Modelling the Interrelationships among Student and Teacher Factors in Predicting English as a Foreign Language Achievement in Secondary Schools in West Java, Indonesia

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This thesis is submitted in fulfillment of the requirements for the degree of

Doctor of Philosophy

School of Education

Faculty of Arts, Business, Law and Economics

The University of Adelaide

October 2023

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Abstract

This research investigates student and teacher factors, their interrelationships, and their impact on English as a foreign language achievement among general and vocational high school students in West Java, Indonesia. It also explored student and teacher perceptions on the practices of teaching and learning in EFL classrooms. The study employed an explanatory sequential mixed method design to examine factors impacting on English achievement among secondary school students. The participants were selected using multi-stage random sampling resulting in 758 Year 12 students and 32 English teachers participating in this study. Data were collected using survey questionnaires, semi-structured interviews, and a diagnostic test.

The results of the study reveal that students attending public high schools tend to have higher achievement in English than those attending public vocational high schools. The study also found that female students tend to perform better in English compared to male counterparts. An interesting finding was also found regarding the influence of time spent for doing homework, indicating that the less time students spent doing homework, the higher their achievement in English. In addition, the study found that teacher gender and teacher qualifications influence the success of student learning English.

Findings also reveal assessment environment, motivational variables, and approaches to learning directly impact on students' success in English. Students who perceive assessment practices too much emphasis on performance and grades are more likely to have lower achievement. Further, students who feel more anxious in English classrooms and use surface approach to learning English also tend to have lower success in English. Meanwhile, students who are motivated to engage in learning and to perform better than their peers tend to have higher achievement in English. The study also found multiple interrelationships among student

variables in the student model. Some interrelationships among teacher-level variables and the interactions among teacher and student-level factors are identified in this study.

Findings from the interviews reveal that students find teaching and learning English emphasizes more on student-centred in which students are encouraged to participate actively in communicating and practicing using English in classroom setting. In relation to assessment, students find teachers use various ways of assessment activities. However, feedback from teachers is viewed to be limited, if none, so students are unable to identify their strengths and weaknesses on learning English. Interviews with teachers found the significant benefit of teacher forum or communities as a media to share and ask concerns about teaching English.

Declaration

I certify that this work contains no material which has been accepted for the award of any other degree or diploma in my name, in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text. In addition, I certify that no part of this work will, in the future, be used in a submission in my name, for any other degree or diploma in any university or other tertiary institution without the prior approval of the University of Adelaide and where applicable, any partner institution responsible for the joint award of this degree.

I give permission for the digital version of my thesis to be made available on the web, via the University's digital research repository, the Library Search and also through web search engines, unless permission has been granted by the University to restrict access for a period of time.

Signed:

Dated: 31 October 2023

Acknowledgements

In the name of Allah SWT, the Most Merciful, the Most Compassionate. Due to his blessing Alhamdulillah, I can finally complete this thesis and my academic journey here in the University of Adelaide. Without His blessings I would not be able to strive. All praises go to the Prophet Muhammad SAW, peace be upon him, to his family and his companions, who has given a true example in the way of life.

My best gratitude goes to my beloved parents and my parents-in-law who always pray for my best endeavour and my family, who always show their loving care, and who always motivate me to be better. May Allah SWT rewards them with abundant blessings and happiness.

My special gratitude is for my beloved and caring super wife, Ridha Wahdini, who has shown unconditional love and patience and who always pray for me from thousands of miles away. Her love gives me strengths in every step I make. To my lovely daughter, Kahla Adzkia Arifin, thank you for being such a loving and caring one who helps her mom and look after her sisters. For Khaira Azmya Arifin, thank you for your patience and joy you share to us. And for Keika Azalea Arifin, the one that grabs her mom's phone asking her to have a video call with me only to smile and say hello in the morning and evening. Thank you for the smiles.

My deepest gratitude goes to my supervisory team who always guided and assisted me during my journey. To Dr I Gusti Ngurah Darmawan, I cannot thank you enough for your kindness, patience, and invaluable support so that I can learn many things during my journey. To Dr Nina Maadad, thank you for your care, support, and sharing so that I can be tough in surviving and finishing my study.

I would also express my deepest gratitude to The Indonesia Endowment Funds for Education (LPDP), *Beasiswa Unggulan Dosen Indonesia* (BUDI), the Ministry of Finance who has given

CHAPTER 1

INTRODUCTION

1.1   Introduction

The global status and the development of varieties of the English language throughout the Asian region have marked the importance of English in recent years. English has been more widely used as a second language or as a foreign language by non-native speakers in many Asian countries. This expansion certainly carries the implications in many sectors, such as education, and in many countries and Indonesia is no exception.

In Indonesia, English has played a significant role in education (Lauder, 2008). It has been a compulsory subject in formal schoolings and one of the subjects tested in the national examination for third year lower secondary (grade 9) and third year upper secondary school students (grade 12) (Larson, 2014; Lie, 2007). However, although the language has been studied for some years, English academic achievement demonstrated by Indonesian students remains substandard (Kirkpatrick, 2012; Mattarima & Hamdan, 2011). The national examination results released by Pusat Penilaian Pendidikan (Educational Evaluation Center) in 2019 showed that the average scores for English in lower secondary, upper secondary level, and upper vocational secondary school levels were 50.23, 49.13, and 41.78 respectively, which means they fell into low category (Pusat Penilaian Pendidikan [Educational Evaluation Center], 2019).

From an institutional perspective, a low level of English achievement is not an isolated incident. Instead, it is influenced by wider contextual conditions and social circumstances. The literature presents a wide array of individual and contextual factors that have the potential to significantly influence the language acquisition. From cognitive approaches to language

learning, individual learner factors play a pivotal role in determining the success of a second and foreign language learning (Al-Mahrooqi & Denman, 2022). One of the learner factors that can influence the acquisition of a language is language learner strategies. Skehan (1998) claims that individual differences in learning strategies play significant role in language acquisition. Cohen (2014) points out that strategies involve learners' conscious awareness, and learners use strategies for various reasons, including to enhance learning, to perform tasks, to solve specific problems, to make learning easier and faster, and to compensate for language deficit. He further suggests that the strategy use among learners is not stable but may vary depending on the learning contexts. Students' conceptions of learning and motivational beliefs like achievement goals, attitude toward English, and anxiety in learning are also influential in the success of English learning.

From socio-educational model proposed by Gardner (1985), it is not only individual, but also contextual factors that impact on language learning. Research has documented that students' academic achievement is closely related to some critical factors including the specific classroom context, classroom agents (i.e., teachers, learners, and peers) and their relationships and perceptions of the classroom environment, including the practice of teaching, learning, and supportive assessment (Alkharusi et al., 2014; Turner & Purpura, 2015). As individual and contextual factors can influence students' language learning, studies have been conducted to investigate their roles in the success of English learning. Since the practice of English teaching, learning, and assessment in classrooms is multifaceted, a research study is urgently needed on the following: firstly, how factors in teachers and students in language teaching, learning, and assessment are interrelated; and secondly, how teachers and students perceive the practices of classroom language teaching, learning and assessment in schools.

This chapter offers an overview of the research background and outlines the intended scope and focus of the study. It presents the research questions, objectives, and significance. Additionally, a summary is provided to emphasize the key points covered in this chapter.

1.2   Overview of Indonesian Education System

Indonesia is an archipelagic nation located in Southeast Asia. It spans the regions between the Indian Ocean and the Pacific Ocean. Its strategic position places it astride or along significant sea lanes that connect East Asia, South Asia, and Oceania. Indonesia has 38 provinces spread from Sumatra Island to Papua Island. With an estimated population of over 278 million people in 2023 according to the Central Statistics Agency, Indonesia ranks as the fourth most populous country globally. It is a multiracial, multiethnic and multicultural country with the largest Muslim population in the world (around 86% of total population). Indonesia is a unitary state with a republican system of governance, adhering to the 1945 Constitution of the Republic of Indonesia as its authoritative and valid constitutional framework.

The provision for education in Indonesia is established in Article 31 of the Indonesian Constitution of 1945. It affirms the right of every citizen to receive education, and mandates that the government ensures the provision of a national education system governed by relevant legislation. The education system in Indonesia has been governed primarily by Laws and Government Regulations. Initially governed by Law Number 4 of 1950, which was supported by Law Number 12 of 1954, the foundations of education and instruction in Indonesian schools were established. The enactment of the 1950 Law played a pivotal role in establishing the framework for subsequent legislation, particularly in defining the categories of kindergarten, primary, general and vocational secondary, and higher education. This law remained in effect until the issuance of the 1989 Law was enacted. To meet the needs and demands of national educational development, the 1989 Law Number 2 on the National Education System replaced

the previous legislation. This law outlined the management of education in Indonesia, encompassing from the formulation of educational objectives and functions to the monitoring of education implementation at all levels. Subsequently, the National Education System Law, also known as Law Number 20 of 2003, was introduced, serving as the cornerstone for education management, curriculum development, and implementation across the country. The 2003 Law is still in effect although the draft of a new national education system law is currently under discussion in the parliamentary house.

The education system in Indonesia, as specified in Law Number 20 of 2003, is organized into formal, non-formal, and informal education, all of which possess the potential to complement and enhance one another. The formal education comprises three levels: basic or primary education, middle or secondary education, and higher education. Basic education serves as the foundational level of education, consisting of elementary education (6 years of schooling) and junior secondary education (3 years of schooling). Middle or secondary education is the continuation of basic education, which consist of senior general secondary or senior vocational secondary schools (3 years of schooling). Meanwhile, higher education refers to the educational level that follows secondary education, encompassing various academic levels such as diplomas, undergraduate degrees, master's degrees, specialist degrees, and doctoral degrees, which are conferred by universities.

In Indonesia, the provision and administration of educational services are handled by both the government and private sectors. The Ministry of Education and Culture (MoEC) and the Ministry of Religious Affairs (MoRA) have the responsibility to the government for planning and implementing educational services, spanning from primary to tertiary education levels. MoEC oversees general schools, like general elementary schools, junior high schools, senior high schools, and public general universities. On the other hand, MoRA is responsible for

religious (Islamic) schools, like Islamic elementary schools, Islamic junior high schools, Islamic senior high schools, and Islamic government universities. Both general schools and Islamic schools provide similar subjects in their respective curricula. Islamic schools feature more hours of religious subjects while general schools only offer a two-hour lesson on religion. On the other hand, private schools are operated by foundations or non-governmental entities. These schools have the flexibility to incorporate supplementary curricula alongside the national curriculum, and they may also adopt languages other than Bahasa Indonesia, such as English or Mandarin, as the medium of instruction.

Meanwhile, non-formal education is organized for community members who require educational services that complement, supplement, or act as alternatives to formal education, thereby supporting lifelong learning. Its primary objective is to enhance students' potential through the acquisition of functional knowledge, skills, professional attitudes, and personal development. Non-formal education encompasses various programs such as life skills education, early childhood education, youth education, women's empowerment education, literacy education, skills training, inclusive education, and other programs aimed at fostering students' abilities. Non-formal education units encompass institutions offering courses, training, study groups, community learning centres, and similar educational entities. Meanwhile, informal education encompasses independent learning activities facilitated by families and the surrounding environment. The outcomes of informal education are acknowledged as the same as those of formal and non-formal education, provided that students successfully meet the national education standards through relevant examinations. The structure of formal education system is shown in Figure 1.2.1.
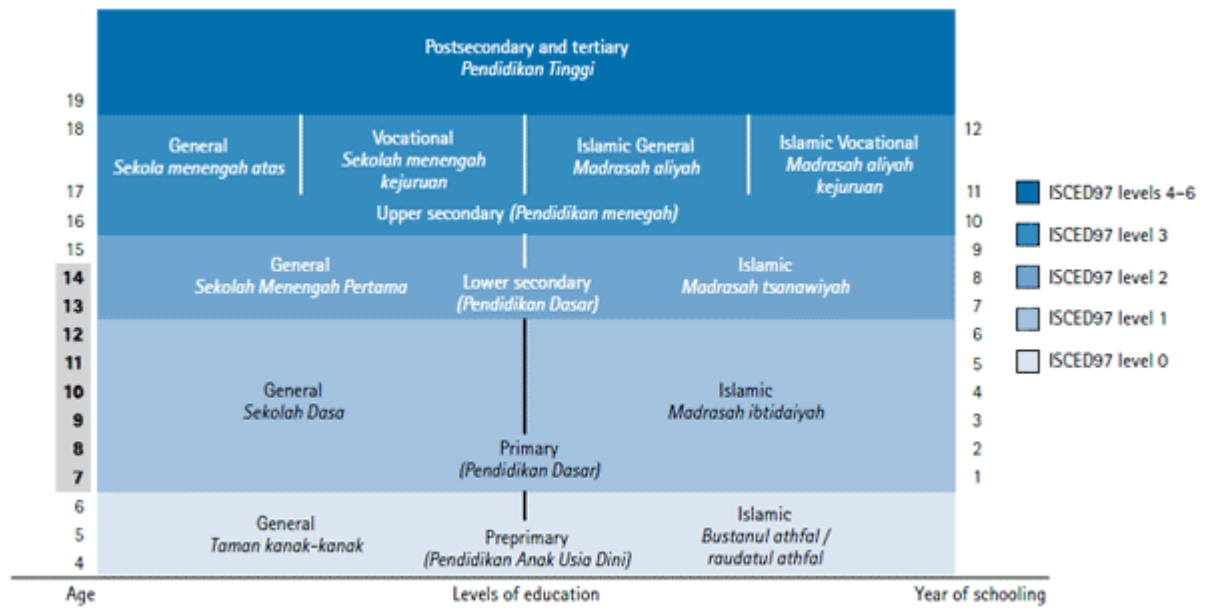
Figure 1.2.1 Structure of formal education in Indonesia
(Source: The National Center for Education Statistics. (2015). Comparative indicators of education in the United States and Other G-20 countries: 2015)

Indonesia has a nine-year compulsory basic education programme from elementary education (grades 1-6) to junior secondary education (grades 7-9). This program functions to strive for the expansion and equity of opportunities to obtain quality education for every Indonesian citizen. The main aim of this program is to provide minimum education for Indonesian citizens to be able to develop their potential so they can live independently in society or continue their education to a higher level. Upon successfully completing their basic education, students have the option to pursue upper secondary education, which typically lasts for three years (grades 10 to 12). During this stage, they can choose to enrol in either general secondary schools or vocational schools. General secondary schools prioritize the development of skills and knowledge, with the aim of preparing students for higher education at universities or colleges. On the other hand, vocational secondary schools focus on equipping students with practical skills and knowledge for specific occupations, fostering a professional mindset.

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The law of education system also stipulates the role of language in education system. As a multilingual nation with a diverse range of ethnic groups and approximately 700 languages, Indonesia has designated Bahasa Indonesia as its national language. As the national language, Bahasa Indonesia serves as the medium of instruction in the national education system specified in Article 33 of the 2003 Education System Law. A local language may be utilized as the language of instruction when necessary for conveying specific knowledge and/or skills. Meanwhile, a foreign language in certain educational units can be employed as the language of instruction to enhance students' proficiency in foreign languages.

1.3   English as a Foreign Language in Indonesian Secondary Education

English has been regarded as the primary foreign language in the Indonesian education system. The position of English as the primary foreign language rather than the language for daily use or the second language was stated by the first head of the *Central Inspectorate of English Language Instruction* in the Ministry of Education in 1955 (Komaria, 1998). Its position has also been regulated in the 1989 Law of National Education System, where English is assigned as the first foreign language to be taught at schools in Indonesia. In the Government Regulation Number 28 of 1990 on Basic Education, English is mentioned as one of the subjects taught to elementary school students. At this level, English could be offered as a subject starting from grade 4 based on students' abilities and schools' flexibility, and it aims to cultivate interest in learning foreign languages and is not a mandatory subject (MONE, 2002). The law further states that a foreign language can be employed as the medium of instruction to enhance students' competence in foreign languages. This implies that English could serve as a medium of instruction with the goal of enhancing students' proficiency in the language.

The role of English in secondary school contexts has also been explicitly outlined by the Ministry of National Education (MONE) in the implementation of 2004 Competence-based

Curriculum. The curriculum was formulated in response to the advancement in information, science, technology, and arts, along with the requirements of decentralization, and it aims to equip graduates with the necessary skills and knowledge to thrive in a competitive environment at both national and international levels. It is stated that:

> English, being the language spoken by over half of the world's population, assumes a crucial role as a global language. Apart from serving as the language of science, technology, and art, it also functions as a tool for attaining economic-trade objectives, facilitating international relations, pursuing socio-cultural and educational aspirations, as well as advancing career development goals. Proficiency in English can be regarded as a fundamental requirement for the success of individuals, communities, and the Indonesian nation in effectively addressing global challenges. While there are various programs available to acquire English proficiency, English teaching programs within schools appear to be the primary avenue for many Indonesian children. (MONE, 2001, p. 7)

Within the curriculum framework, the instruction of English aims to nurture students' cognitive abilities to think critically, effectively communicate, evaluate information, and embrace positive values. It also aims to enrich their knowledge and skills in comprehending diverse cultures, enabling them to actively engage as global citizens. Additionally, the curriculum seeks to cultivate students' expressive capabilities, promote awareness of different perspectives, and foster their understanding and application of scientific and technological concepts.

Further, the importance of English in secondary education is also outlined in the standard competence and basic competence issued by Badan Standar Nasional Pendidikan [Board of National Standard of Education] or BSNP as the reference for the development of 2006 Curriculum. The formulated role of English is described as follows:

> English serves as a means of oral and written communication, which is used to understand and express information, thoughts, feelings, as well as advancing science, technology, and culture. Proficiency in communication encompasses the ability to engage in discourse, which entails comprehending and/or producing spoken and/or written texts through the four language skills: listening, speaking, reading, and writing. These skills are employed to respond to or generate discourse in various social contexts. Consequently, the English subject aims to cultivate these skills, enabling students to communicate and engage in discourse in English at a

specific level of literacy. At the upper secondary level, students are expected to attain the informational level of literacy, which enables them to access knowledge effectively through language proficiency.

Based on the aforementioned explanation, English is recognized as a pivotal subject that equips students with the necessary skills and proficiency to face global challenges. Specifically for secondary school students, English instruction focuses on enhancing language skills and fostering communicative competence and a higher level of literacy needed for future educational pursuits. Considering the significance of English, Sukyadi (2015) highlights its consistent presence within the curricula of Indonesian secondary education, ensuring its inclusion in every revision of secondary curricula.

1.4   English Language Policies in Indonesian Secondary Schools

English language teaching and learning in Indonesia is influenced mostly by the curriculum development enacted by government policies. In the Indonesian context, the development of curriculum is outlined in the 2003 Law of National Education System. According to the Law, curriculum is defined as a set of plans and arrangements regarding objectives, content, and learning materials as well as the methods used as guidelines for organizing learning activities to achieve certain educational goals. Any curriculum development in every educational level must adhere to the national education standards, emphasizing the principle of diversification to accommodate the unique characteristics of educational units, regional potentials, and learners. As stated in Chapter 10, Article 36 of the Law, the curriculum in Indonesia is developed in alignment with the educational level, considering various factors such as learners (including faith, piety, noble character, potential, intelligence, and interests), regional and environmental potentials, regional and national development needs, demands of the labour market, advancements in science, technology, and arts, religious aspects, global developments, and the promotion of national unity and values. The Indonesian government establishes the fundamental framework and curriculum structure for primary and secondary education.

However, each educational unit has the authority to develop the curriculum, taking into account its specific relevance. Any curriculum development initiatives must be coordinated and supervised by the city-level education department for primary education and the provincial-level education department for secondary education. In both the basic and secondary curriculum in Indonesia, language is a mandatory subject.

The curriculum development in Indonesia has changed the way English is taught in schools, particularly in secondary school contexts. Historically, foreign language instruction has been implemented in Indonesia after the country's proclamation of independence. According to Dardjowidjojo (2000), before the Indonesian independence, Dutch was the foreign language taught at schools and only limited groups of people studied it. After the independence, Dutch was no longer taught at schools due to the perception that it was the language of colonists and lacked in international significance. Therefore, English was chosen as the first foreign language serving as a crucial means of international communication. Since then, English has been integrated as part of curriculum in secondary education.

There have been significant changes in English curricula at secondary school levels since the independence of Indonesia in 1945 (Sukyadi, 2015; Widodo, 2016). According to Kasihani (2000) as cited in Sukyadi (2015), the initial curriculum implemented was known as the Old Style Curriculum, which was introduced in 1954 and emphasized the grammar translation method for English instruction. Subsequently, in 1962, the New Style Curriculum replaced it and introduced the audiolingual method. This method persisted in the 1968 Perfected New Style Curriculum. In this period, *English for the SLTA* served as the teaching materials for senior secondary schools until the 1980s, with a primary focus on developing reading skills (Kasihani, 2000, cited in Sukyadi, 2015).

According to Mistar (2005), the specific objective of English teaching in Indonesia was not clearly defined until the Ministry of Education and Culture issued decree Number 096 in 1967. This decree established that the primary aim of English instruction in Indonesian secondary schools is to equip students with essential language skills necessary for various purposes. These include the ability to read textbooks and reference materials in English, comprehend lectures delivered by foreign lecturers in affiliation programs with international universities, communicate effectively with individuals and students from overseas, take notes during lectures given by foreign lecturers, introduce Indonesian culture to international communities, and engage in oral examinations and discussions with foreign lecturers, individuals, and students. The objectives presented suggest the order of language skills that should be prioritized in teaching English with reading skills considered the top priority followed by listening, writing, and speaking (Mistar, 2005). In 1975, the education system adopted the 1975 Curriculum, which emphasized English teaching as a means to promote the development of science, technology, culture, and arts, while also fostering stronger international relationships. The curriculum adopted the audiolingual method and prioritized the teaching of structure rather than communication. Even though teaching objectives highlighted the use of four language skills, teaching materials and activities focused more on structure.

In 1984 Curriculum, language has been recognized as a medium of communication for conveying meanings and messages. Therefore, the objective of this curriculum is to refocus language teaching on the meaningful and functional aspects of communication. Reading and conversation resources were not used solely for practicing English structure, but they were used to give experience for students to expand English knowledge and skills. With a focus on developing communicative skills, this curriculum encompassed both language elements and communicative language activities. The language elements included aspects such as accurate pronunciation, appropriate English structure, and an extensive vocabulary of up to 4000 words

for upper secondary students. Communicative language activities covered reading, dialogues, and writing or composition. By enhancing knowledge and engaging in communicative activities, students were able to cultivate effective communicative skills in English (MOEC, 1986).

The 1994 Curriculum was implemented as a revision of the 1984 curriculum, with a strong emphasis on a communicative and meaningful approach. The curriculum aimed to foster English usage in authentic contexts, prioritizing the development of four language skills. Reading received particular attention, and language elements such as vocabulary, English structure, and pronunciation were addressed through dedicated activities as needed. The teaching of these language elements was aimed to support the mastery of the four language skills: reading, listening, speaking, and writing. The learning process shifted towards a student-centred and active approach, with teachers playing their role of facilitators and supervisors. A distinctive characteristic in 1994 curriculum was the adoption of variable focus model, emphasizing on the language skill improvement, particularly reading skills, with theme-based learning. The selected themes were sorted based on the priority from immediate needs to future needs, and from the local environment to the global environment. Language elements, such as structure and vocabulary, were taught in a progressive order, starting with the easiest and gradually progressing to more challenging aspects (MOEC, 1994).

In 2004, competency-based curriculum (CBC) was implemented as a response to the decentralization in education in Indonesia and the needs of improving students' competencies in English. The curriculum was formulated based on the communicative competence model by Celce-Murcia et al. (1995) to define the language competencies required in communication. The curriculum highlighted discourse competence as the central aspect of communication, complemented by other competencies including linguistic, actional, sociocultural, and strategic

competencies. It also incorporated the social semiotic system as a language model inspired by Halliday (1978). The model described the interplay between contexts, texts, and language systems, and it introduced three functions of language use: ideational, interpersonal, and textual functions. In this curriculum, therefore, language instruction aimed to develop students' fundamental competence in using English to convey nuanced meanings in ideational, interpersonal, and textual contexts. Additionally, the curriculum aimed to achieve student outcomes aligned with the literacy levels defined by Wells (1987). Four levels of literacy were introduced: performative, functional, informational, and epistemic. For upper secondary school students, the goal was to attain the informational level of literacy, which entailed the ability to access knowledge through language. To support students in reaching this level, the curriculum implemented genre pedagogy, exposing students to diverse text types that fostered their literacy skills.

The competency-based curriculum was grounded in robust theoretical foundations to enhance English competencies for students. However, its implementation was met with both positive and negative reception. According to Sukyadi (2015), proponents of the curriculum supported the belief that genre-based instruction facilitated the acquisition of four language skills and critical thinking abilities. However, it is also argued that the curriculum was overly linguistic and impractical for Indonesian children learning English as a foreign language. English teachers were burdened with new linguistic terminology, such as ideational function, mode, field, tenor, among others, and instead of prioritizing students' communicative competence, teachers focused on teaching specific text types and generic structures that were tested in examinations (Sukyadi, 2015). In a similar vein, Widodo (2016) highlighted the challenges encountered during the implementation of the CBC Curriculum. Many teachers primarily relied on published textbooks and showed reluctance in creating their own classroom materials. He further argued that instead of fostering performance-based instruction, which allows students

to apply integrated skills and competencies in various communication scenarios, most teachers delivered instruction that restricted opportunities for student engagement with the English language, prioritizing test-oriented language instruction. To address these issues and facilitate students' acquisition of English as a means of communication, the Ministry of National Education introduced the concept of school-based curriculum (SBC) into the 2006 ELT Curriculum (Widodo, 2016).

The 2006 Curriculum, known as the school-based curriculum (SBC), was developed as an operational replacement for the 2004 curriculum and implemented in educational units (i.e., schools). According to BSNP (2006), the purpose of the curriculum was to provide flexibility for educational units (schools) to tailor the curriculum to local needs and potentials. It focused on the students' potentials, developments, and interests, incorporating relevant local content pertaining to social beings and the workforce, as well as advancements in knowledge and technology. By adopting the school-based approach, schools were entrusted with greater responsibility in designing their own curriculum to meet the specific needs of their students.

However, concerns and criticisms arose regarding the implementation of the curriculum. Sukyadi (2015) emphasized the lack of understanding and experience among teachers and schools in adapting the curriculum to their specific needs, such as creating syllabi, lesson plans, teaching materials, and assessments. Further, limited experts knowledgeable in systemic functional linguistics and genre-based approaches made curriculum socialization efforts insufficient, leading to 'genre-based approach abuse' (Sukyadi, 2015, p. 129). Putra (2014) highlighted a discrepancy between the curriculum's objectives and the evaluation methods used to assess language teaching and learning outcomes. While the curriculum aimed to develop communicative competence in both oral and written skills and promote student awareness of

the target language and culture, student learning was evaluated solely through a high-stakes national examination that predominantly emphasized listening and reading skills.

In 2013, the government launched the new curriculum known as the 2013 Curriculum to replace the 2006 Curriculum. The 2013 Curriculum for upper secondary schools was stipulated in the Ministerial Regulation of MOEC Number 59 of 2014. Unlike previous curriculum, the 2013 Curriculum is designed to balance both hard skills and soft skills. The structure of the curriculum consisted of core competencies and basic competencies. Core competencies referred to the proficiency level required for students to achieve graduate competency standards, and these competencies included spiritual attitudes, social attitudes, knowledge, and skills. Meanwhile, basic competencies comprise the skills and learning content specific to a subject, which align with the Core Competencies.

Apart from maintaining genre-based approach, the 2013 curriculum also adopted scientific approach. This approach consisted of five learning cycles, including observing, questioning, exploring/experimenting, associating, and communicating. The cycles were then applied to teach a subject matter. In English subject, for example, at the observing stage, teachers may ask students to observe various things, phenomena, or social activities which could be performed through field trips, video presentations, or other digital resources. At the questioning phase, teachers may ask students individually or in groups to ensure their understanding of their observations. Students at the exploring stage may be encouraged to search for information sources to complete assigned tasks. At the associating phase, students may be asked to establish connections between linguistic features, rhetorical resources, and the different things, phenomena, or social activities they have observed. Finally, at the communicating stage, students may be asked to share or perform relevant tasks either individually or collaboratively (Widodo, 2016).

The implementation of the 2013 Curriculum faced some criticism. According to Widodo (2016), the formulation of core and basic competencies in the curriculum was based on ideological and political agendas, which results in a lack of emphasis on communicative language competence and the comprehensive range of competencies required for students to become proficient users. He further argued that the curriculum relied heavily on formal assessment although the process- and product-based assessment was applied in the curriculum. In relation to teaching affective domain, Sukyadi (2015) argued that teaching affective domain, specifically moral and character development, was deemed impractical and assessing such development posed difficulties for students. He further argued that the reduction of English teaching hours from four to two hours per week was seen as incongruent with the present need to enhance English skills for secondary school students. In order to adequately equip students with the essential language skills for higher education and the workforce, it is imperative to increase the allocated teaching hours for the English subject at the secondary level. Despite the criticism, the 2013 Curriculum has been widely adopted as a reference for educational practices and implemented in Indonesian schools until the government introduced the Emergency Curriculum during the COVID-19 Pandemic in 2019.

In 2022, the Ministry of Education, Culture, Research, and Technology (MOECRT) introduced a set of policies that provide schools with the flexibility to choose one of three curriculum options. This initiative aims to address learning loss and facilitate learning recovery in response to the challenges posed by the pandemic. The available curriculum options consist of the 2013 Curriculum, the Emergency Curriculum, and the Merdeka Curriculum. The Emergency Curriculum is a modified version of the 2013 Curriculum, focusing on simplified core competencies and basic competencies. Its objective is to grant schools the flexibility to select the curriculum that aligns with the specific needs of students, schools, and regional capabilities.

Schools implementing this curriculum were not obligated to fulfill all the curriculum outcomes in order to achieve learning completion.

Another option is the Merdeka Curriculum or Freedom Curriculum. This curriculum provides opportunities for teachers to create quality instruction that is based on students' needs and learning environment. This curriculum focuses on developing soft skills and character building, emphasizing essential materials to build creativity and innovation to achieve basic competence (literacy and numeracy), and creating flexible learning. The curriculum also offers co-curricular activities, known as the strengthened Pancasila learner profile project. The project allows students to explore as a new knowledge, enhance skills, and strengthen the development of the six dimensions of Pancasila student profile (i.e., having qualities such as faith and noble character, autonomy, critical thinking, creativity, cooperation, and appreciation for global diversity).

The Merdeka Curriculum applies to early childhood education through upper secondary education. It comprises both intra-curricular and co-curricular learning, including projects aimed at reinforcing the Pancasila student profile. The curriculum outlines targeted learning outcomes of English subject which are divided into six phases (Phase A to Phase F) corresponding to different grade levels. For example, Phase F is for students at grade 11 and 12 in upper secondary education. The primary focus of English instruction is to enhance six language skills: listening, speaking, reading, viewing, writing, and presenting, through an integrated approach. The minimum learning outcomes for these skills align with the B1 level of the Common European Framework of Reference for Languages (CEFR). The curriculum adopts a text-based approach, specifically the genre-based approach, to develop students' communicative skills. Moreover, English instruction aims to cultivate students as lifelong learners and strengthen their Pancasila student profile.

In the curriculum, English is categorized as a general subject and an optional subject. Students at grade 12, for example, are required to take all general subjects, but select four to five optional subjects based on their interests, talents, and abilities. As a general subject at the upper secondary level, English is allocated for 48 hours per year (2 hours per week) and the project is allocated 16 hours per year. The project contents and time implementation are flexible as long as the contents are congruent with the Pancasila profile and time is allocated appropriately to fulfill the total number of hours per year.

1.5   Statement of Problem

Academic achievement has been extensively examined by educational researchers, considering it as the most important results of formal education. According to Karadağ et al. (2017), academic achievement can be defined as the accumulation of knowledge and skills students gain from a specific curriculum. It can be viewed as the product of learning which can be quantitatively evaluated to show how much was learned or qualitatively assessed to indicate how well and in what way it was learned (Biggs, 1993). Within the context of EFL teaching and learning, academic achievement in English can refer to the acquisition of English knowledge by EFL students as a result of their education at schools. English achievement is often utilized as a benchmark to assess the effectiveness of the teaching and learning process in English classrooms. It has been a research focus among EFL researchers, and prior studies investigate English achievement as the outcome of learning process in the any educational level. In secondary school setting in Indonesia, limited attention has been given in examining some student and teacher factors influencing English achievement. In addition, prior research has investigated students' achievement in English is investigated using reported exam score, class activities, and midterm marks (e.g., Bai et al., 2018; Vahdany et al., 2015) which could be potential for less accurate achievement report. In this study, English achievement is

measured by a diagnostic test to capture students' acquisition in English reading and listening skills, two receptive skills dominantly instructed in secondary schools in Indonesia.

The final year of secondary school is considered as an important stage of schooling to represent the outcome of earlier learning and school experience and the foundation for future study and work (Fullarton et al., 2003). In many countries, the results of student learning at Year 12 or Grade 12 are often used as one of the requirements for tertiary selection. The results can also be used to inform and evaluate the process and practices of teaching and learning in a subject. Therefore, some studies have been devoted to examine Year 12 secondary school students as an attempt to provide insights on educational improvement, study and career readiness, and factors related to students' well-being and social culture (e.g., McGraw et al., 2008). While there are existing studies examining the academic performance of Year 12 students in the subjects of science (e.g., Chu et al., 2019), there is a notable dearth of research specifically focusing on English achievement in this context, particularly among Year 12 in upper secondary school students in Indonesia.

For many decades, ESL/EFL researchers have shown a keen interest in the field of language learning. Since the emergence of Gardner's socio-educational model in 1985, described by Al-Mahrooqi and Denman (2022) as one of prominent frameworks in the field of language learning, the exploration of various individual and contextual factors that impact on language learning in ESL/EFL has captured the interest of language learning researchers. Extensive research has documented the importance of cognitive and affective related factors on student learning within the contexts of primary, secondary, and tertiary education. Some of the student-related factors include learning conceptions (Purdie & Hattie, 2002; Säljö, 1979), learning approaches or strategies (Biggs, 1987; Trigwell & Prosser, 1991), motivation (Ames & Archer, 1988; Midgley et al., 1998), attitude (Ghazvini & Khajehpour, 2011), and anxiety (Horwitz et

al., 1986) on student learning. In addition to the aforementioned aspects, researchers have also shown interest in exploring students' perceptions of their classroom learning environment (Church et al., 2001; Dart et al., 2000) and classroom assessment environment (Alkharusi, 2009), recognizing their substantial influence on students' cognitive and affective outcomes. Many studies have examined the role of the classroom environment across different subjects and grade levels, but limited research has focused specifically on its impact within the realm of ESL/EFL education. Consequently, this study aims to bridge this gap by investigating the interconnectedness between students' perceptions of the learning environment, cognitive and affective variables, and student outcomes.

Apart from that, extensive research has identified various factors at teacher level that are linked to academic achievement, specifically aiming to predict the level of attainment among English learners. Prior studies have concentrated on examining the interrelationships among factors limited to students only or teacher attributes or student and school characteristics (e.g., Güvendir, 2015; Oldac & Kondakci, 2020). Some studies have investigated the role of approaches to teaching (Trigwell et al., 1999), approaches to assessment (Daniels & Poth, 2017), teacher self-efficacy (Bandura, 1997; Pajares, 1996), pedagogical knowledge (Gess-Newsome et al., 2019; König et al., 2016), sense of preparedness (NCES, 1999), and teacher characteristics in student learning outcomes. A comprehensive investigation was conducted by Lye (2016) who examined the interrelationships among school-, teacher-, and student-level factors and their impact on students' English proficiency levels in secondary schools in Malaysia. Limited research has investigated a model that explains the interrelationships among student and teacher level factors in the EFL setting where English is mostly taught at schools, like Indonesia. Therefore, the present research undertakes a multilevel analysis among student and teacher factors that impact on English achievement in EFL classrooms.

Studies also found the interrelationships among factors in the student level, such as student characteristics and achievement (e.g., Samiyan, 2015; Neupane et al., 2017; Hamied et al., 2009), classroom environment and conceptions of learning (e.g., Dart et al., 2000; Trigwell & Ashwin, 2006), learning environment and motivational variables (e.g., Pulkka & Niemivirta, 2013; Tapola & Niemivirta, 2008; Greene et al., 2004), classroom assessment environment and motivational variables (e.g., Wang & Cheng, 2010; Gan et al., 2019), classroom assessment environment and approaches to learning (e.g., Bernauer & Fuller, 2017), conceptions of learning and approaches to learning (e.g., Lee, Johanson, & Tsai., 2008), motivational variables and approaches to learning (e.g., Lie, Lau, & Nie, 2008). Meanwhile, the link among variables in teacher level have also been documented, such as teacher knowledge and teacher approaches to teaching (e.g., Chai, Chin, Koh, & Tan, 2013; Kleickmann et al., 2013; Konig et al., 2016), approaches to assessment and approaches to teaching (e.g., Daniels & Poth, 2017). Teacher characteristics, like professional development activities, have been found to be associated with teacher practices (e.g., Wallace, 2009). In the Indonesian context, a study by Cirocki and Farrell (2019) concluded that English language teachers are involved in varied professional development activities, but only some had impacted on their professional lives. Continuous professional development is found to contribute English instruction and general teaching career. Cirocki and Farrell further suggest that quality CPD training in and outside schools needs to promoted and practical workshops would be more valued. Meanwhile, teacher involvement in peer observation activities leads to improved self-efficacy and teaching practices (e.g., Ben-Peretz et al., 2018; Koch, 2014). Therefore, this study also explores the relationships among the investigated variables in the student and teacher factors.

Furthermore, from a methodological standpoint, the study utilized multivariate statistical analyses to investigate the connections between various student and teacher factors that impact English achievement. To accomplish this, the study employed several multivariate statistical

techniques, such as confirmatory factor analysis and Rasch analysis for validation, as well as structural equation modelling to examine relationships among variables in the model, and hierarchical linear modelling to elucidate the influence of teacher and student variables on students' English achievement. Additionally, studies investigating model of interrelationships among student and teacher factors mostly employed correlational studies. This study delved into the perspectives of both students and teachers regarding their learning and teaching practices in EFL contexts.

1.6 Research Questions

The study attempted to investigate factors at student and teacher levels and their influence on English achievement among secondary school students in West Java Province, Indonesia. It also attempted to examine interrelationships among student- and teacher-level factors to influence English achievement and explored student and teacher perceptions on English teaching and learning practice in secondary school contexts. The study sought to answer the following questions:

1. What relationships exist among students' characteristics, conceptions of learning English, perceived English classroom learning and assessment environment, motivational variables, and approaches to learning English?

2. How do students' characteristics, conceptions of learning English, perceived English classroom learning and assessment environment, motivational variables, and approaches to learning English influence students' achievement in English?

3. What relationships exist among teachers' characteristics, sense of preparedness, pedagogical knowledge, self-efficacy, and approaches to assessment and teaching?

4. How do teachers' characteristics, sense of preparedness, pedagogical knowledge, self-efficacy, and approaches to assessment and teaching influence students' achievement in English?

5. How do teachers' attributes interact with students' attributes to influence English achievement?

6. How do students and teachers perceive their English teaching and learning process?

1.7   Research Aims and Objectives

This study aimed to investigate the interrelationships among student- and teacher-level factors that influenced English achievement among general and vocational secondary school students in West Java, Indonesia. Also, it explored the interactions between teacher and student factors in the process of teaching and learning in the classroom. Specifically, this study intended to examine the relationships between teacher-level factors (i.e., teachers' characteristics, sense of preparedness, teacher pedagogical knowledge, self-efficacy, and teacher approaches to assessment and English teaching) and students' English achievement. It aimed to investigate the relationships between student-level factors (i.e., students' characteristics, conceptions of learning English, perceived English classroom learning and assessment environment, motivational variables, and approaches to learning English) and students' English achievement. Additionally, it attempted to identify the interactions among teacher factors and student factors to impact on English achievement.

1.8   Significance of the Study

As outlined in previous sections, English in Indonesian schools is a compulsory subject which is integrated into the curriculum to equip students with capabilities to acquire English knowledge and skills and develop communicative competence as global citizens. However, it was found that students' knowledge and skills in English as reported in English achievement

score was low, and this phenomenon could be associated with certain factors within classroom contexts involving students and teachers. Thus, this study aimed to explore those factors that impacted secondary school students' achievement in English, particularly general and vocational schools in West Java, Indonesia. The findings are expected to provide policy makers, teacher educators, and teachers with understanding of pedagogical practices in EFL setting, particularly in relation to student learning outcomes.

From a theoretical point of view, the proposed study is expected to add to literature on learners and teachers' characteristics and other attributes that influence English achievement. This study also investigated the potential of mediating or moderating role of these factors in relation with other variables and achievement in English which contribute to EFL research. This study is expected to provide an insight into learning environment research, particularly in EFL learning environments as the topic of research is still in its infancy. It is expected to contribute to the theories of classroom effectiveness and learning environments that impact on student learning outcomes. Furthermore, the study of foreign language classroom assessment embedded in language teaching and learning has emerged as a new inquiry in the theory of language assessment (Purpura, 2016). For this reason, the study is hoped to fill the gap in understanding the complexities of how classroom assessments are used to support and enhance teaching and learning.

From a methodological point of view, this study models the interrelationships among factors in language teaching, learning, and assessment from both quantitative and qualitative perspectives. It employs a hierarchical analysis of two-level factors influencing student English proficiency, involving validation of developed instruments using multivariate statistical analysis, such as Confirmatory Factor Analysis (CFA) and Rasch modelling, Structural Equation Modelling (SEM), and Hierarchical Linear Modelling (HLM) which are still limited

in the research of language teaching, learning, and assessment. In addition, the interview findings corroborated the results of the quantitative analysis, providing additional insight into the quantitative results.

From a practical contribution perspective, this study informs students about their English competence informed by the results of the diagnostic English test. Apart from this, it informs teachers about how to improve their teaching and assessment practices through action research as informed by students' perceptions of classroom learning environments.

1.9 Summary

This chapter provides information about the research problem investigated in this study and the background of the context of the study, including the education system in Indonesia, particularly in secondary school settings. This chapter briefly summarizes language education policies and English language practices in the country. It also presents the research questions addressed in this study, including its significance.

This thesis consists of ten chapters. Chapter One provides introduction to research problem. Chapter Two presents a review of literature related to teaching and learning process in EFL context, including the factors at the student and teacher level that influence English achievement. Chapter Three describes the methods used in the study, including the context of study, sampling, instrument development, ethical considerations related to the study. Chapter Four summarizes data analysis procedures and tools that are employed in this study. This includes the quantitative and qualitative analyses with the descriptions of relevant software packages used for data analyses. Chapter Five discusses the findings of validation for the instruments focusing on Confirmatory Factor Analysis used in this study. Chapter Six reports the results of the Rasch analysis as the stage of calibration. Chapter Seven presents the results of the demographic analysis of student and teacher data. Chapter Eight focuses on the results

of the structural equation modelling (SEM) for student and teacher data. Chapter Nine presents the findings of hierarchical linear modelling (HLM) to examine the interactions between teacher and student level data. Lastly, Chapter Ten presents a discussion of interactions between and interrelationships among factors in student and teacher level data.

CHAPTER 2

REVIEW OF RELATED LITERATURE STUDIES

2.1   Introduction

This section discusses the literature relevant to the factors at student and teacher levels that influence English achievement among upper secondary school students in West Java Province, Indonesia. This section outlines a review of related literature studies on various factors at student and teacher levels investigated in this study, including how student and teacher factors are related and impacted on English achievement.

2.2   Academic achievement

Academic achievement is the primary focus of educational policymakers, administrators, and instructors. Achievement can be defined as the amount of knowledge and skills obtained by students as a result of a particular curriculum (Karadağ et al., 2017). According to Gajda et al. (2017), academic achievement refers to "the outcome of learning, which is typically measured by classroom grades, classroom assessments, and external achievement tests" (p. 2). Researchers have examined a wide array of factors that link to academic achievement (see Hattie, 2009, for a review).

In the context of English learning, proficiency is often used to indicate achievement. The issue of what constitute language proficiency has been widely discussed among scholars in the field of second language acquisition. The notion of proficiency has played a significant role in the language teaching, learning, and assessment and can be viewed from different perspectives. The concept of second or foreign language proficiency is often defined to comprise two language-related aspects: knowing how to do something with the language and knowing what the language is about (Harsch, 2017). It refers to the capacity of an individual to employ

language for diverse communication intents. An individual with proficient use of English is characterized by a strong command of English, demonstrating ease in comprehension and clear expressions of ideas, and showing comfortable interaction with other speakers (Renandya, Hamied, & Nurkamto, 2018). According to Richards (2018), language proficiency is typically evaluated based on five performance indicators: accuracy, fluency, complexity, appropriacy, and capacity.

In the EFL setting, the assessment of teaching and learning effectiveness in English classrooms often hinges on students' acquisition of English knowledge and skills. Teaching and learning process focuses on equipping students with language knowledge, such as grammatical knowledge and vocabulary, and honing students' language skills, like listening, reading, writing, and speaking. Even though integrated skills are instructed to students in the classrooms, listening and reading are two essential skills that become the focus of teaching. Both skills are considered as fundamental skills that need to be acquired by English learners. In this study, listening and reading are assessed to portray English achievement at schools.

2.3   Student-related factors and their influence on English achievement

There are a number of factors related to students that are associated with English achievement. These factors include student background information, conceptions of learning, student motivation, student perceptions of classroom learning and assessment environment, and student approaches to learning. These are explained in more detail below.

Student demographic

Some student demographic information is related to English achievement including school stream, gender, parent education level, and out-of-school learning activities, like time spent doing English homework assigned by teachers, time spent studying English outside the

classroom, and private English tuition lessons. In this study school stream is described as public general and vocational high schools attended by students. While previous studies suggest that school type variable is related to English achievement, such as comparing students in science and social science high schools and general and vocational high schools (Güvendir, 2015), no studies have been found to examine the relationship between general and vocational high schools in terms of their English achievement in the Indonesian context.

With regards to gender, some studies found inconsistent results regarding the role of gender in English achievement. A study conducted by Suharti (2013) reveals that female students demonstrate higher achievement than male students in all subjects. For EFL learners in secondary school contexts, it is found that female students tend to be more successful than male students (Samiyan, 2015). However, studies also found that male students tended to achieve higher grades in English than their female counterparts (Hamid et al., 2009; Neupane et al., 2017). Other studies found no differences found in relation to gender and student achievement, particularly in EFL reading comprehension (Aditomo & Hasugian, 2018).

Furthermore, parents' education has also been found to influence student outcomes. Parents' education level is one of the elements of socioeconomic status (SES) that influences students' achievement where higher level of parents' education relates to higher students' achievement at schools (Sirin, 2005). A study conducted by Aditomo and Hasugian (2018) emphasises the role of parental education to influence student engagement and EFL reading comprehension in the secondary school contexts in Indonesia. Students whose parents had a higher educational achievement did better than those with a lower level of education (Hamid, 2011).

In addition to that, out-of-school activities are found to be predictors of achievement. Homework is provided by teachers to increase learning time outside the classrooms which may then improve student achievement. Some previous studies have found that there was a link

between homework and achievement. A meta-analysis of multiple studies conducted by Cooper et al. (2006) revealed that there was a significant and positive correlation between the amount of homework completed by students, particularly secondary school students, and their academic achievement. Some studies have found that increased homework completion is associated with higher achievement scores in mathematics (Aksoy & Link, 2000), while others found no significant association between time spent on homework and grades in mathematics and science (Maltese et al., 2012). A study conducted by Lye (2016) examined the role of time spent on doing homework in relation to English achievement among secondary school students in Malaysia. The study revealed that the amount of time spent by students in doing homework negatively predicted English achievement, indicating that the more time spent on doing homework, the lower students' English achievement. In this study, homework refers to tasks given by teachers and completed by students outside the classrooms, and it is hypothesized that more time doing homework is associated with greater English achievement among Indonesian secondary school students.

Apart from time spent on doing homework and studying outside classroom, this study also addresses students' participation in taking private classes for studying English. Students who were privately tutored had a better chance of achieving higher English grades than their counterparts who were not privately tutored (Chih-Hao, 2019; Hamid et al., 2009).

English classroom learning environment (ECLE)

In the context of educational settings, the concept of environment encompasses the collective atmosphere or climate that permeate a specific setting which incorporates intangible aspects that shape the learning experience and contribute to the overall educational goals (Dorman, Fisher, et al., 2006). Historically, research on classroom environment has primarily concentrated on exploring the psychosocial dimensions and their impact on the interactions,

attitudes, and behaviours of individuals within the classroom setting, and the research tradition has focused on the link between learning environment and student cognitive and affective outcomes (Dorman, Aldridge, et al., 2006).

According to Fraser (2012), classroom learning environments incorporate social, psychosocial, and pedagogical contexts where learning occurs and affects students' achievement and attitude. Studies have found some characteristics that promote positive classroom learning environment to foster cognitive and affective outcomes, including student cohesiveness, teacher support, investigative skill enhancement, participation, and task orientation (Fraser, 1994). Classroom learning environment should enhance student cohesiveness where students know about their peers, actively assist one another, and demonstrate supportive behaviours. Besides, teachers should provide support, foster a friendly relationship, demonstrate trust, and show genuine interest in the students. Teachers hold a crucial position within language teaching and learning contexts, serving as a key element in providing students with diverse forms of support, including instrumental, appraisal, and emotional support (Richards, 1998). The environment should provide students with activities engaging thinking skills where students can explore and seek to understand new ideas. Teachers should ensure that students demonstrate active engagement, contribute to discussions, undertake additional work, and derive enjoyment from the classroom experience and provide students with clear tasks. In respect to EFL teaching and learning, classroom is seen as a setting for social activities that promote interactive and communicative activities, engage learners to use the language, keep learners to engage in language use, and help learners to use the language both productively and receptively (Brown, 2014).

Previous studies have documented the association between learning environment and other learning variables. A study conducted by Dart et al. (2000) examined how classroom

environment indicated by personalization and investigation is related to conceptions of learning among 457 secondary school students in Australia. The study revealed that classrooms perceived as high in personalization and investigative skills is predicted by qualitative conceptions of learning as characterized by learning with understanding and meaning making by relating new material to prior knowledge. In another investigation conducted by Trigwell and Ashwin (2006), they examined the connection between situated conceptions of learning and learning environments. The research uncovered that when students view their learning environment as more conducive to learning, their inclination leans towards qualitative conceptions of learning, marked by understanding, discovering new ways of thinking, and active engagement with the learning process.

Some researchers have also conducted studies examining the relationship between learning environment and achievement goal orientations. Pulkka and Niemivirta (2013) examined how learning environment is perceived by 169 university students with different profiles in achievement goal orientations. The study revealed that an environment providing the quality of learning materials, promoting effort and attainment, and stimulating participation is viewed positively by students with mastery and performance goal orientation profile. Meanwhile, students oriented towards displaying incompetence rated lower on the environment characteristics than the other counterparts. In a separate study, Tapola and Niemivirta (2008) investigated how 208 sixth-grade students' perceptions of the learning environment related to their achievement goal orientations. The research revealed that students perceived the learning environment differently depending on their goal orientations. A positive correlation was observed between learning orientations and an environment that prioritizes learning, individual work, and task diversity. Similarly, a positive connection was identified between performance orientations and individual work and task variety. On the other hand, there is a negative correlation between performance-avoidance orientations and an environment that emphasizes

learning, autonomy, and choice, as well as task variety. From this, it can be inferred that students with learning- and performance-oriented mindsets tend to perceive classrooms that offer numerous individual opportunities and diverse activities that foster learning. In contrast, students with avoidance orientations tend to perceive classrooms that lack a focus on learning, autonomy, and feature limited task activities. Greene et al. (2004) conducted a study that delved into the link between classroom perceptions and achievement goal orientations among a group of 220 high school students. The findings demonstrated that only motivating tasks were found to have a positive influence on mastery goals. However, autonomy support and mastery evaluation within the learning environment did not show a confirmed connection to predicting mastery goals. Furthermore, the anticipated negative link between mastery evaluation and performance approach was not validated by the study.

Research on classroom learning environments has been dominated by science and mathematics subjects, while studies on learning the subject of English are still under researched (Lim & Fraser, 2018). A number of studies have found that classroom environments are closely linked to student achievement (e.g., Gedamu & Siyawik, 2015; Liu & Fraser, 2013). Besides, other factors that positively and significantly predicted English achievement include students' perceptions of interest and joy in classroom activities (Jahedizadeh et al., 2016), task orientation (Liu & Fraser, 2013), and learning-oriented assessment practice (Alkharusi, 2011; Alkharusi et al., 2014). Findings from studies suggest that students prefer to have learning environment that is having more teacher support, enhancing student cohesiveness, providing clearer task orientation, giving more investigation, and ensuring participation in classroom activities (Wahyudi & Treagust, 2006). As evident in the previously discussed studies, the exploration of students' perceptions of the learning environment across various educational levels and its link to their views on learning and motivation has attracted the interest of researchers. Nevertheless, there have been relatively few studies that have sought to establish

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connections between classroom learning environment, learning conceptions, and achievement goal orientations, especially in the context of English as a Foreign Language (EFL). Consequently, this present study investigates the interrelations between the English classroom environment and other student attributes, including English achievement, motivational factors, and their perspectives on learning English.

Perceived Classroom Assessment Environment (PCAE)

Classroom assessments, from the functional perspective, are viewed as some tools that teachers use to accomplish some goals, including providing feedback to students, assessing task performance, evaluating students' strengths and weaknesses, assessing achievement in some domain, and evaluating the class achievement level (Kane & Wools, 2020). It has been argued that, when these classroom assessments are conducted appropriately, there is a potential for these assessments to benefit students' learning and teachers' instruction (Stiggins, 2005). Students become more motivated to learn, more confident to study harder, and greater achievement, and teachers get accurate information about their instructional decisions (Stiggins, 2002). Due to the importance of classroom assessments for students, researchers have paid their attention to investigating the classroom assessment environment, a context experienced by students as classroom assessment activities are practised by the teachers (Alkharusi, 2013; Brookhart, 1997). According to Brookhart and DeVoge (1999), students have the ability to construct their understanding of learning and assess their own progress by observing and engaging with the various assessment practices employed by teachers, such as when teachers define assessment goals, assign tasks, evaluate performance, provide feedback, and monitor the learning process. The way students interpret and understand the assessment methods utilized by teachers in the classrooms is known as perceived assessment environment (Brookhart & DeVoge, 1999), and understanding students' perspectives of the this environment is crucial as it affects student outcomes (Ames, 1992; Meece et al., 2006).

