smirnov test for Experiment group's posttest in figure 13 pointed that the result is 0.937. So, since the pretest and posttest results were greater than 0,05, the data had a normal distribution.

		Postest_eksperimen
N		24
Normal Parameters[a,b]	Mean	77.8333
	Std. Deviation	2.69729
Most Extreme Differences	Absolute	.191
	Positive	.142
	Negative	-.191
Kolmogorov-Smirnov Z		.937
Asymp. Sig. (2-tailed)		.343

FIGURE 13 | One sample of Kolmogorov-smirnov of experiment group's posttest

Furthermore, figure 14, the test of homogeneity of variances was applied to reveal whether the pretest and posttest data are homogeny. As described in figure The method of Levene test for pretest is 0,697 (sig>0,05) and the posttest significancy is 0,773 (sig>0,05). Then, it can be concluded that the data is homogenous.

Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
pretest	.154	1	46	.697
Posttes	.084	1	46	.773

FIGURE 14 | Test of homogeneity of variances in experiment and control group's pretest and posttest

After analyzing the data from pretest and posttest, the t-test is used to know the differences in the students' vocabulary mastery improvement. The figure 15 showed the t-test of pretest and posttest in Control group.

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Control group	Equal variances assumed	1.437	.237	-9.966	46	.000	-6.45833	.64801	-7.76270	-5.15396
	Equal variances not assumed			-9.966	38.276	.000	-6.45833	.64801	-7.76984	-5.14682

FIGURE 15 | The t-test of pretest and posttest in Control group

Then, in figure 16, the t-test of pretest and posttest in Experiment group were described.

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Eksperiment group	Equal variances assumed	2.046	.159	-13.687	46	.000	-9.00000	.65755	-10.32357	-7.67643
	Equal variances not assumed			-13.687	39.594	.000	-9.00000	.65755	-10.32938	-7.67062

FIGURE 16 | The t-test of pretest and posttest in Control group

Considering the significant-value (sig <0,05) showed that the two groups performed significantly different on the post-vocabulary test which indicated to the effectiveness of the social media for improving the vocabulary mastery. Furthermore, paired t-test statistic was run to determine whether the vocabulary mastery of the participants has changed before and after the treatment.

Furthermore, the t-test comparing the pretest and posttest in control group revealed the significant-value (sig <0,05) which showed that the students gain improvement in posttest. But, comparing the significant improvement between the two groups, the experiment group which used the social media reached more significant improvement in maritime English vocabulary mastery than the control group.

Those tests revealed that the social media had a significant impact in enhancing the vocabulary of the students who learned English language. This result similar with the research conducted by Hanan et al. (2023) which reported that social media was crucial to learning English because it gave students who were learning the language the chance to get better at writing, reading, and other skills as well as to expand their vocabulary by reading new texts and phrases since this was the crucial media as a communication tools in the new globalization period.

CONCLUSION

The results of the study indicated that students' vocabulary acquisition improved when social media was used in ESP maritime English. The ESP Maritime English in this research were about the Safety of Life at Sea (SOLAS) which discussed about the importance of knowing the terminologies in the safety equipment for different distress situation on board with several regulations about their standard procedures. Then the social media sites like

Facebook, Instagram, and YouTube could be used to improve ESP maritime English vocabulary since the SOLAS regulation with the specific's terminologies related to that subject could be discussed easily by the maritime authorities, seafarers, maritime personnel, and so on from all over the world.. Similar research on ESP improvement revealed that social media provided a casual and supportive environment for beginning to utilize specialized vocabulary in the target language in natural contexts (Sabater & Fleta, 2015). So, from this study, the considerable pretest improvement between posttest results in the Experimental group indicated the use of social media in enhancing the ESP maritime vocabulary. To meet the objectives of English language learning, further study on the use of social media to enhance English proficiency must be done.

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Dyah Ratnaningsih, Oikurema Purwati, Ahmad Munir

Social media for improving the students' vocabulary mastery in ESP ....

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