One of the theoretical perspectives on assessment environment is based on achievement goal theory as proposed by Alkharusi (2011), in which classroom assessment environment as perceived by students is defined into two dimensions: learning-oriented classroom assessment and performance-oriented classroom assessment. A learning-orientated classroom assessment environment is defined as assessment practises focussing on student learning and content mastery, providing feedback on student learning, and giving opportunities for performance improvement; meanwhile, the performance-orientated assessment environment centred on assessment practises characterised by difficult and less meaningful assessment tasks, grade focus, and students' comparison on performances (Alkharusi, 2011). Studies have documented that an assessment environment that prioritizes learning is associated with higher levels of self-efficacy and academic achievement, whereas an assessment environment that emphasizes performance is linked to lower levels of self-efficacy and academic achievement (Alkharusi, 2009, 2011).

Evidence from research has found the importance of assessment environment related to motivational and learning behaviour and L2 achievement (Alkharusi, 2009; Church et al., 2001; Wang, 2004). Wang and Cheng (2010) found that learning-oriented classroom assessment environment positively linked to students' adoption of mastery goals, while assessment environment focusing on test and praise related to performance goals. In another study, Gan, He, and Liu (2019) investigated classroom assessment practises reported by 198 high school students in an Asian region. The study found that assessment practises that focused on learning, such as giving opportunities for students to evaluate their own learning, providing guidance to help students improve and using interactive-informal assessment, were positively related to motivation, particularly intrinsic motivation, and attitude toward English courses, and negatively correlated with classroom anxiety. Apart from that, assessment environment that encourages students to practice self-assessment and use feedback to help learning allows

students' deep learning (Bernauer & Fuller, 2017). Building on the previous research, it is expected that students' adoption of achievement goals, attitude, deep learning approach, anxiety, and L2 achievement to be influenced by the contextual factor of classroom assessment environment.

Students' Conceptions of Learning English (COLE)

Conceptions are defined as mental representations that help individual make sense various events, objects, and processes and others (Brown, 2008). According to Thompson (1992), conceptions are viewed "general mental structures, encompassing beliefs, meanings, concepts, propositions, rules, mental images, preferences, and the like" (p. 130). By this definition, conceptions of learning can be defined as the metacognitive mental representations and beliefs students hold about learning (Vermunt & Donche, 2017). Students experience various events and processes during learning, and conceptions of learning specify how students "frame, interpret, and reflect their learning experiences" suggesting various categories of learning conceptions (C.-L. Lin et al., 2012, p. 500). Prior studies have documented that conceptions of learning are multifaceted as they include diverse processes related to cognition and metacognitive regulation and experiences related to learning beliefs, learning strategies, and affective emotional experiences (C.-L. Lin et al., 2012; Vettori et al., 2022).

Several early studies attempted to identify individual conceptions of learning using a phenomenographic method (e.g., Marton et al., 1993; Marton & Säljö, 1976; Säljö, 1979; Tynjäla, 1997). Some researchers found several categories of conceptions of learning adopted by individuals when they try to understand their learning process. An initial investigation on conceptions of learning was conducted by Marton and Säljö (1976). In their study, it is reported that two different levels of processing were adopted when students were asked to read a text and about the meaning of the text. The two processes were surface-level and deep-level

processing. In the follow-up study, Säljö (1979) found five categories of learning conceptions adopted by students ranging from an increase of knowledge and memorizing to an abstraction of meaning and an interpretive process of understanding reality. Marton et al. (1993) found six conceptions of learning, including memorizing and reproducing, increasing knowledge, applying information, understanding, seeing something in a different way, and changing as a person. The first three conceptions represent a surface level of understanding the learning and the other three conceptions indicate deep understanding of learning (Purdie & Hattie, 2002).

Understanding students' conceptions of learning is significant to explain successive learning strategies and behaviour (C.-L. Lin et al., 2012). Literature has addressed the importance of conceptions of learning as they are linked to motivation (Barger & Linnenbrink-Garcia, 2017; Ho & Liang, 2015), learning strategies (Vermunt & Vermetten, 2004) and academic outcomes (Alamdarloo et al., 2013). Research has found that students possessing reproductive or surface level of learning conceptions tend to have low-level of learning outcomes, while those having constructive or deep level of learning conceptions are linked to high-level of learning outcomes (Cano & Cardelle-Elawar, 2004; Pinto, 2018). Many empirical studies have investigated conceptions of student learning in different domains, such as science (Lee et al., 2008) and chemistry (Li et al., 2013). Most investigations have been conducted in tertiary level (Entwistle, 2004; Lonka, 2021) and more scholars have sought to extend the scope of learning conceptions in the level of middle schools (Pinto, 2018; Vettori et al., 2018), while little attention has been given to investigate conceptions of learning among high school students, particularly in the domain of English as a foreign language learning.

Some scholars have proposed conceptions of learning. Peterson, Brown, and Irving (2010) suggest six conceptions and these include understanding, personal change, social competence, continuous, gaining information, and duty. Concerning academic achievement, the study found

that students who perceive learning is a continuous life-long process are more likely to do better and those who believe that learning is simply a duty are likely to have achieved less (Peterson et al., 2010). English achievement is also associated with student conceptions of learning. Conceptions of learning can be identified differently in different contexts (Purdie & Hattie, 2002). In the context of foreign language learning, conceptions of learning refer to "what a foreign language *is* and what the process of learning a foreign language consists of" (Benson & Lor, 1999, p. 465). They can also be understood as student beliefs and experiences that reflect their thinking about English language learning (Zheng et al., 2016).

Research related to learners' conceptions of learning English have been limited in relation to the use of learning strategies. In the context of EFL learning, Zheng et al (2016) model eight conceptions of learning English consisting of memorizing, testing, drill and practice, grammar, increasing knowledge, application and communication, understanding and seeing a new way. In their study, the conceptions of learning are closely related to self-regulated learning as one of the crucial behavioural elements of student achievement.

Nonetheless, the majority of research adopting a qualitative approach to investigate students' learning conceptions typically involves a limited number of participants, often focusing on university students. Moreover, this qualitative research often relies on open interviews as a data collection method, which can introduce potential confounding factors into the research outcomes. In an attempt to address these limitations, some researchers endeavour to enhance their studies by combining open interviews with surveys. This approach enables a larger sample size and a more comprehensive exploration of learning conceptions in secondary education, an area that has received relatively scant research attention.

Several studies have shown that learning conceptions are predictors of academic performance. Cano and Cardelle-Elawar (2004) conducted a study of 1200 high school students regarding

students' conceptions of learning and their beliefs about learning. By carrying out an integrated qualitative and quantitative analysis, the findings show that apart from epistemological beliefs, the conception of learning is a predictor of student performance. Students who have an advanced and in-depth conception of learning perform better indicating that students who view learning as a constructive meaning have higher academic achievement. Previous studies also document that the conception of learning is not only closely related to learning outcomes, but also linked to the learning approach adopted by students. Research conducted by Lee, Johanson, and Tsai (2008) examines whether there is a close relationship between the conception of learning and the learning approaches of students. By involving 474 high school students in Taiwan, the findings show that the constructivist conception of learning is related to deep learning approaches in learning science. The learning conceptions of 'testing' and 'calculate and practice' are related to surface approaches, while the learning conceptions of 'applying' and 'understanding and seeing a new way' influence deep approaches to learning science.

Motivational Variables: Achievement Goal Orientations, Students' English Classroom Anxiety, and Attitude towards English Classroom

Motivation is a complex and multifaceted construct that moves a person to make certain choices, conduct actions and efforts, and act in particular ways (Dörnyei & Ushioda, 2011). In the synthesis of motivational-related research findings, Harlen and Deakin Crick (2003) propose three distinct variables linked to motivation for learning and assessment practices from learners' perspectives, including variables related to self as a learner (i.e., self-concept, test anxiety), effort and interest on task (i.e., effort investment to learn), and self-capacity to perform tasks (i.e., self-efficacy and locus of control). It has been documented that students with higher motivation outperformed their less motivated compatriots in English test, and some motivational constructs, such as language anxiety, effort investment, self-efficacy, intrinsic

motivation, ideal L2 self, mastery goal, and motivated behaviour are associated to achievement (Awan et al., 2011; Bernaus & Gardner, 2008; Kim & Kim, 2012, 2018; Lasagabaster, 2011; Pae, 2015). In addition, mastery goal is associated with surface approach to learning, while performance-approach goals are related to deep learning approach (Liem, Lau, & Nie, 2008). In this study, three motivational variables were employed to examine their roles in English achievement among upper secondary school students in West Java, Indonesia.

Achievement Goal Orientations

Achievement goal theory has been widely applied as an influential framework for studying motivation and achievement over the past several decades (Shih, 2005). This theory focuses on students' experience in pursuing learning goals in an academic task and their reasons for engaging in the task (Senko, 2016). Goal orientation is refers to the reasons why individuals engage in achievement related activities (Kaplan & Maehr, 2006; Midgley et al., 2001). Goal orientation is considered an essential and crucial component of the academic experience, playing a significant role in guiding cognitive processes as well as influencing behaviours and emotions in any academic situation (Ames, 1992). Achievement goal theorists have traditionally identified two distinctive goals for achievement: mastery goals to develop competence and task mastery and performance goals to demonstrate competence (Ames, 1992; Ames & Archer, 1988). Some researchers have proposed trichotomous achievement goal framework that emphasizes mastery goals, performance-approach goals, and performance-avoidance goals (Elliot, 1997; Elliot & Church, 1997; Elliot & Harackiewicz, 1996). In this framework, students who adopt mastery goals strive to acquire knowledge and improve skills. Those with performance-approach goals are interested in demonstrating competence relative to others while students adopting performance-avoidance goals aim to avoid being perceived as incompetent by others (Elliot, 1997; Middleton & Midgley, 1997). This trichotomous conceptualization of achievement goals emphasizes students' purposes to engage in learning

activities, and each goal embodies specific cognitive, affective, and behavioural patterns (Meier et al., 2013; Phan, 2009).

A growing body of evidence has documented how these goal orientations affect those patterns. Prior studies have found that mastery goals have a positive close relationship with adaptive patterns, such as academic engagement, preferred challenging tasks, student achievement, interest, self-efficacy, effort and persistence, positive attitude, and deep processing strategy (Ames & Archer, 1988; Harackiewicz et al., 2000; Miller et al., 1996; Phan, 2006; Wang et al., 2022; Wolters, 2004). Meanwhile, performance-approach goal orientations are also found to have different effects on academic achievement. In some studies the orientations serve as a positive predictor of academic achievement (e.g., Cury et al., 2006; Greene et al., 2004) while other researchers found the negative effect of these goal orientations on academic achievement (e.g., Gutman, 2006) Research exploring the relationship between performance-approach goals and learning strategies have been reported to have inconclusive findings. Studies revealed that performance-approach goals were associated with surface learning approaches only (Elliot & McGregor, 2001), related with both surface and deep approaches to learning (Wolters, 2004), and even unrelated to both approaches (Greene et al., 2004). Meanwhile, the adoption of performance-avoidance goals is linked to maladaptive patterns, like state anxiety which then related to poor performance (e.g., Tanaka et al., 2006).

Studies on achievement goals have been related to domain-specific subjects, such as mathematics and English (Anderman & Midgley, 1997; Bong, 2001). In relation to English subject, researchers have documented the role of achievement goals in varied outcomes in English classrooms (e.g., Huang, 2016). Bong (2005) conducted a study on performance goal structure among Korean high school students, and it shows that both mastery and performance approach goal orientations positively predicted English course grades. Meanwhile, a study

conducted by Liem et al. (2008) explored the link between achievement goals and learning strategies among Singaporean students in learning English. The findings discovered that mastery goals related to deep learning and surface learning approaches. Regarding the performance goals, the study found that performance-approach goal linked to deep learning while the performance-avoidance goal related to surface learning. A recent study conducted by Wang and Bai (2022) found that mastery goals positively predicted the use of self-regulated learning (SRL) strategy while performance-avoidance goals predicted negatively SRL use strategy. The use of SRL strategy, in turn, predicted English achievement.

To expand research on achievement goals, particularly in the context of EFL subject taught in secondary school setting, the present study aims to explore how achievement goals are associated with various learning outcomes in EFL classrooms context. Based on existing research, it is predicted that mastery goals and performance-approach goals are related positively to attitude, deep approach, and English achievement but negatively to anxiety, whereas performance-avoidance goals are associated positively to anxiety and negatively to attitude toward learning, deep processing strategy, and English achievement.

Attitude towards learning English

Apart from achievement goal orientations, positive attitude has played a decisive role in determining success and failure in L2 learning (Al-Mubireek, 2020). The notion of attitude in language learning has been approached from various perspectives, but it mostly focuses on evaluative response towards a subject or situation (Bartram, 2010). Gardner (1985) defines attitude as 'an evaluative reaction to some referent or attitude object, inferred on the basis of individual's beliefs or opinions about the referent' (p.9). Based on this definition, attitudes can be differentiated depending on the referent or attitude object, and some attitudes can be related to behaviour depending on the relevant variable (Gardner, 1985). According to Gardner's

(1975) model of motivational aspects in learning a particular language, four categories of attitudes to learn a language include attitudes towards the community and the people, attitudes towards learning the language (the situation), learners' motivational indices, and attitudes towards language learning in general (Stern, 1983). Even though the model has referred to French, as the language, the characteristics may apply to other languages, including English as a second/foreign language in a school setting (Stern, 1983). Based on this framework, attitudes towards learning English would aim to examine how learners respond or feel about the language they learn in a particular context (i.e., the English course and the teaching environment in English classrooms). Studies have found that positive attitude towards learning context strongly has impacted on English achievement (e.g., Vahdany et al., 2015). In the present study, attitudes towards English class investigate students' responses and feelings about English lessons, including their enjoyment in English lessons, expectations to learn English more, efforts to study harder in English lessons, and interest in learning English. It is predicted that students' attitudes towards English are positively related to English achievement.

English Classroom Anxiety

The construct of anxiety has been regarded as a major factor contributing to language learning. Anxiety refers to a subjective feeling of uneasiness or worry which can be experienced in a particular setting. Studies exploring the relationship between gender and English classroom anxiety among secondary school students have yielded diverse findings. Findings from research on gender and anxiety levels in English classrooms have produced contrasting results where some have revealed a significant difference indicating that female students exhibit higher levels of anxiety compared to male students. On the other hand, other studies have reported that male students display greater levels of anxiety in English classrooms (Hussain et al., 2011; Lian & Budin, 2014). A study conducted by Hasan and Fatimah (2014) investigated how male and female secondary school students perceived their anxiety level in

communication apprehension, fear of negative evaluation, and general anxiety. Finding from the study showed that female students are more anxious about communication while male students tend to have higher anxiety in fear of negative evaluation.

Students' Approaches to Learning English (ATLE)

The study of student approaches to learning (SAL) has been substantial research focus for over the past 50 years. The exploration of different approaches to learning began when researchers embarked on investigating how students approach their academic tasks and how these approaches impact on their learning outcomes. It then provides educators with a valuable framework to comprehend the impact of student-specific characteristics and learning environments on student learning outcomes (Biggs, 1979).

The study of student approaches to learning originated from the influential work of Marton and Säljö (1976). Through their phenomenographic case studies, Marton and Säljö examined how university students approached their learning, with a specific focus on reading and comprehending academic texts. Their findings revealed two distinct studying approaches: the deep approach, characterized by active engagement with the content, seeking understanding, and making connections with prior knowledge and personal experiences; and the surface approach, where students aimed to reproduce information from texts without deeper analysis or comprehension. Building upon this foundation, subsequent studies on approaches to learning have expanded the theoretical framework to encompass deep and surface learning approaches adopted by students across various learning tasks, such as listening to lectures (Hodgson, 1984) and essay writing (Hounsell, 1984).

Another perspective of approaches to learning has also been proposed by (Biggs, 1970); Biggs (1987). With the initial development of the study behaviour questionnaire (SBQ), Biggs (1987) developed a shorter version of the instrument to capture the complexity of learning processes.

This resulted in fewer scales in which study behaviour scales were categorised into affective and cognitive groups to represent a combination of motives and corresponding strategies respectively. Motives represent the reasons or motivations that drive students to undertake their studies, and students develop strategies to address the challenges associated with their motives. This integration of motive and strategy is known as an "approach" to learning (Biggs, 1991).

Considering both perspectives on approaches to learning, one significant similarity is their distinction between deep and surface learning approaches. Marton and Säljö (1976) found that students choose their approach to academic tasks based on their intentions. If students aim to comprehend the underlying significance of the words and extract deeper meaning, they are more likely to employ a deep level strategy. Conversely, if their goal is to demonstrate superficial knowledge without seeking deeper understanding, they tend to adopt a surface level approach. This aligns with Biggs' (1987) notion of motives and strategies referring to the reasons that drive students to study and the methods they employ to achieve their goals or meet their motivations, respectively. Thus, the definitions of deep and surface approaches proposed by the researchers share similar components related to the motivations for learning, which influence the adoption of a particular learning approach.

From methodological perspective, Marton and Säljö (1976) and Biggs (1987) employed different methodologies in constructing the concept of approaches to learning. Marton and Säljö utilized a phenomenographic study approach, conducting in-depth interviews and analyses with a small sample of students to gain insights into how they conceptualize and perceive their learning when approaching academic tasks. On the other hand, Biggs adopted a quantitative methodology, administering questionnaires to a large sample of students and conducting multivariate analyses to establish the constructs of approaches to learning. The

findings from these studies highlighted the development of the concepts of approaches to learning and provided support for the existence of these two constructs (Jones, 2002).

Moreover, apart from identifying deep and surface approaches to learning as proposed by Marton and Säljö, Biggs (1987) introduced a third approach, known as the achieving approach. This approach is grounded in the assumption of achievement, where students pursue learning to attain high grades and seek recognition for their performance (Biggs, 1993). Therefore, according to Biggs, there exist three distinct approaches to learning: surface approach characterized by surface motive and strategy, deep approach characterized by deep motive and strategy, and achieving approach characterized by achieving motive and strategy.

In the present study, three distinct approaches to learning proposed by Biggs (1987) were adapted to define approaches to learning in the English as a foreign language (EFL) context. The surface approach to learning EFL features superficial level of engagement by focusing on meeting the minimal learning requirements. It is rooted in extrinsic motivation, relies heavily on rote memorization methods, and lacks in critical reflection on the content being learned where the tasks are treated isolated without establishing connections to other tasks or broader contexts (Biggs, 1987, 1993). Conversely, in the deep approach to learning, learners focus on active ways of learning characterized by intrinsic motivation and a genuine interest in the subject matter. They focus on studying beyond the assessment requirements, satisfy curiosity, perceive tasks as intellectually stimulating and personally meaningful. They actively seek to integrate the task's components and connect them with other related tasks. Thus, students adopting deep approach engage in extensive reading, actively participate in discussions with peers, and connect the tasks to other known or intriguing concepts (Biggs, 1987, 1993). Lastly, the achieving approach is founded upon the need to achieve through obtaining high grades. Students who adopt an achieving approach display a strong motivation to excel and succeed

academically. Their primary focus lies in obtaining the highest possible marks and engaging in healthy competition with their peers. Students with an achieving approach are characterized by their adept use of organizational strategies, time management, and study skills (Biggs, 1987, 1993; Cano, 2005).

As a well-developed and theoretically grounded field within higher education, the framework of student approaches to learning has been widely investigated in tertiary level examining how university students adopt their approaches to learning (e.g., Asikainen et al., 2022; Entwistle & Ramsden, 1983; Haggis, 2003; Richardson, 2005; Trigwell et al., 1999). The nature of higher education is to develop deep approaches to learning to produce lifelong learners and work-ready graduates (Asikainen & Gijbels, 2017), and thus learning should focus more on deep approaches to learning. However, it is argued that the learning environment in tertiary education does not sufficiently require students to employ deep approaches to achieve success, and thus students tend to rely less on deep approaches to learning (Fryer & Vermunt, 2018). In fact, students tended to adopt mixed approaches to learning in a varying degree depending on the content and educational context (Brown et al., 2016; Rochmawati et al., 2014) and cultural characteristics (Donald & Jackling, 2007; Ramburuth & McCormick, 2001). Studies in Asian context found that university students employed both surface and deep strategies depending on their abilities (Gow et al., 1991) and their academic year (Fryer, 2017; Fryer & Vermunt, 2018). Other researchers investigated the link between approaches to learning and other student factors in learning, like goal orientations (Poondej & Lerdpornkulrat, 2016), perceived learning environment (Struyven et al., 2006), and student achievement (Astika & Sumakul, 2020).

In addition, extensive research has been conducted on approaches to learning in secondary education settings (e.g., Biggs, 1991; Cano, 2005; Watkins & Hattie, 1990; Dahlin & Watkins,

2000; Janeiro et al., 2017; Cai et al., 2019). Comparing Hong Kong and Australian students, Biggs (1991) discovered that Hong Kong lower and upper secondary school students exhibited lower levels of surface approach, particularly in the surface strategy of rote learning, than the Australian sample. More achieving approaches favours the Hong Kong students in upper secondary schools than the Australian.

Some research findings have found that academic achievement was positively associated with the use of deep approach and achieving approach and negatively influenced by surface approaches to learning (Chamorro-Premuzic & Furnham, 2008; Janeiro, Duarte, Araújo, & Gomes, 2017). In addition to academic achievement, approaches to learning is also related to teacher approaches to teaching, where teachers who perceive their teaching as information transmission/teacher-focused approach are more likely to teach students a surface approach, while the deep approach to learning is promoted when teachers approached teaching as conceptual change/student- focused (Trigwell et al., 1999). Even though several studies examined individual factors and learning situational factors on learning approaches adopted by students, only a few studies investigated the combination of both factors (Poondej & Lerdpornkulrat, 2016) and little attention has been paid to investigate English classroom setting (Lim & Fraser, 2018). Mak and Chik (2011) investigated perceived approaches to learning English as a second language (ESL) among secondary school students in Hong Kong. The study compared groups of students having low, middle, and high academic ability in their use of the approaches. Findings revealed students with low, middle, and high academic ability groups reported similar use of surface approach in learning English, while middle and high ability groups reported more frequent use of deep approach to learning than low ability group. Moreover, students with high ability tend to learn English for understanding (deep motive) and at the same time for striving highest achievement (achieving motive). In another study, Lye (2016) examined the effect of approaches to learning on English language proficiency among

Malaysian secondary school students. The study's findings revealed that deep learning approaches had a positive impact on students' English language proficiency, whereas surface learning approaches exhibited a negative effect on English language proficiency. In the Indonesian context, students adopted deep approaches to learning in a flipped learning context (Santosa, 2017). This study attempts to add the literature related to approaches to learning among secondary school students, particularly examine how the approaches are related to other students' attributes and impact on student English achievement.

2.4 Teacher-related factors and their influence on English achievement

Teachers are the major players in educational process and have greater influence on student learning and achievement (Hattie, 2009). Hattie further argues that what teachers do is influential and highlights some characteristics of teachers to create powerful teaching and learning that impact on student achievement. Teachers need to acquire knowledge of learning strategies that build students' surface, deep, and conceptual knowledge; teachers need to have proficient subject knowledge and understanding to provide meaningful learning experiences and appropriate feedback; teachers need to provide directions, influence, care, be engaged in teaching learning process for students; teachers need to multiple ideas and relate and extend the ideas so that students can construct and reconstruct the ideas (Hattie, 2012). Due to the powerful roles of teachers in promoting desirable outcomes, researchers have found it critical to investigate what teacher attributes that contribute to teacher effectiveness. Over the past decades there has been a considerable interest in examining the link between teacher characteristics and teacher effectiveness (e.g., Bardach & Klassen, 2020; Kim et al., 2019; Klassen & Tze, 2014)

Even though there has been a growing interest in the research of teacher effectiveness among educational scholars, there is no agreement in defining the concept of teacher effectiveness.

Goe et al. (2008) argue that defining teacher effectiveness depends on the points of departure what is measured or valued: test scores, teacher-student interactions, or teacher quality. However, the definition can be around what teachers' roles have played and what students' outcomes are valued. Thus, some researchers define teacher effectiveness as the effect of teacher characteristics on student learning outcomes (Goe et al., 2008; Seidel & Shavelson, 2007). Danişman et al. (2019) highlight teacher characteristics to include teacher professional knowledge, instructional management, social factors, personal qualities, and teacher background.

Teacher effectiveness can be measured using some methods. A synthesis research conducted by Goe et al. (2008) provides a summary of teacher evaluation methods that include classroom observation, principal evaluation, instructional artifact, portfolio, teacher-self report, student survey, and value-added model (i.e., students' test score gains). Kane et al. (2014) employed some measures, like students' evaluation of teaching, classroom observation, and student academic achievement, to evaluate effective teaching. It has been argued in the literature that student academic achievement is the most common measure to assess teacher effectiveness and to evaluate various factors that influence effectiveness (Kim et al., 2019). There has been a consensus on the important effect of teacher characteristics on student achievement even though some scholar argued that the effect of teacher characteristics on student achievement is a complex issue because achievement is influenced by various factors in school and out of school (Danişman et al., 2019). Numerous empirical research has documented differing results on the link between teacher characteristics and student achievement. Akbari and Allvar (2010) found that teacher classroom management positively influenced on student achievement, while Wilson (2012) observed no relationship between instructional management and student achievement.

In this study, teacher effectiveness needs to be evaluated to provide information about performance of teachers and students in teaching English among secondary school students. Some teacher factors that might link to student English achievements, including teacher knowledge, teacher preparedness and self-efficacy beliefs, and teachers use of assessment and teaching approaches.

Teacher Knowledge

Since the introduction of teacher knowledge in the Shulman's seminal work (1986), there has been a growing interest in researching teacher knowledge among educators, policy makers, and scholars (Ben-Peretz, 2011; Hill, Ball, & Schilling, 2008). Some scholars have focused on the importance of teacher's content knowledge – knowledge that is based on 'the accumulated literature and studies in content areas and the historical and philosophical scholarship on the nature of knowledge in those fields of study' (Shulman, 1987, p. 9). Shulman (1986) divides the content knowledge intro three categories: subject-matter content knowledge, pedagogical content knowledge, and curriculum knowledge. Subject matter content knowledge refers to the knowledge of how concepts and principles and the rules of valid and true claims in a discipline are structured while pedagogical content knowledge is a type of content knowledge referring to knowledge for teaching the subject matter (Shulman, 1986). It is the teacher understanding of interpreting and transforming a particular content knowledge into the context of classroom teaching with the aim to foster student learning (Van Driel, Verloop, & De Vos, 1998).

The concept of teacher knowledge can also be taken into account from the its relationship with teacher practice. Cochran-Smith and Lytle (1999) proposed three distinctions of teacher learning based on the relationships between knowledge and practice, including knowledge-for-practice, knowledge-in-practice, and knowledge-of-practice. Knowledge-for-practice consists of formal knowledge and the knowledge base which include knowledge about subject matter

and knowledge related to teaching and schooling, like pedagogy and assessment. This conception explains how teachers play as knowledge users who apply their formal knowledge base in their classroom practices. The second conception is knowledge-in-practice, referring to knowledge that is expressed or applied in their practices as teachers. Teachers acquire this knowledge from their actions and previous experiences and also their reflection on the experiences to invent new knowledge or make best decisions in their teacher practices. Therefore, this conception places teachers as designers of teaching actions and generators of knowledge. Meanwhile, the third conception is knowledge-of-practice. This conception refers to knowledge that is constructed through inquiries about wider perspectives outside classroom actions, like teaching, learning, curriculum, schooling, and communities. Knowledge is thus constructed from collective collaboration with stakeholders from teachers to curriculum and society. Teachers play a role as co-constructors of knowledge, creators of curriculum, and agents in classroom and wider educational context.

It is widely accepted that teacher knowledge has played a significant role in contributing the effective teaching and student learning outcomes. Content and pedagogical content knowledge, for example, are found to be the key elements of teacher competency that impact on student improvement (Kleickmann et al., 2013). While a number of studies have focused on highlighting the importance of teacher knowledge in teacher education (e.g., Darling-Hammond, 2006), other studies focus on examining a relationship between teacher content knowledge and student achievement in specific subject domain, such as mathematics (e.g., Hill, Rowan, & Ball, 2005; Kleickmann et al., 2013) and science (Kind, 2009). In the subject of English, teacher knowledge of teaching English as a foreign language (TEFL) is a multidimensional construct consisting of content knowledge, pedagogical content knowledge, and general pedagogical content knowledge (König et al., 2016). Empirical research shows that teacher knowledge has significantly impacted of teacher approaches to teaching and predicted

students' performance in English impact on teacher approaches to teaching and student improvement (e.g., Chai, Chin, Koh, & Tan, 2013; Kleickmann et al., 2013; König et al., 2016; Olasehinde-Williams et al., 2018). Subject content knowledge and pedagogical knowledge have also significantly predicted students' performance in English (i.e., Olasehinde-Williams et al., 2018).

Teacher Self-efficacy (TSE)

Bandura's (1997) social cognitive theory explains that self-efficacy beliefs refer to an individual's perception of their own capability to effectively accomplish a specific course of action. According to Bandura (1997), an individual perceives their sense of efficacy from four main sources: mastery experience, vicarious experience, social persuasion, and psychological and affective states. Mastery experience relates to their personal achievement or failure in executing a specific task, while vicarious experience pertains to their observation of others' performance. Social persuasion involves positive or negative feedback from others, and psychological and affective states refer to their emotional and psychological states, such as stress, anxiety, or excitement, when engaging in tasks. A substantial body of research has found compelling evidence that self-efficacy exerts a significant impact on human behaviours across various domains, particularly in education (Bandura, 1997; Schunk et al., 2014).

In the educational settings, findings from research present substantial evidence emphasizing the impact of efficacy beliefs, with particular emphasis on the crucial role of teacher self-efficacy in the teaching and learning process (Morris et al., 2016). In this case, teacher self-efficacy (TSE) is defined as teacher's belief in their ability to effectively plan for and deliver teaching tasks within specific contexts (Tschannen-Moran et al., 1998). It relates to "teachers' beliefs in their own ability to plan, organize, carry out activities that are required to attain given educational goals" (Skaalvik & Skaalvik, 2010, p. 1059). Studies have suggested some

antecedents that are associated with TSE. In a randomized field trial study, Ross and Bruce (2007) investigated the effect of professional development program on TSE among mathematics teachers suggesting a positive impact of the program on TSE, particularly teachers' ability to handle classroom management. Apart from that, teacher knowledge and pedagogical beliefs are found to be a predictor of self-efficacy. It is suggested that teachers' knowledge negatively influences self-efficacy, indicating that teachers with greater demonstrated knowledge are likely to have lower TSE (Fives, 2003).

Prior research has documented that teacher self-efficacy is associated with student achievement teachers' instructional behaviour in the classroom (Klassen & Tze, 2014). A study conducted by Pan et al. (2013) suggests that teachers who possess a strong sense of efficacy tend to utilize more innovative and high-quality instructional methods compared to teachers with a lower sense of efficacy. In another study, Ware and Kitsantas (2007) found that high-efficacy teachers are likely to persist more with low-achieving students, tend to plan the most suitable instructional activities, and invest significant time and effort in preparing appropriate instructional materials. Also, teachers with high self-efficacy tend to use inquiry-based and learner-centred teaching methods and strategies while teachers with low self-efficacy are likely to use teacher-directed instructional methods and strategies, such as lecturing and relying heavily on text-based materials (Magno & Sembrano, 2007). These studies show teachers' beliefs in their teaching capability in specific teaching contexts. Even, TSE has been extensively studied across various subject areas, for example in science (Peters-Burton et al., 2015; Roberts et al., 2001) and mathematics (Hettinger et al., 2023; Zuya et al., 2016), while the study of TSE in foreign language teaching contexts remains relatively limited within the existing literature (Klassen et al., 2011).

A review study conducted by Hoang (2018) reported that research related to teacher self-efficacy in the context of English as a foreign language (EFL) has primarily focused on examining the factors influencing on teacher self-efficacy and exploring the associations between teacher self-efficacy and teacher behaviour and emotions, while evidence regarding the influence of EFL teacher self-efficacy on learner outcomes is limited. A study conducted by Chacón (2005) explored perceived self-efficacy among school teachers teaching EFL in Venezuela. The findings showed that the teachers exhibit greater level of self-efficacy in instructional strategies than efficacy in classroom management and learning engagement. The finding further indicates a correlation between teachers' self-efficacy and their self-reported English proficiency. In another study, Alibakhshi et al. (2020) explored the consequences of self-efficacy among EFL teachers. In their interview, they found that self-efficacy plays a significant role in various teaching practices, students' motivation, and achievement. Teacher self-efficacy contributes to their instructional practices, teaching quality, and teaching strategies that focus on communicative language strategies. Rashidi and Moghadam (2014) found that self-efficacy plays as a predictor to students' achievement.

Related to the sources of anxiety, some studies found different results when it comes to the most important factor in strengthening teacher self-efficacy. Moradkhani and Haghi (2017) investigated TSE strengthening factors among Iranian EFL teachers and found that verbal persuasion appears to be the most significant factor influencing teacher self-efficacy. Meanwhile, Mohamadi and Asadzadeh (2012) found mastery experience in teaching as the most important factor strengthening self-efficacy beliefs among high school EFL teachers in Iran. The findings from research above show the antecedents contributing to self-efficacy and effects of teacher self-efficacy on teaching and learning process. While research has documented the effect of self-efficacy on approaches to teaching in other contexts, like university setting (e.g., Cao et al., 2018) and different participants, like preservice teachers

(e.g., Temiz & Topcu, 2013), the present study aims to examine how teacher self-efficacy is related to other factors at teacher and student level. It is hypothesized that teachers' characteristics and other attributes like teacher knowledge and teacher preparedness influence teacher self-efficacy. It is also hypothesized that self-efficacy relates to teachers' approaches to teaching that focused on conceptual change/student-focused and affects students' achievement in English.

Mastery Approaches to Assessment (MAST)

It has been widely acknowledged that assessment plays a significant role in educational process. It serves the essential purpose of evaluating the attainment of educational goals and objectives but also facilitating ongoing improvement and reform in any formal instructional process (Al-Mahrooqi, 2017). According to Cheng et al. (2007), assessment encompasses a wide range of teacher activities that are assigned for learners with the aim to diagnose their learning achievement and to guide and influence the teaching-learning experience. Over the past few years, there has been a shift in assessment studies to focus on investigating the links between assessment and the interactions in the classroom aiming to improve learning (Black & Wiliam, 1998). Hence, extensive studies have been conducted concerning assessment practices, with a particular focus on classroom formative assessment.

Assessment practices adopted by teachers in classrooms have a significant implication for their instructional practices and students' learning outcomes (Daniels & Poth, 2017; William et al., 2004). Scholars argue that the characteristics of best instructional and assessment practices involve supporting student learning, emphasizing mastery orientations, and implementing a balanced approach to both summative and formative assessments (Darling-Hammond & Bransford, 2007; Philpott, 2016). Assessment practices oriented towards mastery are based on the perspective of achievement goal theory, which encompasses the assessment strategies

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employed by teachers to enhance students' mastery and skill development. What teachers practice in classroom assessment have been associated with student learning and teachers' instructional practices (DeLuca, Coombs, & LaPointe-McEwan, 2019). In a mastery-oriented classroom, teachers consider using various ways to assess student mastery (such as tests, in-class task, discussions, homework assignments) and focus on student learning and encouraging thinking (Daniels & Poth, 2017; Philpott, 2016). One of features in mastery-oriented classrooms is formative assessments that are used to guide learning or instruction.

Studies have found that student achievement is influenced by teachers' use of more continuous formative assessment through quality feedback (Black et al., 2003; William et al., 2004). A study examining approaches to assessment was conducted by Daniels and Poth (2017). This correlational study involving 344 pre-service teachers in Canada examined the relationships between mastery approach instruction and assessment practice. The study found that there was an alignment between mastery approaches to instruction and those in assessment. The study also suggests that high school teachers tend to apply less mastery approaches to assessment due to its focus on examination culture and grading. Taking the relationship between assessment practice and instruction into consideration, in this current study, the effect of mastery approaches to assessment on approaches to teaching is tested. It is predicted that mastery approaches to assessment will relate to conceptual change/student-focused approaches to teaching than to information transmission/teacher-focused approaches to teaching.

Teacher Approaches to Teaching (ATTE)

Teacher approaches to teaching refer to teachers' intentions and strategies in teaching (Trigwell, Prosser, & Taylor, 1994). There are two broad categories of teaching approaches adopted by teachers, namely content-focused and learning-focused approaches (Postareff & Lindblom-Ylanne, 2008; Trigwell et al., 1994; Uiboleht, Karm, & Postareff, 2018). In content-

focused approaches, teachers intend to transmit information to students, so teachers focus on presenting teacher knowledge about the subject matter. Meanwhile, in learning-focused approaches teachers emphasize changing or developing students' conceptions of the subject matter and thus teachers use strategies to promote students' understanding of the subject matter (Prosser & Trigwell, 2014; Trigwell et al., 1994; Uiboleht et al., 2018). Some studies have found that teacher's approaches to teaching are found to be correlated with students' approaches to learning. Trigwell, Prosser, and Waterhouse (1999) found that a teacher-focused approach to teaching is related to a surface approach to learning while a student-focused approach to teaching correlates with students' deep approach to learning. In a study conducted by Lye (2016) involving English teachers in secondary schools in Malaysia, it was discovered that teachers predominantly employed CCSF teaching approaches, rather than ITTF teaching approaches. This suggests that teachers were more inclined to concentrate on guiding students in developing their English language proficiency. Additionally, the research revealed that CCSF teaching approaches had a direct impact on the English language proficiency of students.

2.5   Teacher characteristics and student language achievement

Qualities and characteristics of teachers have been an important school-based factor in achieving educational goals. It has been claimed that teacher characteristics play a significant role in student achievement. However, research has found inconsistent results when investigating the link between teacher characteristics and student achievement. The results of a meta-analysis regarding the effect of teacher characteristics on student achievement have found that teacher characteristics had a positive but low effect on student achievement (Danişman et al., 2019). The moderator analysis in the meta-analysis has found that there was a significant effect of teacher characteristics on student achievement, and it shows the effect size is significant for all school levels, particularly in high school.

Teacher Gender

Teacher gender has been related to student learning. Studies have found that teacher gender is associated with student motivation. A study conducted by Martin and Marsh (2005) examined the interaction between teacher gender and students' academic motivation and engagement among high school students. The finding suggests that there is no discernible difference in the motivation or engagement levels of boys and girls when it comes to classes taught by male teachers as compared to those taught by female teachers. In contrast, another study proposes a different conclusion. Opdenakker et al. (2012) investigated teacher gender as one of determinants to predict academic motivation among secondary school students. The study found that teacher gender is not associated with student motivation.

Years of Teaching Experience

The total years of teaching experience are expected to influence student performance. According to Kosgei et al. (2013), experienced teachers are equipped with richer background of experience, insights, and ideas that can contribute to their teaching, are open to improvement, and are more democratic in classrooms. Studies investigating the link between teaching experience and student achievement found inconclusive findings. Some studies have found that teacher experience has a positive effect on student achievement (i.e., Buddin & Zamarro, 2009), while other found no association between teacher experience and student achievement (i.e., Rockstroh, 2013).

Teachers' experiences also play a role in influencing teaching practices. A study conducted by Mak and Chik (2011) have found that teaching experience influences their approaches to teaching English. Teachers with greater years of teaching experience reported the use of collaborative approach to teach English. Teachers with over 10 years of teaching experience exhibited significantly higher level in peer collaborative work, such as co-lesson planning,

observing lesson, and sharing skills and knowledge gained from professional development. Apart from that, Tajeddin et al. (2018) found that teacher's experience relates to assessment practices, in which more experienced teachers tend to implement classroom assessments to inform their teaching compared to less experienced teachers. Teachers with greater experience in teaching are more likely to have adequate pedagogical knowledge. A study by Gatbonton (2008) found that apart from checking procedure of classroom learning and tasks and noting students' behaviour, experienced teachers reported their use of language management, such as improving quality of student English production, giving explanation, and noting positive attitudes and reactions towards student behaviour.

Teacher Qualifications

Teacher educational level is another teacher characteristic that may influence student learning outcomes. It is revealed that teacher educational attainment is not significantly related to increased student achievement (Huang & Moon, 2009), while others found that teachers' academic qualification has a positive effect on student achievement (DeAngelis & Presley, 2011). Apart from student achievement, research shows teacher qualification is related to instructional practices. Mak and Chik (2011) revealed that different teacher qualifications reported variation in the use of teaching approaches. The study suggested that English teachers who had higher qualifications were stronger in their reported use of teacher focused approach and strategy to teach English than teachers holding lower qualifications. It is found that teachers receiving postgraduate training emphasized more on knowledge and information transmission that the counterparts obtaining a bachelor or lower degree.

Teachers' Preparedness for Teaching

Readiness to or preparedness for teaching is a component of personal qualities in teacher characteristics, apart from communication skills, morality, and effort (Danişman et al., 2019).

Teachers are a key element of the learning environment, particularly in supporting student learning to improve and overcome learning barriers. Teacher preparedness to support learning could be potential to impact on learning outcomes. Teachers' preparedness for teaching in this study refers to teachers' readiness in instructional activities, like managing English classroom, using ICT for teaching, assessing students, monitoring learning, and teaching content.

Professional Development Activities

Professional development is a significant element in sustaining and developing personal and professional abilities. According to Rhodes et al. (2004), teachers engage in professional development activities either by desire or by necessity with the purpose of identifying professional needs and increasing the quality of teaching and learning which subsequently improve classroom performance. Apart from experience of teaching, teachers may acquire professional knowledge from their engagement in professional development activities, such as attending workshops or courses or collaborating with other teachers in their schools or in teacher subject community. However, the effect of professional learning intervention to improve student outcomes is inconclusive (Meissel et al., 2016). Reviews of literature have found the lack of studies in the association between teacher professional development through teaching practices to student achievement (Supovitz, 2001). Wallace (2009) found a very small but sometimes significant effect of professional development on reading achievement which was mediated by teacher practices.

For the purpose of our study, teacher professional development is defined as a combination of teachers' experiences in participating such professional development activities as online or face-to-face English teacher workshops or course, peer observation, English teacher forum, and teacher professional development.

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Another important aspect of teacher professional development is peer observation. Peer observation is a part of in-class peer coaching where teachers support other teachers to reflect and better improve the ways of teaching (Rhodes et al., 2004). It provides opportunities for teachers to collaborate, reflect, and share teaching experiences for the purpose of continuous improvement. Ben-Peretz et al. (2018) highlight that sharing experiences among teachers in peer observation activities is an important part of professional development where teachers engage in practice. Peer observation is one of the most effective teacher development interventions that provide teachers with less intimidating evaluation than other teacher observations (Ahmad, 2020) and focus on teacher collaboration to promote learning around a specific lesson and the learning outcomes (Robbins, 2015). Ahmad (2020) highlighted the importance of peer observation as a professional development intervention in an EFL reading lesson to provide a venue for the teacher to evaluate their teaching reading. Other studies have suggested that teachers who took part in peer observation experienced more self-efficacy and improved their teaching practices (Ben-Peretz et al., 2018; Koch, 2014).

Teacher characteristics includes gender, age, academic qualification, years of teaching experience, elements of qualifications, and teacher training experience. A number of empirical studies found that those factors are associated with student achievement in varying degrees (e.g., Haider & Hussain, 2014; Tajeddin et al., 2018). In their recent study, Tajeddin et al (2018) found that experienced teachers tended to implement more diagnostic assessments and use the information from diagnostic assessment as the basis for teaching while novice teachers used less diagnostic assessment and information was used for later teaching.

Apart from school-related factors, there are also some factors linked to teachers which are associated with this learning outcome, including teacher experience (Tajeddin, Alemi, & Yasaei, 2018), teacher self-efficacy (Tschannen-Moran & Barr, 2004), teacher competence

(Cahyono, 2014), teacher knowledge and assessment literacy (Edwards, 2017; König et al., 2016; Olasehinde-Williams, Yahaya, & Owolabi, 2018), conceptions of assessment and teaching (Brown, Lake, & Matters, 2011; Gebril, 2017), teacher approaches to assessment (Berry, Sheehan, & Munro, 2019; Philpott, 2016), and teacher approaches to teaching (Cao, Postareff, Lindblom, & Toom, 2018; Trigwell, Prosser, & Waterhouse, 1999). These are explained in more detail in the following sections.

2.6   Theoretical framework

This study employed what is known as a presage-process-product (3-P) model of classroom learning (Biggs, 1993) and a nested learning system (Resnick, 2010) as the underlying theoretical frameworks. The 3P model of classroom learning proposed by Biggs (1993) was used to explain student achievement and its interrelated factors. According to Biggs (1993), in the 3-P model, the presage stage refers to student factors (i.e., student efficacy and learning strategies), and teacher factors (i.e., teacher beliefs about teaching, learning, and assessment and teacher knowledge). In the process stage, the interaction between student and teacher factors occurs. It is the phase concerning how students approach the task and how teachers approach the teaching. The product refers to the outcomes of the learning in the context of teaching and learning: how much is learned and how well it is learned. Based on this model, academic achievement as the outcome of student learning has been associated with many preceding factors, like presage (i.e., how students experience their prior learning) and process factors (i.e., how students approach their learning), that interact with each other to form "an eco-system of the educational swamp" as suggested by Biggs (1993, p. 74). Furthermore, Prosser and Trigwell (1993, 2014) suggest that what is happening in the classroom can also be seen from a teacher's perspective. It is vital to examine what teacher factors or attributes related to student learning achievement and how the factors are interrelated to those of students.

In addition to this, a model of the nested system proposed by Resnick (2010) was employed to understand the layered system that influences student outcomes in school settings. Resnick's (2010) nested or layered learning system model informs the hierarchical level and interrelationship between students, teachers, and schools. Since student- and teacher-based practices occur within schools, school characteristics need to be examined. The teaching and learning process at the classroom level and the outputs of learning are monitored and measured to provide information for a higher hierarchical level (i.e., school administrators) whether the process of teaching and learning is maintained or requires corrections or modifications to improve student learning. This indicates a process control model of nested or layered system (Resnick, 2010) or nested micro-systems (Biggs, 1993) to examine the interrelationships of the teaching and learning practices in the system of student, classroom, and institution that predict student learning outcomes as the end product.

Even though the 3P model aimed to examine research and development in the tertiary context, a number of studies have applied the model in other settings, such as secondary schools (Lye, 2016). Informed by the two models, this present study aims to investigate teacher-, and student-level factors that influence English learning success among public general and vocational secondary school students in West Java, Indonesia. As shown in Figure 2.6.1, at the student level, the presage stage involves the variables of student demographic, perceptions of classroom assessment and learning environment, and conceptions of learning. In the process stage, the student variables include motivational variables and approaches to teaching, and the product stage comprises English achievement. Meanwhile, the presage stage at the teacher level includes teacher variables of teacher demographic, teacher knowledge, and teacher preparedness and self-efficacy beliefs, while the process stage comprises teacher approaches to assessment and teacher approaches to teaching.
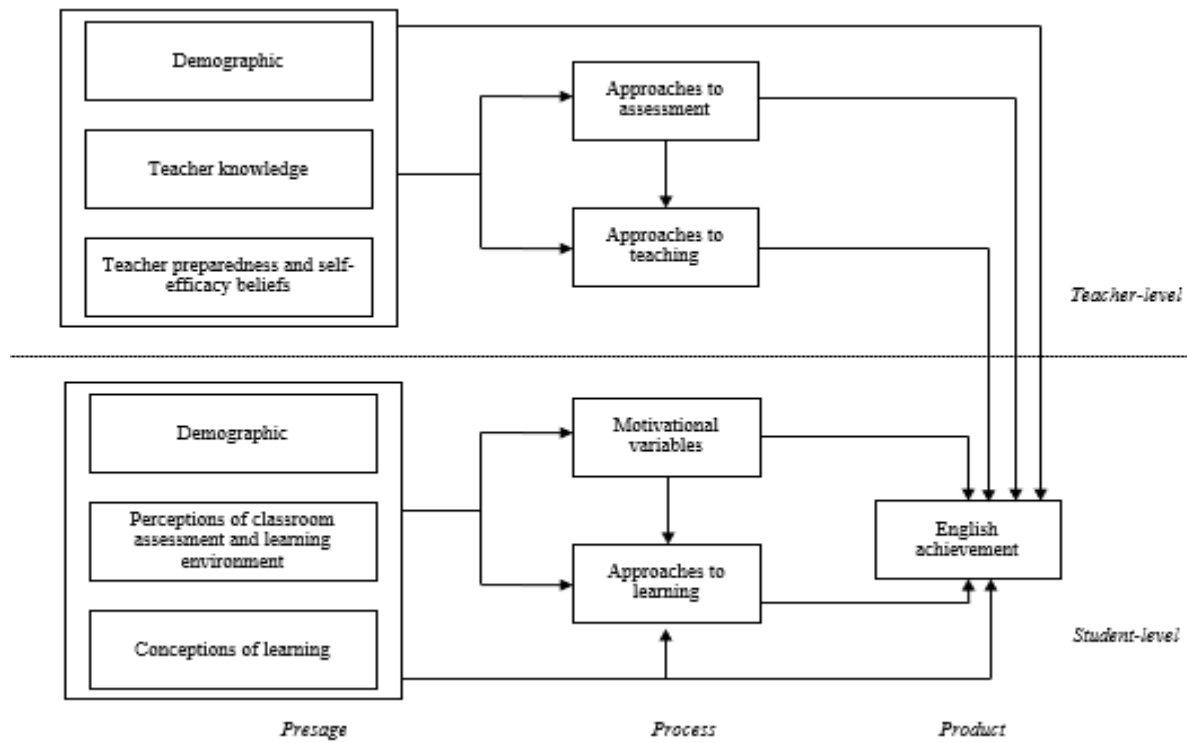
Figure 2.6.1 Model of teaching and learning English adapted from presage, process, and product phases (adapted from Biggs, 1989)

CHAPTER 3

RESEARCH DESIGN

3.1   Introduction

The focus of the study was on investigating the connections between various factors at the student and teacher levels, and their influence on the English achievement of upper secondary school students in both general and vocational schools within West Java Province, Indonesia. In Chapter 2, the literature review presented several student and teacher factors that impact English achievement, while the theoretical framework illustrated the interrelationships among these factors. To address the research questions, a mixed-method approach was employed, utilizing surveys, an English diagnostic test, and interviews as data collection techniques. This chapter provides details on the research design, population and sampling, instruments, procedures for data collection, as well as the results of a pilot study conducted to refine the instruments and procedures.

3.2   Research Design

According to Creswell (2009), research designs refer "plans and the procedures for research that span the decisions from broad assumptions to detailed methods of data collection and analysis" (p. 3). Research designs explain research paradigms or worldviews assumptions as well as strategies of inquiry employed in research, and specific approaches for data collection and analysis. Further, the choice of research design can be based on the nature of the research problem or issue being addressed, personal experiences, and the intended audience for the study (Creswell, 2009).

In this study, the nature of this research is to determine how factors at student and teacher levels are interrelated and impact on English achievement among upper secondary students in West

Java province, Indonesia. Furthermore, this study investigates the perceptions of both students and teachers regarding their experiences in the teaching and learning processes in English classrooms. The basic assumption to this study is that student achievement at schools is predicted to be influenced by various factors, including student and teacher factors. Student success in the classrooms may vary depending on the what students and teachers believe about the teaching and learning process and the learning interactions that occur in the classroom settings. Thus, student achievement cannot be seen as a stand-alone phenomenon, rather it is influenced by various factors.

From the pragmatic worldview, to understand the problem of low achievement of English among upper secondary school students can be examined from different approaches. According to Morgan (2007), as a philosophical basis for research, pragmatism is characterized by abductive reasoning which involves the iterative application of both inductive and deductive reasoning. The use of sequential mixed methods research exemplifies an iterative research approach, where the deductive results obtained from the quantitative approach are employed as inputs for the inductive findings derived from the qualitative approach (Morgan, 2007). Further, Creswell (2009) suggests that pragmatism enables researchers to employ multiple approaches for data collection and analysis, thereby providing a comprehensive understanding of a research problem by using methods available. Therefore, to understand how factors at student and teacher levels are interrelated and impacted on English achievement, the study was designed using a mixed-method design incorporating both quantitative and qualitative approaches.

As a strategy of inquiry, this study employed an explanatory sequential mixed method strategy where both qualitative and quantitative information was collected in a sequential way. According to Creswell and Guetterman (2019), in the explanatory sequential procedure, the

initial phase involved gathering quantitative data, followed by the collection of qualitative data to provide insights and further explanation on the quantitative findings or vice versa. This strategy made it possible for the researchers to ask both confirmatory questions in order to verify the theory and exploratory questions to generate theory in the study (Teddlie & Tashakkori, 2009). In this study, a quantitative method was employed to test a concept or theory, followed by a qualitative method that involved detailed exploration with a limited number of cases or individuals. In this case, the quantitative data and results were primarily utilized to establish a comprehensive overview of the research problem, while the qualitative data served to explain or elaborate the general findings obtained from the quantitative analysis.

This study involved a survey method and an English diagnostic test to gather quantitative data and a semi-structured interview approach to capture qualitative data. As a popular design in education, a survey method involves studying a sample of a population to provide a quantitative or numerical description of trends, attitudes, or opinions within that population (Creswell, 2009). According to Babbie (2021), surveys serve as valuable tools for describing characteristics within a large population, enabling researchers to ask multiple questions in a specific topic and providing flexibility in data analysis. In this study, a survey was used to collect quantitative data through questionnaires, which are subsequently analysed using statistical methods to describe response trends and test research hypotheses. This study employed a cross-sectional survey design to measures current attitudes, beliefs, opinions, or practices in a short amount of time (Creswell & Guetterman, 2019). Therefore, this study employed the collection of responses from teachers and students with a single time frame. In addition, specifically for students, an English test was used to obtain the responses from the reading and listening test items.

To explain further on the results of the survey, qualitative data were collected from student and teacher respondents using a semi-structured interview. The questions of the interview were based on the findings from the survey. A set of topics related to the research were also discussed in depth with the respondents aiming to elaborate the quantitative findings, and thus provide better understanding of the issues being discussed. This study employed one-on-one interview with the respondents so that the respondents can share ideas comfortably. As the participants in this study were geographically dispersed, telephone interviews were used to gather the information.

3.3 Ethics Approval

Before commencing the research, ethics approval was obtained from the University of Adelaide Human Research and Ethics Committee (HREC) and permission from the Department of Education in West Java Province. The approval from school principals were also sought before data were collected from teachers and students in the schools. Teacher participation in this study remained voluntary, and those who agreed to participate in the study were considered as respondents. The students taught by the teacher respondents were considered as the potential student respondents. Only students with personal consent and parent's consent were invited to participate in the study. The participation from teachers and students were voluntary based where the respondents can withdraw their participation at any stage of the study. It was informed to the participants that no harms or negative consequences from the schools or education department will be obtained if they decided to withdraw from the study.

3.4 Sampling and Data Collection Methods

The population in this present study was general and vocational upper secondary schools located in West Java Province, Indonesia. According to the Ministry of Education, Culture, Research and Technology (MOECRT), the province consists of 18 regencies and 9 cities and

has the country's largest number of public general and vocational upper secondary schools with a total of 802 schools in 2023. The study focused exclusively on the investigation of public general and vocational upper secondary schools situated in nine regencies and five cities within West Java Province: Bandung Regency, Bandung Barat Regency, Bogor Regency, Ciamis Regency, Cianjur Regency, Indramayu Regency, Majalengka Regency, Sumedang Regency, Tasikmalaya Regency, Bandung City, Bekasi City, Cimahi City, Tasikmalaya City, and Sukabumi City. The selected areas are marked in yellow dots presented in Figure 3.4.1 (b). This cluster of school population was chosen due to its substantial student population and ease of data collection.

(a)

(b)

Figure 3.4.1 (a) Map of Indonesia (b) the 32 school participants located in West Java Province

Specifically, this study targeted teachers teaching and students studying English at Year 12 classes at the selected public general and vocational upper secondary schools for data collection. Year 12 classes were selected in this study because they were at the last stage of formal secondary education which can provide information about educational process in their secondary education, particularly in the teaching and learning process in the subject of English. In the study, the sample was selected using a multistage cluster sampling method. A cluster of schools in the selected areas was selected and contacted to participate in the study. One English teacher in each school was invited to take part in the study, and students taught by the selected teachers were also invited to participate in this study. The number of students per class varied among schools. The final respondents for this study were 32 teachers and 758 Year 12 students in general and vocational upper secondary schools in West Java province.

The study utilized three methods of data collection: survey questionnaires, a diagnostic English test, and semi-structured interviews. The questionnaires were designed to measure self-reported attitudes and opinions from students and teachers towards the related factors that influence students' learning outcomes. They included scales adapted from previously developed instruments that assessed relevant aspects aligned with the study's objectives. The items in the questionnaire were based on the adaptation from available questionnaires, while some items were developed based on relevant theories underlying this study. Two questionnaires were designed: Student Questionnaire and Teacher Questionnaire. Since the questionnaires were presented in the Indonesian language (Bahasa Indonesia), a back-translation procedure was employed to address cross-cultural validity issues. The questionnaires were translated by a translator who has a sound ability in both English and Bahasa and familiarity with the subject matter. The Indonesian questionnaires were then given to another translator to be translated back into English. Meanings are then compared to ensure

no discrepancy occurs. If the Indonesian versions are acceptable, the questionnaire will be pretested to check the clarity and appropriateness (Cohen et al., 2011).

Another method was a diagnostic English test aiming to collect information about students' English performance. The test was developed to measure two language skills, i.e., Listening and Reading. These receptive skills have been emphasized in the curriculum as important skills for communication and comprehension taught in secondary schools in Indonesia. The test was developed to align with Year 12 students' material blueprint. The items of the test were adapted from several sources, including English textbooks for Year 12 students. Furthermore, the semi-structured interviews incorporated guided prompts derived from the findings of the quantitative data.

The third method was an interview. A semi-structured interview was employed for discussions with teachers and students who were selected purposively based on their participation in the survey, willingness, and having the available time to participate in the qualitative data collection. Interviews focused on participants' perceptions of English teaching, learning, and assessment environments. In this study, six students and two teachers participated in the interview session.

3.5 Survey Instruments

Survey questionnaires were used as the primary instrument for data collection in this study. The questionnaires included variables that were identified based on the conceptual framework presented in Chapter 2, and these variables in student and teacher questionnaires were adapted from previously validated questionnaires. After the variables were identified, the definition of each variable needs to be developed. In this study, the operational definitions of student-level and teacher-level variables were presented.

Student-level variables

The study investigated factors related to students that influenced their achievement in English. The variables at student level included demographic information and variables that were hypothesised to impact on achievement, including perceived English learning environment (Fraser, 2012), assessment environment (Alkharusi, 2011), conceptions of learning English (Tsai, 2004; Zheng et al., 2016), achievement goal orientations (Kaplan & Maehr, 2006; Midgley et al., 2001), classroom anxiety and attitude toward learning English (Gardner, 1985), and approaches to learning (Biggs, 1991). The demographic information gathered from students included school stream, gender, parent education level, time spent on out-class activities, like doing English homework, English self-study, and English private class. School stream is defined as school type that a student attends to, and it includes public general and public vocational upper secondary schools. Gender means sex of students whether male or female. Parent educational level refers to student father and mother highest academic level. Time spent doing English refers to the number of hours spent for doing homework outside school hours. Time spent studying English refers to the number of hours spent to study English outside school hours. Private lessons refer to a number of hours spent for joining English private classes outside school hours.

Perceptions of English classroom learning environment (ECLE) refer to social, psychosocial, and pedagogical contexts where learning occurs as perceived by students (Fraser, 2012). English classroom learning environment in this study includes student cohesiveness (SCOH), teacher support (TSUP), investigation (INVE), participation (PART), and task orientation (TAS) (Aldridge et al., 2004; Liu & Fraser, 2013). Student cohesiveness refers to the extent of positive relationships and connectedness among students in an English classroom. Teacher support refers to the level of encouragement given by an English teacher to students in an

English classroom. Investigation refers to the extent of investigative skills and processes promoted in an English classroom. Participation refers to the level of which students are encouraged to participate rather than to be passive listeners in an English classroom. Task orientation refers to the extent to which a student finds it important to complete activities and stay on in an English lesson.

Perceptions of classroom assessment environment (PCAE) are defined as classroom assessment practices perceived by students in English classrooms. There were two classroom environments identified in this study: learning-oriented and performance-oriented classroom assessment environment. A learning-oriented classroom assessment environment refer to assessment practises emphasising student learning and content mastery, providing feedback on student learning, and giving opportunities for performance improvement; meanwhile, the performance-orientated assessment environment centred on assessment practises characterised by difficult and less meaningful assessment tasks, grade focus, and students' comparison on performances (Alkharusi, 2011).

Students' conceptions of learning English (COLE) refer to students' beliefs and experiences that reflect their thinking about English language learning (Zheng et al., 2016). The conceptions included memorizing (MEMO), testing (TEST), practicing (PRAC), communicating (COMM), and understanding and seeing in a new way (NWAY). Memorizing refers to students' beliefs of learning English that focus on the process of memorization. Testing refers to the way students perceive that learning English is primarily geared towards preparing for an English test. Practicing refers to students' beliefs that learning English is about practicing the language skills. Communicating refers to students' beliefs that learning English revolves around effectively using the language to communicate and apply English language skills.

Understanding and seeing in a new way refers to students' view of learning English is for comprehension and gaining a new insight into English language and culture.

Achievement goal orientations refer to the motivation why students engage in English activities (Kaplan & Maehr, 2006; Midgley et al., 2001). These include mastery or task goal orientation (TASK) referring to students' reason to engage to acquire English mastery, performance- or ability-approach goal orientation (ABIL) referring to students' motivation to engage in learning in order to perform better than their peers, and performance- or ability-avoidance goal orientation (ABAV) showing students' motivation to engage to avoid being perceived as incompetence by others (Midgley et al., 1998).

Anxiety (ANXI) is defined as students' anxious feeling in an English classroom, while attitude (ATTI) refers to students' evaluative reactions or opinions toward an English classroom (Gardner, 1985)

Approaches to learning (ATLE) is defined as students' motives and strategies to learning English (Biggs, 1991). Deep approach to learning means students' ways of learning English by making connections on their tasks to other related tasks and actively participating in learning activities triggered by internal motivation. Achieving approach to learning refers to students' motives and strategies of learning English to obtain high marks and focus more towards performing better than others. Surface approach to learning is defined as students ways of learning English at a superficial level with heavily focusing on memorization and limited reflection (Biggs, 1987)

English achievement (EACH) is defined as the results of a diagnostic test which assesses reading and listening skills.

Teacher-level variables

Some variables at teacher level were also identified to have impact on achievement. The variables consisted of teacher demographic information and teacher variables, like teacher preparedness, teacher knowledge, teacher self-efficacy (Tschannen-Moran et al., 1998), mastery approach to assessment (Daniels & Poth, 2017), and approaches to teaching (Trigwell, Prosser, & Taylor, 1994). Demographic information includes teacher gender, years of teaching experience, teacher qualification, involvement in professional activities. Gender refers to sex of teachers whether male or female. Years of experience refer to the number of years a teacher has spent teaching English in a formal school. Teacher qualification means teacher highest educational level.

Preparedness (TPREP) is defined as teacher feeling of preparedness for doing teaching English. Teacher knowledge (TK) refers to a body of knowledge a teacher has related to teaching English, covering content knowledge, pedagogical content knowledge, and technological pedagogical content knowledge. Content knowledge refers to teacher knowledge and understanding on the subject matter, i.e., English language. Pedagogical content knowledge refers to teacher knowledge how to teach English in a classroom. Technological pedagogical content knowledge refers to teacher knowledge of teaching English using technological devices to supper their activities.

Teacher self-efficacy (TSE) refers to teacher's belief in their ability to effectively plan for and deliver teaching tasks within an English classroom (Tschannen-Moran et al., 1998). Teacher self-efficacy measures three domains including self-efficacy in student engagement, instructional strategies, and classroom management. Self-efficacy in student engagement refers to how well teachers can do to help, motivate, and improve student learning. Self-efficacy in instructional strategies refers to how well teachers can provide a variety of strategies, adjust

lessons, and gauge student comprehension in learning. Self-efficacy in classroom management refers to how well teachers can control disruptive behaviour, establish learning to run smoothly, and manage entire lesson.

Mastery approach to assessment (MAST) refers to teacher approach in providing assessment practices that focus on learning and mastery in an English classroom (Alkharusi, 2011; Daniels & Poth, 2017).

Teacher approaches to teaching (ATTE) refers to teachers' intentions and strategies in teaching English classroom (Trigwell, Prosser, & Taylor, 1994). Information transmission/teacher-focused (ITTF) approach refer to an approach intending to transmit information to students and present knowledge about the subject matter. Conceptual change/student-focused (CCSF) approach refers to teacher teaching approach to develop students' conceptions of the subject matter and students' understanding of the subject matter (Prosser & Trigwell, 2014; Trigwell et al., 1994; Uiboleht et al., 2018).

Development and administration of instruments

Student and teacher instruments in this study were modified and adapted from existing instruments while a diagnostic test was modified and adapted for the use of upper secondary school students. Table 3.5.1 displays the development of items for student and teacher questionnaires and English test for students.

Table 3.5.1
Item Development in the Questionnaires and English Diagnostic Test

Questionnaires / Sections	Scales / Variables	Items	Sources
Student Questionnaire, Section 1	Information about the survey		
Student Questionnaire, Section 2	Demographic PARED HW STU PRV	Gender, Age, School 4-5 6 7 8	Items constructed by researcher

Student Questionnaire, Section 3	PCAE (LOA)	1-8	(Alkharusi, 2011)
	PCAE (POA)	9-16	
Student Questionnaire, Section 4	ECLE (SCOH)	1-3	(Aldridge et al., 2004; Fraser, 1990; Liu & Fraser, 2013)
	ECLE (TSUP)	4-11	
	ECLE (INVE)	12-15	
	ECLE (PART)	16-18	
	ECLE (TAS)	19-24	
Student Questionnaire, Section 5	COLE (MEMO)	1-5	(Li et al., 2013; Zheng et al., 2016)
	COLE (TEST)	6-10	
	COLE (PRAC)	11-14	
	COLE (COMM)	15-19	
	COLE (NWAY)	20-27	
Student Questionnaire, Section 6	ORIEN (TASK)	1-6	(Midgley et al., 1998)
	ORIEN (ABIL)	7-12	
	ORIEN (ABAV)	13-18	
Student Questionnaire, Section 7	ANXI	1-5	(Guilloteaux & Dörnyei, 2008)
	ATTI	6-14	
Student Questionnaire, Section 8	DEEP (DEEM)	1, 11, 15	(Mak & Chik, 2011)
	DEEP (DEES)	4, 9, 18, 23	
	ACHI (ACHM)	2, 7, 12, 16, 21, 26	
	ACHI (ACHS)	5, 10, 13, 19, 24, 28	
	SURF (ACHM)	6, 14, 20, 15	
	SURF (ACHS)	3, 8, 17, 22, 27	
English Diagnostic Test	Reading (READ)	1-20	English for communication test booklets
	Listening (LIST)	1-10	Items constructed by researcher
Teacher Questionnaire, Section 1	Information about the survey		
Teacher Questionnaire, Section 2	Demographic	Gender, Age, Experience, TFED, TCRS, POBS, TFOR, TPED, TFTR	Items constructed by researcher
	TPREP	10-15	(OECD, 2008)
Teacher Questionnaire, Section 3	TKW (CK)	1-6	(Bostancıoğlu & Handley, 2018)
	TKW (PCK)	7-15	
	TKW (TPCK)	16-22	
Teacher Questionnaire, Section 4	TSE (SEENG)	1-4	(OECD, 2008)
	TSE (SEINS)	5-8	
	TSE (SECLS)	9-12	
Teacher Questionnaire, Section 5	MAST	1-7	(Alkharusi, 2011; Daniels & Poth, 2017)
Teacher Questionnaire, Section 6	ATTE (CCSF)	1-8	(Prosser & Trigwell, 2006)
	ATTE (ITTF)	9-16	

3.6 Pilot Study

As mentioned above, the instruments in this study were adapted from previously published questionnaires relevant to this study, and the items in the instruments were translated into Bahasa Indonesia. The items and formats were also pretested to some participants before a pilot study was performed. The pilot study or pilot testing was necessary to observe the

administration of the survey before it was administered to the research participants. According to Nardi (2018), pilot testing the instruments can be the most effective method for evaluating the questionnaire's flow, adequacy of instructions, clarity of item wording and format, as well as the survey's reasonable completion time.

In the pilot study, two experts in the field of language and education were involved to ensure the face and content validity of the instruments. Some modifications were performed for the items to improve the clarity of the items. The pilot study was also performed to check the overall administration of the survey by involving Year 12 students and English teachers coming from a public upper secondary school. The respondents in the pilot study were not the part of the final sample of the study to avoid bias results. The participants were encouraged to comment on the instruments and suggest if they encountered any problems when completing the instruments.

3.7   Summary

This chapter has presented the research design, ethic approval, sampling and data collection method, scale operationalization and instrument development for the purpose of the study. The study employed a mixed method research design aiming to investigate the relationships of factors at student and teacher level and English achievement and exploration on the quantitative findings using interview method as a qualitative data collection technique. The questionnaires for students and teachers were the primary source of data collection for quantitative data. These questionnaires were adapted from prior relevant existing studies that discussed related variables or measures. A diagnostic test was also developed to assess student achievement, particularly listening and reading skills. The development of instruments was presented, and validation of the instruments is discussed in the next chapter.

CHAPTER 4

METHODS OF DATA ANALYSIS

4.1   Introduction

This study used quantitative data and qualitative data to answer the research questions. In quantitative data collection, the study involved a number of scales or measures to examine the relationships among teacher- and student-level factors and the impacts of these factors to students' English learning outcome. For qualitative data collection, semi-structured interview was employed to explore student and teacher perspectives on the results of quantitative data regarding teaching and learning in English classrooms. In this chapter, the process of data analysis for both quantitative and qualitative data are presented. Several steps are presented in quantitative data analysis, including data preparation and analysis techniques, including the uses of statistical software to analyse the data, including IBM SPSS 26, MPlus 7, ACER ConQuest 4, and HLM 8. This chapter discusses the description of data preparation and normality and multicollinearity test. Techniques of analysis was then described, including descriptive analysis, confirmatory factor analysis, Rasch analysis, Structural Equation Modelling (SEM) analysis, and Hierarchical Linear Modelling (HLM) analysis with the uses of the statistical software. In analysing qualitative data, the interviews were transcribed and prepared before initial exploration. The interview transcriptions were then described and interpreted.

4.2   Quantitative Data Analysis

The process of quantitative data analysis begins with preparing quantitative data and examining the measures before statistical analyses were conducted. Data preparation included data entry and screening and checking assumptions. For the statistical analysis of quantitative data, factor

analysis, descriptive analysis, and regression analysis as suggested by Creswell and Guetterman (2019). Confirmatory factor analysis (CFA) and Rasch Analysis (Rasch) were employed for instrument validation stage. After the validation, descriptive analysis and structural equation modelling (SEM) analysis and hierarchical linear modelling (HLM) were performed.

4.2.1 Data Preparation

Data preparation was taken in two steps as suggested by Pallant (2016): first, data file creation and entry and data screening and cleaning. As the data from teacher and student questionnaires were gathered from Google Form, the data were firstly created in the form of Microsoft Excel file. The relevant data for analysis were selected, while irrelevant information, like Timestamps and email addresses, was removed in the Excel file. Lengthy texts, like question items, were shortened to simplify the names. Cardinal numbers were applied for categorical variables, like Gender (1 = Male; 2 = Female). In addition, each scale was checked, and if negatively stated items were found in the scales, reversing scores were applied. The responses of the negatively stated items were re-coded to ensure that the low score is transformed into the corresponding high score on the scale. Teacher and students were also numbered as codes. After the primary spreadsheet in Excel data file was created, it was then imported to SPSS data file. The data were structured, and each variable was defined and given values before analysis.

The second step included data checking and screening for errors or mistakes during the data entry. Data screening was conducted by checking for errors and finding and correcting the errors. Checking for errors is essential to avoid distortion in statistical analyses (Pallant, 2016). Errors in categorical and continuous variables were checked to identify out-of-range possible scores and invalid cases. When an error was found, it was then corrected in the data file. the

process of error checking was repeated to ensure all data were error-free and valid for further analysis.

Checking Assumptions: Normality and Multicollinearity Test

In many statistical analyses, it is assumed that the data distribution has met the assumption of normality, where the data distribution is normally distributed. In conducting multivariate data analysis, it is also critical to have the multivariate data which are normally distributed. According to DeCarlo (1997), normally distributed multivariate data is crucial in multivariate methods which use covariant matrix as input. As the first step to assess the multivariate normality, it is a necessary condition to examine the univariate normality prior to assessing the multivariate normality (Byrne, 2012; DeCarlo, 1997). Even though checking univariate normality can be performed in many ways, such as checking visual description in the P-P plots, tests of normality, or comparison of the distribution to a normal one (Field, 2009), for the purpose of the study, checking normality assumption was performed by examining the absolute values of kurtosis and skewness. Kurtosis indicates the cluster of scores at the ends of distribution and how pointy the distribution is, while skewness indicates lack of symmetrical distribution (Field, 2009). Ideally, the values of kurtosis and skewness in a normal distribution are 0. In this study, the values of kurtosis less than 10 and those of skewness less than 3 were used as the acceptable threshold to meet the normality assumption.

Apart from meeting the normality assumption, multivariate data analysis also requires the assessment of multicollinearity among independent variables. Multicollinearity occurs when there is a strong correlation independent variable (Pallant, 2016). To diagnose the symptom of multicollinearity, the values of tolerance and Variance Inflation Factors (VIF) were used. Pallant (2016) suggests that the cut-off values to determine the existence of multicollinearity were less than 0.10 (tolerance value) and greater than 10 (for VIF value).

4.2.2 Confirmatory Factor Analysis (CFA)

Confirmatory Factor Analysis (CFA) deals with a measurement model or the relationships between observed variables (indicators) and latent variables (factors). Unlike Exploratory Factor Analysis (EFA) where assumptions about the relationships between latent and observed variables are based on the information emerging from the data, CFA requires a prespecified model of relationships based on past evidence and theory. Brown (2015) suggests one strength of CFA is an analytical tool for construct validation of an instrument – a questionnaire or a test. The results of CFA can provide evidence of the convergent validity and discriminant validity (Brown, 2015). Convergent validity focuses on assessing whether an observed variable to measure a latent construct align with the construct. Meanwhile, discriminant validity assesses whether an observed variable intended to measure a specific latent construct is not highly intercorrelated with another latent construct. Both convergent and discriminant validity are crucial for establishing the constructs in a measurement model.

As the measurement model in CFA can postulated based on the related theories, empirical studies, and the combination of both, the model is then tested based on the data to determine the goodness-of-fit between the model and the data (Byrne, 2012). In testing the model, Jöreskog (1993) as cited in Byrne (2012) distinguishes three scenarios of testing the model including strictly confirmatory, alternative models, and model generating. This study employed strictly confirmatory and alternative models. Strictly confirmatory was used to evaluate models constructed by a single factor based on previous studies, and alternative models were used to test the models consisting of two or more factors and the final model was determined by the model fit based on the data. In alternative model, several alternative models were proposed. These models were then fitted to the sample data and the results were evaluated and compared. According to MacCallum (1995), the evaluation and comparisons of the models can be based

on the results of goodness-of-fit and the examination of parameter estimates for further interpretability and meaningfulness.

In alternative models, Curtis (2005) suggests that five different models in model comparison strategy, including single factor model, N-correlated factors models, N-uncorrelated factors model, hierarchical factor model, and nested factor model. The aim of comparing the alternative models is to determine a model that is consistent with the sample data. In a single factor model, it is assumed that the observed variables load to a single factor. In N-correlated factors model, the model assumes that the factors of the scales are loaded to a correlated structure while in N-uncorrelated factors, the factors are not correlated. The hierarchical factor model suggests the model has first and the second-order factors, and the nested factor model suggests the observed variables are loaded to a factor or several factors. In this study, the comparison model of the single factor model, the N-correlated factors model, the N-uncorrelated factors model, and the hierarchical factor model were used to determine the best model that fits the data and the interpretability and meaningfulness.

Model Specification for Confirmatory Factor Analysis

Roos and Bauldry (2022) suggests that model specification is the first step in CFA aiming to define the structure of the measurement model and the model parameters. A simple CFA measurement model involves a single latent variable and a set of indicators with no correlation among the measurement errors. According to Byrne (2012), specifying a model can be documented in a programmed input file or presented in a graphical scheme. It is argued that specifying a model from the graphical scheme to the input file is relatively simple if the model is firstly described in graphics before using command language. For the purpose of the study, CFA analysis was performed using Mplus7 software in which notation and input file components and structures were used to run the program. As a statistical modelling program,

Mplus can model a set of relationships between variables, including the relationships between a latent and observed variables as in CFA.

Model Assessment for Confirmatory Factor Analysis

This study assesses the measurement models of the measures based on strictly confirmatory and alternative model approach. The acceptability of the specified CFA model is evaluated by goodness of fit indices and by the interpretability and strength of the resulting parameter estimates. Brown (2015) categorizes fit indices into absolute fit, parsimony correction, and comparative fit indices. Absolute fit indices evaluate model fit at an absolute level. The model chi-square (χ^2), the standardized root mean square residual (SRMR), and the root mean square residual (RMR) are examples of absolute fit indices. In this study, the model chi-square (χ^2) was used to assess the best model fit. Even though the model chi-square is dependent on sample size, it is the most common absolute fit index that is useful for testing nested model (Harrington, 2009). The non-significant model chi-square is desired.

Parsimony correction indices include a penalty for poor parsimony, and thus more complex models will be considered to have a weaker fit. In this study, the root mean square error of approximation (RMSEA) evaluates how well the model fits the population, takes into account to model complexity but insensitive to sample size (Harrington, 2009). As RMSEA is a widely-recommended index to evaluate the goodness-of-fit, this study employed RMSEA to assess the model fit. The RMSEA value of less than or equal to 0.05 suggests good model fit (Brown, 2015).

The comparative fit or incremental fit indices evaluates the model fit relative to a more restricted, the nested baseline model (Brown, 2015). In this study, the comparative fit index (CFI) and the Tucker-Lewis index (TLI) were employed to assess the model fit. A range of

values between zero and one are possible in CFI and TLI, in which values closer to one indicate good model fit.

Brown (2015) emphasises that the examination of goodness-of-fit indices is one of aspects in the model evaluation. Some guidelines are proposed for interpreting the values of model fit indices. The guidelines can be used as aids for interpreting the values from fit indices and not as absolute thresholds (MacCallum et al., 1996). Browne and Cudeck (1993) suggest the values of RMSEA ranging between 0.05 and 0.08 indicate fair fit and the value above 0.10 indicate poor fit, while the RMSEA values from 0.08 to 0.10 indicate mediocre fit (MacCallum et al., 1996). Hu and Bentler (1999) suggest cutoff criteria as a rule of thumb for fit indices, in which RMSEA values close to 0.06 or below and CFI and TLI values close to 0.95 or greater indicate good model fit. Meanwhile, Byrne (2012) suggests that the values of CFI and TLI from 0.90 to 0.95 are considered representative to indicate a well-fitting model. For the purpose of this study, an index from fit categories is considered to provide different information about the model fit of CFA solution, as suggested by Brown (2015). The goodness-of-fit indices include chi-square, RMSEA, as well as CFI and TLI. In this study, a model with RMSEA values 0.10 and CFI and TLI values close to or 0.90 are considered acceptable.

Apart from the examination of goodness-of-fit indices, the magnitude of the relationships between a latent and observed variables in the specified model of CFA are also examined. The evaluation is determined by the values of standardized factor loadings. As a good rule of thumb, the standardized loading estimates should be 0.5 or higher (Hair et al., 2019). However, Tabachnick and Fidell (2014) suggest a standardized factor loading of 0.32 and higher could be acceptable. In this study, the cut-off value of loadings of greater than 0.32 was used.

CFA also measures reliability of the scales. One of the most common forms of reliability measures is internal consistency. The rationale for examining internal consistency is to check

individual indicators in a scale that should be measuring the same construct and highly intercorrelated (Hair et al., 2019). The reliability measures from the CFA analysis the composite or construct reliability (CR) and the average variance extracted (AVE). CR is a measure of reliability and internal consistency of measured variables to represent latent construct while AVE is a measure of convergence among items that represent a latent construct (Hair et al., 2019). According to Hair et al (2019), higher values of CR and AVE indicate higher level of reliability, and the minimum recommended value of CR is 0.6 and the value of AVE should be at least 0.50.

4.2.3   Rasch Analysis

In addition to performing CFA analysis, the instrument validation was also conducted using Rasch analysis. Rasch analysis can be used to assess the design and the administration of an instrument and to diagnoses problems in the instrument that need correcting (Andrich & Marais, 2019). It can serve as a valuable tool for constructing and assessing the psychometric characteristics of measurements and offer validation and calibration functions for measures, ultimately enhancing confidence in data analysis and interpretation (Boone et al., 2017). For the purpose of this study, Rasch analysis was applied both for verification, confirming the scale structures validated in the CFA analysis to fit the Rasch model, and for scoring purposes used in SEM and HLM analysis.

The Rasch model was named after the Danish mathematician Georg Rasch. It has been an important tool in educational and psychological measurement to describe the responses of test takers on the test items using a mathematical representation. This mathematical model allows the estimation of individual's abilities based on the test results and identification of problematic items that could impact the fairness of the assessment (Debelak et al., 2022). The Rasch model is often considered as a representative of modern test theory used in contrast to classical test

theory (CTT), which had been a predominant approach in the field of test theory (Andrich & Marais, 2019). It also relates to modern Item Response Theory (IRT) as opposed to True Score Theory (TST). According to Bond and Fox (2015), IRT focuses on each of individual test item while TST focuses on the whole test, and therefore, the responses of each individual item are the focus of IRT because they are treated to be the observable manifestations of the unobservable human traits.

In IRT, there are three models known as one-parameter (1-PL), two-parameter (2-PL), and three-parameter (3-PL) models. The classification is based on the parameters added into the models: the two-parameter model adds a parameter of item discrimination and the three-parameter model includes item discrimination and guessing. The Rasch model is commonly known as one-parameter IRT model, and it distinguishes itself from the two models through its unique property: to establish the principles of scientific measurement (Bond & Fox, 2015). According to Alagumalai and Curtis (2005), the Rasch model is one member of a family of IRT models that is used to model data, and when the goal is to measure strictly a specific trait, one of the models from the Rasch family, such as rating scale, partial credit, and facets models, becomes necessary.

There are some advantages of applying Rasch in measurement analysis. In general, Bond and Fox (2015) suggest that Rasch model can be used for constructing fundamental measures that can be applied across similar situations. Rasch model is a confirmatory model that requires the data to fit the model. By ensuring fit to the model, the principles of probabilistic conjoint measurement have been sufficiently realized (Bond & Fox, 2015). Alagumalai et al. (2005) also outline that Rasch scaling is useful for developing an interval scale, equating, detecting item bias, creating a common scale, calculating error estimates for individual person, item, and rater.

One fundamental assumption in Rasch analysis is unidimensionality. Unidimensionality means that data is analysed by using a single underlying latent trait or construct. For example, items in a questionnaire must measure a latent trait. Bond et al. (2021) suggest that when each and every question measures a single trait, the estimates of person ability and item difficulty will be meaningful. Another important concept in Rasch analysis is local independence. For example, a response to an item needs to be independent from the responses to other items. The ability estimates and the item difficulty of each person has its own measure (Bond & Fox, 2015). Adhering to the principles of unidimensionality and local independence is essential for achieving accurate probability estimation.

Rasch family of models consist of many models, including rating scale model, partial credit model, and multidimensional model. Rating scale and partial credit models share similarities in terms of the development which is extended from Rasch's dichotomous model and response structure in which both model polytomously scored items. According to Wu et al. (2007), both models have differences: rating scale model is used items with Likert-style scoring, while partial credit model is used to facilitate items scored into more than two categories. Multidimensional model is used to account for scale with hierarchical structures. In certain instances, it may be necessary to extend the Rasch model by relaxing the assumption of unidimensionality, particularly when items or tests are designed to evaluate multiple latent traits or when a scale has a hierarchical structure. However, applying multidimensional model does not violate unidimensionality because each single latent is considered unidimensional. In this study, questionnaires and test consist of items with polytomous scores and some scales have more than one dimensions. Therefore, partial credit model and multidimensional model were used and the analyses were performed using ACER ConQuest program (Wu et al., 2007).

Item Fit Analysis

Rasch analysis is employed to assess the degree to which each item aligns with the underlying construct. According to Bond and Fox (2015), the concept of "fit" serves as a quality control mechanism to assess the presence of misfit.. Boone et al. (2017) contend that the examination of fit is aimed at determining how well the data align with the Rasch model, by investigating the indications of misfitting item or person that can lead to disparities between the actual data and the Rasch model. Moreover, it can also serve as a diagnostic step of identifying person or item that require further consideration in more detail. Given the limited responses from teachers and students in this study, only an analysis of item fit was performed. The analysis of item fit will indicate if an item or some items of the instruments show appropriate range of fit values that are expected to measure a single trait.

The results of the fit analysis are presented in two different metrics: mean squared values (MNSQ) and z-standardized or t-statistics values for both Outfit and Infit. Outfit considers data that includes outliers, while Infit focuses on data after removing outliers. In this study, the suitability of items was assessed by examining the Infit MNSQ values, which were expected to fall within the range of 0.6 to 1.4, as considered acceptable according to Bond and Fox (2015). If the Infit MNSQ values fell outside the acceptable range, but the item delta values remained within the expected parameters, a thorough review of the item was conducted. Additionally, the study examined t-statistic values, which represent the standardized forms of mean square values and were expected to range from +2 to -2. However, greater importance was placed on the Infit MNSQ values as opposed to the t-statistic values due to the potential influence of sample size on the latter. Consequently, the t-statistic values were not heavily relied upon in determining item suitability.

4.2.4 Structural Equation Modelling (SEM) Analysis

Structural Equation Modelling (SEM) is a comprehensive statistical approach used to assess hypotheses regarding the associations among observed and latent variables. Unlike CFA which primarily focuses on the assessment of the measurement model, SEM examines not only the measurement but also the structural model to test the hypotheses about causal relationships among variables. The combination of the measurement and structural components in SEM results in a comprehensive statistical model which enables the assessment of relationships among variables without interference of measurement errors (Hoyle, 1995).

The first step of conducting SEM analysis is to specify a model, 'a statistical statement about the relations among variables' (Hoyle, 1995, p. 2). According to Hoyle (1995), model specification is required in SEM approach because without modelling the relations among variables, the analysis cannot be performed. A general SEM consists of two models: the measurement model and the structural model. The measurement model deals with the latent or unobserved variables and the indicators or observed variables, and the relationships between a latent variables and indicators are evaluated using CFA, as previously mentioned. The structural model is the other component of general SEM that examines the relationships between latent variables and observed variables that do not serve as the indicators of the latent variables.

Hoyle (1995) suggests three types of relationships are assessed in SEM models: association, direct effect, and indirect effect. The association is a nondirectional relation between two variables. The direct effect is a directional relation between an independent and a dependent variable, with the potential for the dependent variable in one relationship to serve as an independent variable in another. Meanwhile, the indirect effect is the effect of an independent variable on a dependent variable through one or more intervening or mediating variables. The

sum of direct and indirect effects of an independent variable on a dependent variable is the total effect of the independent variable. This study reports those relationships, including the total effect.

A model identification is a fundamental consideration in model specification. It deals with obtaining a unique solution for a model, where a unique value for each information to be estimated (the free parameters) can be obtained from the observed data (Hoyle, 1995; Kelloway, 2015). Hoyle (2015) suggests that a model can be just identified, overidentified, or underidentified. If a unique value of each parameter can be obtained from the observed data from one data manipulation, then the model is just identified. If a value for one or more free parameters can be obtained through multiple ways from the observed data, the model is overidentified. If a unique solution for one or more free parameters cannot be obtained from the observed data, the model is underidentified. In SEM a model to be estimated must be just identified or overidentified. In this study, the model specification is identified using Mplus software.

After a model has been specified, model estimation was conducted. The estimation procedure employed Mplus software which is designed to solve sets of structural equations by using numerical methods to estimate parameters (Kelloway, 2015). Mplus uses an iterative method of estimation to determine the model parameters. In this study, maximum likelihood estimation was employed because it relies on iterative techniques for parameter estimation. After a model has been specified, model estimation was conducted. The estimation procedure used maximum likelihood, and the analyses were performed using Mplus software.

Once the estimation procedure produces a model solution, the model fit is assessed using goodness-of-fit indices. For the purpose of the study, the fit indices used to evaluate the model

fit of SEM are similar to those used in evaluating measurement models in CFA. The indices include chi-square, RMSEA, as well as CFI and TLI.

Following the model evaluation, a model modification was conducted with the aim of enhancing model fit through data trimming. In this process, non-significant paths from the model may be removed, or additional paths may be added based on the modification indices from Mplus outputs.

4.2.5 Hierarchical Linear Modelling (HLM) Analysis

In social research, the analysis of hierarchical data structures is a common practice. In educational studies, for example, Tabachnick and Fidell (2014) exemplify when measuring student achievement within classrooms, the analysis may involve different variables not only from student-level variables, like motivation, but also from teacher-level variables, like teacher enthusiasm, and school-level variables, like poverty level. This example indicates that the data have a nested structure, and thus hierarchical linear modelling (HLM) is used for analysis. In HLM, each level in this structure is represented by its own submodel, and these submodels define the relationships among variables within a particular level and outline how variables at one level impact relationships that occur at another (Raudenbush & Bryk, 2002). According to Raudenbush and Bryk (2002), HLM can be applied for three purposes: developing improved estimation of individual effects, modelling cross-level effects, and partitioning variance-covariance components. Because this study involves data from student and teacher level, it is necessary to employ HLM for the analysis.

The analysis of HLM in this study utilized HLM 8 statistical software. The program HLM was introduced by Stephen Raudenbush and Anthony Bryk and has been regarded as the basic software packages for statistical modelling of multiple data structures. The program allows inputs from various data, including IBM SPSS, and may use separate files for each level, and

provides analysis for a large variety of nonnormal and nonlinear models (Tabachnick & Fidell, 2014). This study involves two levels of data: student and teacher, and the analysis involves three stages: constructing the multivariate data matrix (MDM) file, executing the analyses on the MDM file, and evaluating the fitted models (Raudenbush et al., 2019). The clean data were used in creating the MDM files: a level-1 data file and a level-2 data file sorted based on the Level-2 ID. In this study, the level-1 units are students and the level-2 units are teachers. The files are linked by Teacher ID as the Level-2 ID.

After constructing the MDM file, the analyses are executed by using the MDM file as input. In this study, two data levels were used: student and teacher data. A null or a fully unconditional model is specified as the baseline for comparison with the final model. The analysis of null model was performed without including the predicting variables in both student and teacher level in order to show the proportion of the variance in measuring the outcome. According to Raudenbush and Bryk (2002), the reliability estimates from the random-coefficient regression model was also checked to inform the appropriate specification of the level-1 coefficients. If the values are above 0.05, the coefficient has a random effect indicating the HLM analyses can be conducted.

Once the specification of null model is completed, the predictors in level-1 were included in the model. In this study, the predictors and their relationships with the outcome were determined by the findings from student-level SEM model. In order to yield the amount of variance explained, the null model and the final model were compared. In this study, the results of HLM analysis report the effects of student-level and teacher-level predictors on English achievement and the interaction effects between student- and teacher-level predictors and the outcome in the student level. The estimation of variance components in the two-level model is also reported. This outcome subsequently informs how much variance from the predictors of

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student- and teacher-level effects on students' English achievement which is the outcome variable.

4.3   Qualitative Data Analysis

In this study, qualitative data were gathered with the aim to support the main findings yielded in quantitative analysis. The data were gathered from semi-structured interviews with students and teachers to gather their views on the teaching and learning English in their classrooms, particularly in the areas of concerns that relate to this study. The interview for students consists of questions related to their ways of learning English, their motivation, and their strategies in learning English. For teachers, the interview asks their ways of teaching English in the classrooms, including their preparedness, efficacy, and approaches to teaching.

The interviews were conducted via telephone and recorded to capture the reports. In this study, the interviews were conducted using Bahasa Indonesia and transcribed in Bahasa Indonesia for further analysis. The data from transcription were then analysed using thematic analysis. Some themes that are related to support the quantitative findings were reported and added in the discussion section. This aims to support the findings from quantitative results and elaborate the findings.

4.4   Summary

This section discusses the procedures of data analysis for both quantitative and qualitative data. Quantitative data were gathered from student and teacher questionnaires and a diagnostic test. Data from the questionnaires and the test were prepared before the analyses were performed. When data were ready, the analysis of factor using confirmatory factor analysis was performed to examine the constructs of the scales in the questionnaires and the test. The analysis of Rasch was also performed to validate the results of confirmatory factor analysis. SEM analysis and HLM analysis were then performed to assess the relations between variables related to students

and teachers. The qualitative data gathered from interviews with students and teachers were also reported and analysed. The following chapter will discuss the results of instrument validation using CFA analysis.

CHAPTER 5

INSTRUMENT VALIDATION: CONFIRMATORY FACTOR ANALYSIS

5.1   Introduction

Instrument validation is the key process for checking the quality of instruments used in research. Whether the instruments are new or previously validated, the validation process is required to ensure that the instruments are psychometrically sound enough for understanding phenomena, and effective for research purposes (Elangovan & Sundaravel, 2021). As mentioned in Chapter 3, the instruments employed in this study included questionnaires adapted from prior studies and based on several key theories to measure and an English test for students. Even though the items in the questionnaires and test were developed to show good indicators of the constructs in previous studies, the validation process needs to be done properly to verify whether the items represent the constructs well for Indonesian secondary schools.

One of the methods for validating the instruments, particularly to ensure the accuracy of the measurement, is to conduct Confirmatory Factor Analysis (CFA). CFA is a type of measurement model that is part of the structural equation modelling (SEM) system and assesses the instruments' construct validity, i.e. to test whether the items or observed variables in them reflect the latent constructs or unobserved variables that are intended to be measured (Brown, 2015; Hair et al., 2019). This chapter presents the results of CFA analysis with the data gathered from secondary school students and English teachers in both public and vocational schools in West Java Province, Indonesia. CFA analysis was performed using the MPlus 7 software program (Muthen & Muthen, 1998-2012). The model comparison approach served to identify

the best structure of the measures. A comparison of model fit among the alternative models and the final structure of the measures is presented and discussed.

5.2   Model fit indices

Model fit was used to assess the measurement model. Several model fit indices evaluated which best model from the alternative models fits the data. The model fit indices included the root mean square error of approximation (RMSEA), comparative fit index (CFI), and Tucker–Lewis's index (TLI). An RMSEA ≤ .06 could be considered acceptable, a CFI ≥ 0.95 and a TLI ≥ 0.95 are commonly used cut-offs for a good fit (Hu & Bentler, 1999). However, the values of CFI and TLI between 0.90 and 0.95 are considered representative to indicate a well-fitting model (Byrne, 2012). Apart from the goodness-of-fit indices, the convergent indices (i.e., factor loadings, Average Variance Extracted, and Composite Reliability) of the scales' final structures were assessed. According to Hair et al. (2019), the standardized loading estimates should be 0.5 or higher as a good rule of thumb. Meanwhile, Tabachnick and Fidell (2014) suggest that a standardized factor loading of 0.32 and higher could be acceptable. In this study, the cut-off value of loadings of greater than 0.32 was used. To show a good indicator of convergent validity, the Average Variance Extracted (AVE) value greater than 0.50 and the value of Composite Reliability (CR) greater than 0.60 were used as the indicators of acceptable reliability.

5.3   Alternative Models and Final Structure for Students' Perceptions of Classroom Assessment Environment, Classroom Learning Environment, and Conceptions of Learning

This section discusses the CFA results of scales related to students' perceptions of classroom assessment environment, English classroom learning environment, and conceptions of learning English. The scales of students' perceptions of classroom assessment environment (PCAE) and English classroom learning environment (ECLE) were rated using a four-point Likert scale and

each response was coded 1, 2, 3 and 4, respectively indicating 'never', 'rarely', 'often, and 'always'. Meanwhile, the scale of conceptions of learning English (COLE) was rated based on a four-point Likert scale in which each response was coded 1, 2, 3 and 4 corresponding, respectively, to 'strongly disagree', 'disagree', 'agree' and 'strongly agree'. The model comparison of the scales was checked using alternative models: one-factor model, N-uncorrelated factors model, N-correlated factors model, and hierarchical model. The results of goodness-of-fit (GOF) of the compared alternative models were presented in tables. Similarly, the results of convergent indices were also presented in Tables, including the values of standardized factor loadings, AVE, and CR.

Students' Perceptions of Classroom Assessment Environment (PCAE) Scale

The items of students' perceptions of classroom assessment environment scale were adapted from Alkharusi's (2011) perceived classroom assessment environment items. The scale consists of 16 items: nine items of perceived learning-oriented classroom assessment environment (LOA) and seven items of perceived performance-oriented classroom assessment environment (POA). Based on Alkharusi's study, LOA and POA were negatively correlated with the coefficient of -0.41. In this study, four alternative models were checked. Nine items of LOA were named LOA1, LOA2, LOA3, LOA4, LOA5, LOA6, LOA7, LOA8, and LOA9, while seven items of POA were name POA1, POA2, POA3, POA4, POA5, POA6, and POA7.

The results of goodness-of-fit indices from the four alternative models for PCAE are presented in Table 5.3.1. Fit indices of one-factor model for PCAE showed poor fit indices as shown by the values of fit indices. The goodness-of-fit results of two-orthogonal factors were better than one-factor model (CFI = 0.92; TLI = 0.91; RMSEA = 0.11). Two-correlated factors model and hierarchical model exhibited good fit as indicated by similar CFI, TLI, and RMSEA values of 0.96, 0.96, and 0.07 respectively. For the purpose of the study, two-correlated factors model

was used for further analysis. Both LOA and POA had a very small negative correlation at -0.06.

Table 5.3.1
Goodness-of-fit Indices of Alternative Models for PCAE

No.	Model	CMIN	df	CMIN/df	TLI	CFI	RMSEA
1	One-factor	3677.91	77	16.19	0.54	0.61	0.25
2	Two-orthogonal factor	820.03	77	10.65	0.91	0.92	0.11
3	Two-correlated factor	403.86	76	9.79	0.96	0.96	0.07
4	Hierarchical	403.86	76	9.79	0.96	0.96	0.07

The examination of convergent indices of the two-correlated factors model for PCAE is reported in Table 5.3.2. It can be observed that the estimated factor loadings of seven items measuring LOA were within the acceptable range from 0.53 to 0.83 indicating that the items reflected the LOA construct well. As observed, two items (LOA8 and LOA9) were removed in the scale due to having loadings lower than 0.32. Even though the AVE value of 0.49 was close to the threshold, the CR value of 0.87 was greater than cut-off, as indicative of convergent validity as suggested by Fornell and Larcker (1981). For the POA construct, seven items statistically loaded onto the construct with the estimated factor loadings ranging from 0.48 to 0.86, and the values of AVE and CR met the convergent validity threshold (AVE = 0.56; CR = 0.90).

Table 5.3.2
Convergent Indices of the Two-correlated Model for PCAE

Construct	Item	Correlation between constructs	Convergent Validity		
			Loading	AVE	CR
Learning-oriented assessment environment (LOA)	LOA1		0.53		
	LOA2		0.83		
	LOA3		0.71	0.49	0.87
	LOA4		0.80		
	LOA5		0.75		
	LOA6	-0.06 (LOA with POA)	0.68		
	LOA7		0.55		
Performance-oriented assessment environment (POA)	POA1		0.48		
	POA2		0.83		
	POA3		0.80	0.56	0.90
	POA4		0.69		
	POA5		0.79		
	POA6		0.86		
	POA7		0.72		

Students' Perceptions of English Classroom Learning Environment (ECLE) Scale

The items of students' perceptions of classroom environment scale were adapted from previously developed scales. Student cohesiveness and teacher support were adapted from Aldridge et al. (2004), investigation and participation were adapted from Fraser (1990), and task orientation was adapted from Liu and Fraser (2013). For the purpose of the analysis, the scale was renamed Perceptions of English Classroom Learning Environment (ECLE) scale consisting of 24 items. Three items for student cohesiveness (SCOH) were labelled SCOH1-SCOH 3. Eight items for teacher support (TSUP) were labelled TSUP1-TSUP8. Four items for investigation (INVE) were named INVE1-INVE4. Three items for participation (PART) were named PART1-PART3, and six items for task orientation (TAS) were name TAS1-TAS6.

Table 5.3.3 summarizes the results of goodness-of-fit indices calculation of the hierarchical model for ECLE. It is observed that one-factor and three-orthogonal factor models exhibited poor model fit indices as indicated by the values of CFI, TLI, and RMSEA; they were all outside the acceptable values (CFI and TLI < 0.90 and RMSEA > 0.06). Meanwhile, the results of model fit comparison indicated the hierarchical factor models demonstrated better fit than the first three models. The values of CFI and TLI of the hierarchical model were within the acceptable range (CFI = 0.95; TLI = 0.94), and the value of RMSEA was close to the cut-off value of 0.06 (RMSEA = 0.08). In this study, the hierarchical factor model of ECLE was preferred for further analysis.

Table 5.3.3
Goodness-of-fit Indices of Alternative Models for ECLE

No.	Model	CMIN	df	CMIN/df	TLI	CFI	RMSEA
1	One-factor	8034.06	252	31.88	0.61	0.65	0.20
2	Five-orthogonal factor	12466.43	243	51.30	0.37	0.44	0.26
3	Five-correlated factor	1559.03	242	6.44	0.93	0.94	0.09
4	Hierarchical	1410.76	247	5.71	0.94	0.95	0.08

The examination of convergent indices of the hierarchical model for ECLE is reported in Table 5.3.4. The estimated factor loadings of three items measuring SCOH were within the acceptable range from 0.81 to 0.95 indicating that the items reflected the SCOH construct well. The calculation of AVE and CR also showed the values were above the cut-off values of 0.5 and 0.7 respectively (AVE = 0.80, CR = 0.91) confirming the convergent validity of the SCOH construct. For the TSUP construct, eight items statistically loaded onto the construct with the estimated factor loadings ranging from 0.73 to 0.85, and the values of AVE and CR met the convergent validity threshold (AVE = 0.80, CR = 0.92). The loadings of four items in INVE range from 0.75 to 0.84 indicating the items reflected INVE, and the values of AVE and CR were more than the cut-off values (AVE = 0.63, CR = 0.93). Three items of PART also showed factor loadings more than cut-off value ranging from 0.67 to 0.89, and the values of AVE and CR were within the acceptable values to show convergent validity (AVE = 0.64, CR = 0.84). Meanwhile, it is reported that the loadings of six items measuring TAS were greater than 0.32 (between 0.75 and 0.82) suggesting acceptable loadings. As it is shown, the values of AVE and CR for TAS met the threshold values (AVE = 0.64, CR = 0.91) indicating that the convergent validity was established.

Table 5.3.4
Convergent Indices of the Hierarchical Model for ECLE

Second-order Construct	First-order Construct	Loading	Item	Convergent Validity		
				Loading	AVE	CR
Students' perception of classroom learning (PERC)	Student Cohesiveness (SCOH)	0.44	SCOH1	0.95	0.80	0.92
			SCOH2	0.92		
			SCOH3	0.81		
	Teacher Support (TSUP)	0.75	TSUP1	0.80	0.63	0.93
			TSUP2	0.85		
			TSUP3	0.75		
			TSUP4	0.85		
			TSUP5	0.82		
			TSUP6	0.79		
			TSUP7	0.74		
			TSUP8	0.73		
	Investigation (INVE)	0.78	INVE1	0.75	0.65	0.88
			INVE2	0.84		
			INVE3	0.83		
			INVE4	0.79		

		PART1	0.67		
Participation (PART)	0.79	PART2	0.83	0.64	0.84
		PART3	0.89		
		TAS1	0.82		
		TAS2	0.81		
Perceived Task Orientation (TAS)	0.72	TAS3	0.82	0.64	0.91
		TAS4	0.82		
		TAS5	0.75		
		TAS6	0.76		

Students' Conceptions of Learning (COLE) Scale

The scale of students' conceptions of learning was adapted from previous scales for assessing the conceptions of learning science (Li et al., 2013) namely 'Memorizing', 'Testing', and 'Practicing', and the conceptions of learning English (Zheng et al., 2016) including 'Application and Communication' and 'Understanding' and 'Seeing in a New Way'. The two scales were modified for application to learning English. For the purposes of this study, this scale was renamed Students' Conceptions of Learning English (COLE). It consisted of 27 items, five of which described conceptions of learning English as memorizing (MEMO), five described conceptions of learning English as testing (TEST), four assessed students' English learning conceptions as practicing (PRAC), five described students' conceptions of learning English as applying the language and communication (COMM), and eight described students' English learning conceptions as understanding and seeing a new way (NWAY). For the purpose of data analysis, the MEMO items were labelled MEMO1, MEMO2, MEMO3, MEMO4, MEM05; the TEST items were labelled TEST1, TEST2, TEST3, TEST4, TEST5; the PRAC items were labelled PRAC1, PRAC2, PRAC3, PRAC4; the COMM items were labelled COMM1, COMM2, COMM3, COMM4, COMM5; and the NWAY items were labelled NWAY1, NWAY2, NWAY3, NWAY4, NWAY5, NWAY6, NWAY7, and NWAY8.

A comparison of goodness-of-fit indices of COLE scale as shown in Table 5.3.5 indicated that five-correlated factors model and hierarchical model exhibited better model fit than the other two models. The model fit as shown by CFI and TLI ($\geq$ .90) appeared good despite the fact that

RMSEA was above the cut-off value of 0.06. For the purpose of multilevel analysis for prediction, the hierarchical model was preferred and employed for subsequent analysis since it is more parsimonious (Heck & Thomas, 2015).

Table 5.3.5
Goodness-of-fit Indices of Alternative Models for COLE

No.	Model	CMIN	df	CMIN/df	TLI	CFI	RMSEA
1	One-factor	2736.18	275	9.49	0.81	0.83	0.11
2	Five-orthogonal factor	9126.40	275	33.19	0.32	0.38	0.21
3	Five-correlated factor	1422.59	265	5.37	0.91	0.92	0.08
4	Hierarchical	1317.40	269	4.70	0.92	0.93	0.07

Table 5.3.6 presents the results of further examination of convergent validity for the COLE scale. It can be observed that the factor loadings of five items for MEMO ranged between 0.52 and 0.74 to indicate acceptable factor loadings to measure MEMO. As well, the results revealed that the AVE value was a bit lower than the cut-off value (AVE = 0.45), yet the value of CR is higher than 0.6 (CR = 0.80). This means that the convergent validity was deemed to be adequate (Fornell & Larcker, 1981). For the TEST construct, the estimated factor loadings of three items for TEST were above the threshold ranging from 0.65 to 0.83. As can be observed, two items (TEST1 and TEST2) were excluded due to low factor loadings (less than 0.32). The calculation of AVE and CR showed that the values were within the cut-off (AVE = 0.49, CR = 0.74) suggesting an adequate convergent validity for TEST.

Meanwhile, four items measuring PRAC construct had acceptable estimated factor loadings ranging from 0.53 to 0.70. However, the value of AVE was less than 0.5 (AVE = 0.38) indicating errors in the items even though the value of CR was higher than 0.7 (CR = 0.71) indicating a very good reliability. For COMM construct, the estimated factor loadings of five items were within the acceptable range between 0.60 and 0.81. It is also revealed that the values of AVE and CR for COMM were above the threshold (AVE = 0.50, CR = 0.83). Similarly, the items in NWAY indicated acceptable values of item factor loadings ranging from 0.62 to 0.84

indicating the items represented NWAY well. The values of AVE and CR also above the cut-off values that confirm convergent reliability (AVE = 0.58, CR = 0.92).

Table 5.3.6
Convergent Indices of the Hierarchical Model for COLE

Second-order Factor	First-order Factor	Loading	Item	Convergent Validity		
				Loading	AVE	CR
Conceptions of Learning (COLE)	Memorizing (MEMO)	0.79	MEMO1	0.52	0.45	0.80
			MEMO2	0.63		
			MEMO3	0.71		
			MEMO4	0.74		
			MEMO5	0.73		
	Testing (TEST)	0.37	TEST3	0.65	0.50	0.75
			TEST4	0.61		
			TEST5	0.84		
	Practicing (PRAC)	0.94	PRAC1	0.67	0.38	0.71
			PRAC2	0.55		
			PRAC3	0.70		
			PRAC4	0.53		
	Communication (COMM)	0.94	COMM1	0.74	0.50	0.83
			COMM2	0.60		
			COMM3	0.71		
			COMM4	0.81		
			COMM5	0.66		
	Seeing in a New Way (NWAY)	0.89	NWAY1	0.73	0.58	0.92
			NWAY2	0.75		
			NWAY3	0.79		
			NWAY4	0.76		
			NWAY5	0.84		
			NWAY6	0.78		
			NWAY7	0.78		
			NWAY8	0.62		

As shown in Table 5.3.6, the factor loadings of all observed variables in MEMO, TEST, PRAC, COMM, and NWAY were above the cut-off value (0.32), indicating that the items represented each latent variable they intended to measure. The loadings for MEMO, TEST, PRAC, COMM, and NWAY were also above 0.32 suggesting that the sub-scales represented the second-order latent variable, COLE.

5.4   Alternative Models and Final Structure for Students' Motivational Variables: Achievement Goals Orientations, English Classroom Anxiety, and Attitude towards Learning English

Students' Achievement Goal Orientations Scale

The scale of students' learning orientations was adapted from students' achievement goal orientations developed by Midgley et al (1998). The scale conceptually assesses three achievement goal orientations including the goal to develop ability (task goal orientation), the goal to display ability (ability-approach goal orientation), and the goal to avoid displaying lack of ability in English (ability-avoid goal orientation). In this study, the scale was renamed Students' Achievement Goals Orientations (ORIEN) and consisted of 18 items, including six for task goal orientation (TASK), six describing ability-approach goal orientation (ABIL), and six assessing ability-avoid goal orientation (ABAV). For the purpose of the analysis, the items of TASK were named TASK1, TASK2, TASK3, TASK 4, TASK 5, and TASK 6; the ABIL items were labelled ABIL1, ABIL2, ABIL3, ABIL4, ABIL5, and ABIL6; and ABAV items were ABAV1, ABAV2, ABAV3, ABAV4, ABAV5, and ABAV6.

Table 5.4.1 shows the results of goodness-of-fit examination of alternative models for the scale. It is observed from this table that one-factor and three-orthogonal factor models exhibited poor model fit indices as indicated by the values of CFI, TLI, and RMSEA that were outside the acceptable values with CFI > 0.90, TLI > 0.90, and RMSEA > 0.06. Meanwhile, the results of model fit comparison indicate three-correlated factor model and hierarchical factor model demonstrated better model fit than the first two models. The values of CFI and TLI of the models are similarly within the acceptable range (CFI = 0.92, TLI = 0.91) even though the RMSEA values were above the cut-off value of 0.06 (RMSEA = 0.09). In this study, the three-correlated factor model was preferred for further analysis.

Table 5.4.1
Goodness-of-fit Indices of Alternative Models for ORIEN

No.	Model	CMIN	df	CMIN/df	TLI	CFI	RMSEA
1	One-factor	3151.14	135	23.32	0.63	0.68	0.17
2	Three-orthogonal factor	4944.31	133	37.18	0.41	0.49	0.22
3	Three-correlated factor	868.50	132	6.58	0.91	0.92	0.09
4	Hierarchical	868.50	132	6.58	0.91	0.92	0.09

The results of convergent indices of the hierarchical model for ORIEN are reported in Table 5.4.2. Estimated factor loadings of six items measuring TASK were within the acceptable range from 0.648 to 0.879 indicating that the items reflected the TASK construct well. The values of AVE and CR were also above the cut-off values of 0.5 and 0.7, respectively, confirming the convergent validity of TASK construct. Meanwhile, six items statistically loaded onto the ABOR construct with the estimated factor loadings ranging from 0.56 to 0.81, and the values of AVE and CR met the convergent validity threshold (AVE = 0.50, CR = 0.86). Referring to the ABAV construct, it is reported that the loadings of six items measuring ABAV were greater than 0.32 (between 0.35 and 0.82) suggesting acceptable loadings. As shown here, the computed AVE value for ABAV did not meet the threshold of AVE greater than 0.50, while CR of ABOR was above the construct reliability requirement with CR = 0.81 (greater than 0.70). As suggested by Fornell and Larcker (1981), even though the AVE value is less than the threshold of 0.50, the CR value is greater than 0.60. In this way convergent validity can be still established.

Table 5.4.2
Convergent Indices of the Three-correlated Model for ORIEN

First-order Construct	Item	Convergent Validity		
		Loading	AVE	CR
Task goal orientation (TASK)	TASK1	0.65	0.54	0.87
	TASK2	0.75		
	TASK3	0.70		
	TASK4	0.68		
	TASK5	0.73		
	TASK6	0.88		
Ability-approach goal orientation (ABIL)	ABOR1	0.55	0.49	0.85
	ABOR2	0.73		
	ABOR3	0.58		
	ABOR4	0.72		
	ABOR5	0.80		
	ABOR6	0.77		
Ability-avoid goal orientation (ABAV)	ABAV1	0.46	0.43	0.81
	ABAV2	0.69		
	ABAV3	0.77		
	ABAV4	0.82		
	ABAV5	0.35		
	ABAV6	0.72		

Note. correlation coefficients TASK-ABIL (0.50), TASK-ABAV (0.30), ABIL-ABAV (0.77)

English Classroom Anxiety (ANXI) Scale

English classroom anxiety scale is intended to measure level of students' anxiety in learning English situation. The scale has five items adapted from the L2 classroom anxiety scale (Gan et al., 2019). For this study the scale was renamed Students' Learning Anxiety (ANXI) and the items were labelled ANXI1, ANXI2, ANXI3, ANXI4, and ANXI5. The fit model comparison of alternative models was not done for the scale because it was assumed to have a single-factor structure. Based on the initial examination of goodness-of-fit, the one-factor model of ANXI showed a poor fit with CFI = 0.775, TLI = 0.55, and RMSEA = 0.236. It is found that one item (ANXI3) had a relatively small factor loading of 0.32 and indicated a correlation with item ANXI1 based on model modification indices. Considering the relatively low factor loading of ANXI3 and its correlation to ANXI1, item ANXI3 was excluded from the model in an attempt to improve the model. As a result, one-factor model of ANXI without item ANXI3 showed better goodness-of-fit indices with CFI = 0.98, TLI = 0.94, and RMSEA = 0.09 when compared to the initial model as shown in Table 5.4.3

Table 5.4.3
Goodness-of-fit Indices of One-factor Model for ANXI

No.	Model	CMIN	df	CMIN/df	TLI	CFI	RMSEA
1	One-factor ANXI	14.56	5	7.28	0.97	0.98	0.09

The convergent indices of the one-factor model for ANXI are presented in Table 5.4.4. Four items loaded to measure ANXI, and the calculation revealed acceptable estimated factor loadings ranging from 0.38 to 0.75 which were greater than the threshold value of 0.32. As it is observed, ANXI3 was removed from the model due to having a low factor loading and a correlation with another item suggested by modification indices from MPlus, resulting in the model fit's improvement. The calculation of convergent validity also shows that the construct reliability was close to 0.70 (CR = 0.67) and the value of AVE was less than the cut-off value

of 0.50 (AVE = 0.35). Despite having the AVE value less than the threshold, the CR value is close to 0.70, and thus the convergent validity can be still established.

Table 5.4.4
Convergent Indices of the One-factor Model for ANXI

Construct	Item	Convergent Validity		
		Loading	AVE	CR
Anxiety towards learning English (ANXI)	ANXI1	0.38	0.35	0.67
	ANXI2	0.66		
	ANXI4	0.51		
	ANXI5	0.75		

Students' Attitude towards Learning English (ATTI) Scale

The scale of attitude towards learning English was adapted from Guilloteaux and Dornyei's (2008) student motivational state scale consisting of nine items. For the purpose of data analysis, the scale was renamed Attitude (ATTI) and the items were labelled ATTI1, ATTI2, ATTI3, ATTI4, ATTI5, ATTI6, ATTI7, ATTI8, and ATTI9. The ATTI scale was assumed to have a single-factor structure, and thus the fit model comparison of alternative models was not performed for the scale. Table 5.4.5 shows the fit indices of the one-factor model for ATTI. Based on the examination, the values of fit indices were within the acceptable range with CFI = 0.99, TLI = 0.99, and RMSEA = 0.06.

Table 5.4.5
Goodness-of-fit Indices of One-factor Model for ATTI

No.	Model	CMIN	Df	CMIN/df	TLI	CFI	RMSEA
1	One-factor ATTI	23.68	4	5.92	0.99	0.99	0.08

Table 5.4.6 shows the results of convergent validity calculation for ATTI. Six items measuring ATTI have acceptable factor loadings ranging from 0.64 to 0.87. As observed here, four items (ATTI5, ATTI7, ATTI8, and ATTI9) were excluded in the model as they had factor loadings less than 0.32 and insignificant p-values for ATTI7 and ATTI8. Therefore, only six items were found to measure ATTI well. Moreover, the calculation of convergent validity indicators showed that the value of AVE was on the cut-off value (AVE = 0.50). Suggested here is

adequate convergence, while the value of CR was 0.85 and thereby indicating high construct reliability.

Table 5.4.6
Convergent Indices of the One-factor Model for ATTI

Construct	Item	Convergent Validity		
		Loading	AVE	CR
Attitude toward learning English (ATTI)	ATTI1	0.64	0.56	0.86
	ATTI2	0.86		
	ATTI3	0.86		
	ATTI4	0.68		
	ATTI6	0.66		

5.5 Alternative Models and Final Structure for Students' Approaches to Learning English

Students' Deep Approaches to Learning (DEEP) Scale

Students' deep approach to learning scale was adapted from Biggs's Learning Process Questionnaire (1987) which measure deep approaches, achieving approaches, and surface approaches to learning in general subject. In this study, the items were slightly reworded to focus on English subject. For deep approaches to learning, the scale was renamed Deep Approaches to Learning English (DEEP) and contained two subscales: firstly, deep motive to indicate students' drive to understand English; and secondly, deep strategy to show students' ways to relate English to their prior knowledge and meaningful contexts. The scale consisted of seven items: three items measure deep motive (DEEM1, DEEM2, and DEEM3) and four items measure deep strategy (DEES1, DEES2, DEES3, and DEES4). Results of fit indices calculation for alternative model of DEEP as presented in Table 5.5.1 reveal that one-factor, two-correlated, and hierarchical factors exhibited good fit. However, after the examination of correlations between the two factors, the results indicated correlation errors as shown in Mplus output where the covariance matrix was not positively definite. This suggests the two factors might measure a similar DEEP construct, so the one-factor model was used in the analysis.

Table 5.5.1
Goodness-of-fit Indices of Alternative Models for DEEP

No.	Model	CMIN	df	CMIN/df	TLI	CFI	RMSEA
1	One-factor	121.41	14	8.67	0.95	0.97	0.10
2	Two-orthogonal factors	2085.09	14	148.93	0.02	0.35	0.44
3	Two-correlated factors	104.22	13	8.01	0.95	0.97	0.10
4	Hierarchical	104.22	13	8.01	0.95	0.97	0.10

The calculation of convergent indices for one-factor model of DEEP as presented in Table 5.5.2 shows that seven items of DEEP had acceptable estimated factor loadings from 0.50 to 0.81. The value of AVE was less than the cut-off value of 0.5, but the convergent validity could still be established because the value of CR was greater than 0.7, indicating good reliability of the construct.

Table 5.5.2
Convergent Indices of the One-factor Model for DEEP

Construct	Item	Convergent Validity		
		Loading	AVE	CR
Deep approaches to studying English (DEEP)	DEEM1	0.65		
	DEEM2	0.59		
	DEEM3	0.81		
	DEES1	0.50	0.44	0.84
	DEES2	0.59		
	DEES3	0.62		
	DEES4	0.80		

Students' Achieving Approaches to Learning (ACHI) Scale

The scale of students' achieving approach to learning was adapted from Biggs's LPQ (1987). It had two subscales: achieving motive to indicate students' intention to get higher scores in examination and achieving strategy to show students' strategies to get higher scores. In this study, the scale was renamed achieving approaches to learning English (ACHI). Six items of achieving motive are labelled ACHM1, ACHM2, ACHM3, ACHM4, ACHM5, and ACHM6 and six items measuring achieving strategy are named ACHS1, ACHS2, ACHS3, ACHS4, ACHS4, and ACHS6. Table 5.5.3 presents the results of fit indices calculation for alternative model of ACHI. As observed here, the two-correlated factor model and hierarchical factors exhibited better fit indices values than one-factor model and two-orthogonal factor model.

Further examination of correlations between the two factors in correlated and hierarchical model showed that the factors were highly correlated and indicated model nonidentification, respectively. This might suggest that the two factors measured a similar ACHI construct, and thus, the one-factor model was used in the analysis.

Table 5.5.3
Goodness-of-fit Indices of Alternative Models for ACHI

No.	Model	CMIN	df	CMIN/df	TLI	CFI	RMSEA
1	One-factor	397.48	54	7.36	0.91	0.92	0.09
2	Two-orthogonal factors	2258.69	54	41.83	0.39	0.50	0.23
3	Two-correlated factors	241.02	53	4.55	0.95	0.96	0.07
4	Hierarchical	241.02	53	4.55	0.95	0.96	0.07

The examination of convergent indices for the one-factor model of ACHI as presented in Table 5.5.4 shows that 11 items of ACHI had acceptable estimated factor loadings from 0.43 to 0.75. It is also observed that one item (ACHM6) was removed from the model because the item had a low factor loading less than 0.32. Meanwhile, the value of AVE was less than the cut-off value of 0.5 (AVE = 0.38) while the value of CR was 0.87.

Table 5.5.4
Convergent Indices of the One-factor Model for ACHI

Construct	Item	Convergent Validity		
		Loading	AVE	CR
	ACHM1	0.65		
	ACHM2	0.56		
	ACHM3	0.43		
	ACHM4	0.44		
	ACHM5	0.75		
Achieving approaches to studying English (ACHI)	ACHS1	0.59	0.38	0.87
	ACHS2	0.69		
	ACHS3	0.60		
	ACHS4	0.64		
	ACHS5	0.68		
	ACHS6	0.68		

Students' Surface Approaches to Learning (SURF) Scale

The scale of students' surface approach to learning was also adapted from Biggs's LPQ (1987). It had two subscales: surface motive to indicate students' intention to pass at the minimum effort and In this study, the scale was renamed Surface Approaches to Learning English

(SURF). Four items of surface motive are labelled SURM1, SURM2, SURM3, and SURM4, while five items measuring surface strategy are named SURS1, SURS2, SURS3, SURS4, and SURS5. Table 5.5.5 presents the results of fit indices calculation for the alternative model of SURF. Observed here is that the two-correlated factor model and hierarchical factors exhibited better fit indices values than the one-factor and two-orthogonal factor models. Further examination of correlations between the two factors in the correlated and hierarchical model shows that the factors were highly correlated and indicated model nonidentification, respectively. This may suggest that the two factors measured a similar ACHI construct, and thus, the one-factor model was employed in the analysis.

Table 5.5.5
Goodness-of-fit Indices of Alternative Models for SURF

No.	Model	CMIN	df	CMIN/df	TLI	CFI	RMSEA
1	One-factor*	8.418	2	4.209	0.973	0.991	0.065
2	Two-orthogonal factors	106.670	14	7.619	0.864	0.909	0.093
3	Two-correlated factors	81.616	13	6.278	0.891	0.933	0.083
4	Hierarchical	81.616	13	6.278	0.891	0.933	0.083

Note: *After items with lower factor loadings deleted

The examination of convergent indices for the one-factor model of SURF is presented in Table 5.5.6 Here the results show that four items of SURF had acceptable estimated factor loadings ranging from 0.53 to 0.70 in the final model. It is observed that five items (SURM1, SURM2, SURM3, SURM4, and SURS2) were removed from the model since those items have low factor loadings below 0.32. Meanwhile, the value of AVE was less than the cut-off value of 0.5 (AVE = 0.35) while the value of CR was 0.68 meaning that convergent validity can still be established.

Table 5.5.6
Convergent Indices of the One-factor Model for SURF

Construct	Item	Convergent Validity		
		Loading	AVE	CR
Achieving approaches to studying English (ACHI)	SURS1	0.70	0.35	0.68
	SURS3	0.55		
	SURS4	0.53		
	SURS5	0.58		

5.6 Alternative Models and Final Structure for Students' English Achievement

English Achievement (EACH) was assessed by 30 test items comprising 20 Reading (READ) items and 10 Listening (LIST) items. Table 5.6.1 presents the results of fit indices calculation for the alternative model of EACH. Observed here is that the two-correlated factor model and hierarchical factors exhibited better fit indices values than the one-factor and two-orthogonal factor models. In this study, the hierarchical factor model was employed in the analysis.

Table 5.6.1
Goodness-of-fit Indices of Alternative Models for TEST

No.	Model	CMIN	df	CMIN/df	TLI	CFI	RMSEA
1	One-factor	675.44	405	1.67	0.96	0.96	0.03
2	One-factor*	567.27	324	1.75	0.96	0.96	0.03
3	Two-orthogonal factors	2843.52	405	7.02	0.63	0.65	0.09
4	Two-orthogonal factors*	2786.06	324	8.60	0.61	0.65	0.10
5	Two-correlated factors	627.01	404	1.55	0.97	0.97	0.03
6	Two-correlated factors*	523.85	323	1.62	0.97	0.97	0.03
7	Hierarchical	627.01	404	1.55	0.97	0.97	0.03
8	Hierarchical*	523.85	323	1.62	0.97	0.97	0.03

Note: *After items with lower factor loadings deleted

Table 5.6.2 presents the results of convergent validity for the TEST scale. It can be observed that the factor loadings of 19 items for READ ranged between 0.42 and 0.86 to indicate acceptable factor loadings to measure READ. As observed, item READ1 was removed due to lower factor loadings. The results of convergent validity indices revealed that the AVE value was lower than the cut-off value (AVE = 0.37), yet the value of CR is higher than 0.6 (CR = 0.92). This means that the convergent validity was deemed to be adequate (Fornell & Larcker, 1981). For the LIST construct, the estimated factor loadings of eight items for LIST were above the threshold ranging from 0.38 to 0.77. As can be observed, two items (LIST1 and LIST5) were excluded due to low factor loadings (less than 0.32). Even though AVE value was lower than the threshold (AVE = 0.27), the CR value indicated greater than the cut-off of 0.6 (CR = 0.73) suggesting an adequate convergent validity for EACH could be established.

Table 5.6.2
Convergent Indices of the Hierarchical Model for TEST

Second-order Construct	First-order Construct	Loading	Item	Convergent Validity		
				Loading	AVE	CR
Students' English Test (TEST)	Reading (READ)	0.98	READ2	0.51	0.37	0.92
			READ3	0.60		
			READ4	0.70		
			READ5	0.51		
			READ6	0.43		
			READ7	0.60		
			READ8	0.48		
			READ9	0.86		
			READ10	0.50		
			READ11	0.69		
			READ12	0.63		
			READ13	0.52		
			READ14	0.42		
			READ15	0.65		
			READ16	0.61		
			READ17	0.78		
			READ18	0.78		
			READ19	0.57		
			READ20	0.55		
	Listening (LIST)	0.84	LIST2	0.46	0.27	0.73
			LIST3	0.44		
			LIST4	0.38		
			LIST6	0.38		
			LIST7	0.59		
			LIST8	0.48		
			LIST9	0.52		
			LIST10	0.77		

5.7 Alternative Models and Final Structure for Teachers' Sense of Preparedness, Teacher Knowledge, and Self-efficacy Scales

This section displays the CFA results of teachers' sense of preparedness, teacher knowledge, and teacher self-efficacy scales. The scales of teachers' sense of preparedness (TPREP) were rated using a four-point Likert scale and each response was coded 1, 2, 3 and 4, respectively indicating 'really unprepared', unprepared, 'prepared', and 'really prepared'. Meanwhile, the scale of teacher knowledge (TKW) and scale of self-efficacy (TSE) were based on a four-point Likert scale in which each response was coded 1, 2, 3 and 4 corresponding, respectively, to 'not at all', 'to some extent', 'quite a bit' and 'a lot'. Each part of the scales was analysed and presented on a table showing the data for goodness-of-fit (GOF) of the compared alternative models. The scale of TPREP was assumed to have one-factor model, while the scales of TKW

and TSE had four alternative models which were compared and presented, including the examination of their fit indices and factor loadings.

Teachers' Sense of Preparedness (TPREP) Scale

The scale of teachers' sense of preparedness was adapted from TALIS (OECD, 2008) to show how prepared the teachers are in teaching English. The scale consisted of six items labelled TPREP1-TPREP6 for analysis. As the scale was assumed to have a single-factor structure, the fit model comparison of alternative models was not performed for the scale. Table 5.7.1 shows the results of the goodness-of-fit indices for TPREP scale. The values of fit indices were within the acceptable range with CFI = 0.99, TLI = 0.99, and RMSEA = 0.05.

Table 5.7.1
Goodness-of-fit Indices of One-factor Model for TPREP

No.	Model	CMIN	Df	CMIN/df	TLI	CFI	RMSEA
1	One-factor TPREP	9.719	9	1.08	0.99	0.99	0.05

The results of convergent validity of the one-factor model are shown in Table 5.7.2. The standardized factor loadings of the six items were higher than the acceptable value (0.32), where the standardized factor loadings ranged from 0.70 to 0.96. The Average Variance Extracted (AVE) and Composite Reliability (CR) values were 0.79 and 0.96, respectively, indicating very good values to establish convergent validity.

Table 5.7.2
Convergent Indices of One-factor Model for TPREP

Construct	Item	Convergent Validity		
		Loading	AVE	CR
Teachers' Sense of Preparedness (TPREP)	TPREP1	0.70	0.79	0.96
	TPREP2	0.81		
	TPREP3	0.96		
	TPREP4	0.94		
	TPREP5	0.95		
	TPREP6	0.93		

Teachers' Knowledge (TKW) Scale

The items of teacher knowledge were adapted from Bostancıoğlu and Handley's (2018) scale. For the purpose of this study, the scale consisted of 22 items measuring teachers' knowledge:

content knowledge (CK, 6 items), pedagogical content knowledge (PCK, 9 items), and technological pedagogical content knowledge (TPCK, 7 items). A summary of goodness-of-fit indices of the four alternative models for TKW after item deletion is presented in Table 5.7.3. The results of fit testing reveal that the one-factor model exhibited acceptable fit indices as shown by the values of CFI and TLI, which were within the acceptable ranges (0.96 and 0.97, respectively). Meanwhile, the indices for the three-orthogonal factor model had the lowest values for CFI and TLI indicating unacceptable values to show a good model. The three-correlated model and the hierarchical model shared similar results of goodness-of-fit indices, exhibiting a more acceptable good-fitting model than the one-factor model and the three-orthogonal factor model. The values of CFI and TLI were within the acceptable range (0.99 and 0.99, respectively) with value of RMSEA was above the cut-off value of 0.6. In this study, the hierarchical model of TKW was selected for the purpose of further analysis.

Table 5.7.3
Goodness-of-fit Indices of Alternative Models for TKW

No.	Model	CMIN	df	CMIN/df	TLI	CFI	RMSEA
1	One-factor	178.05	104	1.71	0.96	0.97	0.15
2	Three-orthogonal factor	446.23	104	4.29	0.83	0.86	0.32
3	Three -correlated factor	116.10	101	1.15	0.99	0.99	0.68
4	Hierarchical	116.10	101	1.15	0.99	0.99	0.68

The results of convergent validity testing for TKW are shown in Table 5.7.4. The three components of convergent validity indicated acceptable estimates of convergent validity. As it can be seen in Table 5.7.4, four items of CK were used in the final model because two items (CK5 and CK6) were deleted due to having lower factor loadings. The standardized loading estimates from four items of CK were within the range of acceptable values of more than 0.32, ranging from 0.62 to 0.94. Meanwhile, the loadings for the seven items of PCK were between 0.70 and 0.98 indicating acceptable values of loadings. It can be seen also that two items in PCK (PCK3 and PCK4) were removed in the final model as they were having factor loadings lower than 0.32 in the initial analysis. Similarly, two items in TPCK (TPCK4 and TPCK7)

were removed due to low loadings. The estimated factor loadings for five items of TPCK showed acceptable range of loading ranging from 0.83 to 0.98. The calculation of AVE estimates of CK, PCK, and TPCK revealed acceptable values which were above the cut-off value of 0.5 to demonstrate adequate convergence. The reliability estimates as shown by CR values for CK, PCK, and TPCK are also reported to have the values higher than the acceptable value of 0.7, indicating good composite reliability of CK, PCK, and TPCK. Meanwhile, the factor loadings of CK, PCK, and TPCK were 0.73, 0.78, and 0.92 respectively to suggest the representation of TKW.

Table 5.7.4
Convergent Indices of the Hierarchical Model for TKW

Second-order Factor	First-order Factor	Loading	Item	Convergent Validity		
				Loading	AVE	CR
Teacher Knowledge (TKW)	Content Knowledge (CK)	0.73	CK1	0.93	0.67	0.89
			CK2	0.62		
			CK3	0.74		
			CK4	0.94		
	Pedagogical Content Knowledge (PCK)	0.78	PCK1	0.74	0.75	0.95
			PCK2	0.84		
			PCK5	0.70		
			PCK6	0.98		
			PCK7	0.96		
			PCK8	0.90		
			PCK9	0.91		
	Technological Pedagogical Content Knowledge (TPCK)	0.92	TPCK1	0.83	0.89	0.98
			TPCK2	0.97		
			TPCK3	0.98		
			TPCK5	0.97		
			TPCK6	0.96		

Teachers' Self-efficacy (TSE) Scale

The items of self-efficacy were adapted from Teaching and Learning International Survey (TALIS) (OECD, 2008). In this study the scale was named teacher self-efficacy (TSE) comprising of 12 items: four items of self-efficacy in engagement (SEENG), four items of self-efficacy in instruction (SEINS), and four items of self-efficacy in classroom management (SECLS). The comparison of alternative models is presented in Table 5.7.5. The results showed that the three-correlated model and hierarchical model of TSE exhibited better fit than other

models as shown by the goodness-of-fit indices (CFI = 0.99, TLI = 0.99, RMSEA = 0.4). In this study, the hierarchical model of TSE was used for further analysis.

Table 5.7.5
Goodness-of-fit Indices of Alternative Models for TSE

No.	Model	CMIN	Df	CMIN/df	TLI	CFI	RMSEA
1	One-factor	62.30	54	1.15	0.98	0.98	0.07
2	Three-orthogonal factor	489.10	54	9.06	0.31	0.44	0.43
3	Three -correlated factor	53.48	51	1.09	0.99	0.99	0.04
4	Hierarchical	54.09	52	1.04	0.99	0.99	0.04

Table 5.7.6 shows the outputs of convergent validity calculation of the hierarchical model for TSE. As depicted in Table 5.7.6, four items of SEENG had high standardized factor loadings between 0.75 and 0.88, indicating the items to reflect the SEENG construct. For SEINS, four items had high factor loadings from 0.87 to 0.95 showing the items represented SEINS well. Similarly, the standardized factor loadings of four items for SECLS were between 0.84 and 0.93 suggesting the items reflected the SECLS construct well. The other indicators of convergent validity revealed that the values of AVE and CR for SEENG, SEINS, and SECLS were above the threshold indicating good convergence and good reliability. Meanwhile, the estimated factor loadings of SEENG, SEINS, and SECLS were greater than the cut-off value indicating the items converged on the latent construct of teachers' self-efficacy (TSE).

Table 5.7.6
Convergent Indices of Hierarchical Model for TSE

Second-order Factor	First-order Factor	Loading	Item	Convergent Validity		
				Loading	AVE	CR
Teacher Self-efficacy (TSE)	Self-efficacy in Engagement (SEENG)	0.98	SEENG1	0.75	0.67	0.89
			SEENG2	0.88		
			SEENG3	0.81		
			SEENG4	0.82		
	Self-efficacy in Instruction (SEINS)	0.82	SEINS1	0.87	0.83	0.95
			SEINS2	0.95		
			SEINS3	0.87		
			SEINS4	0.95		
	Self-efficacy in Classroom Management (SECLS)	0.97	SECLS1	0.90	0.78	0.94
			SECLS2	0.84		
			SECLS3	0.87		
			SECLS4	0.93		

5.8 Alternative Models and Final Structure for Teachers' Mastery Approaches to Assessment and Approaches to Teaching

Mastery Approaches to Assessment (MAST) Scale

The scale of teachers' mastery approaches to assessment was adapted and modified from Daniels and Poth (2017) and Alkharusi (2011) regarding teachers' approaches to their assessment practices in classrooms. The mastery approaches to assessment consisted of seven items called MAST1, MAST2, MAST3, MAST4, MAST5, MAST6, and MAST7. Table 5.8.1 shows the goodness-of-fit indices for the single-factor model of MAST. The results show that the fit indices of one-factor model of MAST indicated an acceptable data fit with the values of CFI, TLI, and RMSEA of 0.91, 0.87, and 0.21 respectively.

Table 5.8.1
Goodness-of-fit Indices of One-factor Model for MAST

No.	Model	CMIN	df	CMIN/df	TLI	CFI	RMSEA
1	One-factor MAST	33.92	14		0.87	0.91	0.21

Table 5.8.2 presents the results of convergent validity testing of one-factor model for MAST. The factor loadings of seven items that measured mastery approaches to assessment were within the threshold value of 0.32 (from 0.52 to 0.97) indicating that the items reflected the scale of MAST. Even though the value of AVE was close to the threshold (AVE = 0.59), the examination of the composite reliability (CR) indicates good reliability (CR = 0.91). Therefore, convergent reliability could still be established.

Table 5.8.2
Convergent Indices of the One-factor Model for MAST

Construct	Item	Convergent Validity		
		Loading	AVE	CR
Mastery approaches to assessment (MAST)	MAST1	0.52		
	MAST2	0.62		
	MAST3	0.58		
	MAST4	0.79	0.59	0.91
	MAST5	0.97		
	MAST6	0.86		
	MAST7	0.91		

Teachers' Approaches to Teaching (ATTE) Scale

The scale of teachers' approaches to teaching was adapted from Prosser and Trigwell's (2006) Approaches to Teaching Inventory. The scale comprised two approaches of teaching: conceptual change/student-focused (CCSF) approach and information transmission/teacher-focused (ITTF) approach, each of which consisted of eight items renamed CCSF1-CCSF8 and ITTF1-ITTF8. A comparison model of fit for ATTE scale is presented in Table 5.8.3. The examination of one-factor model resulted in a poor fit as shown by the values of goodness-of-fit indices which fell outside the acceptable range. In the two-orthogonal model, the values of goodness-of-fit indices fell within the acceptable range. Meanwhile, the results of two-correlated factor model and hierarchical model revealed a better fit with fit indices of CFI = 0.92, TLI = 0.90, and RMSEA = 0.12. In the hierarchical model, there is a strong correlation between CCSF and ITTF (r = 0.993), and thus, for the purpose of the study two-correlated model is used for further analysis. There is a negative but moderate correlation between CCSF and ITTF (r = -0.30).

Table 5.8.3
Goodness-of-fit Indices of Alternative Models for ATTE

No.	Model	CMIN	df	CMIN/df	TLI	CFI	RMSEA
1	One-factor	184.68	65	2.84	0.62	0.68	0.24
2	Two-orthogonal factor	101.20	65	1.56	0.88	0.90	0.13
3	Two-correlated factor	94.31	64	1.47	0.90	0.92	0.12
4	Hierarchical	94.31	64	1.47	0.90	0.92	0.12

The results of convergent validity testing of two-correlated factor model for CCSF and ITTF are presented in Table 5.8.4. Seven items that measure conceptual change/student-focused teaching approach had factor loadings within the threshold value of 0.32 (from 0.72 to 0.97), highlighting that the items reflected the scale of CCSF. What is observed is that one item (CCSF7) was excluded because it had a factor loading below 0.32. The value of AVE indicated a higher value from the threshold value of AVE (0.78) to indicate convergence, and the examination of CR for CCSF showed good reliability (CR = 0.96). Meanwhile, the factor

loadings of six items measuring information transmission/student-focused approach were within the acceptable range from 0.41 to 0.99 indicating the items measured the ITTF construct. As can be seen in Table 5.8.4, two items (ITTF2 and ITTF7) were removed due to having lower factor loadings than the cut-off value (below 0.32). The calculation of AVE and CR showed acceptable values of AVE = 0.51 and CR = 0.85 indicating convergence and good reliability of ITTF construct.

Table 5.8.4
Convergent Indices of the Two-correlated Model for CCSF and ITTF

Construct	Item	Correlation between constructs	Convergent Validity		
			Loading	AVE	CR
Conceptual Change/Student-focused Approach (CCSF)	CCSF1		0.83		
	CCSF2		0.72		
	CCSF3		0.92	0.78	0.96
	CCSF4		0.97		
	CCSF5		0.82		
	CCSF6	-0.30 (CCSF with ITTF)	0.92		
	CCSF8		0.96		
Information Transmission/Teacher-focused Approach (ITTF)	ITTF1		0.84		
	ITTF3		0.41		
	ITTF4		0.99	0.51	0.85
	ITTF5		0.65		
	ITTF6		0.66		
	ITTF8		0.55		

5.9   Summary

This chapter presents the results of validation analysis using Confirmatory Factor Analysis (CFA). Confirmatory Factor analysis was conducted to examine the structure of the measures or scales used in the study. Both student and teacher data were analysed to check if the observed variables on each scale represented the scale well. The CFA analysis was performed by means of MPlus software.

The measures or scales in the student data were mostly adapted and modified to conform with the purpose of the study. There were three second order factors and ten first order factors that were analysed from the student level data. The second-order factors included students'

conceptions of learning English (COLE), English Classroom Learning Environment (ECLE), and English Achievement (EACH). Based on the analysis of alternative models, the hierarchical models of the scales were better in terms of the model fit. The latent construct of COLE formed the hierarchical model as the model fit to the data. comprised of five first-order factors including memorizing (MEMO), testing (TEST), practicing (PRAC), communicating (COMM), and seeing in a new way (NWAY).

CHAPTER 6

INSTRUMENT VALIDATION: RASCH ANALYSIS

6.1   Introduction

Reliability and validity of scales are two fundamental facets of psychometric properties. Thus, evaluating the scales in terms of their reliability and validity enhances confidence in the analysis and implications, and checking the internal structure of the scales is relevant to both reliability and validity. In the previous chapter, the internal structure or dimensionality of the scales was evaluated using Confirmatory Factor Analysis (CFA). The examination of internal structure of the scales is essential for determining if the assumed relationships between the observed indicators and latent constructs are supported by empirical data. Therefore, the relationship between item and factor and the link between factors were examined, and the best model showing how the actual data fit the hypothesized structure using several fit indices and criteria as explained in Chapter 5 was determined for further analysis. In this chapter, Rasch analysis was conducted to verify the results of CFA evaluation and calibrate each item in the scales. The structures of scales confirmed based on the CFA analysis were examined or calibrated in the Rasch analysis.

6.2   Rasch Analysis

Rasch analysis can be used to develop and evaluate the psychometric properties of measures and provide validation and calibration functions of measures, which helps to improve confidence in data analysis and interpretation (Boone & Noltemeyer, 2017; Khine, 2020). The Rasch model is specifically designed to calibrate item and person parameters by observing response patterns from a sample of individuals and the latent traits. Rasch analysis provides information about the conformity of the actual data to the Rasch model by means of fit statistics

and the reliability statistics measured by Item Separation Reliability and Weighted Likelihood Estimate (WLE) Person Separation Reliability. The fit statistics assess how well a measurement model fits the observed data while the reliability statistics evaluate the degree to which a measurement model produces stable results. In this study, the item fit and reliability analysis was done to assess the scales in teacher and student questionnaires and English test. Since the numbers of student and teacher respondents were limited in this study, person fit analysis was not conducted. A limited sample size may produce the estimation of person fit to be less reliable. As well, Rasch analysis was used to provide the scoring for further analysis in this study. The Rasch model used in this study was Partial Credit Model as explained in Chapter 4, and the multidimensional item response model analysed measures that have more than one single latent variable. These analyses were completed using ConQuest statistical software.

6.3   Item Fit Analysis

As stated Chapter 4, the examination of fit is an essential part of Rasch analysis. Fit is evaluated to check how well the data agree with the Rasch model by investigating the existence of misfitting person or item, as this may create a deviation between the actual data and Rasch model (Boone & Noltemeyer, 2017). In this study, only item fit analysis was performed due to limited data. Item fit analysis will indicate if an item or some items of the instruments show appropriate range of fit values that are expected to measure a single trait.

Fit analysis was reported in the forms of mean squared values (MNSQ) and z-standardized or *t*-statistics values of both Outfit and Infit. As mentioned in Chapter 4, outfit calculates data including the outlier and Infit calculates data after removing the outliers. In this study, the indication of fit items was observed from the values of the Infit MNSQ which ranged from 0.6 to 1.4 as the acceptable range of item fit (Bond & Fox, 2015). If the Infit MNSQ values were outside the acceptable range but the item delta values were in order, the item was carefully

checked. The values of *t*-statistics as the standardized forms of mean square values ranged from +2 to -2 were also observed in this study. However, more emphasis was put on the values of Infit MNSQ than the *t*-statistic values since *t*-statistics values are influenced by the sample size. Consequently, the values could be put aside in determining the item fit.

6.4   Item Fit Analysis for Student-level Factors

A series of Rasch analyses was conducted to investigate the student-level scales. A single latent dimension analysis of polytomous scored items was conducted to examine the items of the single dimension scales, while multidimensional analysis of polytomous scored items served to test the scales containing a correlated or hierarchical structure. A single latent dimension analysis was conducted of the scales including English learning anxiety (ANXI), attitude towards learning English (ATTI), deep approaches to studying (DEEP), achieving approaches to studying (ACHI), and surface approaches to studying (SURF). On the other hand, a multidimensional analysis was used to test scales which include students' perceptions of classroom assessment environment (PCAE), English classroom learning environment (ECLE), conceptions of learning English (COLE), students' achievement goals orientations (ORIEN), and English achievement (EACH).

Students' Perceptions of Classroom Assessment Environment (PCAE) Scale

The structure of PCAE based on the CFA analysis revealed that two-correlated factors model between learning-oriented assessment environment (LOA) and performance-oriented assessment environment (POA) exhibited good model fit. Therefore, a multidimensional analysis was performed in Rasch analysis. Table 6.4.1 presents the results of item analysis of both LOA and POA items. As it is observed, the values of Infit MNSQ ranged between 0.85 and 1.28. Even though the values of *t*-statistics in some items (LOA1, LOA2, LOA7, POA1,

POA5, and POA6) were less than -0.2 or greater than +0.2, the values of Infit MNSQ for the

items were within the acceptable threshold. This indicates that the data fit the Rasch model.

In terms of logit estimates, the estimates of the items ranged from -1.16 to 0.75. The estimates

indicated the item location of difficulty. The lower the estimate, the easier the item. In this case,

item POA1 is the easiest item to agree with due to having the lowest estimate (-1.16), and item

POA6 is the most difficult item to endorse because the estimate is the highest of all (0.75).

Table 6.4.1
*Estimated item difficulties, Infit Mean Square Fit Indices, Item Delta, and Item
Discrimination for LOA and POA Items*

| Item | Estimate | Error | Weighted Fit | | | Item Delta | Item Discrimination |
			MNSQ	CI	t		
LOA1	0.01	0.04	1.19	(0.90, 1.10)	3.7	-2.41 0.01 2.43	0.41
LOA2	0.51	0.04	0.88	(0.90, 1.10)	-2.5	-1.43 0.42 2.56	0.51
LOA3	-0.85	0.05	0.94	(0.90, 1.10)	-1.2	-3.29 -1.19 1.93	0.36
LOA4	0.65	0.04	0.93	(0.90, 1.10)	-1.3	-1.45 0.34 3.07	0.51
LOA5	-0.42	0.04	0.91	(0.90, 1.10)	-1.7	-2.52 -0.97 2.23	0.41
LOA6	0.34	0.04	1.01	(0.90, 1.10)	0.3	-1.98 0.14 2.87	0.50
LOA7	-0.25*	0.11	1.15	(0.89, 1.11)	2.7	-1.96 -0.88 2.10	0.38
POA1	-1.16	0.04	1.28	(0.90, 1.10)	5.1	-3.95 -0.87 1.36	0.48
POA2	0.67	0.04	0.93	(0.89, 1.11)	-1.3	-0.61 0.41 2.19	0.62
POA3	0.01	0.04	0.97	(0.90, 1.10)	-0.6	-1.57 0.03 1.54	0.57
POA4	-0.20	0.04	0.96	(0.90, 1.10)	-0.9	-2.26 -0.26 1.93	0.60
POA5	0.10	0.04	0.88	(0.90, 1.10)	-2.4	-2.12 0.45 1.98	0.54
POA6	0.75	0.04	0.85	(0.89, 1.11)	-2.9	-0.81 0.72 2.35	0.56
POA7	-0.17*	0.10	1.08	(0.90, 1.10)	1.5	-2.05 -0.19 1.74	0.54

*Note. *constraint*

Students' Perceptions of English Classroom Learning Environment (ECLE) Scale

Based on previous analysis of CFA, a hierarchical model of students' perceptions of English

classroom learning environment (ECLE) scale showed good model fit, and so a

multidimensional analysis of Rasch was conducted on the scale. Results of the item analysis

are displayed in Table 6.4.2. It is observed that the Infit MNSQ values of the items were within

the acceptable threshold values (ranging from 0.88 and 1.23). Some items (SCOH3, TSUP5,

TSUP7, TSUP8, INVE2, PART1, and PART3) showed t-statistics values above or below the

cut-off value. However, the Infit MNSQ values were all acceptable indicating the data fit the

Rasch model. As the value of t-statistics is sensitive to sample size, it tends to show a value outside the threshold value as the sample size is large. Furthermore, the item deltas were ordered indicating the progression of each response category, and the values of item discrimination ranged from 0.41 to 0.69 indicating acceptable range of item discrimination.

The estimated logit scales of the items ranged between -1.11 and 1.04, and most of the items were located in the average level of difficulty (0 logit estimate). Items TSUP6 ('The English teacher is interested in my problems in English') were the most difficult items to agree with having a logit estimate value of 1.04, and item TSUP2 ('My English helps me improve my English') was the easiest one to endorse having the estimated value of -1.11.

Table 6.4.2
Estimated item difficulties, Infit Mean Square Fit Indices, Item Delta, and Item Discrimination for PERC Items

Item	Estimate	Error	Weighted Fit			Item Delta	Item Discrimination
			MNSQ	CI	t		
SCOH1	0.44	0.05	0.91	(0.90, 1.10)	-1.7	-1.54 0.08 2.77	0.47
SCOH2	0.28	0.05	0.92	(0.90, 1.10)	-1.5	-1.93 -0.09 2.87	0.44
SCOH3	-0.72*	0.07	1.15	(0.89, 1.11)	2.5	-2.70 -1.53 2.08	0.51
TSUP1	-0.46	0.05	0.95	(0.90, 1.10)	-0.9	-3.16 -0.40 2.19	0.65
TSUP2	-1.11	0.05	0.91	(0.89, 1.11)	-1.6	-3.27 -1.61 1.56	0.67
TSUP3	0.37	0.05	1.01	(0.90, 1.10)	0.2	-2.25 0.32 3.04	0.61
TSUP4	-0.88	0.05	0.92	(0.90, 1.10)	-1.6	-3.14 -1.16 1.68	0.69
TSUP5	0.41	0.05	0.89	(0.90, 1.10)	-2.2	-2.19 0.40 3.01	0.63
TSUP6	1.04	0.05	0.92	(0.90, 1.10)	-1.6	-1.68 0.92 3.86	0.62
TSUP7	0.84	0.05	1.11	(0.90, 1.10)	2.1	-1.70 0.68 3.54	0.64
TSUP8	-0.21*	0.12	1.2	(0.90, 1.10)	3.6	-2.98 -0.47 2.81	0.66
INVE1	0.62	0.05	1.11	(0.90, 1.10)	2.0	-2.41 0.32 3.95	0.56
INVE2	-0.04	0.05	0.89	(0.90, 1.10)	-2.2	-3.27 -0.28 3.43	0.60
INVE3	-0.50	0.05	0.93	(0.89, 1.11)	-1.3	-3.82 -0.85 3.17	0.61
INVE4	-0.08*	0.09	1.08	(0.89, 1.11)	1.5	-3.27 -0.47 3.49	0.58
PART1	0.84	0.04	1.23	(0.90, 1.10)	4.2	-1.45 0.58 3.40	0.53
PART2	-0.63	0.05	0.92	(0.90, 1.10)	-1.5	-3.62 -0.53 2.26	0.56
PART3	-0.21*	0.06	0.88	(0.90, 1.10)	-2.4	-2.71 -0.27 2.33	0.61
TAS1	-0.03	0.06	0.94	(0.89, 1.11)	-1.1	-2.80 -0.72 3.43	0.62
TAS2	-0.48	0.06	0.89	(0.89, 1.11)	-2.0	-3.41 -0.84 2.81	0.53
TAS3	-0.22	0.06	0.94	(0.89, 1.11)	-1.2	-3.43 -0.65 3.43	0.59
TAS4	-0.01	0.06	0.92	(0.90, 1.10)	-1.5	-3.26 -0.28 3.51	0.60
TAS5	0.57	0.06	1.03	(0.90, 1.10)	0.7	-2.81 0.61 3.90	0.54
TAS6	0.17*	0.13	0.96	(0.91, 1.09)	-1.0	-1.99 0.92 2.17	0.41

*Note. *constraint*

Conceptions of Learning (COLE) Scale

The examination of COLE structure in CFA revealed that the hierarchical model with two items deleted (TEST1 and TEST2) exhibited good model fit. As to this, a multidimensional item analysis was conducted to COLE scale. Table 6.4.3 presents the results of the item analysis, and it is observed that the Infit MNSQ values of the items were within the acceptable range of 0.60 to 1.40. The values ranged from 1.22 for item NWAY8 to 0.85 for item COMM4. Most of the t-statistics values for MEMO, TEST, PRAC, COMM, and NWAY dimensions were within the acceptable threshold (±2), indicating the items fit the item response model. Even though some items (COMM2, COMM4, COMM5, NWAY7, and NWAY8) exhibited t-statistics values above or below the threshold, the Infit MNSQ values were all acceptable indicating the data fit the Rasch model. Besides, the value of t-statistics is sensitive to sample size, and it tends to show a value outside the threshold value as the sample size is large. In this study, the items are retained for subsequent analysis. In addition, item deltas showed that the response choices on the scale were in order. The values of item discrimination of the scale were greater than 0.2 (ranging between 0.31 and 0.68), suggesting item discrimination functioned well in the scale.

Further, the item measures as shown in logit scales of 25 COLE items were mostly dominated by items with negative logit scale estimates (14 items) compared to those with positive logit scale estimates (11 items). Each dimension had items with both negative and positive logit scale estimates in which items with negative logit scale estimates were more easily endorsed by the participants than those with positive scale estimates. It is revealed that item NWAY8 with 1.53 logits is the most difficult item to agree with and NWAY1 with -1.48 is the easiest to agree with.

Table 6.4.3
Estimated item difficulties, Infit Mean Square Fit Indices, Item Delta, and Item Discrimination for COLE Items

Item	Estimate	Error	Infit			Item Delta	Item Discrimination
			MNSQ	CI	t		
MEMO1	0.04	0.05	1.09	(0.90, 1.10)	1.8	-2.71 -0.02 2.87	0.43
MEMO2	0.17	0.05	0.99	(0.90, 1.10)	-0.1	-2.65 0.00 3.14	0.52
MEMO3	-0.38	0.05	0.93	(0.90, 1.10)	-1.3	-2.96 -0.57 2.40	0.57
MEMO4	-0.10	0.05	0.97	(0.89, 1.11)	-0.5	-2.86 -0.58 3.14	0.59
MEMO5	0.27*	0.09	0.94	(0.90, 1.10)	-1.2	-2.36 0.09 3.07	0.57
TEST3	0.09	0.04	0.99	(0.90, 1.10)	-0.3	-2.13 -0.03 2.41	0.36
TEST4	0.06	0.04	1.09	(0.90, 1.10)	1.8	-1.88 -0.07 2.14	0.31
TEST5	-0.15*	0.06	0.91	(0.90, 1.10)	-1.9	-1.93 -0.49 1.96	0.40
PRAC1	-0.20	0.05	0.97	(0.90, 1.10)	-0.6	-2.04 -0.62 2.07	0.54
PRAC2	0.49	0.05	1.09	(0.90, 1.10)	1.7	-1.79 0.29 2.98	0.48
PRAC3	-0.03	0.05	0.94	(0.90, 1.10)	-1.1	-2.48 -0.54 2.92	0.60
PRAC4	-0.26*	0.08	1.04	(0.90, 1.10)	0.7	-2.41 -0.52 2.15	0.44
COMM1	-0.64	0.05	1	(0.88, 1.12)	0	-2.50 -1.07 1.67	0.55
COMM2	0.25	0.05	1.14	(0.90, 1.10)	2.5	-2.06 -0.15 2.96	0.50
COMM3	-0.01	0.05	0.97	(0.89, 1.11)	-0.6	-2.21 -0.64 2.83	0.58
COMM4	-0.01	0.05	0.85	(0.89, 1.11)	-3	-1.81 -0.93 2.70	0.63
COMM5	0.41*	0.10	1.15	(0.89, 1.11)	2.6	-1.65 -0.08 2.95	0.57
NWAY1	-1.48	0.05	1.09	(0.90, 1.10)	1.8	-4.60 -1.62 1.75	0.59
NWAY2	-0.60	0.05	1	(0.90, 1.10)	0.1	-3.37 -1.22 2.79	0.64
NWAY3	-0.32	0.05	0.94	(0.90, 1.10)	-1.2	-3.23 -0.22 2.49	0.67
NWAY4	-0.98	0.05	0.99	(0.90, 1.10)	-0.3	-3.87 -1.27 2.19	0.62
NWAY5	0.79	0.05	0.92	(0.90, 1.10)	-1.6	-2.03 0.76 3.65	0.68
NWAY6	1.07	0.05	0.98	(0.90, 1.10)	-0.4	-1.71 1.01 3.90	0.63
NWAY7	-0.01	0.05	0.88	(0.90, 1.10)	-2.4	-3.13 -0.12 3.23	0.65
NWAY8	1.53*	0.12	1.2	(0.90, 1.10)	3.8	-1.25 1.54 4.32	0.56

*Note. *constraint*

Students' Achivement Goals Orientation (ORIEN) Scale

The 18-item students' learning orientation scale was subjected to a multidimensional evaluation as the scale formed the three-correlated factors model to show good model fit based on CFA analysis. Results of a multidimensional item analysis to ORIEN scale are presented in Table 6.4.4. All items showed appropriate fit within the acceptable range of 0.60 to 1.40 of the weighted fit MNSQ. The values of t-statistics were also within the cut-off value (± 2). Some of the items had value greater than 2 or lower than -2, but the range of Infit MNSQ values were still within the acceptable range indicating the data fit to the Rasch model. Further, the values of item delta for all items were in order indicating the order of response categories. The values of item discrimination were within the threshold value of 0.2 ranging between 0.33 and 0.70, suggesting that the items had a discrimination function.

The estimated logit scales of 18 ORIEN ranged from -1.38 to 1.14. Most of the items were located in the average difficulty level of the items (0 logit estimate), and item ABAV3 and item ABAV4 were the closest to the average difficulty level. Meanwhile, item ABAV5 ('I would not participate in class to avoid looking stupid') is the most difficult-to-endorse item while TASK4 ('I'll do my work in the class because I want to get better at it') is the easiest to endorse.

Table 6.4.4
Estimated item difficulties, Infit Mean Square Fit Indices, Item Delta, and Item Discrimination for ORIEN Items

Item	Estimate	Error	Weighted Fit			Item Delta	Item Discrimination
			MNSQ	CI	t		
TASK1	-0.17	0.05	1.09	(0.90, 1.10)	1.6	-2.64 -0.47 2.60	0.43
TASK2	0.10	0.05	0.92	(0.90, 1.10)	-1.5	-2.80 -0.06 3.14	0.50
TASK3	0.95	0.05	1.05	(0.90, 1.10)	1	-1.73 0.94 3.65	0.48
TASK4	-1.38	0.05	1.08	(0.90, 1.10)	1.5	-3.73 -1.80 1.40	0.47
TASK5	0.19	0.05	1.06	(0.90, 1.10)	1.2	-2.44 0.05 2.95	0.53
TASK6	0.31*	0.10	0.8	(0.90, 1.10)	-4.5	-2.91 0.55 3.30	0.56
ABIL1	-0.62	0.04	1.12	(0.90, 1.10)	2.3	-1.95 -0.71 0.79	0.49
ABIL2	0.77	0.04	0.98	(0.91, 1.09)	-0.5	-0.80 0.96 2.14	0.64
ABIL3	-1.12	0.04	1.13	(0.90, 1.10)	2.3	-2.58 -1.34 0.56	0.50
ABIL4	-0.31	0.04	0.93	(0.90, 1.10)	-1.4	-1.89 -0.42 1.39	0.63
ABIL5	1.04	0.04	0.91	(0.90, 1.10)	-1.8	-0.61 1.32 2.41	0.70
ABIL6	0.25*	0.09	0.93	(0.91, 1.09)	-1.5	-1.75 0.32 2.16	0.70
ABAV1	-0.93	0.04	1.29	(0.90, 1.10)	5.1	-1.85 -1.40 0.46	0.41
ABAV2	-0.40	0.04	0.97	(0.91, 1.09)	-0.6	-1.85 -0.55 1.20	0.58
ABAV3	0.02	0.04	0.84	(0.91, 1.09)	-3.7	-1.54 0.06 1.56	0.62
ABAV4	0.03	0.04	0.81	(0.91, 1.09)	-4.2	-1.50 0.03 1.55	0.62
ABAV5	1.14	0.04	1.29	(0.90, 1.10)	5.2	-0.45 1.54 2.31	0.33
ABAV6	0.14*	0.08	0.89	(0.91, 1.09)	-2.3	-1.40 0.13 1.70	0.57

Note. *constraint

Students' Anxiety towards English Learning (ANXI) Scale

The result of CFA showed that ANXI scale is a single factor, and one-factor model of four items of ANXI showed good model fit. Thus, a single latent dimension analysis was performed in this Rasch analysis. The results of item analysis for the ANXI scale are presented in Table 6.4.5. The values of Infit MNSQ values ranged from 0.92 to 1.12. One item (ANXI1) had the values of t-statistics outside the threshold. However, the Infit MNSQ of the item was within the acceptable range which was indicative of data fitting the Rasch model. The item deltas were in order, and the item discrimination values were greater than the threshold of 0.20 for all items.

Furthermore, of the four items, item ANXI4 was the hardest one to agree with (logit estimate = 0.94), while item ANXI5 was the easiest to agree with (logit estimate = -0.34). For subsequent analysis the final structure of four-item ANXI scale was used.

Table 6.4.5
Estimated item difficulties, Infit Mean Square Fit Indices, Item Delta, and Item Discrimination for ANXI Items

| Item | Estimate | Error | Weighted Fit | | | Item Delta | Item Discrimination |
			MNSQ	CI	t		
ANXI1	0.79	0.04	1.12	(0.91, 1.09)	2.4	-2.37 -0.81 0.81	0.57
ANXI2	-0.20	0.03	0.94	(0.91, 1.09)	-1.5	-0.91 0.31 1.19	0.75
ANXI4	0.94	0.03	1.00	(0.90, 1.10)	0.0	-0.22 1.30 1.73	0.65
ANXI5	-0.34*	0.06	0.92	(0.91, 1.09)	-1.6	-1.89 -0.54 1.41	0.73

*Note. *constraint*

Students' Attitude towards Learning English (ATTI) Scale

Based on previous analysis of CFA, one-factor model of six items of ATTI showed good model fit, so a single latent dimension analysis was performed in this Rasch analysis. The results of item analysis for the ATTI scale are presented in Table 6.4.6. The values of Infit MNSQ values ranged from 0.8 to 1.26. Some of the items had the values of t-statistics outside the threshold, like items ATTI2, ATTI3, and ATTI9. However, the Infit MNSQ of the items were within the acceptable range which was indicative of data fitting the Rasch model. The item deltas were in order, and the item discrimination values were greater than the threshold of 0.20 for all items. Furthermore, of the six items, item ATTI4 was the hardest one to endorse (logit estimate = 0.87), while item ATTI9 was the easiest to agree with (logit estimate = -1.62). Consequently, the final structure of six-item ATTI scale was used for subsequent analysis.

Table 6.4.6
Estimated item difficulties, Infit Mean Square Fit Indices, Item Delta, and Item Discrimination for ATTI Items

| Item | Estimate | Error | Weighted Fit | | | Item Delta | Item Discrimination |
			MNSQ	CI	t		
ATTI1	0.51	0.04	1.05	(0.90, 1.10)	1.0	-2.10 0.62 3.00	0.77
ATTI2	-0.94	0.05	0.89	(0.90, 1.10)	-2.2	-4.00 -1.23 2.41	0.79
ATTI3	0.23	0.05	0.93	(0.90, 1.10)	-1.4	-2.69 0.47 2.92	0.80

ATTI4	0.61	0.05	0.93	(0.90, 1.10)	-1.3	-2.68 1.20 3.32	0.78
ATTI6	-0.41*	0.05	1.17	(0.90, 1.10)	3.2	-3.17 -0.66 2.59	0.70

Note. *constraint

Students' Deep Approaches to Learning (DEEP) Scale

A single latent dimension analysis of Rasch was performed to examine the DEEP scale's one-factor model. The results of item analysis to seven items of DEEP, as displayed in Table 6.4.7, showed that the values of Infit MNSQ ranged between the acceptable threshold of 0.60 and 1.40. Two items (DEEM3 and DEES1) had t-statistics values outside the threshold, but the items were retained as their Infit MNSQ values were acceptable. In addition to this, item deltas were in order and item discrimination values were above 0.20. Regarding the item location, the estimated logit scales ranged from -0.99 to 0.53, in which item DEEM2 indicated the easiest item to endorse and item DEEM1 was the hardest item to agree with by the students. Finally, the one-factor model of DEEP scale with seven items was used in subsequent analysis.

Table 6.4.7
Estimated item difficulties, Infit Mean Square Fit Indices, Item Delta, and Item Discrimination for DEEP Items

Item	Estimate	Error	Weighted Fit			Item Delta	Item Discrimination
			MNSQ	CI	t		
DEEM1	0.53	0.04	1.03	(0.90, 1.10)	0.6	-1.84 0.27 3.17	0.66
DEEM2	-0.99	0.04	1.06	(0.90, 1.10)	1.1	-2.95 -1.40 1.36	0.59
DEEM3	-0.16	0.04	0.87	(0.90, 1.10)	-2.8	-2.83 -0.16 2.52	0.74
DEES1	-0.24	0.04	1.17	(0.90, 1.10)	3.2	-2.34 -0.56 2.19	0.56
DEES2	0.47	0.04	1.06	(0.90, 1.10)	1.2	-1.84 0.40 2.84	0.65
DEES3	0.21	0.04	0.97	(0.90, 1.10)	-0.6	-2.07 0.01 2.70	0.66
DEES4	0.17*	0.11	0.93	(0.90, 1.10)	-1.5	-2.64 0.39 2.77	0.75

Note. *constraint

Students' Achieving Approaches to Learning (ACHI) Scale

Based on the CFA analysis, one-factor model of 11 items of ACHI exhibited good model fit, and thus the one-factor model of ACHI scales was subjected to a single latent Rasch analysis. The results of item analysis, as shown in Table 6.4.8, revealed that the Infit MNSQ values were within the acceptable values between 0.89 and 1.27. Although the t-statistics values of some

items (ACHM3, ACHM4, ACHM5) were outside the threshold value, the Infit MNSQ values were still acceptable, and this may suggest that the data fit the Rasch model. In addition, the values of item deltas indicated orderly values, and item discrimination values were above the cut-off value of 0.20. Regarding the item position as shown by the logit scale estimates, it is revealed that most items had more positive estimated values than the negative ones, ranging from -1.479 to 0.840. Item ACHM2 was the easiest item to agree with while item ACHS4 was for participants the hardest item to endorse.

Table 6.4.8
Estimated item difficulties, Infit Mean Square Fit Indices, Item Delta, and Item Discrimination for ACHI Items

| Item | Estimate | Error | Weighted Fit | | | Item Delta | Item Discrimination |
			MNSQ	CI	t		
ACHM1	-0.07	0.04	0.91	(0.90, 1.10)	-1.9	-1.42 -0.26 1.46	0.63
ACHM2	-1.48	0.04	0.99	(0.89, 1.11)	-0.2	-2.85 -1.85 0.26	0.47
ACHM3	0.83	0.03	1.17	(0.91, 1.09)	3.6	-0.07 0.84 1.71	0.53
ACHM4	0.17	0.04	1.19	(0.90, 1.10)	3.6	-0.59 -0.21 1.32	0.50
ACHM5	0.07	0.04	1.27	(0.90, 1.10)	4.7	-0.68 -0.54 1.43	0.38
ACHS1	-0.21	0.04	0.97	(0.91, 1.09)	-0.6	2.27 -0.11 1.77	0.58
ACHS2	-0.01	0.04	0.91	(0.90, 1.10)	-1.9	-1.82 -0.11 1.90	0.64
ACHS3	0.22	0.04	0.94	(0.90, 1.10)	-1.3	-1.54 0.09 2.12	0.61
ACHS4	0.84	0.04	0.94	(0.90, 1.10)	-1.3	-1.33 1.12 2.73	0.61
ACHS5	-0.47	0.04	0.89	(0.90, 1.10)	-2.3	-2.20 -0.73 1.52	0.61
ACHS6	0.10*	0.12	0.91	(0.90, 1.10)	-1.9	-1.78 0.04 2.04	0.64

*Note. *constraint*

Students' Surface Approaches to Learning (SURF) Scale

A single latent Rasch analysis was also performed on four items of the SURF scale since the one-factor model of the scale exhibited good model fit in the CFA analysis. As presented in the results of item analysis in Table 6.4.9, the values of Infit MNSQ demonstrated acceptable values between 0.96 and 1.08, while the t-statistics values were all within the threshold values of ±2, ranging from -0.8 to 1.6. Suggested here is that the data fit the Rasch model. In addition, no disordered delta values were found, and item discrimination values were above the cut-off value of 0.20. The estimated values of the logit scale revealed that the items were located

between -0.28 and 0.31, where item SURS3 was the easiest and item SURS5 was the hardest

to be endorsed by the participants.

Table 6.4.9
Estimated item difficulties, Infit Mean Square Fit Indices, Item Delta, and Item Discrimination for SURF Items

| Item | Estimate | Error | Weighted Fit | | | Item Delta | Item Discrimination |
			MNSQ	CI	t		
SURS1	0.08	0.03	0.96	(0.91, 1.09)	-0.8	-1.25 -0.16 1.66	0.67
SURS3	-0.28	0.03	1.08	(0.91, 1.09)	1.6	-1.64 -0.41 1.20	0.57
SURS4	-0.11	0.03	0.99	(0.91, 1.09)	-0.1	-1.53 -0.19 1.38	0.67
SURS5	0.31*	0.06	1.01	(0.91, 1.09)	0.3	-1.11 0.45 1.58	0.67

*Note. *constraint*

English Reading and Listening Achievement

Table 6.4.10 displays the results of a multidimensional analysis of students' reading and

listening test. The results showed that the values of Infit MNSQ ranged between 0.78 and 1.14

for Reading items and between 0.90 and 1.03 for Listening items, indicating that the values are

within the acceptable range of Infit MNSQ values. Despite having values of t-statistics outside

the acceptable values of ±2 for some items in Reading and Listening, the values of Infit MNSQ

were within the acceptable threshold. The item discrimination values for Reading and Listening

items were above the cut-off value of 0.20. Regarding the logit scale values, Reading item

QR10 was the hardest item to answer with the logit scale of 1.442 and item QR06 was the

easiest to answer with -1.827 logit scale value. Meanwhile, for Listening item QL10 was the

most difficult (logit scale = 1.50) and item QL06 was the easiest (logit scale = -1.27).

Table 6.4.10
Estimated item difficulties, Infit Mean Square Fit Indices, Item Delta, and Item Discrimination for Reading and Listening Test Items

| Item | Estimate | Error | Weighted Fit | | | Item Delta | Item Discrimination |
			MNSQ	CI	t		
READ2	0.98	0.06	1.09	(0.91, 1.09)	2	0.98	0.42
READ3	-1.03	0.06	0.98	(0.93, 1.07)	-0.7	-1.03	0.48
READ4	0.36	0.06	0.93	(0.93, 1.07)	-1.8	0.36	0.58
READ5	-1.23	0.06	1.03	(0.92, 1.08)	0.8	-1.24	0.42
READ6	-1.83	0.07	1.06	(0.90, 1.10)	1.2	-1.83	0.33

135

READ7	0.91	0.06	1.01	(0.92, 1.08)	0.3	0.91	0.48
READ8	0.52	0.06	1.10	(0.92, 1.08)	2.6	0.52	0.42
READ9	0.60	0.06	0.78	(0.92, 1.08)	-6	0.60	0.68
READ10	1.44	0.07	1.08	(0.90, 1.10)	1.5	1.44	0.40
READ11	-0.05	0.06	0.92	(0.93, 1.07)	-2.4	-0.05	0.58
READ12	0.39	0.06	0.99	(0.93, 1.07)	-0.3	0.39	0.52
READ13	-1.44	0.06	0.99	(0.91, 1.09)	-0.2	-1.44	0.41
READ14	1.16	0.06	1.14	(0.91, 1.09)	3	1.16	0.36
READ15	-0.66	0.06	0.95	(0.93, 1.07)	-1.5	-0.66	0.53
READ16	-0.05	0.06	0.98	(0.93, 1.07)	-0.5	-0.05	0.51
READ17	-0.10	0.06	0.84	(0.93, 1.07)	-4.8	-0.10	0.64
READ18	0.14	0.06	0.84	(0.93, 1.07)	-4.7	0.14	0.64
READ19	-1.15	0.06	0.99	(0.92, 1.08)	-0.3	-1.15	0.45
READ20	1.03*	0.27	1.06	(0.91, 1.09)	1.4	1.03	0.44
LIST2	-0.83	0.06	0.99	(0.94, 1.06)	-0.4	-0.83	0.37
LIST3	-0.52	0.06	1.02	(0.94, 1.06)	0.8	-0.52	0.36
LIST4	-1.25	0.06	1.02	(0.93, 1.07)	0.6	-1.25	0.31
LIST6	-1.27	0.06	1.03	(0.93, 1.07)	0.7	-1.27	0.31
LIST7	0.35	0.06	0.98	(0.93, 1.07)	-0.6	0.35	0.46
LIST8	0.82	0.06	0.99	(0.92, 1.08)	-0.1	0.82	0.37
LIST9	1.20	0.07	1.01	(0.90, 1.10)	0.1	1.20	0.37
LIST10	1.50*	0.17	0.90	(0.88, 1.12)	-1.8	1.50	0.49

*Note. *constraint*

6.5 Item and Person Separation Reliability for Student-level Scales

Item and person separation reliability was also examined to the scales in student-level factors. High item-separation reliability indicates the items in a scale include more endorsability and less endorsability items, while high person-separation reliability indicates consistency where the measure includes a set of items rated high and items rated low by the respondents (Bond & Fox, 2015). The reliability index is comparable to Cronbach's alpha, and a higher index indicates the constructs had better reliability. A reliability value above 0.70 indicates reasonable fit. As presented in Table 6.5.1, all scales exibit acceptable item-separation reliability with the value higher than 0.70. However, some scales exhibited lower person-separation reliability values. According to Bond and Fox (2015), even though poorer reliability may be indicative of error in the estimates, other evidence showing validity should be examined. It is evident in the previous section that the scales in this study provide good validity.

Table 6.5.1
Item- and Person-separation Reliability Indices of Student-level Scales

	Scale	Item-separation reliability	Person-separation reliability
Students' Perceptions of Classroom Assessment Environment Scale (PCAE)	Learning-oriented assessment environment (LOA)	0.99	0.79
	Performance-oriented assessment environment (POA)		0.81
Students' Perceptions of English Classroom Learning Environment (ECLE)	Student Cohesiveness (SCOH)	0.99	0.74
	Teacher Support (TSUP)		0.87
	Investigation (INVE)		0.78
	Participation (PART)		0.62
	Perceived Task Orientation (TASK)		0.76
	Memorizing (MEMO)		0.71
Students' Conceptions of Learning (COLE)	Testing (TEST)	0.99	0.61
	Practicing (PRAC)		0.48
	Communication (COMM)		0.61
	Seeing in a New Way (NWAY)		0.82
Students' Achievement Goals Orientation (ORIEN)	Task goal orientation (TASK)	0.99	0.80
	Ability-approach goal orientation (ABOR)		0.77
	Ability-avoid goal orientation (ABAV)		0.73
Anxiety towards English Learning (ANXI	Anxiety (ANXI)	0.99	0.57
Attitude towards Learning English (ATTI)	Attitude toward Learning English (ATTI)	0.99	0.81
Students' Approaches to Learning English (ATLE)	Deep approaches to learning (DEEP)	0.99	0.77
	Achieving approaches to learning (ACHI)	0.99	0.78
	Surface approaches to learning (SURF)	0.99	0.61

6.6   Item Fit Analysis for Teacher-level Factors

Similar to the analyses of scales at the student level, a series of Rasch analyses was also performed to investigate the teacher-level scales. Both a single latent dimension analysis and multidimensional analysis of polytomous scored items were conducted to examine the items of the single dimension scales and those in a correlated or hierarchical structure. A single latent dimension analysis was conducted of the scales including teachers' sense of preparedness (TPREP) and mastery approaches to assessment (MAST). A multidimensional analysis was used to test scales which include teacher knowledge (TKW), teacher self-efficacy (TSE), and teachers' approaches to teaching (ATTE).

Teachers' Sense of Preparedness (TPREP) Scale

One-factor model of six items of TPREP showed good model fit based on previous analysis of CFA, and thus, a single latent dimension analysis was performed in this Rasch analysis. The

results of item analysis for the TPREP scale as presented in Table 6.6.1 show that Infit MNSQ

values ranged from 0.64 to 1.40, and the values of t-statistics were with the threshold, indicating

data fit the Rasch model. The item deltas were also in order, and the item discrimination values

were above the threshold of 0.20 for all items. As it is observed, the response categories for

items TPREP1-TPREP5 were put into three response categories by combining 0 and 1 response

categories into one category. Meanwhile, the response categories for item TPREP6 were

collapsed into two categories by combining the categories of 0 and 1 also 2 and 3. Regarding

the item locations, item PREP6 was the hardest item to endorse as indicated by positive logit

estimate of 1.88, while item PREP1 was the easiest item to agree with having the lowest logit

estimate of -2.03. Thus, the final structure of six-item PREP scale was used for subsequent

analysis.

Table 6.6.1
Estimated item difficulties, Infit Mean Square Fit Indices, Item Delta, and Item
Discrimination for TPREP Items

| Item | Estimate | Error | Infit | | | Item Delta | Item Discrimination |
			MNSQ	CI	t		
TPREP1	-2.03	0.34	1.40	(0.49, 1.51)	1.5	-5.67 1.62	0.66
TPREP2	0.22	0.32	1.10	(0.39, 1.61)	0.4	-2.19 2.64	0.78
TPREP3	0.37	0.34	0.78	(0.37, 1.63)	-0.6	-2.82 3.57	0.87
TPREP4	0.37	0.33	0.64	(0.39, 1.61)	-1.2	-2.20 2.93	0.89
TPREP5	-0.82	0.33	0.90	(0.45, 1.55)	-0.3	-3.49 1.86	0.85
TPREP6	1.88*	0.74	0.90	(0.42, 1.58)	-0.3	1.88	0.78

*Note.*constraint*

Teachers' Knowledge (TKW) Scale

Based on previous analysis of CFA, a hierarchical model of students' perceptions of English

classroom learning environment (ECLE) scale showed good model fit, and so a

multidimensional analysis of Rasch was conducted on the scale. The examination of TKW

structure in CFA revealed that the hierarchical model of teacher knowledge scale showed good

model fit. Therefore, a multidimensional analysis was performed to check the item

performances of TKW items, and the results are presented in Table 6.6.2. As it is observed,

Infit MNSQ values of most items of TKW were within the acceptable threshold ranging

between 0.66 and 1.37. Two items, PCK6 and TPCK, exhibited Infit MNSQ close to 0.6, and

this may indicate that the items were less productive but did not degrade the quality of the

measure (Linacre, 2002). According to Linacre (2002), items with less than 0.5 in Infit MNSQ

may influence the reliability and separation coefficients, and this indicates that the items need

to be checked carefully for the analysis. As the two items had values close to 0.6 and were

necessary to measure the scale, no omission was made. In terms of the values of t-statistics, the

items were within the acceptable cut-off values, except for TPCK1 having the value of 2.9.

Table 6.6.2
*Estimated item difficulties, Infit Mean Square Fit Indices, Item Delta, and Item
Discrimination for TKW Items*

| Item | Estimate | Error | Infit | | | Item Delta | Item Discrimination |
			MNSQ	CI	t		
CK1	-1.98	0.30	0.90	(0.47, 1.53)	-0.3	-4.08 0.13	0.58
CK2	0.70	0.30	0.93	(0.50, 1.50)	-0.2	-2.08 3.49	0.44
CK3	-0.60	0.30	1.06	(0.53, 1.47)	0.3	-3.17 1.97	0.50
CK4	1.87*	0.52	0.75	(0.46, 1.54)	-0.9	-1.05 4.79	0.64
PCK1	1.44	0.29	1.39	(0.49, 1.51)	1.4	-1.13 4.01	0.59
PCK2	-0.41	0.31	1.11	(0.48, 1.52)	0.5	-4.00 3.18	0.67
PCK5	-0.43	0.30	1.20	(0.51, 1.49)	0.8	-2.82 1.97	0.58
PCK6	0.68	0.28	0.59	(0.51, 1.49)	-1.8	-1.54 2.90	0.78
PCK7	-0.09	0.30	0.62	(0.49, 1.51)	-1.6	-2.86 2.67	0.76
PCK8	-0.88	0.30	0.83	(0.53, 1.47)	-0.7	-2.86 2.67	0.76
PCK9	-0.31*	0.73	1.00	(0.51, 1.49)	0.1	-2.82 2.21	0.71
TPCK1	1.62	0.37	1.39	(0.54, 1.46)	2.9	-2.64 5.88	0.68
TPCK2	-0.48	0.36	0.58	(0.30, 1.70)	-1.3	-3.57 2.62	0.83
TPCK3	-0.45	0.36	0.83	(0.40, 1.60)	-0.5	-3.04 2.14	0.82
TPCK5	-0.22	0.37	1.09	(0.29, 1.71)	0.4	-3.57 3.12	0.83
TPCK6	-0.47*	0.73	0.65	(0.31, 1.69)	-10.	-3.56 2.63	0.83

*Note.*constraint*

As it is observed, the item deltas were also in order. The response categories 0 and 1 were

combined for all items to optimize the response category structure due to uneven distribution

of respondents in those categories. It is found that the combined categories had low frequencies

and subsequently the categories need to be collapsed. Furthermore, the values of item

discrimination were within the acceptable threshold. For item location, CK4 was the most

difficult item to endorse with estimate = 1.87 while item CK1 was the easiest item to agree with (logit estimate = -1.98).

Teachers' Self-Efficacy (TSE) Scale

As shown in the CFA analysis, teachers' self efficacy (TSE) scale comprises of three sub-scales: teacher self-efficacy in engagement, self-efficacy in instructions, and self-efficacy in classroom management. The CFA analysis also found that a hierarchical model showed good model fit, and in this Rasch analysis a multidimensional analysis of the hierarchical model of TSE was undertaken. Table 6.6.3 shows that results of the analysis displaying the estimates and indices of items to indicate the item performances. It is observed that the Infit MNSQ values of the 12 TSE items were within the acceptable ranges from 0.66 to 1.37. The values of the t-statistics of those items were also within the threshold values.

Table 6.6.3
Estimated item difficulties, Infit Mean Square Fit Indices, Item Delta, and Item Discrimination for TSE Items

Item	Estimate	Error	Infit			Item Delta	Item Discrimination
			MNSQ	CI	t		
SEENG1	0.49	0.31	1.37	(0.53, 1.47)	1.5	-1.38 2.37	0.69
SEENG2	-0.21	0.32	1.12	(0.32, 1.68)	0.5	-1.00 0.58	0.73
SEENG3	-0.43	0.33	0.89	(0.56, 1.44)	-0.4	-3.72 2.85	0.66
SEENG4	0.15*	0.55	0.98	(0.44, 1.56)	0	-3.74 4.04	0.65
SEINS1	0.39	0.32	1.26	(0.35, 1.65)	0.8	-3.62 4.41	0.70
SEINS2	-1.12	0.32	0.66	(0.47, 1.53)	-1.3	-5.29 3.06	0.65
SEINS3	1.30	0.33	1.01	(0.49, 1.51)	0.1	1.30	0.64
SEINS4	-0.58*	0.56	0.76	(0.51, 1.49)	-1	-3.61 2.45	0.78
SECLS1	0.67	0.32	0.91	(0.51, 1.49)	-0.3	-1.98 3.32	0.78
SECLS2	-0.81	0.34	0.77	(0.47, 1.53)	-0.8	-3.42 1.81	0.73
SECLS3	0.55	0.32	0.87	(0.52, 1.48)	-0.5	-1.96 3.08	0.79
SECLS4	-0.42*	0.56	0.81	(0.53, 1.47)	-0.8	-3.43 2.59	0.75

*Note. *constraint*

In terms of the item delta values, the initial analysis shows that the item delta values were not in order due to low responses in some categories. Therefore, the response categories of all items were combined to have item delta values in order. The response categories of 0 and 1 in most items were combined into one category resulting in the item delta values for the items in order.

For SEINS3, the response categories were collapsed by combining category 0 and 1 also 2 and 3 to have a single item delta value. For item discrimination values, all items had acceptable discrimination values ranging from 0.64 to 0.79. Regarding the item locations, item SEINS3 had the highest logit scale estimate (1.30) indicating the most difficult item to agree with, while item SEINS2 had the lowest logit scale measure of -1.12 and was the easiest item with which the teachers agreed. The final structure of TSE scale with 12 items was employed for subsequent analysis.

Mastery Approaches to Assessment (MAST) Scale

One-factor model of mastery approaches to assessment (MAST) scale was selected in this Rasch analysis based on previous analysis of CFA. As displayed in Table 6.6.4, the Infit MNSQ values of the seven MAST items were within the acceptable threshold. Even though the Infit MSNQ value for MAST1 was a little above from the cut-off value (1.60), the value was still considered acceptable for the measure. The values of the *t*-statistics of those items were also within the acceptable threshold values.

Table 6.6.4
Estimated item difficulties, Infit Mean Square Fit Indices, Item Delta, and Item Discrimination for MASS Items

Item	Estimate	Error	Infit			Item Delta	Item Discrimination
			MNSQ	CI	t		
MAST1	-0.52	0.22	1.60	(0.47, 1.53)	2.0	-1.67 -0.79 0.90	0.62
MAST2	-1.47	0.27	1.03	(0.46, 1.54)	0.2	-2.97 0.03	0.62
MAST3	1.93	0.27	1.09	(0.57, 1.43)	0.5	-0.06 3.93	0.62
MAST4	-0.05	0.26	0.76	(0.51, 1.49)	-1.0	-1.55 1.45	0.78
MAST5	1.96	0.30	0.86	(0.48, 1.52)	-0.5	1.96	0.69
MAST6	-0.73	0.27	0.97	(0.48, 1.52)	0.0	-2.38 0.92	0.68
MAST7	-1.12*	0.65	1.02	(0.47, 1.53)	0.2	-3.20 0.96	0.68

*Note. *constraint*

In addition, the values of item delta for all items were in order, and item discrimination values were acceptable ranging between 0.62 and 0.78. As it is observed, the response categories for items MAST2, MAST3, MAST4, MAST6, and MAST7 were put into three response categories

by combining 0 and 1 response categories into one category. Meanwhile, the response categories for item MAST5 were collapsed into two categories by combining the categories of 0 and 1 also 2 and 3. Regarding the item locations, item MAST5 had the highest logit scale estimate (1.96), indicating the most difficult item to endorse. In the meantime, item MAST2 had the lowest logit scale measure of -1.47 and for students was the easiest item to endorse. The final structure of the MAST scale with seven items was used for subsequent analysis.

Teachers' Approaches to Teaching (ATTE) Scale

A multidimensional item analysis was undertaken on the ATTE scale because the two-correlated model structure of the scale exhibited the best fitting model in the CFA analysis. Based on this analysis, the dimensions of conceptual change/student-focused approach (CCSF) and information transmission/teacher-focused approach (ITTF) were negatively correlated ($r = -0.30$). One item in CCSF (CCSF7) and two items in ITTF (ITTF10 and ITTF15) were excluded from the analysis due to having lower factor loadings in the CFA analysis. In the initial Rasch analysis, the results of item analysis showed two items (CCSF5 and CCSF8) had lower discrimination values than the cut-off value (0.20), and thus, the two items were deleted.

The results of multidimensional item analysis for ATTE are presented in Table 6.6.5. For seven items of the CCSF scale, the values of Infit MNSQ were within the acceptable threshold ranging from 0.57 to 1.83. One item (CCSF2) had a little higher Infit MNSQ value of 1.83, but it is still considered acceptable as it remains close to the upper threshold value of 1.40. The values of t-statistics and item discrimination were also acceptable, and the item deltas were also in order. Due to the low frequencies of responses, the response categories in some items were collapsed. The response categories for CCSF1, CCSF2, CCSF5, CCSF8 were collapsed into three categories by combining 0 and 1 response categories. The response categories for CCSF3, CCSF4, CCSF6 were also collapsed into two response categories by combining

response category 0 and 1 also 3 and 4. In terms of item location, item CCSF3 had a logit estimate value of 1.78 making it the most difficult item to endorse, while item CCSF2 exhibited a logit estimate value of -1.55 making it the easiest item to agree with.

The four items of ITTF scale exhibited acceptable Infit MNSQ values ranging from 0.96 to 1.15 and acceptable t-statistics values indicating that the data fit the Rasch model. The item deltas were also in order. The response categories of item ITTF3 were collapsed by combining 0 and 1 into the same response category to show the ordered item deltas for both items. From the item location perspective, item ITTF6 was deemed to be the hardest item to endorse (logit estimate = 0.60), and item ITTF3 was the easiest to endorse (logit estimate = -0.68).

Table 6.6.5
Estimated item difficulties, Infit Mean Square Fit Indices, Item Delta, and Item Discrimination for ATTE Items

Item	Estimate	Error	Infit			Item Delta	Item Discrimination
			MNSQ	CI	t		
CCSF1	-1.01	0.34	1.23	(0.38, 1.62)	0.8	-4.35 2.33	0.62
CCSF2	-1.55	0.34	1.83	(0.40, 1.60)	2.3	-4.31 1.20	0.57
CCSF3	1.77	0.35	1.03	(0.41, 1.59)	0.2	1.77	0.65
CCSF4	1.77	0.35	0.91	(0.41, 1.59)	-0.2	1.77	0.65
CCSF5	-0.37	0.33	1.06	(0.39, 1.61)	0.3	-3.32 2.59	0.59
CCSF6	0.28	0.37	0.57	(0.41, 1.59)	-1.6	0.28	0.67
CCSF8	-0.89*	0.85	1.18	(0.36, 1.64)	0.6	-4.37 2.60	0.55
ITTF1	-0.15	0.23	1.04	(0.34, 1.66)	0.2	-2.41 -1.12 3.99	0.32
ITTF3	-0.68	0.23	0.99	(0.58, 1.42)	0.0	-2.38 1.01	0.41
ITTF4	-0.07	0.23	1.15	(0.33, 1.67)	-0.5	-2.30 -1.39 3.47	0.28
ITTF6	0.60	0.41	0.96	(0.52, 1.48)	-0.1	-2.18 0.14 3.85	0.55

Note.*constraint; Correlation between CCSF and ITTF = -0.30

6.7   Item and Person Separation Reliability for Teacher-level Scales

The item and person separation reliability was examined to understand the internal consistency of scales in teacher-level factors. Item-separation reliability indices show endorsability of the items of the scales. High item-separation reliability index implies that the items in a scale range from more to less endorsability. Meanwhile, high person-separation reliability values indicate good internal consistency, and the scales are sensitive enough to differentiate between excellent and poor performers. There is no consensus on the threshold value to the reliability, but having

a higher value indicates higher reliability of the constructs. It is generally accepted that a reliability value above 0.70 indicates reasonable. Table 6.7.1 displays the item- and person-separation indices of teacher-level scales. It is observed that for item-separation reliability, all scales have item-separation reliability index higher than 0.70. Meanwhile, for person-separation reliability values, most of the scales have values greate than 0.70, except for SECLS having person-separation reliability of 0.68. This is predictable as only a small sample of teachers was involved in this study (n = 32). Besides, low reliability may indicate imprecision of measures, but Bond and Fox (2015) suggest that evidence to show the validity of the scales need to be examined. It is evident that the scales show good evidence of quality measure as presented in the previous section.

Table 6.7.1
Item- and Person-separation Reliability Indices of Teacher-level Scales

	Scale	Item-separation reliability	Person-separation reliability
Teachers' sense of preparedness (TPREP)	Teachers' sense of preparedness (TPREP)	0.90	0.85
Teacher knowledge (TKW)	Conten knowledge (CK)		0.71
	Pedagogical content knowledge (PCK)	0.89	0.86
	Technological pedagogical content knowledge (TPCK)		0.88
Teachers' self-efficacy (TSE)	Self-efficacy in engagement (SEENG)		0.69
	Self-efficacy in instruction (SEINS)	0.83	0.79
	Self-efficacy in classroom management (SECLS)		0.68
Mastery approaches to Assessment (MAST)	Mastery approaches to Assessment (MAST)	0.97	0.76
Teachers' approaches to teaching (ATTE)	Conceptual Change/Student-focused Approach (CCSF)	0.92	0.81
	Information Transmission/Teacher-focused Approach (ITTF)		0.70

6.8   Summary

This chapter discusses the results of verifying the scales at the teacher and student levels, including the English test for students, using the Rasch analysis. The results from scale

structures based on CFA analysis were verified in this chapter, particularly examining how the data fit the Rasch model. In this chapter, the analysis of items was conducted to assesss misfitting items on the scales. The examination was executed by checking the information provided in fit statistics, including Infit MNSQ, item difficulties, item deltas, and item discrimination. The scoring of the scales was obtained from WLE scores which are used in subsequent analysis. The following chapter details the demographic characteristics and descriptive information of the respondents.

CHAPTER 7

DEMOGRAPHIC AND DESCRIPTIVE INFORMATION

7.1 Introduction

This chapter presents the detailed relevant demographic and descriptive information regarding the responses of teachers and students, specifically 758 students and 32 teachers. The information concerning students includes their gender, age, parents' education, time spent on English homework, time dedicated to studying English, and participation in private English tutoring courses. As for the teachers, their gender, school stream, age, academic qualifications, years of teaching employment, and participation in professional development activities and formal training are described. Included in this chapter is a presentation of descriptive information obtained from a diverse set of scales; it encompasses various student-level scales, such as student perceived classroom assessment environment, learning environment, conceptions of English learning, achievement goal orientations, anxiety, attitude to learning English, approaches to studying, and reading and listening tests. Meanwhile the information from teachers' scales comprises their sense of preparedness, knowledge of what they do, self-efficacy, and approaches to assessment and teaching.

To analyse the data, IBM SPSS Software 28 generates a summary of the demographic and descriptive information. The distribution of this data is presented using frequency distribution, percentages, and graphs, as the data consists of categorical variables. When summarizing continuous data from the scales, the distribution of mean scores and standard deviations is presented.

7.2   Student Demographic Information

The participants were Year 12 students attending public general and vocational high schools in various cities in West Java, Indonesia. English has been taught as a mandatory subject to these students since Year 7 of their secondary education. In this section, demographic information regarding the students, which may shape their English proficiency and other attributes, is presented. This information includes characteristics such as gender, age, parents' education, duration of both English homework and English study, and participation in private English tutoring courses.

Gender, School Stream, Age, and Parental Education

Table 7.2.1 displays the distribution of gender, school stream, age, and parental education experienced by student respondents. In total there were 758 students, with 212 (28%) being female and 546 (72%) being male. The larger number of male students can be attributed to their dominance of enrolment in vocational high schools in Indonesia. Of these 758 students, 421 (55%) attended public high schools, while 337 (45%) were enrolled in vocational high schools in five major cities in West Java, Indonesia, specifically Bandung, Tasikmalaya, Bekasi, Sukabumi, and Cimahi. The mean age of the 758 students was 17.36 years (SD = 0.563).

In terms of mothers' education the majority held a Bachelor's degree (331, 43.7%), followed by high school certificates (181, 23.9%) and diplomas (119, 15.7%). Fewer mothers had completed a Master's degree (46, 6.1%) or PhD (81, 10.7%). Among the 758 students, 326 (43%) reported that their fathers had Bachelor's degrees, while 166 (21.9%) had completed high school. Fathers had also qualified with diplomas (87, 11.5%), Master's degrees (49, 6.5%), and doctoral degrees (130, 17.2%).

Table 7.2.1

Gender, school stream, age, and parental education distribution of student respondents (n=758)

	Frequency	Per Cent
Gender		
Female	212	28.0
Male	546	72.0
Total	758	100
School Stream		
General high school	421	55.5
Vocational high school	337	44.5
Total	758	100
Age		
15 years	1	0.1
16 years	24	3.2
17 years	443	58.4
18 years	284	37.5
19 years	6	0.8
Total	758	100
Mother's Education		
High school	181	23.9
Diploma	119	15.7
Bachelor's degree	331	43.7
Master's degree	46	6.1
Doctoral degree	81	10.7
Total	758	100
Father's Education		
High school	166	21.9
Diploma	87	11.5
Bachelor's degree	326	43.0
Master's degree	49	6.5
Doctoral degree	130	17.2
Total	758	100

Time Spent on English Homework, Studying English, and Private English Course

The student participants were surveyed regarding the time they spent doing English homework, studying English, and taking private English courses such as tutoring. The distribution of student reports on time spent on English homework is depicted in Figure 7.2.1. It is evident that a significant majority of participants (n=333, 43.9%) dedicated approximately 30 minutes to 1 hour on their English homework daily. Nearly half (n=367, 48.5%) reported spending more than one hour on their English homework, with 35.4% (n=268) investing 1 to 2 hours per day, and 13.1% (n=99) allocating more than 2 hours. The remaining groups of students allocated 30

minutes or less on homework (n=27, 3.6%), or doing no English homework at all (n=31, 4.1%) as part of their daily schedules.
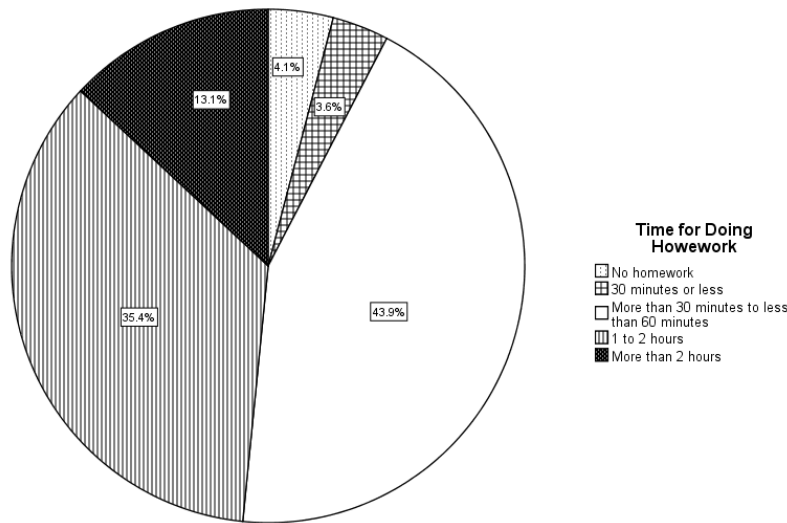
Figure 7.2.1 Time spent doing English homework (n=758)

Figure 7.2.2 illustrates the distribution of time allocated to studying English outside the classroom. It is notable that nearly half of the students (n=362, 47.7%) reported spending more than 30 minutes per day on learning English outside the classroom. Approximately 21.2% of students (n=161) dedicated 30 to 60 minutes to self-study, while 17.3% (n=131) spent 1 to 2 hours per day on studying English independently. Only 9.2% of the participants (n=70) invested more than 2 hours per day in studying English. Conversely, approximately 33% of participants (n=249) did not allocate any time to studying English outside the classroom. Only 19.4% of students (n=147) devoted 30 minutes or less per day to studying English.
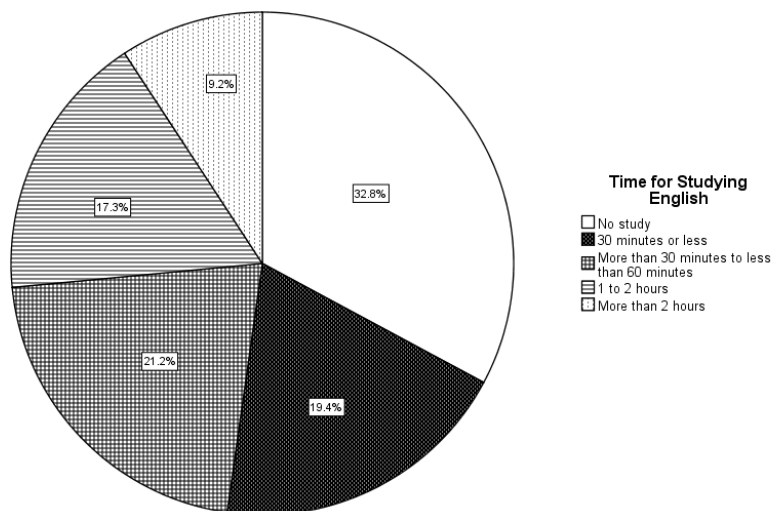
Figure 7.2.2 Time spent studying English (n=758)

The student participants were also asked to report the time they dedicated to taking private English courses or tutoring. In Indonesia, it is common for some school students, particularly those enrolled in Year 3, to do non-formal courses outside of school hours. These courses aim to prepare students for their final examinations with the assistance of private teachers. The activities in these courses typically involve reviewing school materials and practicing for exams in various subjects, including English. Some students choose to enrol in separate English courses to improve their English language skills. Figure 7.2.3 displays the time allocations for students participating in private English classes or tutoring courses as an additional activity to consolidate their English proficiency. It is observed that a significant majority of them (n=577, 76.1%) did not partake in private English courses, while less than a quarter (n=181, 23.9%) opted to join such courses.

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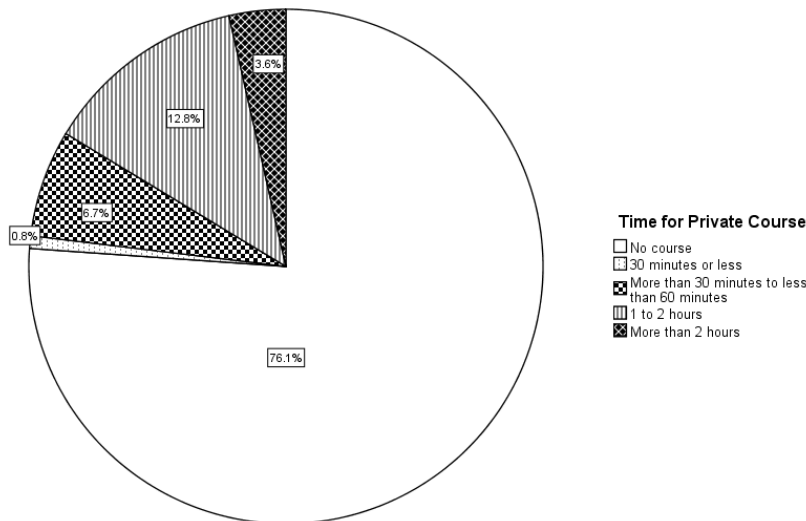
Figure 7.2.3 Time spent taking English private course (n=758)

7.3   Descriptive Analysis of Student-level Factors

The student level factors analysed, including perceptions of classroom assessment environment, learning environment, conceptions of learning, achievement goal orientations, classroom anxiety, attitude towards learning English, and approaches to learning, were examined in terms of data distribution and response variability. Raw scores of each variable were transformed into weighted likelihood estimate (WLE) scores through Rasch analysis. In this section, the means, standard deviations, skewness, and kurtosis values of the WLE scores are presented. Skewness and kurtosis values function to assess the normal distribution of the data, with an acceptable range of -2 to +2 for skewness and -7 to +7 for kurtosis. Additionally, error bars are provided to illustrate the data variability and the 95% confidence interval. Table 7.3.1 summarizes the means, standard deviations, skewness, and kurtosis values for each scale. Overall, the data exhibit a normal distribution, as indicated by the skewness and kurtosis values falling within the acceptable range.

Table 7.3.1
Values of Means, Standard Deviations, Skewness and Kurtosis for Student Factors (n = 758)

Scale	n	Mean	sd	Skewness	Kurtosis
Classroom assessment environment (PCAE)					
Learning-oriented environment (LOA)	758	1.31	1.58	0.63	0.33
Performance-oriented environment (POA)	758	-1.08	1.61	0.31	1.33

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English classroom learning environment (ECLE)					
Student cohesiveness (SCOH)	758	1.06	2.31	-0.15	-0.49
Teacher support (TSUP)	758	1.09	2.02	0.25	0.42
Investigation (INVE)	758	1.16	2.21	0.18	0.04
Participation (PART)	758	1.61	1.85	-0.07	0.05
Perceived task orientation (TAS)	758	3.06	2.18	-0.25	-0.30
Conceptions of learning (COLE)					
Memorizing (MEMO)	758	1.35	1.59	0.36	0.43
Testing (TEST)	758	0.71	1.56	0.01	0.32
Practicing (PRAC)	758	2.22	1.43	0.08	-0.22
Communication (COMM)	758	2.56	1.64	0.03	-0.72
Seeing in a new way (NWAY)	758	2.19	1.87	0.36	0.06
Achievement goals orientations (ORIEN)					
Task or mastery goal (TASK)	758	1.35	1.78	0.33	0.28
Performance or ability-approach (ABIL)	758	0.65	1.41	0.42	0.87
Performance or ability-avoidance (ABAV)	758	0.18	1.19	0.29	1.53
Anxiety towards English classroom (ANXI)	758	0.36	1.05	0.31	1.50
Attitude towards learning English (ATTI)	758	0.67	1.92	0.13	1.28
Approaches to learning English (ATLE)					
Deep approaches to learning (DEEP)	758	1.09	1.48	0.45	0.30
Achieving approaches to learning (ACHI)	758	1.03	1.46	0.29	0.94
Surface approaches to learning (SURF)	758	0.19	1.03	0.53	1.98

The variability of responses in each factor at the student level is depicted in Figure 7.3.1, represented by error bars showing the 95% confidence interval of the mean values. The figure illustrates the presence of variability in the responses provided by the students for each factor. However, the error bars are relatively small, meaning that there is only a minimal deviation from the mean and suggesting consistent responses across the factors.
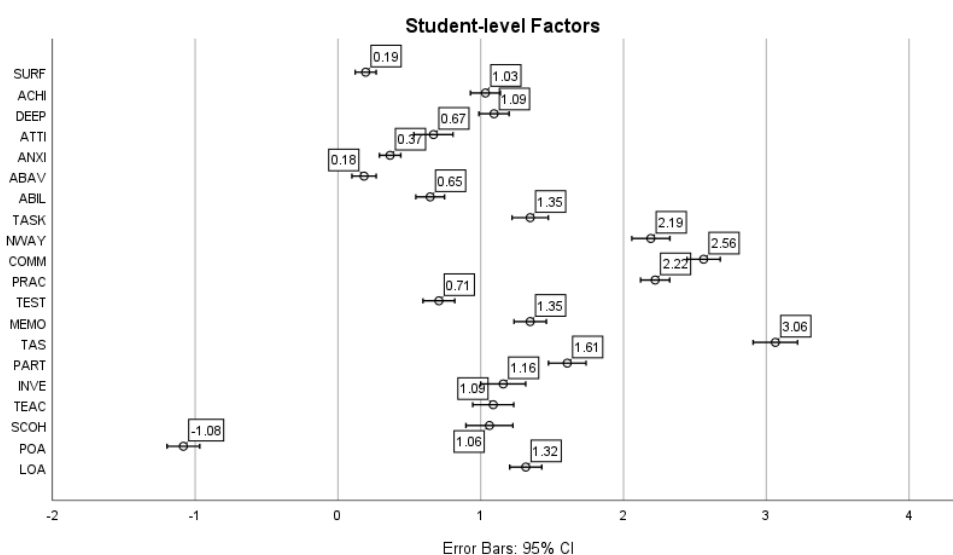
Figure 7.3.1 Error bars of student-level factors (n = 758)

Students' Perceptions of Classroom Assessment Environment (PCAE) Scale

It has been contended that each classroom possesses its own distinct characteristics, including assessment methods employed by English teachers. Teachers often utilize various assessment tasks with the goal of enhancing students' learning. According to Brookhart and DeVoge (1999), students' perceptions of assessment tasks and practices constitute the classroom assessment environment. Existing literature suggests that their perceptions of their assessment environment in English classrooms are closely linked to their motivation and learning success (Brookhart, 2007). Alkharusi (2011) established two categories for students' perceptions of the classroom assessment environment: firstly, learning-oriented classroom assessment environment (LOA); and secondly, performance-oriented classroom assessment environment (POA). A detailed discussion of these constructs is presented in Chapter 2. These constructs were adapted to assess how secondary students in West Java perceived their classroom environment when learning English. Four-point scales indicated the frequency of assessment tasks and practices employed in these classrooms, with 1 = Almost never, 2 = Sometimes, 3 = Often, and 4 = Almost always. This section presents the students' responses to statements regarding their classroom assessment environment in English classrooms.

The descriptive statistics of the variables in the PCAE scale are presented in Table 7.3.2. The data distribution of the variables is generally normal, as evidenced by the skewness and kurtosis values falling within the acceptable range. As discussed in Chapter 4, skewness and kurtosis values were utilized to assess the normality of variable distributions. A skewness value between -2 and +2, and a kurtosis value between -7 and +7 were considered indicative of normal data distribution.

Table 7.3.2
Means, Standard Deviations, Skewness, and Kurtosis of Variables in PCAE Scale

	n	Mean	sd	Skewness	Kurtosis
LOA1	758	2.98	0.77	-0.29	-0.51

LOA2	758	2.84	0.86	-0.30	-0.60
LOA3	758	3.25	0.66	-0.42	-0.29
LOA4	758	2.78	0.81	-0.30	-0.35
LOA5	758	3.16	0.69	-0.48	0.16
LOA6	758	2.88	0.77	-0.29	-0.31
LOA7	758	3.15	0.73	-0.63	0.29
POA1	758	2.48	0.79	0.17	-0.41
POA2	758	1.68	0.86	1.02	0.05
POA3	758	1.97	0.92	0.59	-0.58
POA4	758	2.13	0.86	0.31	-0.65
POA5	758	1.98	0.82	0.56	-0.15
POA6	758	1.68	0.82	1.00	0.20
POA7	758	2.09	0.89	0.39	-0.67

The error bar chart in Figure 7.3.2 exhibits the responses provided by students regarding their perceptions of the assessment environment in English classrooms, along with a 95% confidence interval. The small variability of responses, as shown by the proximity of the error bars to the mean, strongly suggests a high level of consistency among students' perceptions. In general, they consistently reported that their English classroom assessment environment places greater emphasis on learning rather than outcome, such as grades and peer comparisons. Most students reported that the tasks and assignments that encouraged thinking were often given by English teachers in their classrooms (LOA3). As well, students reported that they were often given opportunities to correct their mistakes when learning English (LOA5).
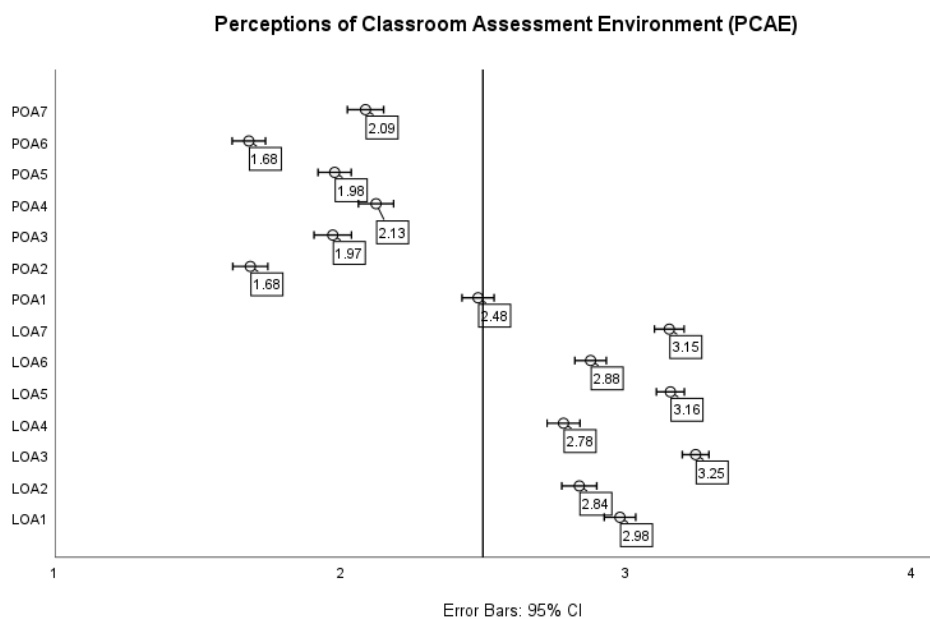
Figure 7.3.2 Students reported their perceptions of classroom assessment environment (n=758)

Students' Perceptions of English Classroom Learning Environment (ECLE) Scale

In addition to the assessment environment, studies on the classroom learning environment revealed a significant connection with motivational, cognitive, and affective outcomes (Fraser, 1998). Wei and Elias (2011) conducted a study which detected a positive relationship between a positive classroom learning environment and increased motivation to learn English as a foreign language (EFL). Similarly, Goksu (2015) discovered that high school students perceived a positive learning environment when studying the English language. In this study, the classroom learning environment encompassed students' perceptions of cohesiveness among themselves (SCOH), teacher support (TSUP), investigation (INVE), participation (PART), and task orientation (TAS). The descriptive statistics of the variables in the ECLE scale are presented in Table 7.3.3. The skewness and kurtosis values fall within an acceptable range, indicating that the data follows a normal distribution.

Table 7.3.3
Means, Standard Deviations, Skewness, and Kurtosis of Variables in ECLE Scale

	n	Mean	sd	Skewness	Kurtosis
SCOH1	758	2.77	0.99	-0.36	-0.89
SCOH2	758	2.81	0.94	-0.40	-0.71
SCOH3	758	3.13	0.83	-0.82	0.26
TSUP1	758	3.00	0.81	-0.37	-0.54
TSUP2	758	3.24	0.73	-0.76	0.34
TSUP3	758	2.73	0.84	-0.17	-0.60
TSUP4	758	3.17	0.77	-0.67	-0.02
TSUP5	758	2.72	0.85	-0.15	-0.64
TSUP6	758	2.52	0.84	-0.02	-0.58
TSUP7	758	2.59	0.86	-0.10	-0.62
TSUP8	758	2.92	0.77	-0.35	-0.23
INVE2	758	2.69	0.80	-0.22	-0.37
INVE3	758	2.86	0.75	-0.27	-0.22
INVE4	758	2.97	0.70	-0.33	0.01
INVE5	758	2.88	0.73	-0.33	-0.03
PART3	758	2.82	0.82	-0.33	-0.38
PART4	758	3.21	0.71	-0.49	-0.39
PART5	758	3.15	0.76	-0.54	-0.29
PTAS1	758	3.32	0.64	-0.60	0.23
PTAS2	758	3.43	0.63	-0.74	-0.01
PTAS3	758	3.33	0.63	-0.49	-0.20
PTAS4	758	3.29	0.66	-0.51	-0.24
PTAS5	758	3.15	0.73	-0.40	-0.51
PTAS6	758	3.54	0.58	-0.86	-0.25

Perceptions of English Classroom Learning Environment (ECLE)
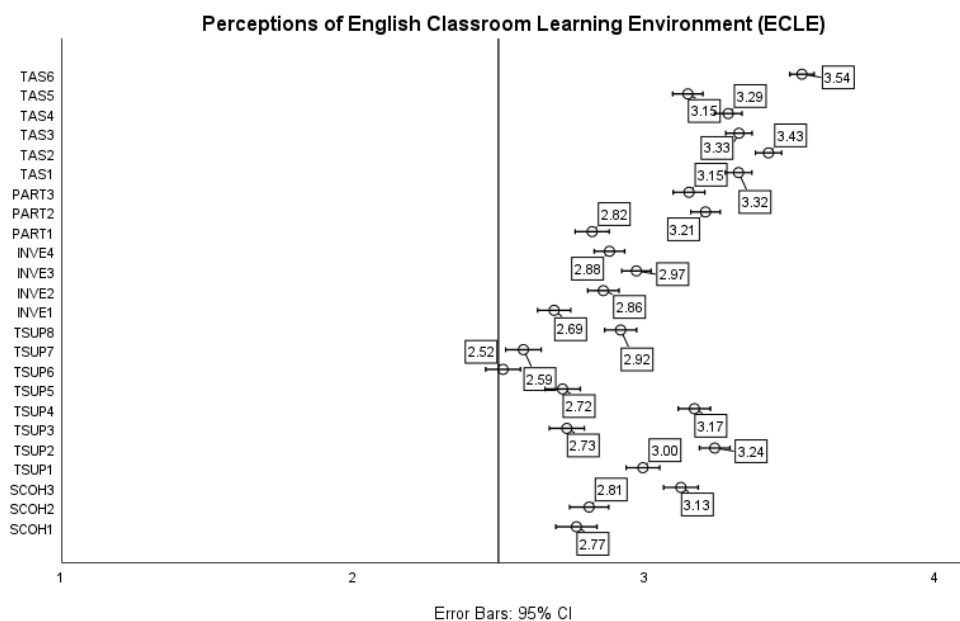
Figure 7.3.3 Students reported their perceptions of classroom learning environment (n=758)

The results of the descriptive analysis are displayed in the error bar chart depicted in Figure 7.3.3. The response variability for each statement is closely aligned with the mean, suggesting consistency in the responses. Overall, students consistently reported there is a positive learning environment in their English classrooms. Students expressed their agreement regarding the importance of task orientation, confirming their desire to concentrate on the subject matter and successfully complete activities as instructed by their teachers. Additionally, students reported that their teachers are supportive and display genuine interest in their learning. They also noted that the learning environment in English classrooms encourages investigation and active participation.

Students' Conceptions of Learning English (COLE) Scale

The definition of learning can vary depending on the learning environment and the specific subject or context. Research has demonstrated that students' conceptions of learning are associated with their behaviours, approaches to learning, and academic achievement (Dart et

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al., 2000; Purdie & Hattie, 2002). In the context of learning English, students hold different beliefs about learning, and these assumptions are connected to their use of strategies, particularly higher-level conceptions such as understanding and seeing things in a new way (Zheng et al., 2016). In this study, students' beliefs about learning English were assessed across five dimensions: memorizing (MEMO), testing (TEST), practicing (PRAC), communicating (COMM), and seeing things in a new way (NWAY), adapted from scales use in other research (Y. H. Lin et al., 2012; Zheng et al., 2016). Students rated their agreement with these conceptions using a 4-point Likert scale, ranging from 1 = strongly disagree to 4 = strongly agree. Descriptive statistics analysis of the items, as presented in Table 7.3.4, shows that the data follows a normal distribution, the evidence for this being the skewness and kurtosis values falling within an acceptable range.

Table 7.3.4
Means, Standard Deviations, Skewness, and Kurtosis of Variables in COLE Scale

	n	Mean	sd	Skewness	Kurtosis
MEMO1	758	2.95	0.72	-0.20	-0.36
MEMO2	758	2.91	0.70	-0.19	-0.21
MEMO3	758	3.10	0.70	-0.33	-0.26
MEMO4	758	3.00	0.64	-0.27	0.29
MEMO5	758	2.89	0.73	-0.23	-0.24
TEST3	758	2.77	0.81	-0.23	-0.44
TEST4	758	2.80	0.85	-0.29	-0.55
TEST5	758	2.91	0.83	-0.46	-0.30
PRAC1	758	3.46	0.63	-0.84	0.31
PRAC2	758	3.18	0.70	-0.48	-0.12
PRAC3	758	3.28	0.61	-0.35	-0.08
PRAC4	758	3.43	0.63	-0.75	0.01
COMM1	758	3.61	0.57	-1.23	0.97
COMM2	758	3.32	0.67	-0.64	0.01
COMM3	758	3.38	0.63	-0.64	0.09
COMM4	758	3.42	0.62	-0.72	0.40
COMM5	758	3.31	0.69	-0.71	0.20
NWAY1	758	3.50	0.59	-0.83	0.12
NWAY2	758	3.31	0.62	-0.44	0.07
NWAY3	758	3.27	0.71	-0.58	-0.36
NWAY4	758	3.41	0.62	-0.62	-0.21
NWAY5	758	2.95	0.77	-0.27	-0.48
NWAY6	758	2.87	0.78	-0.22	-0.49
NWAY7	758	3.15	0.68	-0.34	-0.31
NWAY8	758	2.72	0.81	-0.09	-0.56

The students' responses regarding their conceptions of learning English are presented in the error bar chart with a 95% confidence interval, as illustrated in Figure 7.3.4. Responses exhibited a minimal degree of variability, with the data points closely clustered around the mean. This indicates a high level of consistency among the students' responses. Overall, they embraced multiple conceptions of learning and expressed agreement with the conceptions that view learning English as a process involving practice, communication, and gaining new perspectives. The students believe that learning English is primarily about understanding cultural differences and real-life experiences in other countries, rather than solely emphasizing memorization and test preparation. Additionally, the students perceive learning the English language as an opportunity to acquire communication skills and utilize them to enhance their overall performance.
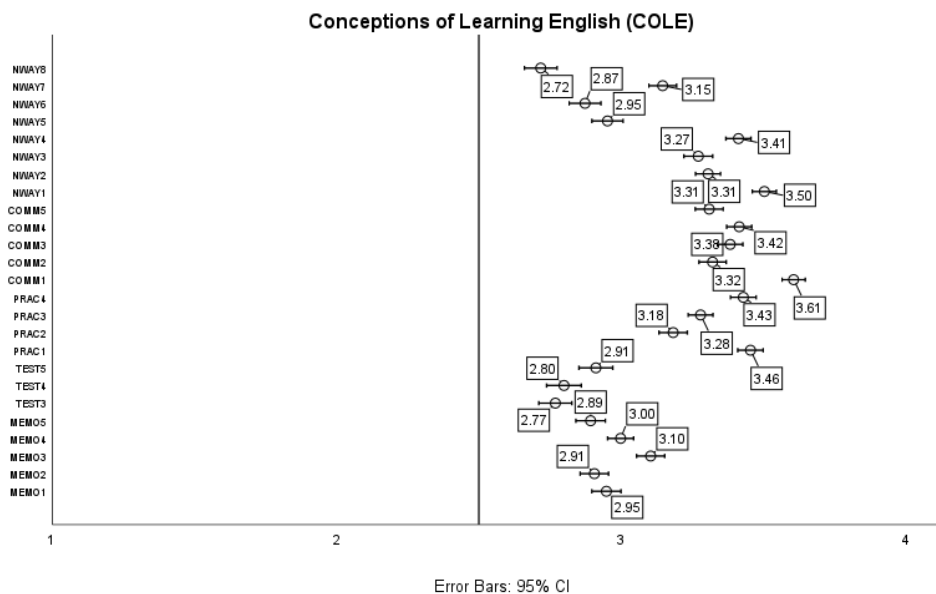
Figure 7.3.4 Students reported their conceptions of learning English (n=758)

Motivational Variables: Students' Achievement Goals Orientations (ORIEN), English Classroom Anxiety (ANXI), and Attitude towards Learning English (ATTI)

Previous research has demonstrated the influence of students' learning and assessment environment on various motivational factors (Brookhart, 1997; Gan et al., 2019). This study examined three motivational variables: achievement goal orientations, classroom anxiety, and attitude towards English learning. Achievement goal orientation is a widely studied motivational construct referring to individuals' orientations toward achieving success or competence in academic institutions (Pekrun et al., 2009). Three types of achievement goal orientations were considered: mastery goals, performance goals, and performance avoidance goals. Students with a mastery goal orientation believe that knowledge and skills can be acquired through learning, and they are intrinsically motivated to deeply understand concepts and pursue personal growth. Conversely, students preferring the performance approach goal orientation focus on learning to demonstrate their ability and are extrinsically motivated to do better than others and achieve higher grades. Students with a performance-avoidance goal orientation strive to avoid failure and engage in behaviours that protect their self-image. In this study, the scales used to measure achievement goal orientations were adapted from Midgley et al. (1998) and included task or mastery goal orientation (TASK), performance or ability-approach goal orientation (ABIL), and performance or ability-avoidance goal orientation (ABAV).

Results of the descriptive analysis for the ORIEN scale are tabulated in Table 7.3.5. Skewness and kurtosis values served to assess the data's normal distribution. Since the values fall within the acceptable range, it can be inferred that the variables in the ORIEN scale are normally distributed.

Table 7.3.5
Means, Standard Deviations, Skewness, and Kurtosis of Variables in ORIEN Scale

	n	Mean	sd	Skewness	Kurtosis
TASK1	758	3.04	0.74	-0.43	-0.12
TASK2	758	2.91	0.73	-0.25	-0.24
TASK3	758	2.63	0.81	-0.06	-0.51
TASK4	758	3.39	0.64	-0.70	0.04

TASK5	758	2.91	0.77	-0.28	-0.36
TASK6	758	2.79	0.75	-0.01	-0.58
ABIL1	758	3.14	0.86	-0.71	-0.31
ABIL2	758	2.40	0.96	0.17	-0.91
ABIL3	758	3.32	0.75	-0.88	0.22
ABIL4	758	2.96	0.87	-0.45	-0.54
ABIL5	758	2.26	0.94	0.34	-0.74
ABIL6	758	2.66	0.86	-0.07	-0.69
ABAV1	758	3.16	0.84	-0.81	0.10
ABAV2	758	2.82	0.88	-0.34	-0.61
ABAV3	758	2.58	0.97	-0.08	-0.79
ABAV4	758	2.58	0.91	-0.06	-0.80
ABAV5	758	1.95	0.84	0.65	-0.13
ABAV6	758	2.52	0.92	-0.02	-0.79

The students' responses on the scale are displayed in Figure 7.3.5. It is worth noting here that the responses exhibit a small variability, clustering around the mean, indicating consistency in the students' perspectives. Overall, students predominantly endorsed their agreement with mastery or task orientation and performance-approach goal orientations. This signifies that students are intrinsically motivated to learn new things and improve their English skills. Additionally, students are also motivated to learn English with the aim of surpassing their peers and achieving higher proficiency.
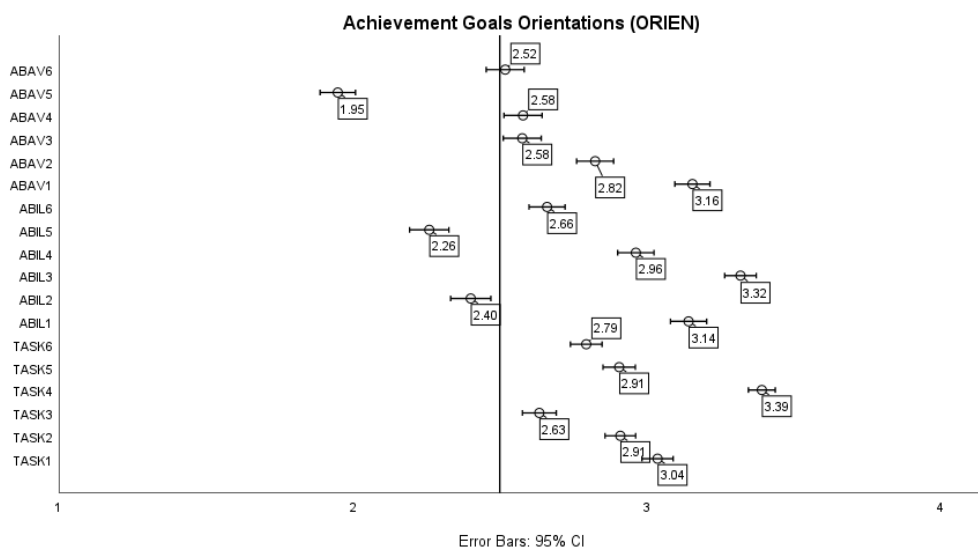
Figure 7.3.5 Students reported their achievement goals orientations (n=758)

The ANXI scale, adapted from L2 classroom anxiety items (Gan et al., 2019), was deployed to measure students' anxiety in the English classroom. The descriptive analysis of the variables in the ANXI scale, presented in Table 7.3.6, demonstrated that the data is normally distributed. The evidence for this is that the skewness and kurtosis values fall within an acceptable range.

Table 7.3.6
Means, Standard Deviations, Skewness, and Kurtosis of Variables in ANXI Scale

	n	Mean	sd	Skewness	Kurtosis
ANXI1	758	2.99	0.82	-0.41	-0.48
ANXI2	758	2.44	0.98	0.09	-1.00
ANXI4	758	1.95	0.90	0.67	-0.30
ANXI5	758	2.77	0.83	-0.28	-0.45

The error bar displayed in Figure 7.3.6 reveals a minimal variability in the responses, with the values clustered near the mean, indicating a high level of consistency in the students' answers. Overall, students demonstrated feelings of anxiety when learning English in the classroom. They expressed greater concern regarding making mistakes especially during interactions that involve conversing in English. Students also felt apprehensive about being ridiculed by their peers when attempting to practice their English skills. However, despite these concerns about making mistakes and potential ridicule, students exhibited less worry about their overall ability to communicate better in English.
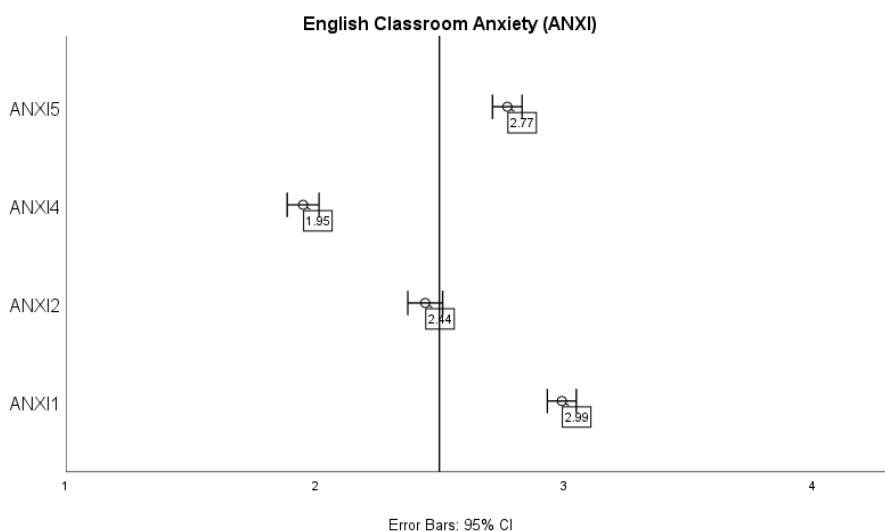
Figure 7.3.6 Students reported their anxiety towards learning English (n=758)

The items in the attitude (ATTI) scale were adapted from the student motivational state scale (Guilloteaux & Dornyei, 2008), in order to measure students' attitudes to learning English in the classroom. The normal distribution analysis revealed that the data in the ATTI variables followed a normal distribution, as evidenced by the skewness and kurtosis values falling within the acceptable range as shown in Table 7.3.7.

Table 7.3.7
Means, Standard Deviations, Skewness, and Kurtosis of Variables in ATTI Scale

	n	Mean	sd	Skewness	Kurtosis
ATTI1	758	2.54	0.86	0.03	-0.66
ATTI2	758	2.99	0.70	-0.33	-0.03
ATTI3	758	2.62	0.82	0.04	-0.61
ATTI4	758	2.46	0.79	0.34	-0.36
ATTI6	758	2.87	0.77	-0.32	-0.24

The error bar chart in Figure 7.3.7 presents the variability of the responses with a 95% confidence interval. These responses are closely clustered around the mean, indicating that students gave consistent responses regarding the ATTI variables. Overall, students revealed a positive attitude to learning English. The majority of them expressed interest in learning English and a desire to learn more. They also recognized the usefulness of what they were learning in their English classroom for their future endeavours.
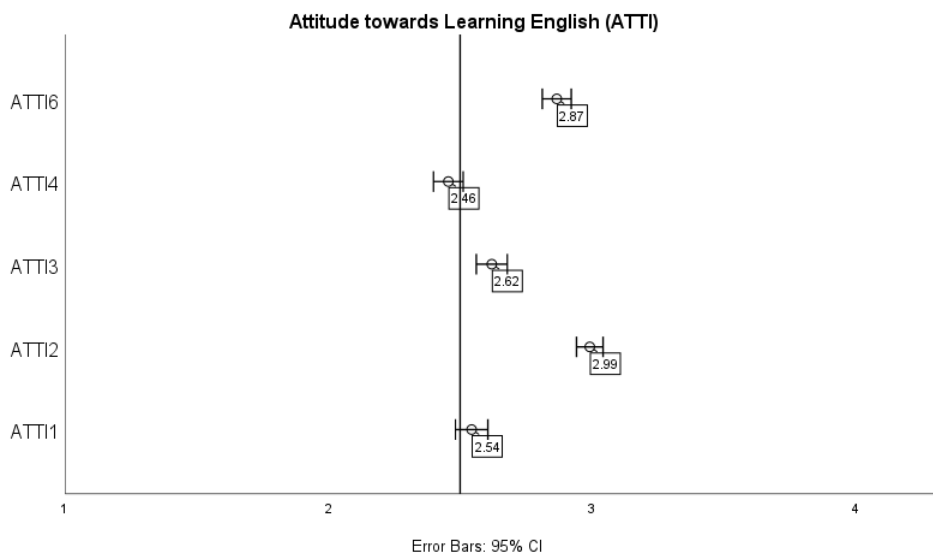
Figure 7.3.7 Students reported their attitude towards learning English (n=758)

Students' Approaches to Learning (ATLE) Scale

The items on the ATLE scale were adapted from Biggs' learning process questionnaire (LPQ). The items measure three dimensions of learning motives and strategies: deep, achieving, and surface approaches. Based on the results of descriptive statistics as summarized in Table 7.3.8, the data was normally distributed as indicated by the acceptable range of skewness and kurtosis values.

Table 7.3.8
Means, Standard Deviations, Skewness, and Kurtosis of Variables in ATLE Scale

	n	Mean	sd	Skewness	Kurtosis
DEEM1	758	2.81	0.75	-0.25	-0.19
DEEM2	758	3.37	0.65	-0.69	0.09
DEEM3	758	3.00	0.72	-0.24	-0.41
DEES1	758	3.11	0.72	-0.46	-0.07
DEES2	758	2.82	0.78	-0.20	-0.45
DEES3	758	2.93	0.75	-0.30	-0.26
DEES4	758	2.86	0.75	-0.07	-0.61
ACHM1	758	3.06	0.81	-0.55	-0.29
ACHM2	758	3.58	0.58	-1.10	0.65
ACHM3	758	2.56	1.02	-0.06	-1.12
ACHM4	758	3.02	0.91	-0.68	-0.36
ACHM5	758	3.08	0.85	-0.74	0.03
ACHS1	758	3.01	0.76	-0.28	-0.54
ACHS2	758	2.96	0.77	-0.33	-0.36
ACHS3	758	2.86	0.79	-0.28	-0.38
ACHS4	758	2.50	0.79	0.17	-0.43
ACHS5	758	3.17	0.71	-0.50	-0.10

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ACHS6	758	2.90	0.78	-0.27	-0.41
SURS1	758	2.67	0.86	-0.23	-0.56
SURS3	758	2.21	0.96	0.34	-0.85
SURS4	758	2.76	0.86	-0.23	-0.59
SURS5	758	2.48	0.90	0.07	-0.75

The three dimensions of approaches to learning were examined to assess students' utilization of deep, achieving, and surface approaches in learning the English language. The error bar chart in Figure 7.3.8, displays a 95% confidence interval, meaning that the responses are closely clustered around the mean, reflecting consistent responses were made by students. Overall, they tended to embrace deep and achieving approaches to learning more frequently than surface approaches. In terms of motives, students demonstrated a strong desire to excel in learning English and in fact, going beyond what the curriculum and textbooks required. Regarding strategies, students employed an achievement-based strategy by actively reviewing feedback provided by teachers and learning from their mistakes. They also established connections between what they learned and the practical use of English in real-world contexts.

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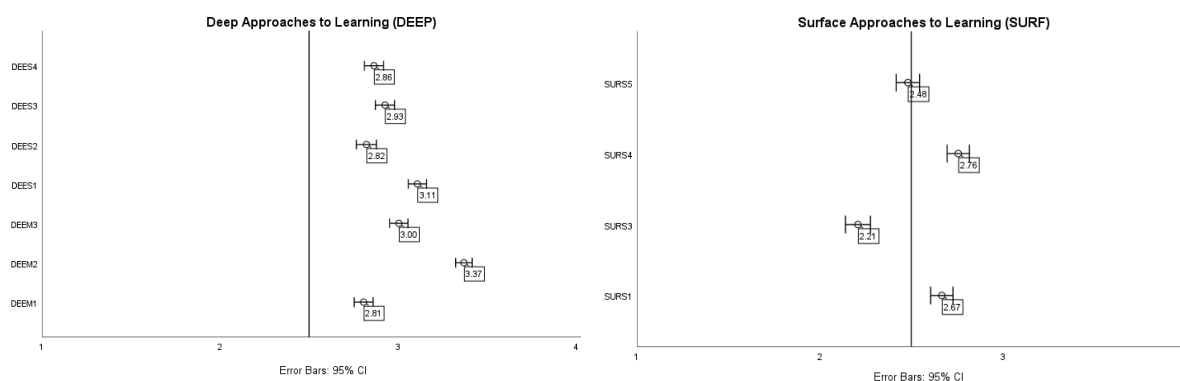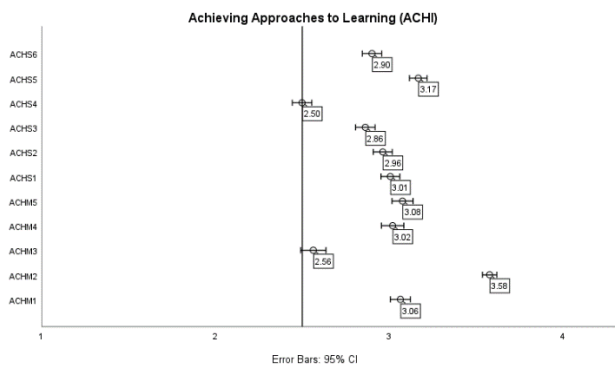
Figure 7.3.8 Students reported their approaches to learning English (n=758)

7.4   Teacher Demographic Information

The teachers recruited to this study taught English to third-year senior high school students in both vocational and public schools in West Java. Some of their characteristics seem to be related to their teaching and learning practices which then influence their students' English language achievement. This section discusses teachers' characteristics, namely gender, age, academic qualifications, years of teaching experience, and professional development activities.

Gender, School Stream, and Age

The distribution of gender, school stream, and age among teacher respondents is presented in Table 7.4.1. Based on the data, it is evident that there are more female teachers (71.9%) than male ones (28.1%). This distribution aligns with what is generally the case in Indonesia, where there are in fact more female than male teachers, particularly in subjects related to social sciences and humanities, including English. Regarding the distribution of school stream, it is relatively equal, with 56% of teachers employed in vocational high schools and 43.8% working in high schools. This suggests there is a fairly balanced representation of English teachers across these two types of schools. In terms of age the majority of teachers (37%) fall within the 40-45 years range. The next significant age group is the 35-39 years cohort (21.9%), followed by those under 35 years of age (15.6%). The numbers of teachers aged 46-50 years old and 51-

55 years old are similar (9.4% each), while there are two teachers who are above the age of 55.

These observations provide insights into the demographics of English teachers in this research,

highlighting the dominance of female teachers, a relatively equal distribution across school

streams, and the age distribution.

Table 7.4.1
Gender, school stream, and age distribution of teacher respondents (n=32)

	Frequency	Percentage
Gender		
Female	23	71.9
Male	9	28.1
Total	32	100
School Stream		
High school	14	43.8
Vocational high school	18	56.2
Total	32	100
Age		
Under 35 years	5	15.6
35-39 years	7	21.9
40-45 years	12	37.5
46-50 years	3	9.4
51-55 years	3	9.4
Above 55 years	2	6.3
Total	32	100

Academic Qualifications and Years of Teaching Experience

Table 7.4.2 shows that distribution of academic qualifications and teaching experience

distribution for the study sample. Most teachers (n=22, 68.8%) hold a bachelor's degree while

the rest (n=10, 31.2%) hold a Master's degree in English education. In terms of teaching

experience, most have worked for between 10 and 20 years (n=20, 62.6%).

Table 7.4.2
Academic qualifications and years of teaching experience distribution of teacher respondents
(n=32)

	Frequency	Percentage
Academic Qualifications		
Bachelor's degree	22	68.8
Master's degree	10	31.2
Total	32	100
Years of Teaching Experience		
Under 10 years	3	9.4
10-15 years	10	31.3
16-20 years	10	31.3

21-25 years	4	12.5
26-30 years	3	9.4
Above 30 years	2	6.3
Total	32	100

Professional Development Activities and Formal Training

Teachers in this study reported some professional development activities to consolidate their professional tasks as shown in Figure 7.4.1 The majority of teachers (n=29, 90.6%) have participated in face-to-face or online seminars conducted by English teacher associations or other institutions/agencies. Other teachers take part in peer observation exercises (n=17, 53.1%) in their schools as a part of peer learning. Peer observation is quite common in some schools in Indonesia to promote teacher learning from others and improve motivation and confidence. In addition, English teacher forums have served as a means for teachers to share experiences and develop their professional expertise. It is reported that the majority of teachers (n=25, 78%) have been part of this forum to enhance their ability to teach English. Only a small number of teachers (n=5, 15%) participated in professional education, such as a two-semester program held by institutions for pre-service and in-service teachers to get teacher certification. This was done to add to one's bachelor's degree in education and non-education programs.
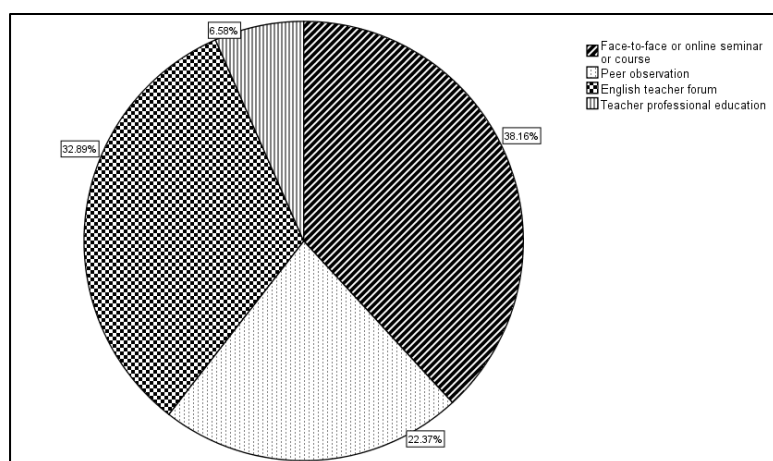
Figure 7.4.1 Teacher participation in professional development activities (n=32)

Teachers reported their participation in formal training, including conferences or workshops and other formal training held by departments of education, universities, or other institutions. As shown in Figure 7.4.2, it is reported that most teachers (n=21, 65.5%) have participated in conferences or workshops. Around 12.5% (n=4) of them reported their involvement in teacher training that lasted for less than one year. Conferences or workshops are quite popular for English teachers in Indonesia, and they are provided by English teacher associations and English departments in universities.
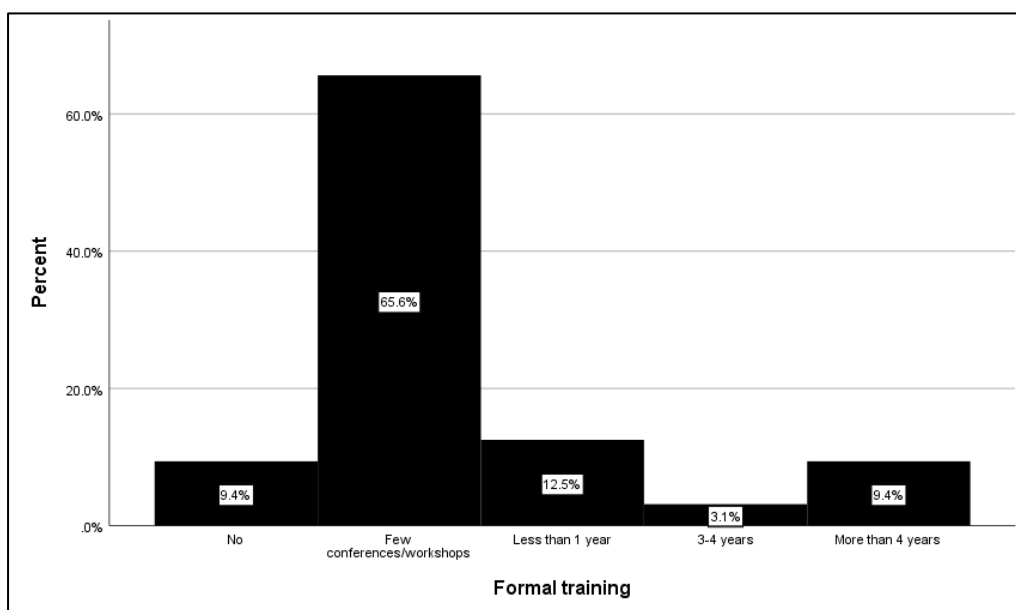
Figure 7.4.2 Teachers' participation in formal training (n=32)

7.5   Descriptive Analysis of Teacher-level Factors

In addition to teacher demographic information, their attributes are measured and presented. Teacher-level attributes include sense of preparedness, knowledge, self-efficacy, mastery of approach to assessment, and approaches to teaching. The raw scores of each variable are transformed into weighted likelihood estimate (WLE) scores as the results of Rasch analysis, and therefore, in this section the values of the means, standard deviations, skewness and kurtosis of the WLE scores are presented. The values of skewness and kurtosis indicate the normal distribution of the data, and the acceptable range of the skewness and kurtosis is a value

between -2 to +2 for skewness and between -7 to +7 for kurtosis. Error bars are also presented to show the variability of the data and the 95% confidence interval. Table 7.5.1 summarizes the means, standard deviations, skewness, and kurtosis values of each scale. In general, the data are normally distributed indicated by the values of skewness and kurtosis which are within the acceptable range.

Table 7.5.1

Values of Means, Standard Deviations, Skewness and Kurtosis for Teacher Factors (n = 32)

Scale	n	Mean	sd	Skewness	Kurtosis
Teachers' sense of preparedness (TPREP)	32	1.16	2.91	-0.72	0.22
Teacher knowledge (TKW)					
Content knowledge (CK)	32	0.90	2.23	-0.14	-0.76
Pedagogical content knowledge (PCK)	32	1.29	2.73	-0.98	1.42
Technological Pedagogical content knowledge (TPCK)	32	0.25	4.01	0.12	-1.03
Teacher self-efficacy (TSE)					
Self-efficacy in student engagement (SEENG)	32	2.15	2.37	-0.81	1.73
Self-efficacy in instruction (SEINS)	32	1.06	3.28	-0.79	0.18
Self-efficacy in classroom management (SECLS)	32	2.60	2.47	-1.11	1.59
Approaches to assessment					
Mastery approach (MAST)	32	0.92	1.81	0.80	0.05
Approaches to teaching (ATTE)					
Conceptual change/student-focus (CCFS)	32	1.61	2.67	-0.57	-0.74
Information transmission/teacher-focus (ITTF)	32	0.48	1.85	-0.33	0.89

Figure 7.5.1 displays the variability of responses in each factor at the teacher level indicated by the error bars with 95% confidence interval of the mean values. As observed, there was some variability in the responses of the teachers in each factor. Error bars are large, indicating a large variability in the responses from the mean which means that the responses are less consistent. This case could be due to the small number of teacher participants in this study.

Teacher-level Factors
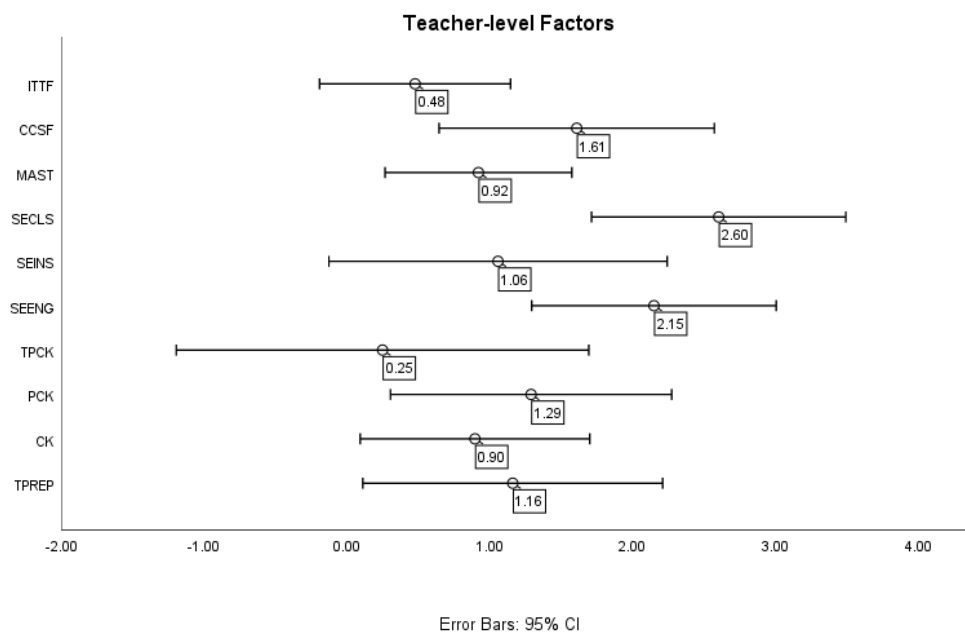
Figure 7.5.1 Error bars of teacher-level factors (n = 32)

Teacher Sense of Preparedness (TPREP)

Teacher preparedness appears to reflect the impact of their previous education, training, and experience, which are linked in such a way to influence quality teaching practices in their classrooms (Faez & Valeo, 2012). In this study, the TPREP scale consisted of six items in which teachers rated their sense of preparedness of conducting tasks in English classes. Results from descriptive analysis as shown in Table 7.5.2 illustrated that the TPREP variables were normally distributed as shown by an acceptable range of skewness and kurtosis values.

Table 7.5.2
Values of Means, Standard Deviations, Skewness and Kurtosis for Variables in TPREP (n = 32)

	n	Mean	sd	Skewness	Kurtosis
TPREP1	32	3.44	0.56	-0.31	-0.86
TPREP2	32	3.19	0.69	-0.27	-0.80
TPREP3	32	3.13	0.61	-0.06	-0.15
TPREP4	32	3.16	0.68	-0.20	-0.70
TPREP5	32	3.34	0.65	-0.49	-0.60
TPREP6	32	3.44	0.50	0.26	-2.06

As displayed in Figure 7.5.2, there exists the variability of teacher responses to each variable of TPREP indicated by the widespread error bars. With regard to teacher responses on

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agreement to the variables, teachers reported they were well-prepared in teaching English, particularly in managing the classroom and teaching English in general. Teachers expressed their preparedness in teaching content, monitoring students' learning, and using ICT. They felt that they were well-prepared in assessing students in English classrooms.
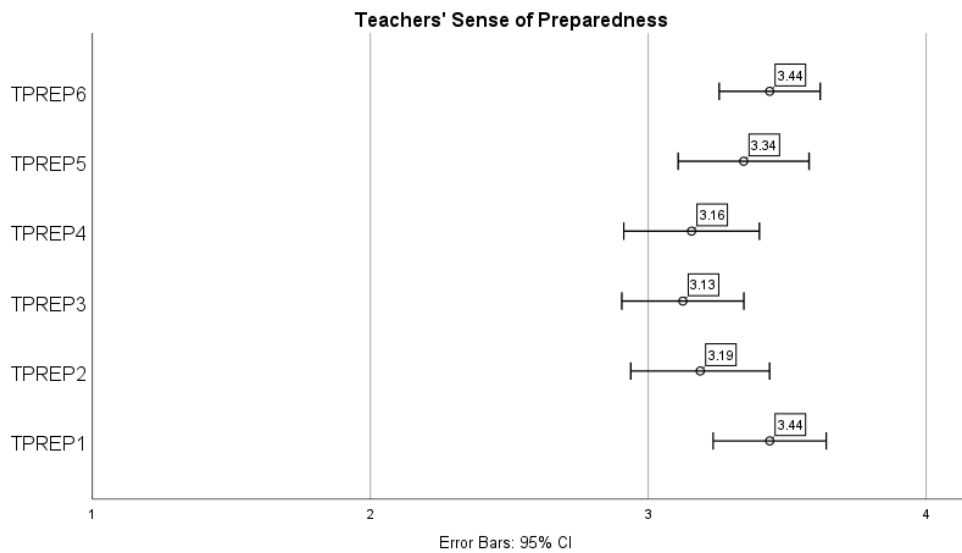
Figure 7.5.2 Teachers' sense of preparedness (n=32)

Teacher Knowledge (TKW) Scale

Teacher knowledge consists of teacher content knowledge, pedagogical content knowledge, and technological pedagogical content knowledge. Descriptive statistics of each variable in TKW scale are presented in Table 7.5.3, showing that the data is normally distributed as revealed by the acceptable value range in skewness and kurtosis.

Table 7.5.3
Values of Means, Standard Deviations, Skewness and Kurtosis for Variables in TKW (n = 32)

	n	Mean	sd	Skewness	Kurtosis
CK1	32	3.59	0.56	-0.98	0.01
CK2	32	3.03	0.54	0.03	0.86
CK3	32	3.28	0.58	-0.10	-0.41
CK4	32	2.81	0.59	-0.94	1.92
PCK1	32	3.00	0.62	0.00	-0.18
PCK2	32	3.22	0.55	0.09	-0.03
PCK5	32	3.34	0.65	-0.49	-0.60
PCK6	32	3.16	0.68	-0.20	-0.70
PCK7	32	3.25	0.62	-0.21	-0.47

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PCK8	32	3.34	0.60	-0.30	-0.57
PCK9	32	3.31	0.64	-0.39	-0.60
TPCK1	32	2.84	0.63	0.12	-0.36
TPCK2	32	3.09	0.73	-0.15	-1.06
TPCK3	32	3.09	0.78	-0.17	-1.23
TPCK5	32	3.06	0.72	-0.09	-0.94
TPCK6	32	3.09	0.73	-0.15	-1.02

As shown in Figure 7.5.3, it is found that the responses differed in the variables as shown by the error bars. It is predictable because of the small number of teacher participants. Despite the wide spread of responses from the mean scores, it is reported that they had a good level of knowledge in terms of content, pedagogical content, and use of technology when teaching. In terms of content knowledge, teachers reported good knowledge of English grammar and sentence structures, including understanding oral and written expressions. Related to pedagogical content knowledge, teachers reported good knowledge in applying strategies to motivate students to learn English and preparing activities to improve their English skills. Teachers stated that they had adequate knowledge on how to facilitate learning and access resources using technologies.
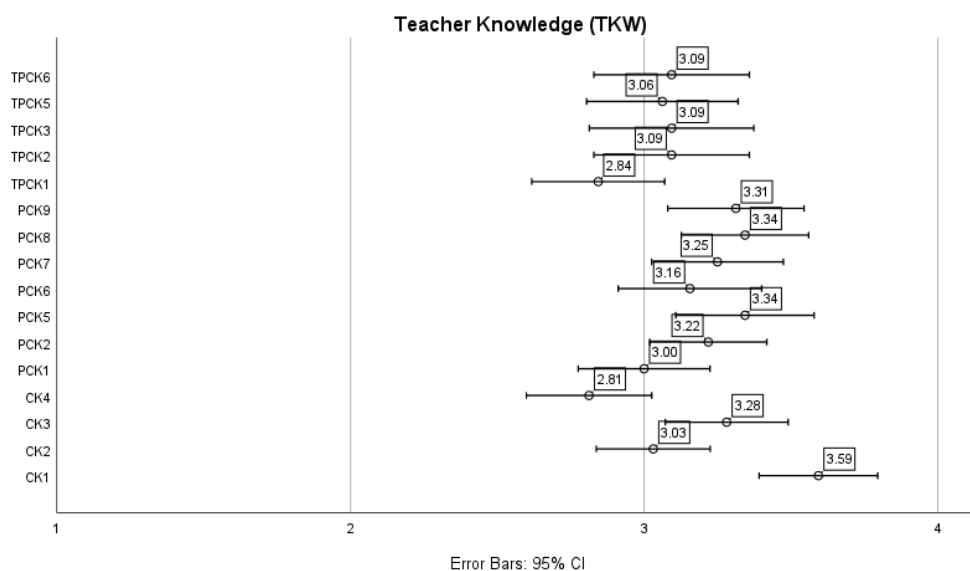
Figure 7.5.3 Teachers' reported content, pedagogical content, and technological pedagogical content knowledge (n=32)

Teacher Self-Efficacy (TSE)

Teacher self-efficacy has been influenced by teachers' characteristics, for instance age, gender, and employment experience and associated with desirable students' learning outcomes like good marks (Fackler et al., 2021). Teacher self-efficacy (TSE) in this research consists of three domains: student engagement (SEENG), instruction (SEINS), and classroom management (SECLS), each of which is measured by four variables. The results of descriptive statistics on TSE variables are displayed in Table 7.5.4. As shown by the skewness and kurtosis values which are within the threshold, the data collected from teachers is normally distributed.

Table 7.5.4
Values of Means, Standard Deviations, Skewness and Kurtosis for Variables in TSE (n = 32)

	n	Mean	sd	Skewness	Kurtosis
SEENG1	32	3.41	0.66	-0.69	-0.50
SEENG2	32	3.62	0.66	-1.57	1.29
SEENG3	32	3.41	0.56	-0.19	-0.88
SEENG4	32	3.25	0.51	0.39	-0.15
SEINS1	32	3.06	0.56	0.03	0.44
SEINS2	32	3.25	0.57	0.00	-0.26
SEINS3	32	3.50	0.51	0.00	-1.98
SEINS4	32	3.25	0.67	-0.34	-0.70
SECLS1	32	3.41	0.61	-0.51	-0.55
SECLS2	32	3.63	0.55	-1.14	0.40
SECLS3	32	3.44	0.62	-0.62	-0.47
SECLS4	32	3.53	0.57	-0.69	-0.51

The error bars with 95% confidence interval of each item in TSE are presented in Figure 7.5.4. The responses varied as can be seen from the large spread of responses from the mean on each variable. Indicated here is less consistency in the responses given by the teachers. Figure 7.5.4 also reveals that teachers demonstrated high levels of self-efficacy, particularly their ability to manage classrooms. Teachers reported their abilities in controlling students' disruptive behaviour, communicating clear expectations about what can and cannot be done in the classrooms, and reducing disruptions so that teaching and learning are not interrupted.

Teacher Self-efficacy (TSE)

Error Bars: 95% CI

Figure 7.5.4 Teachers' reported self-efficacy (n=32)

Mastery Approaches to Assessment (MAST) Scale

Mastery approaches to assessment refer to assessment practices employed by English teachers in the classrooms. The approaches focus on improving students' learning and mastery rather than grades and student comparisons. The MAST scale consists of seven items assessing what teachers do to grade students' learning. Based on the data distribution, it emerged that data is normally distributed as indicated by the acceptable values of skewness and kurtosis in Table 7.5.5.

Table 7.5.5
Values of Means, Standard Deviations, Skewness and Kurtosis for Variables in MAST (n = 32)

	n	Mean	sd	Skewness	Kurtosis
MAST1	32	3.16	0.92	-0.86	-0.07
MAST2	32	3.59	0.56	-0.98	0.02
MAST3	32	2.75	0.62	0.21	-0.47
MAST4	32	3.25	0.67	-0.34	-0.70
MAST5	32	3.31	0.47	0.85	-1.37
MAST6	32	3.38	0.71	-1.28	1.94
MAST7	32	3.44	0.56	-0.31	-0.86

Added to that, the analysis results are presented in error bars with 95% confidence interval of each item in MAST as displayed in Figure 7.5.5. In general, there exists some variability in the responses given by the teachers, and it is indicated by the large error bars from the mean,

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confirming that the responses are not consistent. This could be due to the small number of responses gathered from the teachers (n = 32). Generally, teachers reported their agreement in the use of assessment approaches that focus on learning. Teachers rated high in assessment activities that promote skill mastery by providing a variety of assessment types and continuous feedback to how well students are learning and doing their work. Apart from that, teachers also help students identify their strengths and weaknesses in learning English.
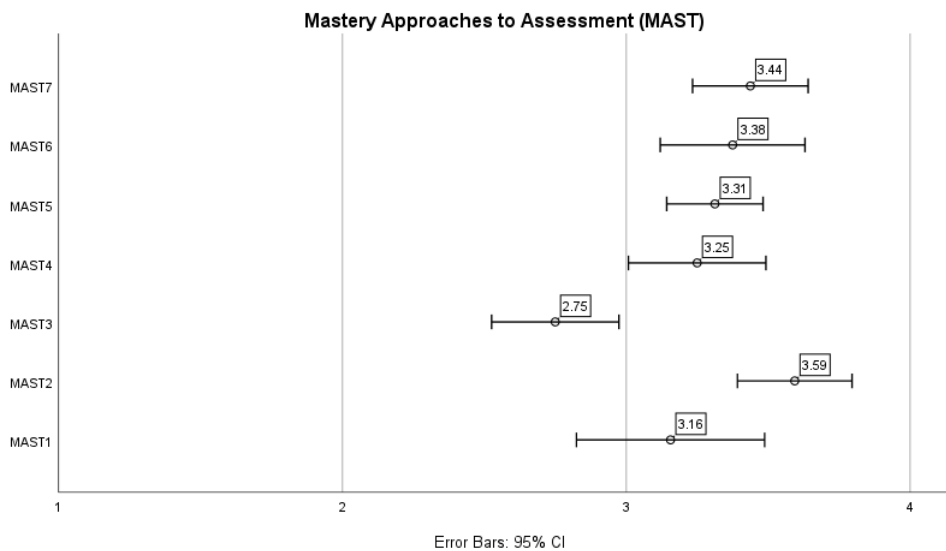
Figure 7.5.5 Teachers' reported mastery approaches to assessment (n=32)

Teachers' Approaches to Teaching (ATTE) Scale

Previous studies suggest that the approaches chosen by teachers are associated with students' approaches to learning (Trigwell, Prosser, & Waterhouse, 1999; Lye, 2016). In this study, the scale of teachers' approaches consists of two main ones: conceptual change/student-focused (CCSF) and information transmission/teacher-focused approaches (ITTF), which were adapted from Prosser and Trigwell's (2006) Approaches to Teaching Inventory. Table 7.5.6 presents the results of descriptive statistics for variables in CCSF and ITTF. Based on the values of skewness and kurtosis, the data is normally distributed as indicated by the acceptable range of the values.

Table 7.5.6

Values of Means, Standard Deviations, Skewness and Kurtosis for Variables in CCSF and ITTF (n = 32)

	n	Mean	sd	Skewness	Kurtosis
CCSF1	32	3.44	0.56	-0.31	-0.86
CCSF2	32	3.56	0.56	-0.83	-0.28
CCSF3	32	3.53	0.51	-0.13	-1.97
CCSF4	32	3.53	0.51	-0.13	-1.95
CCSF5	32	3.34	0.70	-1.20	1.87
CCSF6	32	3.69	0.47	-0.85	-1.37
CCSF8	32	3.41	0.56	-0.19	-0.88
ITTF1	32	2.75	0.67	-1.02	1.61
ITTF3	32	3.28	0.73	-1.03	1.69
ITTF4	32	2.81	0.69	-0.97	1.75
ITTF5	32	2.22	0.75	0.59	0.58
ITTF6	32	2.53	0.76	-0.35	-0.11
ITTF8	32	1.78	0.71	0.34	-0.87

Figure 7.5.6 displays the results of analysis presented in error bars with 95% confidence interval of each item in ATTE. The variability in teacher responses exists as indicated by the large error bars from the mean. Suggested here is inconsistency in the responses which could be due to a few teachers participating in the study (n = 32). Generally, teachers endorsed the adoption of conceptual change/student-focused (CCSF) approaches to teaching more than information transmission/teacher-focused (ITTF). Teachers reported high ratings in their CCSF approaches, particularly in their method of teaching English in such a way that it promotes peer discussion and gives opportunities for them to identify any learning difficulties. Teachers reported their support for students to develop deep thinking when learning a second language. On the other hand, teachers reported the lowest rating on the item indicating that teaching English should focus on materials required by students to pass examinations.
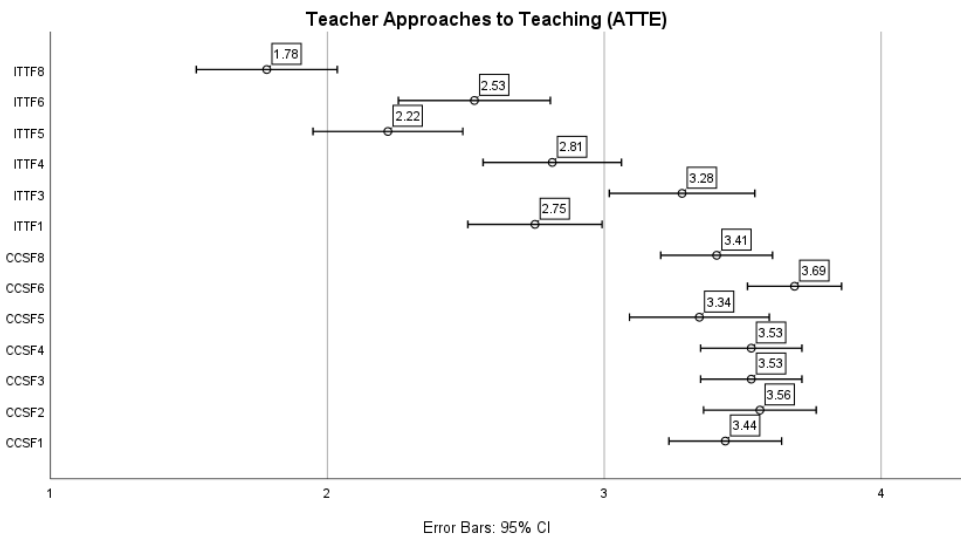
Figure 7.5.6 Teachers' reported approaches to teaching (n=32)

7.6   Summary

This chapter presents demographic information of students and teachers and the results of descriptive analysis of scales. With regard to background information, most student participants were male. There was a nearly equal number of students from both public senior high schools and public vocational high schools. The education level of their parents was predominantly one consisting of a bachelor's degree. When it comes to the time allocated for English homework, most of students spent less than an hour daily, while dedicating more than half an hour each day to studying English outside of the classroom. A significant majority of the student participants did not enrol in private English courses such as tutoring opportunities.

There were more female than male teachers. The distribution of school streams, indicating the schools where the teachers teach English, was relatively balanced. Regarding age, most teachers fell within the 40-45 age range. Most teachers held bachelor's degrees, and in terms of teaching experience, the majority had worked for between 10 and 20 years. Teachers also reported taking part in various professional development activities to improve their professional skills and knowledge. A number of teachers participated in face-to-face or online

seminars, peer observations, English teacher forums, and attended conferences, workshops, and training programs organized by education departments, universities, and other institutions.

The responses provided by student participants were also analysed in terms of their means, standard deviation, skewness, and kurtosis. Descriptive statistics, including error bars with a 95% confidence interval, assessed response variability and the general trends in students' scale responses. Findings indicated that the data exhibited normal distribution in all scales, as shown by skewness and kurtosis values falling within acceptable thresholds. While response variability differed across the scales, overall, there was a low level of variability in the students' responses across all scales. Meanwhile the normal distribution of the teacher scales' data was examined through descriptive statistics. Although the scales exhibited a normal distribution, the error bar results highlighted significant response variability from the mean across the scales' variables. This variability may reflect inconsistencies in the responses provided by participating teachers. It is worth noting that the small number of teachers in this research may have contributed to this outcome. In the following chapter, the results of structural equation modelling analysis are presented.

CHAPTER 8

STRUCTURAL EQUATIONAL MODELLING: STUDENT-

AND TEACHER-LEVEL MODELS

8.1   Introduction

In previous chapters, the results of validation using CFA (Chapter 5), Rasch (Chapter 6), and

descriptive statistics (Chapter 7) were presented. The validation chapters report the structure

of observed and latent variables and how well the data fit to the Rasch model, while descriptive

analysis summarizes both student and teacher data. In this chapter, further analysis is executed

to examine the relationships among variables at the student and teacher levels. This chapter

presents the outcomes of structural equational modelling (SEM) analyses for student- and

teacher-level data. The aim here is to estimate both direct and indirect effects of predicting

variables on the outcome variables in each level. Multiple hypotheses are tested, and the model

fit to the data is evaluated. The analysis was conducted using MPlus program to test the

hypothesized causal model which attempts to explain the relationships between variables. The

hypothesized model was examined and modified based on the modification indices in the

output of MPlus program. The variables showing non-significant paths were removed.

Variables and scales in each level, the hypothesized models, and the final models at student

and teacher levels are presented in this chapter.

8.2   Variables and Scales in the Student-level Model

The student-level model involves several variables that are assumed to influence students'

English language achievement. Table 8.2.1 presents the student-related variables and scales

used in the investigation exploring their influence on learning English. Four latent variables

and 16 observed variables are involved in the model.

Four scales conform to a hierarchical structure, including parents' education level (PARED), students' conceptions of learning English (COLE), English classroom learning environment (ECLE), and English achievement (EACH). Other scales conform to one-factor structure comprising Learning-oriented Assessment Environment (LOA), Performance-oriented Assessment Environment (POA), Task/mastery Learning Goals (TASK), Ability/performance-approach Goals (ABIL), Ability/performance-avoidance Goals (ABAV), L2 Classroom Anxiety (ANXI), Attitude towards Learning English (ATTI), Deep Approaches to Learning (DEEP), Achieving Approaches to Learning (ACHI), and Surface Approaches to Learning (SURF).

The latent variable of Conceptions of Learning English (COLE) is represented by five observed variables: Memorizing (MEMO), Testing (TEST), Practicing (PRAC), Communicating (COMM), and Seeing in a New Way (NWAY). The second latent variable is English Classroom Learning Environment (ECLE) which manifests itself in five observed variables: Student Cohesiveness (SCOH), Teacher Support (TEAC), Investigation (INVE), Participation (PART), and Task Involvement (TAS). The third latent variable is English Achievement (EACH) which is represented by two observed variables: Reading Achievement (READ) and Listening Achievement (LIST). In this study, the Weighted Likelihood Estimates (WLE) served as the scale scores rather than the original item response scores.

Some variables in students' characteristics were used in this research. Variables of mother's education (MOT_ED) and father's education (FAT_ED) were combined to form a single variable, i.e., parent education (PARED). Other one-item variables include school type/stream (STREAM), students' gender (SGENDER), students' age (SAGE), time spent doing homework (HW), time spent studying (STU), and time spent taking private course (PRV).

Table 8.2.1

Latent and observed variables used in student-level SEM analysis

Theoretical Dimension	Latent variables	Description	Manifest variables	Description	Coding
Presage					
Student characteristics			STREAM	School stream/type	0 = Public senior high school
					1 = Public vocational high school
			GENDER	Student's gender	0 = Female
					1 = Male
			SAGE	Student's age	
	PARED	Parents' Education level	MOT_ED	Mother education	0 = Lower school
					1 = High school
			FAT_ED	Father education	2 = Diploma
					3 = Bachelor's degree
					4 = Master's degree
					5 = Doctoral degree
			HW	Time spent for doing homework	1 = No time spent
					2 = 30 minutes or less a day
			STU	Time spent for studying	3 = 30 – 60 minutes a day
					4 = 1 – 2 hours a day
			PRV	Time spent for taking private course	5 = More than 2 hours a day
Student attributes	COLE	Conceptions of Learning English	MEMO	Memorizing	
			TEST	English testing	
			PRAC	Practicing	
			COMM	Communication	
			NWAY	Seeing in a new way	
	ECLE	English Classroom Learning Environment	SCOH	Student cohesiveness	
					WLE Scores
			TEAC	Teacher support	
			INVE	Investigation	
			PART	Participation	
			TAS	Task involvement	
			LOA	Learning-oriented assessment environment	
			POA	Performance-oriented assessment environment	
Process					
Student attributes			TASK	Task/mastery learning goals	
			ABIL	Ability/performance approach goals	
			ABAV	Ability/performance avoidance goals	
			ANXI	L2 classroom anxiety	WLE Scores
			ATTI	Attitude towards English	
			DEEP	Deep strategy	
			ACHI	Achieving strategy	
			SURF	Surface strategy	
Product					
	EACH	English Achievement	READ	Reading comprehension	WLE Scores
			LIST	Listening comprehension	

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Prior to conducting the SEM analysis, variables at the student level underwent a correlation examination to assess their relationships. A multicollinearity test was conducted to determine the presence of significant correlations among the variables. If two or more predictors were found to be highly correlated, it would indicate a violation of the assumption of independence among the predictors, potentially shaping the interpretation of results.

The IBM SPSS software was utilized to examine collinearity statistics. Two specific values – Tolerance values and Variance Inflation Factor (VIF) value – were assessed to determine the presence of multicollinearity. A Tolerance value below 0.10 and a VIF value above 10 confirms the existence of multicollinearity. Collinearity values of the independent variables at the student level are presented in Table 8.2.2. Meanwhile, the results demonstrate that none of the variables exhibit multicollinearity, as indicated by the acceptable range of Tolerance and VIF values. Subsequently, the multicollinearity assumption remains intact, and it was deemed safe to proceed with the SEM analysis.

Table 8.2.2
Collinearity statistics of student-level variables

Variables		Collinearity Statistics	
Dependent variable	Independent variable	Tolerance	VIF
EACH	COLE	0.54	1.86
	ECLE	0.36	2.79
	LOA	0.39	2.54
	POA	0.77	1.31
	TASK	0.27	3.68
	ABIL	0.53	1.89
	ABAV	0.46	2.19
	ANXI	0.61	1.63
	ATTI	0.36	2.75
	DEEP	0.41	2.44
	ACHI	0.41	2.42
	SURF	0.69	1.45

8.3   The Hypothesized Model for Student Level

The hypothesized model for student level is illustrated in Figure 8.3.1, and it highlights the connections between the latent variables and observed variables. According to Biggs' 3P model, the proposed factors in the presage are linked to those in process and product stages. The factors in the presage stage include stream, student gender, student age, parents' education, time spent doing homework, time spent studying, time spent attending private on tutoring course, students' conceptions of learning, students' perception of the English classroom environment, performance-oriented and mastery-oriented assessment environment. In the process stage, there are motivational variables (including task/mastery-learning goals, ability/performance-approach goals, ability/performance-avoidance goals, attitude towards learning English, learning anxiety) and students' approaches to studying which include deep, achieving, and surface approaches. In the product stage, students' English achievement is outcome which consists of listening and reading tests.

In this study, some variables are categorised into exogenous and endogenous variables. Exogenous variables are variables that are not influenced by other variables or scales, while endogenous ones are those that interact with one another. Exogenous variables include student gender, stream, and parent's education, and the remaining are endogenous variables. The model also depicts the measurement and the structural model of student level. As shown in Figure 8.3.1, the model explores the predictors of students' success in English achievement.
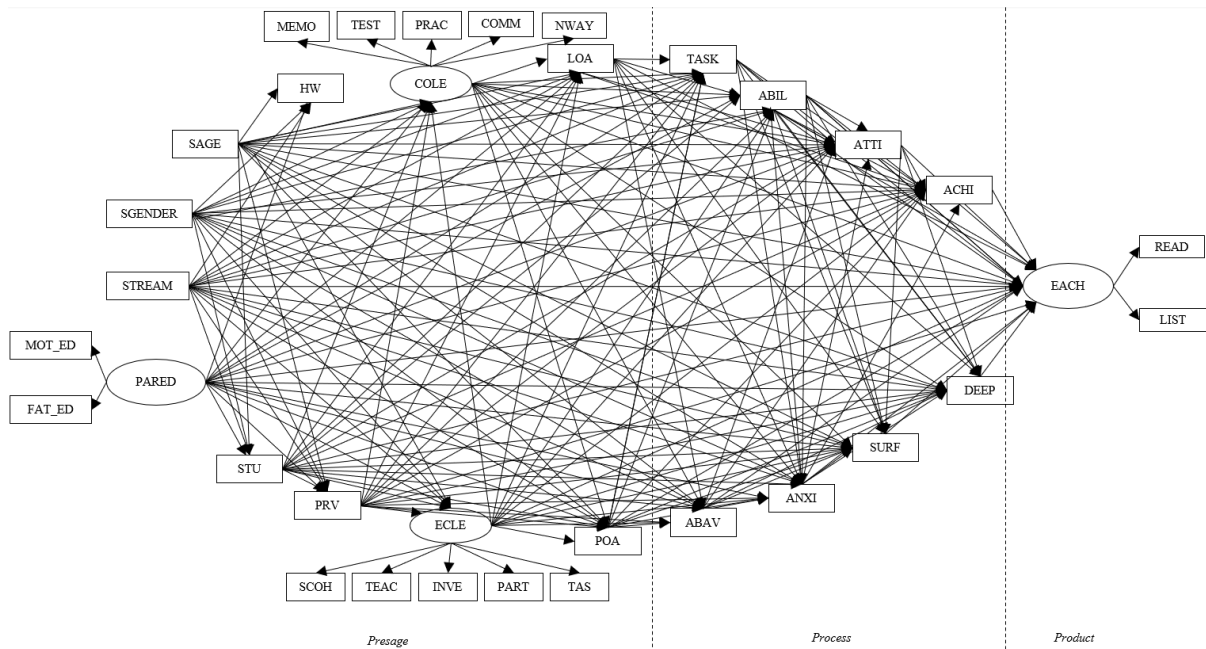
Figure 8.3.1 Hypothesized student-level model

8.4 Results of Student-level Model

In the preliminary analysis, multicollinearity and multivariate normality tests were conducted. The results show no issues emerged concerning multicollinearity and multivariate normality in the analysis. In the SEM analysis, the measurement and structural models are examined. The measurement model defines the relationship between the latent variables and the manifest variables, while the structural model examines the connection between latent variables and other latent or observed variables.

Results of the Measurement model

The measurement model was examined using MPlus software, and the measurement quality was examined by identifying the standardized estimates. Every item loading needs to be greater than 0.32 while the p-value needs to be significant at the 0.05 to indicate the model's fit. Four latent variables are examined for the measurement model, including parent's level of education (PARED), students' conceptions of learning (COLE), English classroom learning environment (ECLE), and English achievement (EACH).

Parent's Education (PARED)

The variable of parent's education (PARED) is indicated by two observed variables: mother's education level (MOT_ED) and father's education level (FAT_ED). The factor loadings of the observed variables are 0.82 and 0.85, respectively, which strongly reflect PARED.

Conceptions of Learning English (COLE)

The scale Conceptions of Learning English (COLE) in the measurement model is reflected by five observed variables, i.e., memorizing (MEMO), testing (TEST), practicing (PRAC), communicating (COMM), and seeing in a new way (NWAY). Each of these observed variables has factor loadings of more than 0.32 (i.e., 0.71, 0.33, 0.75, 0.76, and 0.82, respectively) suggesting that the manifest variables are strong reflectors of COLE.

English Classroom Learning Environment (ECLE)

In the measurement model, the scale English Classroom Learning Environment (ECLE) is reflected by student cohesiveness (SCOH), teacher support (TEAC), investigation (INVE), participation (PART), and task involvement (TAS). Factor loadings of each variable are 0.38, 0.77, 0.68, 0.65, and 0.67, respectively. Those loadings are more than 0.32 which means that they are strong reflectors of the ECLE scale.

English achievement (EACH)

English achievement (EACH) as a scale in the measurement model is reflected by two manifest variables, these being Reading (READ) and Listening (LIST), having factor loadings 0.87 and 0.63 respectively. Indicated here is that that the manifest variables are strong reflectors of EACH.

Results of the Structural model (student-model level)

The student-level factor in this study pertains to students' English achievement, which is measured by reading and listening achievement tests. The relationships between individual characteristics, student attributes, and students' English achievement were examined. Following the removal of any path with a p-value > 0.05 in the model trimming process, the results reveal satisfactory values for the model fit indices. The examination of the model fit indices, as shown in Figure 8.4.1, includes the Comparative Fit Indices (CFI) with a value of 0.90 and the Tucker-Lewis Index (TLI) with a value of 0.88. These values, close to or exceeding 0.90, confirm the satisfactory fit of the model to the data. Additionally, the Root Mean Square Error of Approximation (RMSEA) yielded a value of 0.05, which is close to zero, further suggesting a good fit of the final model.

The relationships between the variables in the structural models are discussed using the direct, indirect, and total effects as presented in Table 8.4.1. The effects presented in Table 8.4.1 are the significant ones, and only the indirect effects that are above 0.10 are discussed due to their practical significance.
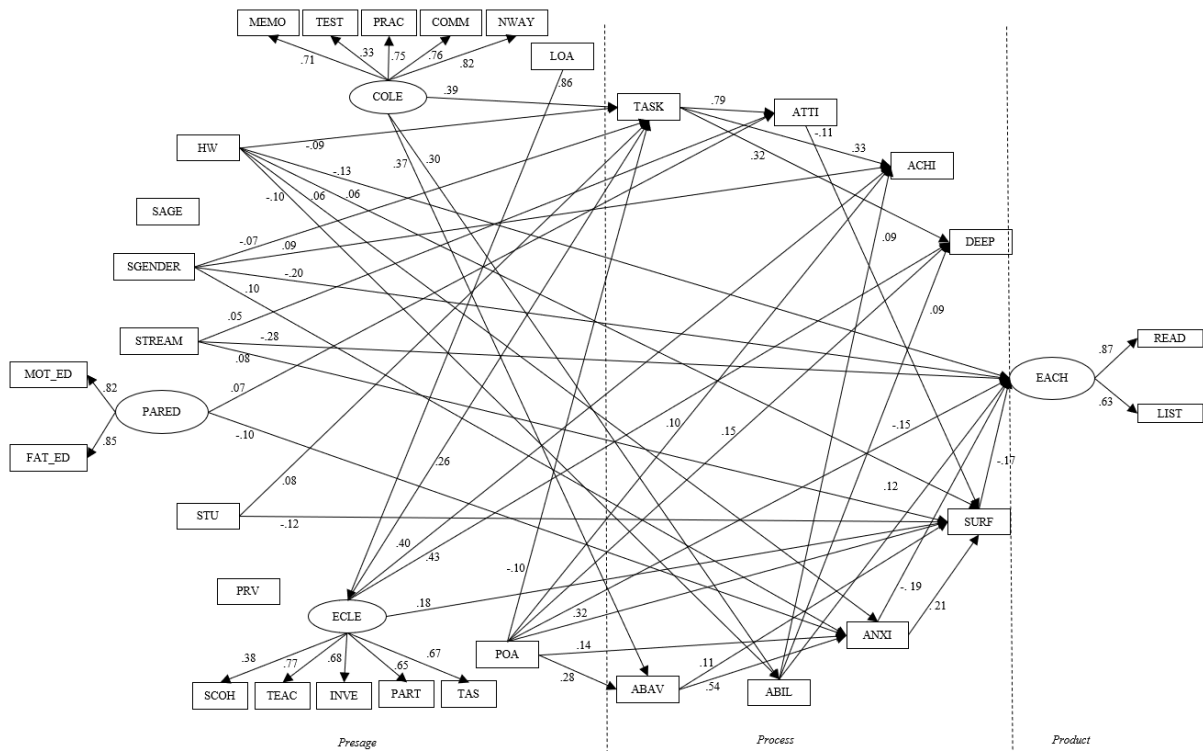
Figure 8.4.1 Final student-level model (n = 758)

Model estimation

Direct effects and indirect effects on Students' English Achievement

Results of analysis reveal there are seven variables wielding significant direct impacts on students' English achievement. As shown in Table 8.4.2, the variables include SURF (β = -0.17), ANXI (β = -0.19), ABIL (β = 0.12), POA (β = -0.15), STREAM (β = -0.28), SGENDER (β = -0.20), and HW (-0.13).

Among the student characteristics, three variables show direct effects on English achievement. The negative path coefficient of STREAM on EACH strongly suggests there are significant differences between students attending public high school and public vocational high school regarding their success in learning the English language. The results show that the students

attending public high schools tend to be more successful in English than those attending public vocational high schools in Indonesia.

The negative coefficient is also found in the impact of student gender (SGENDER) on English achievement (EACH). This means there are significant differences between female and male students in terms of their English achievement, in which the former tend to have better English achievement than the latter. In terms of the effect of time spent doing homework (HW) on EACH, it is interesting to note that the less time students allocate to homework, the higher their English achievement is.

Table 8.4.1
Standardized direct, indirect, and total effects for the final model at the student level

Dependent variable	Independent variable	Standardized Estimates		
		Direct effect	Indirect effect	Total effect
EACH	SURF	-0.17***	-	-0.17***
	ATTI	-	0.02**	0.02**
	ANXI	-0.19***	-0.04**	-0.23***
	TASK	-	0.02**	0.02**
	ABIL	0.12**	0.01**	0.13**
	ABAV	-	-0.08**	-0.08**
	POA	-0.15**	-0.09***	-0.24***
	STREAM	-0.28***	-0.01*	-0.29***
	SGENDER	-0.20***	-0.02**	-0.22***
	PARED	-	0.02**	0.02**
	HW	-0.13**	-0.04***	-0.17***
	STU	-	0.02**	0.02**
DEEP	TASK	0.32***	-	0.32***
	ABIL	0.09**	0.04***	0.13***
	ABAV	-	0.07**	0.07**
	COLE	-	0.19***	0.19***
	LOA	-	0.55***	0.55***
	POA	0.15***	-	0.15***
	ECLE	0.43***	0.20***	0.63***
	PRV	-	0.20*	0.20*
	STU	-	0.03*	0.03*
	HW	-	-0.04***	-0.04*
	SGENDER	-	-0.02*	-0.02*
ACHI	ATTI	-	-0.01*	-0.01*
	ANXI	-	0.02**	0.02**
	TASK	0.33***	-0.01**	0.32***
	ABIL	0.09**	0.04***	0.13***
	ABAV	-	0.09***	0.09***
	COLE	-	0.20***	0.20***
	LOA	-	0.54***	0.54***
	POA	0.10**	0.03*	0.13***
	ECLE	0.40***	0.22***	0.62***
	STREAM	-	-0.01*	-0.01*
	SGENDER	0.09***	-0.02*	0.07*
	HW	-	-0.03	-0.03**
	PRV	-	0.02*	0.02*
SURF	ATTI	-0.11**	-	-0.11**

	ANXI	0.21***	-	0.21***
	TASK	-	-0.09**	-0.09**
	ABIL	-	-0.01*	-0.01*
	ABAV	0.11***	0.11***	0.22***
	COLE	-	0.04*	0.04*
	LOA	-	0.16***	0.16***
	POA	0.32***	0.10***	0.42***
	ECLE	0.18***	-	0.18***
	STREAM	0.08**	-	0.08**
	SGENDER	-	0.03***	0.03***
	PARED	-	-0.03**	-0.03**
	HW	0.06*	0.02**	0.08**
	STU	-0.12***	-0.01*	-0.13***
ATTI	TASK	0.79***	-	0.79***
	ABIL	-	0.11***	0.11***
	ABAV	-	0.05***	0.05***
	COLE	-	0.36***	0.36***
	LOA	-	0.37***	0.37***
	POA	-	-0.07**	-0.07**
	ECLE	-	0.42***	0.42***
	STREAM	0.05***	-	0.05***
	SGENDER	-	-0.06**	-0.06**
	PARED	0.07*	-	0.07*
	HW	-	-0.08***	-0.08***
	STU	-	0.07**	0.07**
	PRV	-	0.05*	0.05*
ANXI	ABAV	0.54***	-	0.54***
	COLE	-	0.20***	0.20***
	LOA	-	0.10***	0.10***
	POA	0.14***	0.15***	0.29***
	ECLE	-	0.12***	0.12***
	SGENDER	0.10**	-	0.10**
	PARED	-0.10**	-	-0.10**
	HW	0.06*	-	0.06*
TASK	COLE	0.39***	0.07***	0.46***
	LOA	-	0.47***	0.47***
	POA	-0.10***	0.02***	-0.08**
	ECLE	0.26***	0.27***	0.53***
	SGENDER	-0.07**	-	-0.07**
	HW	-0.09**	-0.01**	-0.10***
	STU	0.08**	-	0.08**
ABIL	COLE	0.30***	0.19***	0.49***
	LOA	-	0.25***	0.25***
	POA	-	0.14***	0.14***
	ECLE	-	0.29***	0.29***
	HW	-0.10***	-	-0.10***
ABAV	COLE	0.37***	-	0.37***
	LOA	-	0.19***	0.19***
	POA	0.28***		0.28***
	ECLE	-	0.22***	0.22***
COLE	LOA	-	0.52***	0.52***
ECLE	LOA	0.86***	-	0.85***

Note: Significant paths only; *$p < .05$, **$p < .01$, ***$p < .001$

Meanwhile, with reference to students' attributes, one positive path coefficient is found in the analysis, i.e., performance-approach goals (ABIL) on EACH. Results indicate that students' motivational goals to do better than their friends greatly assist on students' English achievement. The more students are engaged in learning English to learn better than their peers rather than to focus on task mastery and task avoidance, the more likely they achieve higher

grades in English. On the other hand, three negative path coefficients of SURF, ANXI, and POA on EACH are detected in the analysis. The results show that surface strategy of learning English, anxiety in English classroom, and performance-oriented assessment environment can undermine students' achievement in learning English. The more students employ a surface strategy in learning English, the more students feel anxious in the English classroom, and the more teachers apply assessment practices that focus on performance rather than mastery (based on students' perspectives), the less likely the students will achieve much in English. Students may improve their marks if they use less of the surface strategy in learning English, they are less anxious in the English classroom, and they are provided with less assessments that focus on performance.

With regard to indirect effects, some variables are found to influence English achievement. However, the standardized estimates are all below 0.10, and consequently they are not discussed here.

Table 8.4.2
Standardized direct, indirect, and total effects of independent variables to English Achievement in the final model

Dependent variable	Independent variable	Standardized Estimates		
		Direct effect	Indirect effect	Total effect
EACH	SURF	-0.17***	-	-0.17***
	ATTI	-	0.02**	0.02**
	ANXI	-0.19***	-0.04**	-0.23***
	TASK	-	0.02**	0.02**
	ABIL	0.12**	0.01**	0.13**
	ABAV	-	-0.08**	-0.08**
	POA	-0.15**	-0.09***	-0.24***
	STREAM	-0.28***	-0.01*	-0.29***
	SGENDER	-0.20***	-0.02**	-0.22***
	PARED	-	0.02**	0.02**
	HW	-0.13**	-0.04***	-0.17***
	STU	-	0.02**	0.02**

Note: Significant paths only; *$p < .05$, **$p < .01$, ***$p < .001$

Direct effects and indirect effects on approaches to learning

Table 8.4.3 summarizes the direct and indirect effects of variables on approaches to learning. Some variables have been found to directly affect on the adoption of the deep approach of

learning, including TASK (β = 0.32), ABIL (β = 0.09), POA (β = 0.15), and ECLE (β = 0.43). The positive path coefficient of task/mastery goals (TASK) on deep strategy of learning (DEEP) shows that students' motivation to acquire English knowledge and skills positively helps their deep strategy use when learning the language. This means that the more students' motivated to improve their English knowledge and task mastery, the more they use deep strategies to do so. Furthermore, students' ability/performance-approach goals of motivation (ABIL) exerts a positive impact on students' adoption of deep strategy (DEEP). However, the standardized estimate is below 0.10, and thus it is not discussed here. Meanwhile, classroom assessment environment focusing on performance (POA) has a direct positive path coefficient on DEEP suggesting its positive impact on the deep strategy. It means that the more classroom assessment is geared to performance, the more deep strategy is deployed by students in learning English. English classroom learning environment is also found to have a direct positive effect (β = 0.43) on the adoption of deep strategy by the students. This means that the more positive learning environment, the more students embrace a deep strategy.

Only one indirect effect on DEEP is discussed here because most of indirect effects are below 0.1. The model shows that LOA has indirect effect on DEEP through ECLE. The indirect effect is positive with the value of β = 0.38, indicating the magnitude of the effect LOA to DEEP is mediated by ECLE. This means that students who perceive learning-oriented classroom assessment environment are likely to foster a positive learning environment which in turn leads to the adoption of deep approaches to learning.

Apart from deep approaches to learning (DEEP), some variables are found to directly and indirectly impact achieving approaches to learning (ACHI). Three variables are found to have direct effects on achieving approach to learning: TASK (β = 0.33), POA (β = 0.10), and ECLE (β = 0.40).

With regard to surface approaches to learning (SURF), some variables are found to have significant direct effects on this variable. These include STU (β = -0.11), ATTI (β = -0.11), ANXI (β = 0.21), ABAV (β = 0.11), POA (β = 0.32), and ECLE (β = 0.18). The negative coefficient of (STU) and (ATTI) indicate that time spent on studying English and students' attitude to the English shape the use of surface approach to learning by students. In other words, the more students spend their time studying English outside the classroom, the more positive their attitude English is, and the less likely they use surface approach to learning.

Table 8.4.3

Standardized direct, indirect, and total effects of independent variables on Approaches to Studying the final model

Dependent variable	Independent variable	Standardized Estimates		
		Direct effect	Indirect effect	Total effect
DEEP	TASK	0.32***	-	0.32***
	ABIL	0.09**	0.04***	0.13***
	ABAV	-	0.07**	0.07**
	COLE	-	0.19***	0.19***
	LOA	-	0.55***	0.55***
	POA	0.15***	-	0.15***
	ECLE	0.43***	0.20***	0.63***
	PRV	-	0.02*	0.02*
	STU	-	0.03*	0.03*
	HW	-	-0.04***	-0.04*
	SGENDER	-	-0.02*	-0.02*
ACHI	ATTI	-	-0.01*	-0.01*
	ANXI	-	0.02**	0.02**
	TASK	0.33***	-0.01**	0.32***
	ABIL	0.09**	0.04***	0.13***
	ABAV	-	0.09***	0.09***
	COLE	-	0.20***	0.20***
	LOA	-	0.54***	0.54***
	POA	0.10**	0.03*	0.13***
	ECLE	0.40***	0.22***	0.62***
	STREAM	-	-0.01*	-0.01*
	SGENDER	0.09***	-0.02*	0.07*
	HW	-	-0.03	-0.03**
	PRV	-	0.02*	0.02*
SURF	ATTI	-0.11**	-	-0.11**
	ANXI	0.21***	-	0.21***
	TASK	-	-0.09**	-0.09**
	ABIL	-	-0.01*	-0.01*
	ABAV	0.11***	0.11***	0.22***
	COLE	-	0.04*	0.04*
	LOA	-	0.16***	0.16***
	POA	0.32***	0.10***	0.42***
	ECLE	0.18***	-	0.18***
	STREAM	0.08**	-	0.08**
	SGENDER	-	0.03***	0.03***
	PARED	-	-0.03**	-0.03**
	HW	0.06*	0.02**	0.08**
	STU	-0.12***	-0.01*	-0.13***

Meanwhile, four variables are found to wield positive impact on SURF, including ANXI, ABAV, POA, and ECLE. Results suggest that the more students feel anxious in the English classroom and the more performance-avoidance goals are wanted, or the desire to avoid performing more poorly than other students, the more likely students adopt the surface strategy in learning English. Furthermore, classroom assessment and learning environment affect the use of surface strategy by students. The more performance-oriented classroom assessment and the more positive feeling there is about the learning environment, the more likely students adopt surface approaches to learning.

Some variables also indirectly impact on the adoption of surface learning, and those variables are ABAV ($\beta = 0.11$), LOA ($\beta = 0.16$), dan POA ($\beta = 0.10$). The direct effect of performance-avoidance goals (ABAV) to SURF is also mediated by ANXI, making its total effect on SURF equal to 0.22. Indicated here is that when students are more motivated because they want to avoid performing poorly compared to their peers, their anxiety level increases, and this may lead to resorting to the surface approach to learning. Meanwhile, the impact of learning-oriented assessment environment (LOA) on the surface approach (SURF) is mediated by learning environment (ECLE). Hence, when students perceive that the assessment environment in the classroom is more oriented to learning or mastery, they see the learning environment as more positive which then influences the use of the surface approach to learning English.

Direct effects and indirect effects on motivational variables

A summary of direct and indirect effects of variables on motivational factors is presented in Table 8.4.4. It can be seen that students' attitude to English learning is affected directly one variable, namely TASK ($\beta = 0.79$). The positive path coefficient of task/mastery goals (TASK) on attitude towards learning (ATTI) indicates that students' motivation to acquire English knowledge and skills greatly and positively assist improve their attitude to learning English.

The more they are motivated to learn English to improve their knowledge and skills, the more positive their attitude is about the language. It is found that some variables indirectly impact the attitude about learning English, including ABIL ($\beta = 0.11$), COLE ($\beta = 0.36$), LOA ($\beta = 0.37$), and ECLE ($\beta = 0.42$). Students' attitude to learning is indirectly impacted by ABIL through TASK, meaning that the more students are motivated to learn better than their peers in English, the more they wish to acquire knowledge and skills in English, and the more positive their attitude towards English. Students' conceptions of learning (COLE) also influence their attitude toward learning through TASK, indicating the more positive conceptions of learning, the more motivated they are to acquire knowledge and skills, which improves their attitude to the language. As well, learning environment (ECLE) impacts the attitude through motivation to learn. It is found that the more positive students feel about their learning environment, the more inspired they are to learn English knowledge and acquire skills, so their attitude towards the language are more positive.

Furthermore, some variables are found to directly shape on students' anxiety in the English classroom. In terms of students' characteristics, there is a positive path coefficient of student gender (SGENDER; $\beta = 0.10$) on anxiety (ANXI) indicating there are significant differences between male and female students in their level of anxiety. In this case, male exhibit higher level than female students in English classrooms. Students' anxiety towards English classroom is influenced students' goals to avoid failure in front of others (ABAV; $\beta = 0.54$) and assessment environment which is oriented to performance (POA; $\beta = 0.14$). The positive path coefficients of ABAV and POA on ANXI indicate that the more students are motivated to avoid failure, the more the assessment environment will focus on performance and grade. Consequently, the more likely students are more anxious in English classrooms.

Meanwhile, POA ($\beta = 0.15$) is found to have an indirect effect on ANXI through ABAV. The positive path coefficient of POA to ANXI through ABAV indicates that the more students perceive the classroom assessment environment is essentially about performance, the more students are motivated to avoid failure in English classrooms, but the more likely students feel anxious. It is interesting to note that students' conceptions of learning (COLE; $\beta = 0.20$) have an indirect effect on ANXI through ABAV. This means that the more positive conceptions students have towards learning English, mediated by the greater motivation students have to avoid incompetence in the classrooms, the more anxious they feel about English classrooms.

Another motivational variable is task or mastery goals, and this refers to the reasons of students' engagement in learning to improve their skills and knowledge. Some variables exert direct effects on task or mastery goals (TASK), such as COLE ($\beta = 0.39$), POA ($\beta = -0.10$), and ECLE ($\beta = 0.26$). Two variables, COLE and ECLE, have positive path coefficients indicating the positive effects the variable towards students' objectives to learn and improve their English skills and knowledge. This means the more positive conceptions there are about learning English and learning environment, the more motivated students are to engage in learning to improve their English language skills. Conversely, the negative path coefficient as shown by variable POA indicates the negative effect of classroom assessment environment oriented to performance on students' adoption of mastery goals. Therefore, the more students perceive that assessment environment in the classrooms focuses on performance, the less motivated they are to enhance their English skills and knowledge.

Ability or performance-approach goals (ABIL) as another motivational variable is also found to be directly impacted by one variable, COLE ($\beta = 0.31$). Students' conceptions of learning English (COLE) are found to have a positive path coefficient that influences on ABIL, indicating that the more positive students' conceptions on their learning, the more motivated

students are to learn English better than other students. Apart from that, the effect of COLE on

ABIL is also mediated by performance-avoidance goals (ABAV; β = 0.18). Suggested here is

that students' conceptions of learning English are influenced students' motivation to avoid

failure in learning, which then lead to improving students' engagement to perform better than

other students.

Table 8.4.4
Standardized direct, indirect, and total effects of independent variables on motivational variables the final model

Dependent variable	Independent variable	Standardized Estimates		
		Direct effect	Indirect effect	Total effect
ATTI	TASK	0.79***	-	0.79***
	ABIL	-	0.11***	0.11***
	ABAV	-	0.05***	0.05***
	COLE	-	0.36***	0.36***
	LOA	-	0.37***	0.37***
	POA	-	-0.07**	-0.07**
	ECLE	-	0.42***	0.42***
	STREAM	0.05***	-	0.05***
	SGENDER	-	-0.06**	-0.06**
	PARED	0.07*	-	0.07*
	HW	-	-0.08***	-0.08***
	STU	-	0.07**	0.07**
	PRV	-	0.05*	0.05*
ANXI	ABAV	0.54***	-	0.54***
	COLE	-	0.20***	0.20***
	LOA	-	0.09***	0.09***
	POA	0.14***	0.15***	0.29***
	ECLE	-	0.12***	0.12***
	SGENDER	0.10**	-	0.10**
	PARED	-0.09**	-	-0.09**
	HW	0.06*	-	0.06*
TASK	COLE	0.39***	0.07***	0.46***
	LOA	-	0.47***	0.47***
	POA	-0.10***	0.02***	-0.08**
	ECLE	0.26***	0.27***	0.53***
	SGENDER	-0.07**	-	-0.07**
	HW	-0.09**	-0.01**	-0.10***
	STU	0.08**	-	0.08**
ABIL	COLE	0.31***	0.18***	0.49***
	LOA	-	0.25***	0.25***
	POA	-	0.14***	0.14***
	ECLE	-	0.29***	0.29***
	HW	-0.09***	-	-0.09***
ABAV	COLE	0.37***	-	0.37***
	LOA	-	0.19***	0.19***
	POA	0.28***		0.28***
	ECLE	-	0.22***	0.22***

Meanwhile, classroom assessment and learning environment emerge as indirectly influencing ABIL. Both learning-oriented (LOA) and performance-oriented (POA) classroom assessment environments have revealed indirect positive path coefficients of 0.25 and 0.14 respectively. Learning-oriented assessment environment (LOA) indirectly guides ABIL through ECLE and COLE, which suggests assessment practices focusing more on learning or mastery influence more positively the classroom learning environment and conceptions of learning. This in turn leads to improving students' motivation to do better than other learners. Meanwhile, performance-oriented assessment environment (POA) indirectly influences ABIL through ABAV, indicating that the more assessment focusing on grade performance, the more students engage in failure avoidance strategies, so the more students are motivated to perform better than others. Similarly, English classroom learning environment (ECLE) also gas an indirect impact on students' motivation (ABIL) through COLE with a total indirect effect coefficient of 0.29. The positive path coefficient of indirect effects of ECLE to ABIL through COLE is 0.18, suggesting that the more positive learning environment, the more positive conceptions of learning, the more motivation students to engage and perform better than other students. As well, classroom environment influences on ABIL via COLE and ABAV ($\beta = 0.11$), meaning that classroom environment focusing on more supports for students influences their conceptions of learning which will be more positive. In this way students are motivated to avoid failure, and they want better than others.

Ability or performance-avoidance goals (ABAV) which refer to students' motivation to learn to avoid being incompetent among their friends are influenced by both conceptions of learning and the environment of assessment and learning. Two variables have positive effects on ABAV, namely conceptions of learning (COLE; $\beta = 0.37$) and performance-oriented classroom assessment environment (POA; $\beta = 0.28$). The positive path coefficients signified by the two variables indicate that the more positive conceptions of learning students have, the more they

think that assessment practices are geared to performance orientation rather than mastery, so the more motivation there is to avoid being incompetent in front of other students. Meanwhile, two variables are also found to indirectly influence ABAV, i.e., LOA ($\beta = 0.19$) and ECLE ($\beta = 0.22$). Learning-oriented assessment environment (LOA) effects on performance-avoidance goals (ABAV) through learning environment (ECLE) and conceptions of learning (COLE).

8.5 Variables and Scales in the Teacher-level Model

In the hypothesized model, 14 variables or scales in the teacher-level model were included in the study. In the presage, there are 11 variables: nine for teacher characteristics, specifically gender, age, experience, formal education, involvement in professional activities (such as formal/informal courses, peer observation, attendance at forum, and professional education), and formal training, and two variables for teacher attributes (i.e., knowledge and self-efficacy). The process stage contains three variables including mastery approaches to assessment, conceptual change student-focused approach to teaching, and information transmission teacher-focused approach to teaching. In the final model, three variables (i.e., GENDER, POBS, TFOR) were removed from the model because they do not have significant relationships with other variables in the model. Only eight variables reflect relationships with other variables (AGE, TEXP, TFED, TCRS, TPED, TFTR, TKW, and TSE).

Table 8.5.1
Latent and observed variables used in teacher-level path analysis

Theoretical Dimension	Latent variables	Description	Manifest variables	Description	Coding
Presage					
Teacher characteristics			TGENDER	Teacher's gender	0 = Female 1 = Male
			TAGE	Teacher's age	1 = Under 35 years old 2 = 35-39 years old 3 = 40-45 years old 4 = 46-50 years old 5 = 51-55 years old 6 = Above 55 years old
			TEXP	Teaching experience	1 = Under 10 years 2 = 10-15 years 3 = 16-20 years 4 = 21-25 years 5 = 26-30 years 6 = More than 30 years

			TFED	Teacher's formal education	1 = Bachelor's degree 2 = Master's degree
			TCRS	Teacher's formal/informal courses	0 = No 1 = Yes
			POBS	Peer observation	0 = No 1 = Yes
			TFOR	Teacher's forum	0 = No 1 = Yes
			TPED	Teacher's professional education	0 = No 1 = Yes
			TFTR	Teacher's formal training	1 = No 2 = Few workshops 3 = < one-year training 4 = One to two-year training 5 = Three to four-year training 6 = > Four-year training
Teacher attributes			TPREP	Teacher's preparedness	
	TKW	Teacher Knowledge	CK	Content Knowledge	
			PCK	Pedagogical Content Knowledge	
			TPCK	Technological Pedagogical Content Knowledge	WLE Scores
	TSE	Teacher Self-efficacy	SEENG	Self-efficacy in Engagement	
			SEINS	Self-efficacy in Instruction	
			SECLS	Self-efficacy in Classroom Management	
Process					
			MAST	Mastery approaches to assessment	
			CCSF	Conceptual Change Student Focused approaches to teaching	WLE Scores
			ITTF	Information Transmission Teacher Focused approaches to teaching	

The variables at the teacher level were subjected to a similar assessment to determine the presence of multicollinearity. Collinearity statistics among teacher-level variables were examined using IBM SPSS software. Tolerance and VIF values were checked to identify if any multicollinearity was evident. A threshold of less than 0.10 for Tolerance and above 10 for VIF was used to detect multicollinearity. Table 8.5.2 presents the collinearity values of the

independent variables at the teacher level. The results demonstrate that none of the variables display multicollinearity, as evidenced by the acceptable range of Tolerance and VIF values. Consequently, the multicollinearity assumption remains valid, and it is considered safe to proceed with the SEM analysis.

Table 8.5.2
Collinearity statistics of teacher-level variables

Variables		Collinearity Statistics	
Dependent variable	Independent variable	Tolerance	VIF
CCSF	TPREP	0.39	2.54
	TKW	0.29	3.49
	TSE	0.43	2.32
	MAST	0.86	1.15
ITTF	TPREP	0.39	2.54
	TKW	0.29	3.49
	TSE	0.43	2.32
	MAST	0.86	1.15

8.6   Hypothesised Teacher-level Model

Figure 8.6.1 illustrates the hypothesized teacher-level model. Based on the theoretical framework, it is hypothesized that the variables in the presage are related to those in the process stage. The variables in the presage stage include age, teaching experience, formal education, teacher involvement in professional activities (such as formal/informal courses, peer observation, attendance at forums, and professional education), formal training, knowledge, and self-efficacy. These variables are proposed to have relationships with the variables in the process stage, including mastery approach to assessment, conceptual change student-focused approach to teaching, and information transmission teacher-focused approach to teaching. The variable in the product stage, which is English achievement, is not included in the teacher-model because the structure of the data is hierarchical. English achievement is included in the student-level model, and the inclusion of English achievement in the teacher-level model can lead to incorrect conclusion. Subsequently, the variable of English achievement was not incorporated in the teacher-level model.

Within the teacher-level model, teacher gender and age are categorized as exogenous variables that are not explained by other variables in the model. Meanwhile, other variables in the presage and process stage are endogenous variables that are explained by other variables within the model.
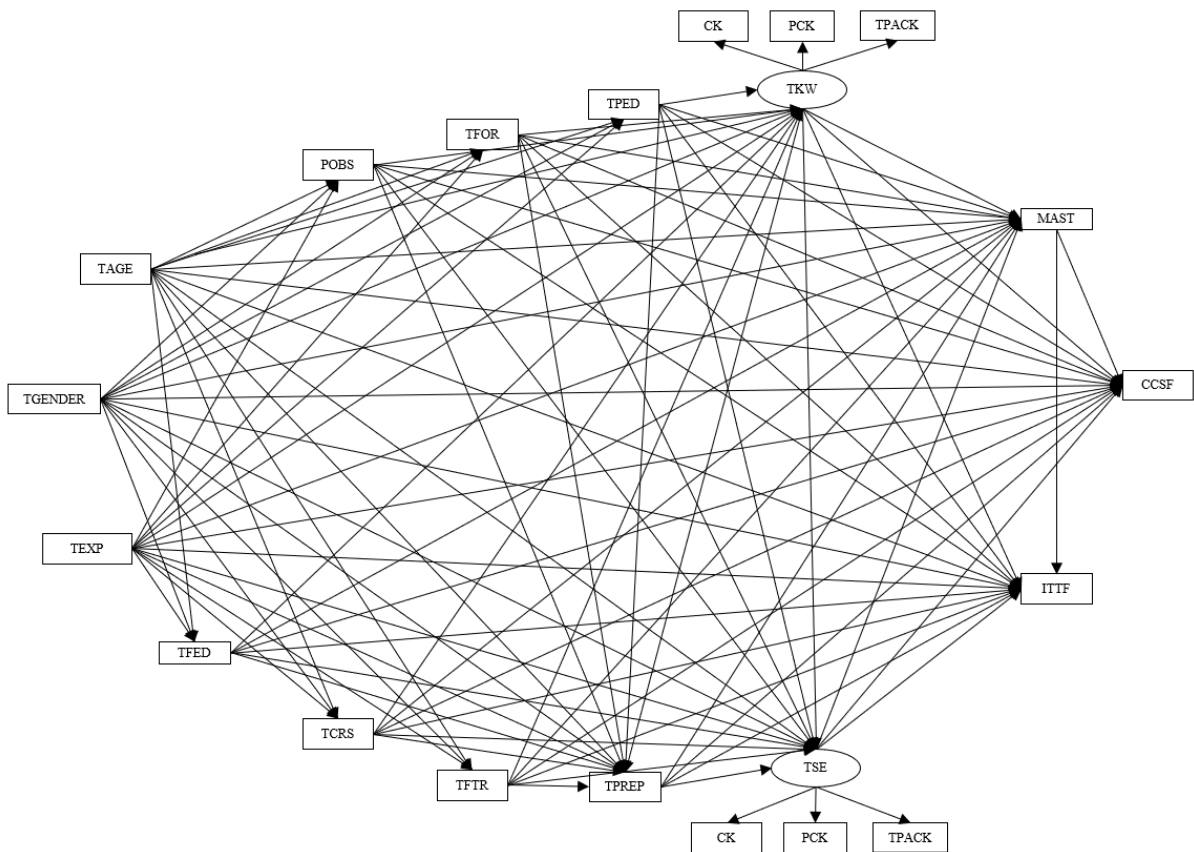
Figure 8.6.1 Hypothesized teacher-level model

8.7 Teacher-level Model Results

During the preliminary analyses, tests were conducted to examine multicollinearity and normality in order to identify any instances of perfect or nearly perfect correlations among the independent variables. The results confirm that no concerns were identified regarding multicollinearity or the normality of the variables included in the model.

In the teacher-level model, the measurement model was examined using MPlus software to check the relationships between latent and manifest variables. The item loading of manifest variables needs to be bigger than 0.32 and the p-value needs to be significant at 0.05 to indicate the model fit. In the teacher-level model, there are two latent variables examined for the measurement model: teacher knowledge (TKW) and teacher self-efficacy (TSE).

Teacher knowledge (TKW)

The scale of teacher knowledge (TKW) in the measurement model is reflected by three observed variables, which are content knowledge (CK), pedagogical content knowledge (PCK), and technological pedagogical content knowledge (TPCK). Factor loadings of each observed variable are 0.70, 0.83, and 0.71 respectively suggesting that the manifest variables are strong reflectors of TKW.

Teacher self-efficacy (TSE)

In the measurement model, the scale known as teacher self-efficacy (TSE) is reflected by self-efficacy for engagement (SEENG), self-efficacy for instructions (SEINS), and self-efficacy for classroom management (SECLS). The factor loadings of each variable are 0.90, 0.76, and 0.90 respectively. Those loadings are more than 0.32, and this strongly suggests that they are strong reflectors of the TSE scale.

The relationships between teacher characteristics and teacher attributes in the presage and process stages are examined. Figure 8.7.1 displays the final model at the teacher level. An examination of the model fit indices shows that these provide satisfactory values. The indices include Comparative Fit Indices (CFI, 0.90) and Tucker-Lewis Index (TLI, 0.87). The values of 0.90 or close to 0.90 in the indices indicate satisfactory model fitting to the data. Apart from that, the outcomes of Root Mean Square Error of Approximation (RMSEA, 0.08) are close to zero and this suggests a good model fit for the final model.
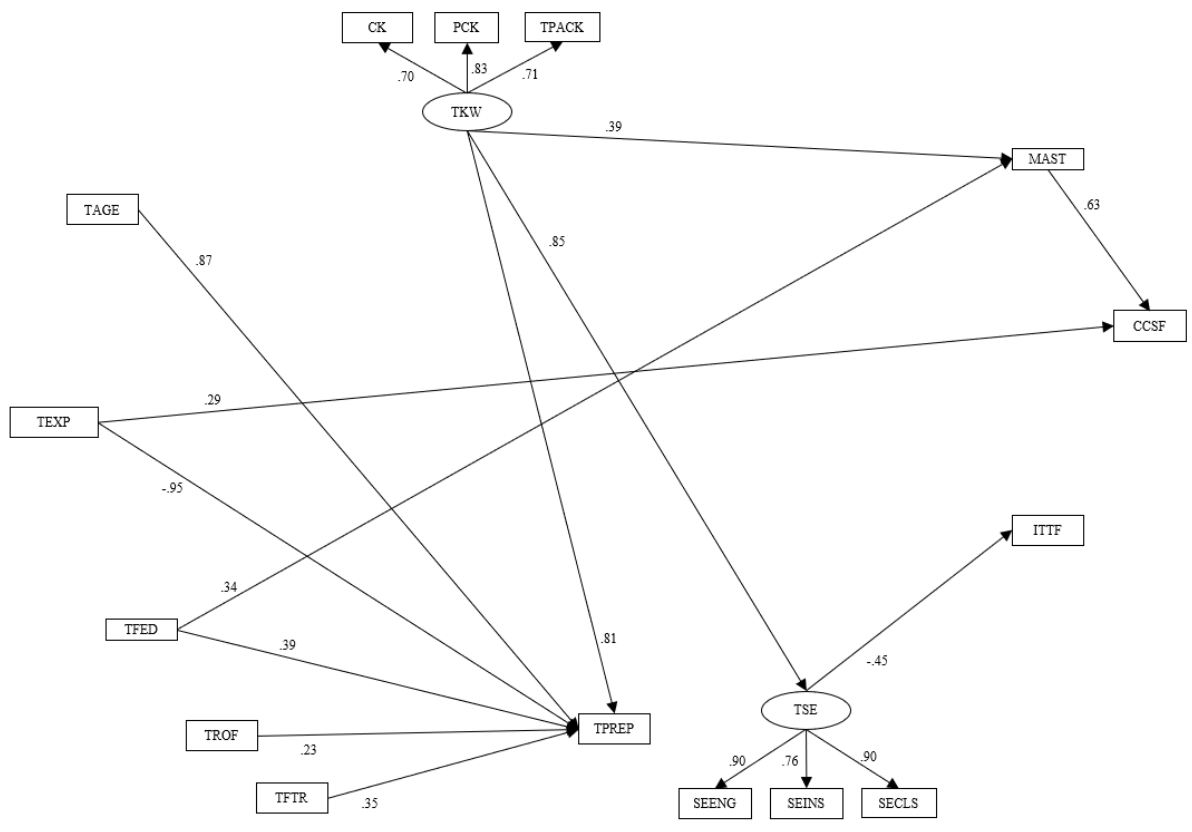
Figure 8.7.1 Final teacher-level model (n = 32)

Teacher knowledge (TKW)

The scale of teacher knowledge (TKW) in the measurement model is reflected by three observed variables, i.e., content knowledge (CK), pedagogical content knowledge (PCK), and technological pedagogical content knowledge (TPCK). Each of these observed variables has factor loadings of 0.70, 0.83, and 0.71, respectively, suggesting that the manifest variables are strong reflectors of TKW.

Teacher self-efficacy (TSE)

As a scale in the measurement model, teacher self-efficacy (TSE) is reflected by three observed variables, i.e., self-efficacy in engaging students (SEENG), self-efficacy in instruction (SEINS), and self-efficacy in classroom management (SECLS). The observed variables and factor loadings of the variables are SEENG (0.90), SEINS (0.76), and SECLS (0.90). The factor

loadings of the three observed variables are more than 0.32, and this suggests that the variables reflect the latent variable of TSE.

Results of the structural model (teacher-model level)

The structural model at the teacher level investigates the relationships between variables in the presage and process stage. The examination of model fit indices based on the final model shows that these fit indices generate satisfactory values. The indices include Comparative Fit Indices (CFI, 0.90) and Tucker-Lewis Index (TLI, 0.87). The values of fit indices close to 0.90 indicate satisfactory model fitting to the data. Apart from that, the results of Root Mean Square Error of Approximation (RMSEA, 0.08) are close to zero suggesting a good model fit for the final model.

The relationships between the variables in the structural models at the teacher level are discussed using the direct, indirect, and total effects which are presented in Table 8.7.1. Only significant effects are reported, and only the indirect effects that are above 0.10 are discussed due to their practical significance.

Model estimation

Direct effects and indirect effects on information transmission teacher-focused approaches to teaching (ITTF)

The results of analysis reveal there is one variable exerting a significant direct impact on information transmission teacher-focused approaches to teaching (ITTF). As shown in Table 8.7.1, the variable is TSE ($\beta = -0.45$). The negative path coefficient of TSE on ITTF indicates teacher self-efficacy negatively affects a teacher's use of approaches that focus on information transmission or teacher focus. This means that the higher self-efficacy acquired by teachers in engaging students, giving instructions, and managing the classroom, the less teachers employ teacher-focus approach when explaining English to their students. Apart from that, ITTF is

indirectly impacted by teacher knowledge (TKW, β = -0.38) through TSE. This suggests that when teachers have only minimal knowledge of the subject content, teaching, and technology, their level of self-efficacy is poorer. This then determines more adoption of teacher-focused approaches regarding the English.

Table 8.7.1
Standardized direct, indirect, and total effects for the final model at the teacher level

Dependent variable	Independent variable	Standardized Estimates		
		Direct effect	Indirect effect	Total effect
ITTF	TSE	-0.45**	-	-0.45**
	TKW	-	-0.38**	-0.38**
CCSF	TEXP	0.29**	-	0.29**
	MAST	0.63***	-	0.63***
	TKW	-	0.24*	0.24*
	TEDU	-	0.21*	0.21*
MAST	TEDU	0.34**	-	0.34**
	TKW	0.39**	-	0.39**
TSE	TKW	0.83***	-	0.83***
TPREP	AGE	0.87**	-	0.87**
	TEXP	-0.98**	-	-0.98**
	TEDU	0.30**	-	0.30**
	TFOR	0.24*	-	0.24*
	TFTR	0.35**	-	0.35**
	TKW	0.81***	-	0.81***

Direct effects and indirect effects on conceptual change student-focused approaches to teaching (CCSF)

As shown in Table 8.7.1, two variables impact conceptual change student-focused approaches to teaching (CCSF): teacher experience (β = 0.29) and mastery approach to assessment (MAST, β = 0.63). The positive path coefficient of TEXP on CCSF shows that teaching experience acquired by teachers positively assists the usage of student-focused approaches in teaching. This means that the more experience teachers in disseminating English, the more they use approaches that focus on students. Similarly, the positive coefficient of MAST on CCSF indicates that the use of assessment that focuses on students' mastery and skills positively encourage student-focused approaches to teaching. This means that the more teachers implement assessment practices that focus on mastery, the more teachers use student-focused approaches in their teaching.

In addition, the use of teaching approaches is indirectly affected by teacher qualification and teacher knowledge. The influence of teacher qualification (TEDU, $\beta = 0.21$) and teacher knowledge (TKW, $\beta = 0.24$) on CCSF are mediated by MAST. The positive path coefficients of both variables indicate the positive effects of TEDU and TKW on CCSF through MAST. Suggested here is that the higher the teacher qualification, the more teachers adopt mastery approaches to assessment, and the more teachers use student-focused approaches to teaching. Similarly, the more knowledge acquired by teacher, the more that mastery approaches to assessment are used, as are student-focused approaches to teaching.

Direct effects and indirect effects on mastery approaches to assessment (MAST)

The results presented in Table 8.7.1 reveal that two variables are found to exert direct impacts on mastery approaches to assessment (MAST). The variables are teacher education or qualification (TEDU, $\beta = 0.34$) and teacher knowledge (TKW, $\beta = 0.38$). The positive path coefficients of TEDU and TKW on MAST suggest that the higher the qualifications acquired by teachers and the more knowledge they have, the more assessment that focuses on learning is adopted. The analysis results found no variables having indirect impacts on MAST.

Direct effects and indirect effects on teacher self-efficacy (TSE)

As shown in Table 8.7.1, the variable of teacher knowledge (TKW, $\beta = 0.83$) has a positive direct impact on teacher self-efficacy (TSE). This indicates that teachers' greater knowledge of content, pedagogical content, and technology, the more teacher self-efficacy teachers demonstrate in classroom engagement, instruction, and classroom management. No variables are found to have indirect effects on TSE.

Direct effects and indirect effects on teacher preparedness (TPREP)

The results revealed that five variables have direct effects on teacher preparedness (TPREP). The variables are teacher age (AGE, $\beta = 0.87$), teaching experience (TEXP, $\beta = -0.98$), teacher

education or qualification (TEDU, β = 0.30), attendance at forums (TFOR, β = 0.24), teacher formal training (TFTR, β = 0.35), and teacher knowledge (TKW, β = 0.81). The positive path coefficients of those variables confirm their positive impacts on teacher preparedness. This suggests that teachers who are older, have higher qualifications, participate in teacher forums, attend more formal training sessions, and acquire more knowledge about content and teaching, the better prepared they are to teach English. However, it is interesting to note that teaching experience has a negative path coefficient indicating that the more experienced they are, the less preparedness the teachers are.

8.8   Summary

This chapter presents the results of SEM analysis of student-level and teacher-level model which was done using MPlus software. The measurement and structural model at student and teacher levels are analysed. In the student-level model, four latent variables which are parent's level of education, conceptions of learning, English classroom learning environment, and English achievement are represented by their manifest variables with factor loadings above the cut-off value. In the student-level structural model, the variables interact with one another and exert some influence on English achievement.

In the final model at the student level, it is revealed that students' demographic features, motivational variables, and approaches to learning relate to their level of English achievement. The results show significance differences in students' success based on school types and gender, in which those in senior high schools achieve more than those in vocational high schools. Additionally, female students perform better than males. Apart from that, students' motivation goals to do better than their peers positively impact on English achievement. Meanwhile, surface approaches to learning, anxiety, and assessment emphasising performance negatively impact on English achievement.

The final model at the teacher level shows that teachers' characteristics and attributes are related to teaching approaches. The results revealed that teacher self-efficacy has a negative direct effect on the information transmission/teacher-focused approaches to teaching. Teacher knowledge emerges as having an indirect negative effect on teaching approaches. For conceptual change/student-focused teaching approaches, teacher experience, and assessment approach that focuses on learning have a positive direct impact on the variable. Meanwhile, teacher education or qualification and teacher knowledge have positive but indirect effects on the student-focused approaches to teaching. As well, teachers' characteristics and other variables have relationships with approaches to assessment, teacher self-efficacy, and teacher preparedness. Teachers' qualifications and their level of knowledge have direct positive effects on the mastery approach of assessment. Teacher knowledge has also a direct positive impact on teacher self-efficacy. Teacher level of preparedness is also determined by age, experience, education, formal training, dan knowledge. Finally, the results of SEM analysis show the interactions between variables at each level, specifically the student and teacher level. The cross-level interactions among variables in the student and teacher levels are examined using Hierarchical Linear Modelling (HLM), and the results of HLM are presented in the next chapter.

CHAPTER 9

HIERARCHICAL LINEAR MODELLING

9.1   Introduction

The main objective of this research is to examine the factors that influence students' achievement in learning English at the senior high school level in West Java, Indonesia. These factors consist of student-and teacher-related issues. In the previous chapter, each group of factors was analysed to examine the relationships of the variables at the student and teacher levels. The previous analysis, however, did not examine the interactions between student and teacher characteristics in influencing English language proficiency. Since the data in this study has a hierarchical or nested structure, it is worth evaluating the relationships between variables in multiple levels. Therefore, the Hierarchical Linear Modelling (HLM) analysis was conducted to assess the relationships between teacher and student factors in influencing students' mastery of English. This chapter presents the results of HLM analysis.

9.2   Variables in the Two-level Model

Two sets of data were prepared to carry out HLM analysis: the student and the teacher level. Table 9.2.1 summarizes the variables in both types of data. Every variable in both groups, except for demographic data, has been put through Rasch analysis and the results produce WLE scores which are then used in the HLM analysis. A single set of WLE scores is used from each measure that has a one-factor structure. Meanwhile, for measures that have a hierarchical structure, since HLM does not produce latent variable scores, the multiple WLE scores from a latent variable were simplified into one factor score for subsequent HLM analysis. Calculating the factor score was completed using the IBM SPSS 22.

Table 9.2.1
List of Variables in Student and Teacher Data

Teacher-level variables		
Variable Name	Variable labels	Description
TGENDER	Teacher Gender	Teacher's gender
TAGE	Teacher Age	Teacher's age
TEXP	Teacher Experience	Years of teaching experience
TEDU	Teacher Education	Teacher's academic qualifications
TPOB	Teacher Peer Observation	Professional development activities (peer observation)
TFOR	Teacher Forum	Professional development activities (teacher forum involvement)
TPED	Teacher Professional Education	Professional development activities (professional education)
TFTR	Formal Training	Professional development (formal training)
TPREP	Teacher Preparedness	Teacher's sense of preparedness
TKW	Teacher Knowledge	Teacher's knowledge
TSE	Teacher Self-efficacy	Teacher's self-efficacy beliefs
MAST	Mastery Approach	Mastery approach to assessment
CCSF	Student-focused	Conceptual change/student-focused approach to teaching
ITTF	Teacher-focused	Information transmission/teacher-focused approach to teaching
Student-level variables		
STREAM	School type	Type of school student attends
SGENDER	Student Gender	Student's gender
SAGE	Student Age	Student's age
PARED	Parents' education	Parents' level of education
HW	Homework	Time spent doing on homework
STU	Study	Time spent on study
PRV	Private tuition	Time spent on private tuition
COLE	Conceptions of learning	Conceptions of learning English
LOA	Learning-oriented assessment environment	Learning-oriented assessment environment
POA	Performance-oriented assessment environment	Performance-oriented assessment environment
ECLE	English learning environment	English classroom learning environment
TASK	Task/mastery goals	Task/mastery goals
ABIL	Ability/performance-approach goals	Ability/performance-approach goals
ABAV	Ability/performance-avoidance goals	Ability/performance-avoidance goals
ANXI	Anxiety	English classroom anxiety
ATTI	Attitudes	Attitudes to learning English
DEEP	Deep	Deep approach
ACHI	Achieving	Achieving approach
SURF	Surface	Surface approach
EACH	English achievement	English achievement

The conceptual model for two-level model of factors influencing English achievement is shown

in Figure 9.2.1
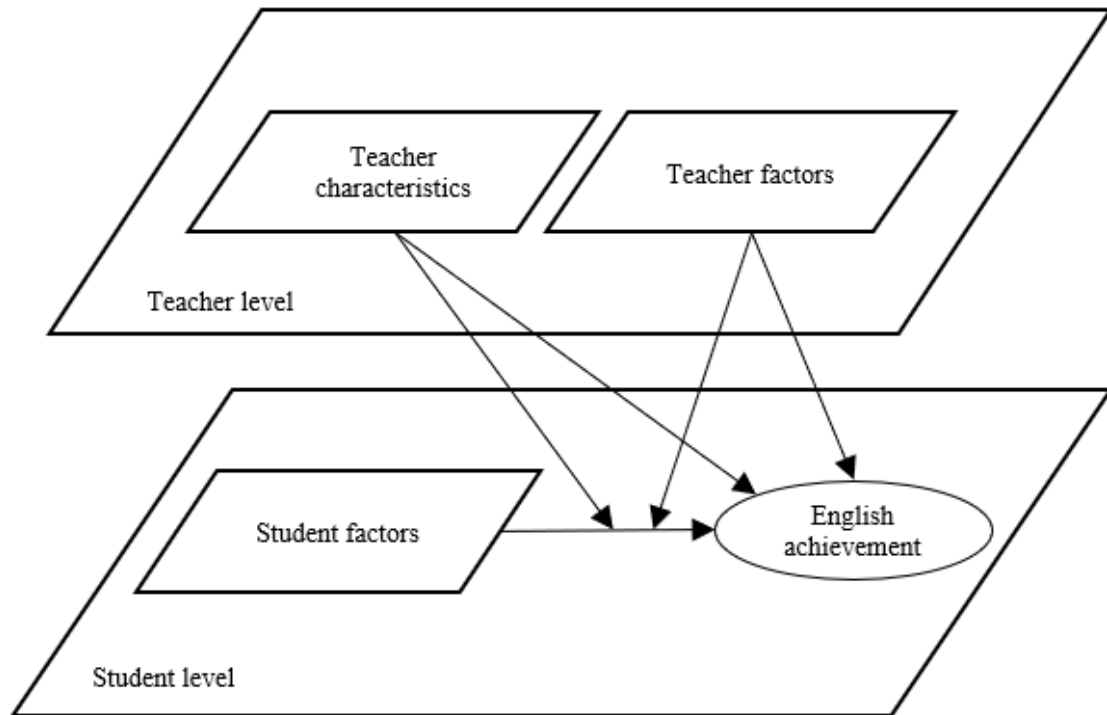
Figure 9.2.1 Two-level model of students' English achievement

9.3 Two-level Model of English Achievement

The HLM analysis of the two-level model was done to understand the relationship between the student-level (Level 1) and teacher-level (Level 2) predictors and the outcome variable in the model (students' English achievement).

The Hypothesized Model

The hypothesized two-level model of English achievement is shown in Figure 9.3.1. Based on Bigg's theoretical model, the variables were included in Presage, Process, and Product phases. There were eleven teacher-level variables and eight student-level variables in the presage phase. The teacher-level variables in the presage phase include gender (TGENDER), age (TAGE), years of teaching experience (TEXP), qualifications (TEDU), peer observation (TPOB), involvement in teacher forum (TFOR), involvement in professional education

(TPED), involvement in formal training (TFTR), sense of preparedness (TPREP), knowledge (TKW), and self-efficacy (TSE). Meanwhile, the student-level variables in the presage phase include school type/stream (STREAM), gender (SGENDER), age (SAGE), parents' level of education (PARED), time spent on doing English homework (HW), time spent on studying English (STU), time spent on English private tuition (PRV), conceptions of learning (COLE), learning-oriented assessment environment (LOA), and performance-oriented assessment environment (POA).
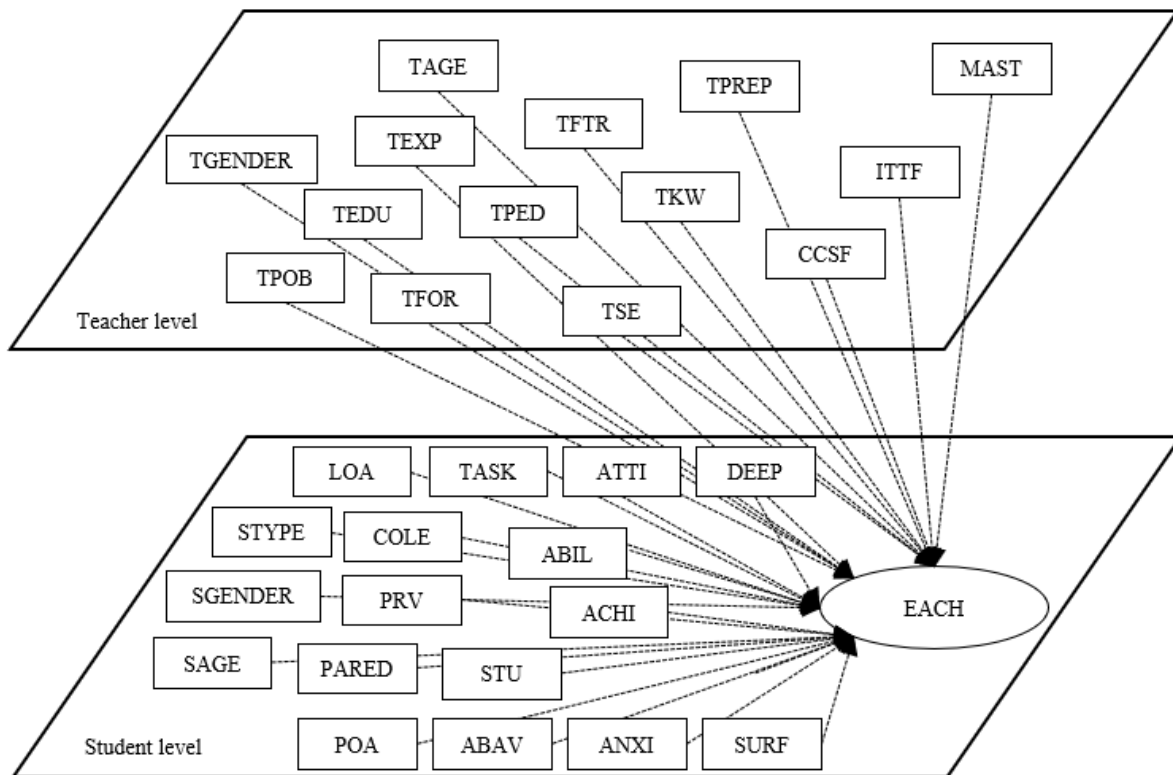
Figure 9.3.1 The hypothesized two-level model of students' English achievement

In the Process phase, the teacher-level variables include mastery approach to assessment (MAST), conceptual change/student-focused approach (CCSF), and information transmission/ teacher-focused (ITTF). At the student-level, the variables in the process phase incorporate task/mastery goals (TASK), ability/performance-approach goals (ABIL), ability/performance-

avoidance goals (ABAV), L2 classroom anxiety (ANXI), attitudes toward learning English (ATTI), deep approach to studying (DEEP), achieving approach to studying (ACHI), and surface approach to studying (SURF). The variable in the product phase is English achievement and it consists of reading and listening test (EACH).

The analysis of HLM was conducted to find out how those variables in teacher and student level are linked to the outcome. Based on the theoretical framework, it is hypothesized that those variables in the presage phase are related to those in the process and product phases. In the meantime, the variables in the process phase are related to the variable in the product phase.

The Null Model

The HLM analysis was firstly performed to examine the fully unconditional model or the null model to obtain the estimates for variance available that can be explained in the model. Examination of the null model was done without the inclusion of any predictors in both the teacher and student levels. The result of the null model analysis shows the variation in the outcome variable (English achievement/EACH) and is specified in the following equations.

Level-1 model: English achievement for each student is modelled as a function of a teacher mean plus a random error.

$EACH_{ij} = \beta_{0j} + r_{ij}$

Level-2 model:

$\beta_{0j} = \gamma_{00} + u_{0j}$

Table 2 displays the results of HLM analysis on the null model for the two-level model of English achievement. Shown here is the proportion of variance at each level which can be calculated using the following equations:

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At level 1

$$\frac{\sigma^2}{\sigma^2 + \tau} = \frac{0.77}{0.77 + 0.23} = 0.77 \ (n = 758)$$

At level 2

$$\frac{\tau}{\sigma^2 + \tau} = \frac{0.23}{0.77 + 0.23} = 0.23 \ \ (n = 32)$$

The results show that student-level accounts for 77% of the variance while the teacher-level stands for 23% of the variance in measuring English achievement. The reliability estimate for this model is 0.85 indicating that there is a random effect for English achievement.

Table 9.3.1
The Null Model Results: Two-level Model of English Achievement

Final estimation of fixed effects:						
Fixed effects		Coefficient	Standard error	*t*-ratio	Approx. d.f.	*p*-value
For INTRCPT1, *β0*						
INTRCPT2, *γ00*		-0.01	0.09	-0.05	31	0.964
Final estimation of level-1 and level-2 variance components:						
Random effect	Reliability	Standard deviation	Variance component	d.f.	Chi-square (χ^2)	*p*-value
INTRCPT1, *u0*	0.85	0.48	0.23	31	252.11	<0.001
level-1, *r*		0.88	0.77			
Statistics for current covariance components model						
Deviance			2020.01			
Number of estimated parameters			2			

The Final Model

The final model is specified by the following equations:

Level-1 model

$$EACH_{ij} = \beta_{0j} + \beta_{1j}*(STREAM_{ij}) + \beta_{2j}*(SGENDER_{ij}) + \beta_{3j}*(HW_{ij}) + \beta_{4j}*(POA_{ij}) + \beta_{5j}*(ABIL_{ij})$$

$$+ \beta_{6j}*(ANXI_{ij}) + \beta_{7j}*(SURF_{ij}) + r_{ij}$$

Level-2 model

$\beta_{0j} = \gamma_{00} + \gamma_{01}*(TGENDER_j) + \gamma_{02}*(TEACEDU_j) + u_{0j}$

$\beta_{1j} = \gamma_{10}$

$\beta_{2j} = \gamma_{20}$

$\beta_{3j} = \gamma_{30}$

$\beta_{4j} = \gamma_{40} + \gamma_{41}*(TPOB_j) + \gamma_{42}*(CCSF_j) + u_{4j}$

$\beta_{5j} = \gamma_{50} + \gamma_{51}*(TGENDER_j) + u_{5j}$

$\beta_{6j} = \gamma_{60} + \gamma_{61}*(TKW_j) + \gamma_{62}*(ITTF_j) + u_{6j}$

$\beta_{7j} = \gamma_{70} + u_{7j}$

By substituting level-2 equations for the level-1 equations, the final model is written as:

$EACH_{ij} = \gamma_{00} + \gamma_{01}*TGENDER_j + \gamma_{02}*TEACEDU_j + \gamma_{10}*STREAM_{ij} + \gamma_{20}*SGENDER_{ij} +$

$\gamma_{30}*HW_{ij} + \gamma_{40}*POA_{ij} + \gamma_{41}*TPOB_j*POA_{ij} + \gamma_{42}*CCSF_j*POA_{ij} + \gamma_{50}*ABIL_{ij} +$

$\gamma_{51}*TGENDER_j*ABIL_{ij} + \gamma_{60}*ANXI_{ij} + \gamma_{61}*TKW_j*ANXI_{ij} + \gamma_{62}*ITTF_j*ANXI_{ij} + \gamma_{70}*SURF_{ij} + u_{0j}$

$+ u_{4j}*POA_{ij} + u_{5j}*ABIL_{ij} + u_{6j}*ANXI_{ij} + u_{7j}*SURF_{ij} + r_{ij}$

The equations above show that English achievement is defined as a function of the overall intercept (γ_{00}), nine main effects, five cross-level interaction effects, and a random error. The nine main effects include the direct effects from school stream (STREAM), student gender (SGENDER), time spent on homework (HW), performance-oriented assessment environment, (POA), ability/performance-approach goals (ABIL), L2 classroom anxiety (ANXI), surface approach to studying (SURF), teacher gender (TGENDER), and teacher qualification (TEACEDU). Cross-level interaction effects include teacher peer observation activities

(TPOB) and student-focused approaches to teaching (CCSF) on perceived performance-oriented assessment environment (POA), teacher's gender (TGENDER) on student's performance-approach goals (ABIL), teacher knowledge (TKW) and teacher-focused approach to teaching (ITTF) on students' anxiety (ANXI).

9.4 The effects of Student-level and Teacher-level Predictors on English Achievement

The results of HLM analysis as shown in Table 9.4.1 and Figure 9.4.1 show seven variables at the student-level and two variables at the teacher-level which exert a direct effect on the outcome variable, i.e., English achievement. The variables include STREAM, GENDER, ENG_HW, POA, ABIL, ANXI, and SURF for the student-level, and GENDER and TEACEDU for the teacher-level.
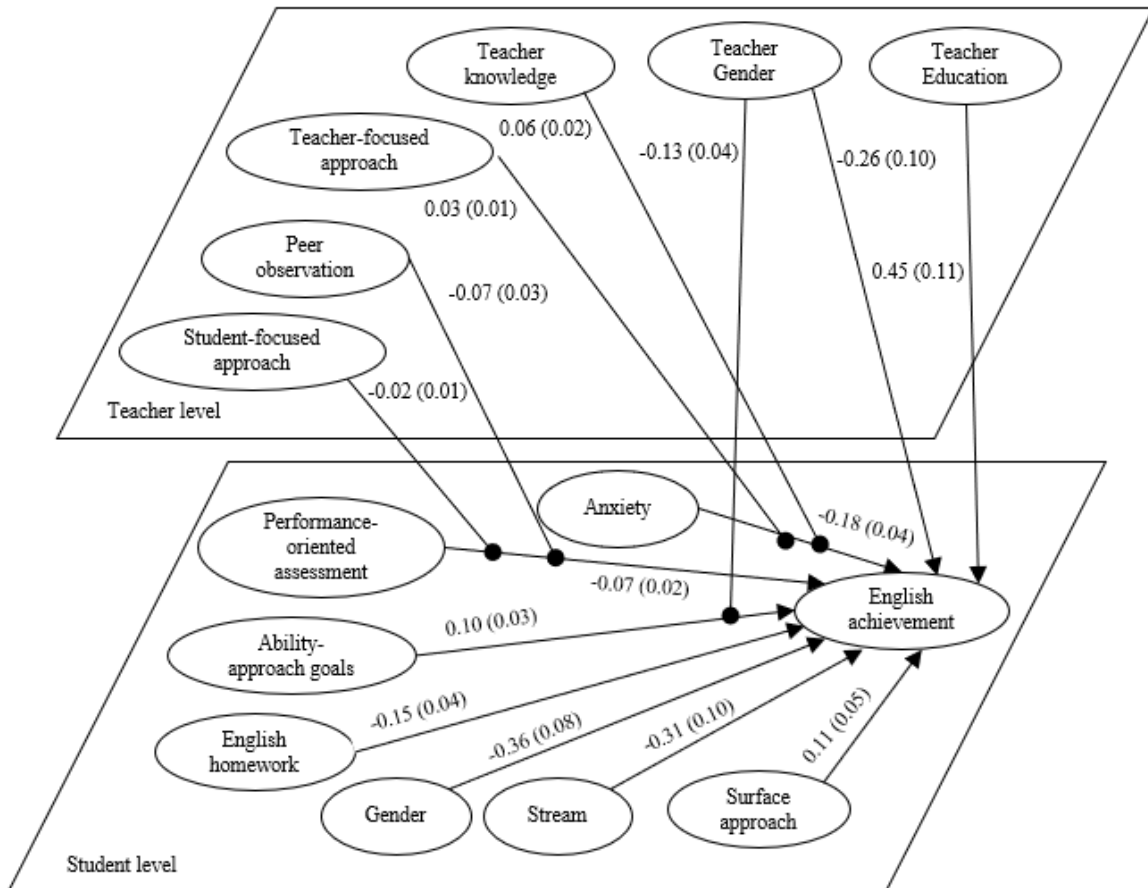
Figure 9.4.1 The final two-level model for English achievement

In the student level, five variables indicate negative direct effects on the outcome including STREAM ($\gamma = -0.31$), GENDER ($\gamma = -0.36$), ENG_HW ($\gamma = -0.15$), POA ($\gamma = -0.07$), and ANXI ($\gamma = -.18$). Results indicate that students from public senior high schools did better than students enrolled in public vocational high schools. Also, there is also a significant difference between genders in which female students did better at English compared to male students. In terms of homework, the results indicate that the less homework given to students, the more they actually achieve in learning English. For POA and ANXI, the negative values indicate that the more students perceived assessment as part of performance, then the higher their anxiety, and the less they achieved. Meanwhile, two variables at the student level show positive direct effects on English achievement which include ABIL ($\gamma = 0.10$) and SURF (0.11). This suggests that

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the higher students' motivation to do well in performance and the more students used the surface strategy in learning English, the more succeed they had.

Table 9.4.1
Final model results: Two-level model of English achievement

Fixed effects	Coefficient	Standard error	t-ratio	Approx. $d.f.$	p-value
For INTRCPT1, β_0					
INTRCPT2, γ_{00}	0.85	0.20	4.28	29	<0.001
GENDER, γ_{01}	-0.26	0.10	-2.57	29	0.016
TEACEDU, γ_{02}	0.45	0.11	4.27	29	<0.001
For STREAM slope, β_1					
INTRCPT2, γ_{10}	-0.31	0.10	-2.97	595	0.003
For GENDER slope, β_2					
INTRCPT2, γ_{20}	-0.36	0.08	-4.62	595	<0.001
For ENG_HW slope, β_3					
INTRCPT2, γ_{30}	-0.15	0.04	-4.04	595	<0.001
For POA slope, β_4					
INTRCPT2, γ_{40}	-0.07	0.02	-2.95	29	0.006
TPOB, γ_{41}	-0.07	0.03	-2.63	29	0.013
CCSF, γ_{42}	-0.02	0.01	-3.06	29	0.005
For ABIL slope, β_5					
INTRCPT2, γ_{50}	0.10	0.03	3.24	30	0.003
GENDER, γ_{51}	-0.13	0.04	-3.23	30	0.003
For ANXI slope, β_6					
INTRCPT2, γ_{60}	-0.18	0.04	-4.34	29	<0.001
TKW, γ_{61}	0.06	0.02	2.96	29	0.006
ITTF, γ_{62}	0.03	0.01	3.73	29	<0.001
For SURF slope, β_7					
INTRCPT2, γ_{70}	0.11	0.05	-2.53	31	0.017

Final estimation of variance components					
Random effect	Reliability	Standard deviation	Variance component	$d.f.$	Chi-square (χ^2)	p-value
INTRCPT1, u_0	0.63	0.29	0.08	29	79.75	<0.001
POA slope, u_4	0.09	0.04	0.00	29	26.48	>0.500
ABIL slope, u_5	0.23	0.08	0.00	30	31.24	0.404
ANXI slope, u_6	0.32	0.15	0.02	29	43.38	0.042
SURF slope, u_7	0.35	0.18	0.03	31	50.99	0.013
level-1, r		0.78	0.60			

Statistics for current covariance components model

Deviance = 1893.91
Number of estimated parameters = 16

9.5   The Interaction Effects

The results of HLM analysis also display the interaction effects between predictors at the student and teacher levels and the outcome in the student level. Some interactions are identified, including teacher knowledge (TKW) and teacher-focused approach (ITTF) as influencing the slope of anxiety (ANXI). Meanwhile, peer observation (TPOB) and student-focused approach (CCSF) influence the slope of performance-oriented assessment

environment (POA), and teacher gender (TGENDER) also influences the slope of ability-approach goals (ABIL).

The first interaction involves teacher predictor of TKW and ANXI on EACH

$$EACH_{ij} = \gamma_{00} + \gamma_{60}\,(ANXI) + \gamma_{61}\,(TKW)\,(ANXI) + r_{ij}$$

in which

γ_{00} represents the average of English achievement, which is 0.85, $\gamma_{60} = -0.18$ and $\gamma_{61} = 0.06$. This has resulted in the following equation:

$$EACH_{ij} = 0.85 - 0.18\,(ANXI) + 0.06\,(TKW)\,(ANXI) + r_{ij}$$

The equation is then deployed to calculate teacher-level coordinates to obtain the graphical representation of the cross-level interaction effect. The calculation is written as follows:

1. One standard deviation above the average of TKW and ANXI

2. One standard deviation above the average of TKW and the average of ANXI

3. One standard deviation above the average of TKW and one standard deviation below the average of ANXI

4. The average of TKW and one standard deviation above the average of ANXI

5. The average of TKW and ANXI

6. The average of TKW and one standard deviation below the average of ANXI

7. One standard deviation below the average of TKW and one standard deviation above the average of ANXI

8. One standard deviation below the average of TKW and the average of ANXI

9. One standard deviation below the average of TKW and ANXI

For ANXI, the mean and standard deviation are 0.37 and 1.05 respectively, and for TKW the mean and standard deviation are 0 and 1 respectively. Consequently, the coordinates are:

1. High level of teacher knowledge and high level of anxiety (TKW = 1; ANXI = 1.42); English achievement = 0.85 – 0.18 (1.42) + 0.06 (1) (1.42) = 0.68

2. High level of teacher knowledge and average level of anxiety (TKW = 1; ANXI = 0.37); English achievement = 0.85 – 0.18 (0.37) + 0.06 (1) (0.37) = 0.81

3. High level of teacher knowledge and low level of anxiety (TKW = 1; ANXI = -0.68); English achievement = 0.85 – 0.18 (-0.68) + 0.06 (1) (-0.68) = 0.93

4. Average level of teacher knowledge and high level of anxiety (TKW = 0; ANXI = 1.42); English achievement = 0.85 – 0.18 (1.42) + 0.06 (0) (1.42) = 0.59

5. Average level of teacher knowledge and average level of anxiety (TKW = 0; ANXI = 0.37); English achievement = 0.85 – 0.18 (0.37) + 0.06 (0) (0.37) = 0.78

6. Average level of teacher knowledge and low level of anxiety (TKW = -1; ANXI = -0.68); English achievement = 0.85 – 0.18 (-0.68) + 0.06 (0) (-0.68) = 0.97

7. Low level of teacher knowledge and high level of anxiety (TKW = -1; ANXI = 1.42); English achievement = 0.85 – 0.18 (1.42) + 0.06 (-1) (1.42) = 0.51

8. Low level of teacher knowledge and average level of anxiety (TKW = -1; ANXI = 0.37); English achievement = 0.85 – 0.18 (0.37) + 0.06 (-1) (-0.37) = 0.76

9. Low level of teacher knowledge and average level of anxiety (TKW = -1; ANXI = -0.68); English achievement = 0.85 – 0.18 (-0.68) + 0.06 (-1) (-0.68) = 1.01

Based on the interaction effect of teacher knowledge on the slope of student anxiety level as far as English achievement is concerned, as shown in Figure 9.5.1, it is evident that for students taught by teachers who have low levels of knowledge, the negative effect of anxiety on

students' achievement is stronger. It is comparable to those students who are taught by teachers with high levels of knowledge.
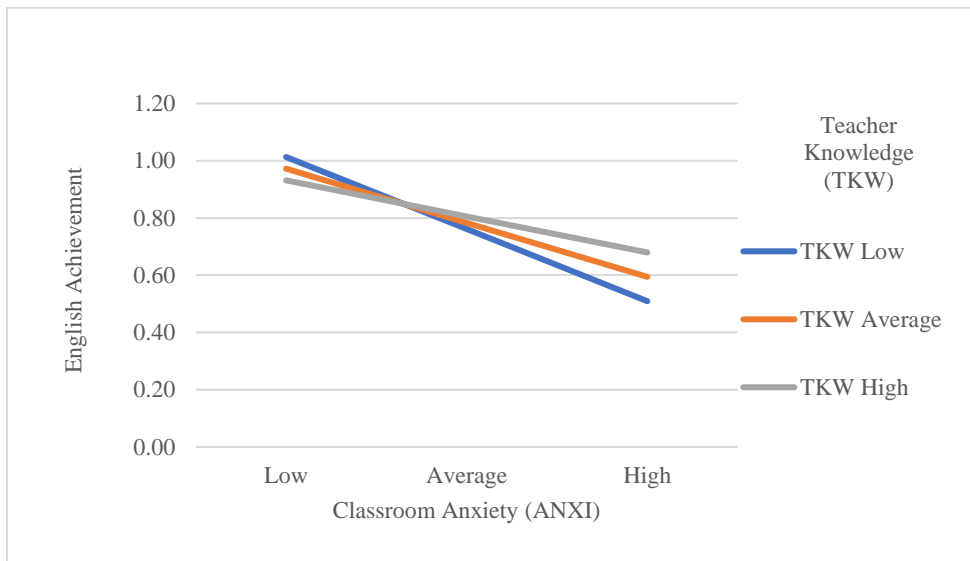
Figure 9.5.1 The cross-level interactions effect of teacher knowledge on the slope of anxiety on students' English achievement

The second interaction involves teacher predictor of ITTF on the slope of ANXI on EACH

$$EACH_{ij} = \gamma_{00} + \gamma_{60}\,(\text{ANXI}) + \gamma_{62}(\text{ITTF})\,(\text{ANXI}) + r_{ij}$$

in which

γ_{00} represents the average of English achievement, which is 0.85, $\gamma_{60} = -0.18$ and $\gamma_{62} = 0.03$. This has resulted in the following equation:

$$EACH_{ij} = 0.85 - 0.18\,(\text{ANXI}) + 0.03\,(\text{ITTF})\,(\text{ANXI}) + r_{ij}$$

The equation then calculates teacher-level coordinates to create the graphical representation of the cross-level of the cross-level interaction effect. The calculation is:

1. One standard deviation above the average of ITTF and ANXI

2. One standard deviation above the average of ITTF and the average of ANXI

3. One standard deviation above the average of ITTF and one standard deviation below the average of ANXI

4. The average of ITTF and one standard deviation above the average of ANXI

5. The average of ITTF and ANXI

6. The average of ITTF and one standard deviation below the average of ANXI

7. One standard deviation below the average of ITTF and one standard deviation above the average of ANXI

8. One standard deviation below the average of ITTF and the average of ANXI

9. One standard deviation below the average of ITTF and ANXI

For ANXI, the mean and standard deviation are 0.37 and 1.05 respectively, and for ITTF the mean and standard deviation are 0.48 and 1.85 respectively. Therefore, the coordinates are:

1. High level of teacher-focused approach and high level of anxiety (ITTF = 2.33; ANXI = 1.42); English achievement = 0.85 – 0.18 (1.42) + 0.03 (2.33) (1.42) = 0.69

2. High level of teacher-focused approach and average level of anxiety (ITTF = 2.33; ANXI = 0.37); English achievement = 0.85 – 0.18 (0.37) + 0.03 (2.33) (0.37) = 0.81

3. High level of teacher-focused approach and low level of anxiety (ITTF = 2.33; ANXI = -0.68); English achievement = 0.85 – 0.18 (-0.68) + 0.03 (2.33) (-0.68) = 0.92

4. Average level of teacher-focused approach and high level of anxiety (ITTF = 0.48; ANXI = 1.42); English achievement = 0.85 – 0.18 (1.42) + 0.03 (0.48) (1.42) = 0.61

5. Average level of teacher-focused approach and medium level of anxiety (ITTF = 0.48; ANXI = 0.37); English achievement = 0.85 – 0.18 (0.37) + 0.03 (0.48) (0.37) = 0.79

6. Average level of teacher-focused approach and low level of anxiety (ITTF = 0.48; ANXI = -0.68); English achievement = 0.85 – 0.18 (-0.68) + 0.03 (0.48) (-0.68) = 0.96

7. Low level of teacher-focused approach and high level of anxiety (ITTF = -1.37; ANXI = 1.42); English achievement = 0.85 – 0.18 (1.42) + 0.03 (-1.37) (1.42) = 0.54

8. Low level of teacher-focused approach and average level of anxiety (ITTF = -1.37; ANXI = 0.37); English achievement = 0.85 – 0.18 (0.37) + 0.03 (-1.37) (0.37) = 0.77

9. Low level of teacher-focused approach and low level of anxiety (ITTF = -1.37; ANXI = -0.68); English achievement = 0.85 – 0.18 (-0.68) + 0.03 (-1.37) (-0.68) = 1.00

Figure 9.5.2 illustrates the moderating effect of information transmission/teacher-focused approach on the slope of anxiety on English achievement. As shown in the figure, for students learning under teachers who use a less teacher-focused approach, the negative effect of students' anxiety on achievement is stronger.
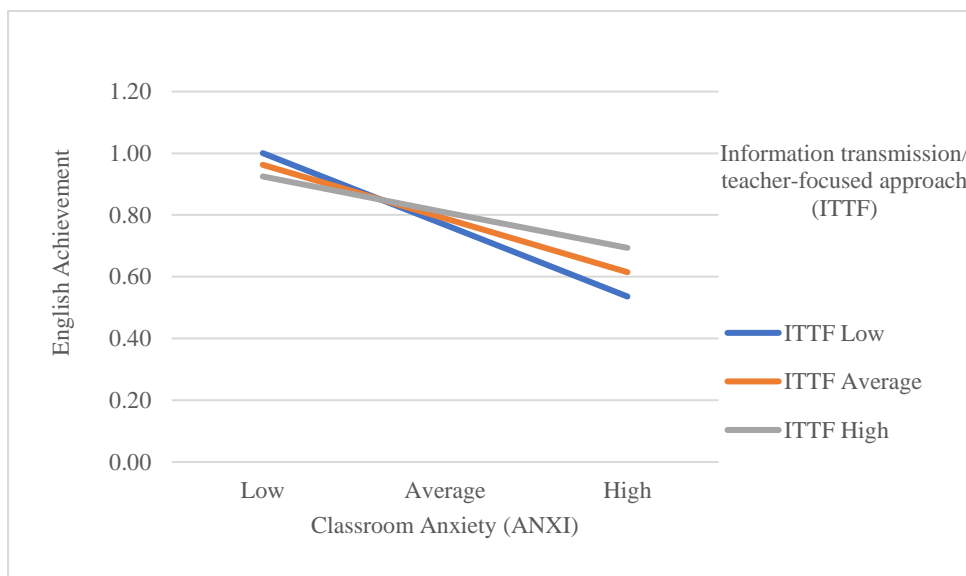
Figure 9.5.2 The cross-level interactions effect of information transmission/teacher-focused approach on the slope of anxiety on students' English achievement

The third interaction involves teacher predictor of TPOB on the slope of POA on EACH

$$EACH_{ij} = \gamma_{00} + \gamma_{40}(POA) + \gamma_{41}(TPOB)(POA) + r_{ij}$$

in which

γ_{00} represents the average of English achievement, which is 0.85, γ_{40} = -0.07 and γ_{41} = -0.07. This has resulted in the following equation:

$$EACH_{ij} = 0.85 - 0.07 \; (POA) - 0.07 \; (TPOB)(POA) + r_{ij}$$

The equation is then used to calculate teacher-level coordinates to make a graphical representation of cross-level interaction effect. The calculation is:

1. One standard deviation above the average of TPOB and POA

2. One standard deviation above the average of TPOB and the average of POA

3. One standard deviation above the average of TPOB and one standard deviation below the average of POA

4. The average of TPOB and one standard deviation above the average of POA

5. The average of TPOB and POA

6. The average of TPOB and one standard deviation below the average of POA

For POA, the mean and standard deviation are -1.08 and 1.61 respectively, and for TPOB the mean and standard deviation are 0 and 1 respectively. Therefore, the coordinates are:

1. Teacher involvement in peer observation and high level of performance-approaches to assessment (TPOB = 1; POA = 0.53); English achievement = 0.85 – 0.07 (0.53) –0.07 (1) (0.53) = 0.78

2. Teacher involvement in peer observation and average level of performance-approaches to assessment (TPOB = 1; POA = -1.08); English achievement = 0.85 – 0.07 (-1.08) – 0.07 (1) (-1.08) = 1.00

3. Teacher involvement in peer observation and low level of performance-approaches to assessment (TPOB = 1; POA = -2.69); English achievement = 0.85 – 0.07 (-2.69) –0.07 (1) (-2.69) = 1.23

4. Non-involvement teacher in peer observation and high level of performance-approaches to assessment (TPOB = 0; POA = 0.53); English achievement = 0.85 – 0.07 (0.53) –0.07 (0) (0.53) = 0.81

5. Non-involvement teacher in peer observation and average level of performance-approaches to assessment (TPOB = 0; POA = -1.08); English achievement = 0.85 – 0.07 (-1.08) –0.07 (0) (-1.08) = 0.93

6. Non-involvement teacher in peer observation and low level of performance-approaches to assessment (TPOB = 0; POA = -2.69); English achievement = 0.85 – 0.07 (-2.69) – 0.06 (0) (-2.69) = 1.04

As shown in Figure 9.5.3, peer observation (TPOB, -0.06) exerts a negative interaction effect on the slope of performance-oriented assessment environment (POA) for English achievement. For students learning under teachers who are involved in peer observation activities, the effect of assessment oriented to performance on their English achievement is weaker; meanwhile, for students learning under teachers who have not participated in peer-observation activities, the effect of performance-oriented assessment on English achievement is stronger.
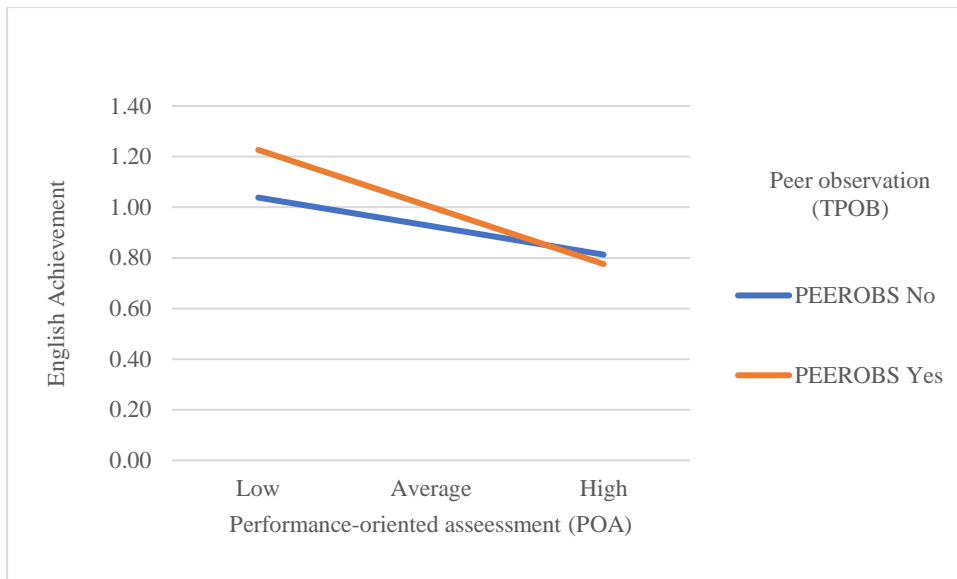
Figure 9.5.3 The cross-level interactions effect of the teachers' peer observation involvement on the slope of performance-oriented assessment environment on students' English achievement

The fourth interaction involves teacher predictor of CCSF on the slope of POA on EACH

$$EACH_{ij} = \gamma_{00} + \gamma_{40}(POA) + \gamma_{42}(CCSF)(POA) + r_{ij}$$

in which

γ_{00} represents the average of English achievement, which is 0.85, $\gamma_{40} = -0.07$ and $\gamma_{42} = -0.02$. This has resulted in the following equation:

$$EACH_{ij} = 0.85 - 0.07\,(POA) - 0.02\,(CCSF)(POA) + r_{ij}$$

The equation is then employed to calculate teacher-level coordinates to get the graphical representation of the cross-level interaction effect. The calculation is:

1. One standard deviation above the average of CCSF and POA

2. One standard deviation above the average of CCSF and the average of POA

3. One standard deviation above the average of CCSF and one standard deviation below the average of POA

4. The average of CCSF and one standard deviation above the average of ANXI

5. The average of CCSF and POA

6. The average of CCSF and one standard deviation below the average of POA

7. One standard deviation below the average of CCSF and one standard deviation above the average of POA

8. One standard deviation below the average of CCSF and the average of POA

9. One standard deviation below the average of CCSF and POA

For POA, the mean and standard deviation are -1.08 and 1.61 respectively, and for CCSF the mean and standard deviation are 1.61 and 2.67 respectively. Therefore, the coordinates are:

1. High level use of student-focused approach and high level of performance-approaches to assessment (CCSF = 4.28; POA = 0.53); English achievement = 0.85 – 0.07 (0.53) – 0.02 (4.28) (0.53) = 0.77

2. High level use of student-focused approach and average level of performance-oriented to assessment (CCSF = 4.28; POA = -0.18); English achievement = 0.85 – 0.07 (-0.18) –0.02 (4.28) (-0.18) = 1.02

3. High level use of student-focused approach and low level of performance-approaches to assessment (CCSF = 4.28; POA = -2.69); English achievement = 0.85 – 0.07 (-2.69) –0.02 (4.28) (-2.69) = 1.27

4. Average level use of student-focused approach and high level of performance-approaches to assessment (CCSF = 1.61; POA = 0.53); English achievement = 0.85 – 0.07 (0.53) –0.02 (1.61) (0.53) = 0.80

5. Average level use of student-focused approach and average level of performance-approaches to assessment (CCSF = 1.61; POA = -1.08); English achievement = 0.85 – 0.07 (-1.08) –0.02 (1.61) (-1.08) = 0.96

6. Average level use of student-focused approach and low level of performance-approaches to assessment (CCSF = 1.61; POA = -2.69); English achievement = 0.85 – 0.07 (-2.69) –0.02 (1.61) (-2.69) = 1.12

7. Low level use of student-focused approach and high level of performance-approaches to assessment (CCSF = -1.06; POA = 0.53); English achievement = 0.85 – 0.07 (0.53) –0.02 (-1.06) (0.53) = 0.82

8. Low level use of student-focused approach and average level of performance-approaches to assessment (CCSF = -1.06; POA = -1.08); English achievement = 0.85 – 0.07 (-1.08) –0.02 (-1.06) (-1.08) = 0.90

9. Low level use of student-focused approach and low level of performance-approaches to assessment (CCSF = -1.06; POA = -2.69); English achievement = 0.85 – 0.07 (-2.69) –0.02 (-1.06) (-2.69) = 0.98

Figure 9.5.4 displays the interaction effect of teacher approach to teaching (CCSF, -0.02) on the slope of students' perceptions of assessment environment (POA, -0.07) and how well they learn the English language. This suggests that the student-focused approach to teaching has a negative effect on the slope of performance-oriented assessment leading to students' English achievement. As depicted in Figure 9.5.4, for students in classrooms where teachers use a more student-focused approach, the negative effect of performance-oriented assessment on English achievement is stronger. Meanwhile, for students taught by teachers adopting a less student-focused approach, the negative effect of performance-oriented assessment on achievement is weaker.
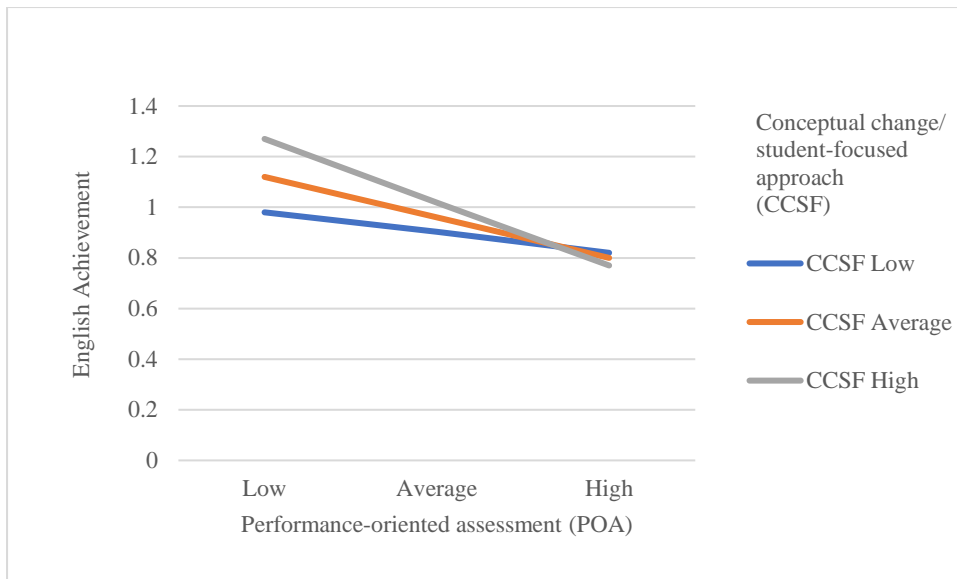
Figure 9.5.4 The cross-level interactions effect of the conceptual change/student-focused approach to teaching on the slope of performance-oriented assessment environment on students' English achievement

The fifth interaction involves teacher predictor of TGENDER on the slope of ABIL on EACH

$EACH_{ij} = \gamma_{00} + \gamma_{50}(ABIL) + \gamma_{51}(TGENDER)(ABIL) + r_{ij}$

in which

γ_{00} represents the average of English achievement, which is 0.85, $\gamma_{50} = 0.10$ and $\gamma_{51} = -0.13$. This has resulted in the following equation:

$EACH_{ij} = 0.85 + 0.10\ (ABIL) - 0.13\ (TGENDER)(ABIL) + r_{ij}$

The equation subsequently calculates the teacher-level coordinates to get the graphical representation of the cross-level interaction effect. The calculation is written here:

1. TGENDER (male) and one standard deviation above the average of ABIL

2. TGENDER (male) and the average of ABIL

3. TGENDER (male) and one standard deviation below the average of ABIL

4. TGENDER (female) and one standard deviation above the average of ABIL

5. TGENDER (female) and the average of ABIL

6. TGENDER (female) and and one standard deviation below the average of POA

For ABIL, the mean and standard deviation are 0.65 and 1.41 respectively, and for TGENDER the mean and standard deviation are 0 and 1 respectively. With this in mind, the coordinates are:

$$EACH_{ij} = 0.85 + 0.10 \ (ABIL) - 0.13 \ (TGENDER)(ABIL) + r_{ij}$$

1. Teacher gender (Male) and high level of ability-approach goal adoption (Male = 1; ABIL = 2.06); English achievement = 0.85 + 0.10 (2.06) –0.13 (1) (2.06) = 0.79

2. Teacher gender (Male) and average level of ability-approach goal adoption (Male = 1; ABIL = 0.65); English achievement = 0.85 + 0.10 (0.65) –0.13 (1) (0.65) = 0.83

3. Teacher gender (Male) and low level of ability-approach goal adoption (Male = 1; ABIL = -0.76); English achievement = 0.85 + 0.10 (-0.76) –0.13 (1) (-0.76) = 0.87

4. Teacher gender (Female) and high level of ability-approach goal adoption (Female = 0; ABIL = 2.06); English achievement = 0.85 + 0.10 (2.06) –0.13 (0) (2.06) = 1.06

5. Teacher gender (Female) and average level of ability-approach goal adoption (Female = 0; ABIL = 0.65); English achievement = 0.85 + 0.10 (0.65) –0.13 (0) (0.65) = 0.92

6. Teacher gender (Female) and low level of ability-approach goal adoption (Female = 0; ABIL = -0.76); English achievement = 0.85 + 0.10 (-0.76) –0.13 (0) (-0.76) = 0.77

Figure 9.5.5 shows the moderating effect of teacher gender (TGENDER, -0.13) on the slope of students' adoption of ability/performance-approach goals (ABIL, 0.10) and their English achievement. As shown in the figure below, students who are taught by female English teachers, it appears that the positive effect of performance-approach goals on English achievement is stronger compared to those who are taught by male teachers.
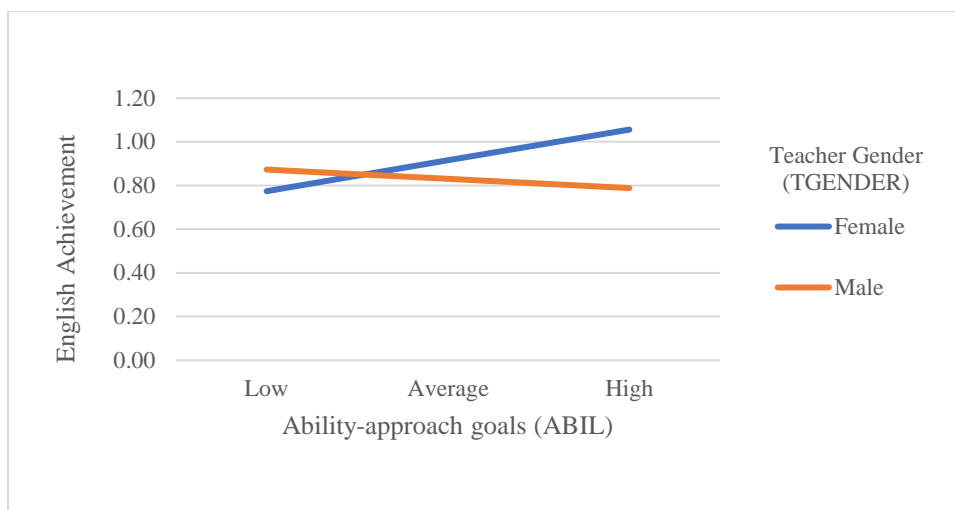
Figure 9.5.5 The cross-level interactions effect of teacher gender on the slope of ability-approach goals on students' English achievement

9.6 Variance Explained for the Two-level Model

The results of HLM analysis also provide information about the estimated variance components in the two-level model. Table 9.6.1 presents the proportion of variance explained for the outcome variable, which is English achievement.

Table 9.6.1
Estimation of Variance Components for English Achievement

| Model | Estimation of variance components | |
	Between students (n=758)	Between teachers (n=32)
Fully unconditional model	0.77	0.23
Final model	0.60	0.08
Variance at each level		
Between students	0.77 / (0.77 + 0.33) = 0.77 = 77%	
Between teachers	0.23 / (0.77 + 0.33) = 0.23 = 23%	
Proportion of total variance explained by the final model		
Between students	(0.77 – 0.60) / 0.77 = 0.22 = 22%	
Between teachers	(0.23 – 0.08) / 0.23 = 0.65 = 65%	
Proportion of total variance explained by the final model: (0.22 x 0.77) + (0.65 x 0.23) = 0.32 = 32%		

Table 9.6.1 lists the percentages of variance available in the analysis of student- and teacher-level, and they are 77% and 23% respectively. Shown here is that more variance is explained by the student-level than the teacher-level. In subsequent analysis, the predictors at the student-level included in the final model explained only 22% of 77% variance available at this level,

and this equals to 17% of the total variance explained at the student-level. Similarly, the predictors at the teacher level in the final model explained 65% of 23% variance available at this level, and this equates to 15% of the total variance explained at the teacher-level. Thus, the total variance explained by the student and teacher predictors in the final model is 17 + 15 = 32%, leaving 68% of the total variance unexplained in the model. Added to this, the deviance value of the final model falls by 126.10 compared to that of the null model with 14 additional degrees of freedom.

9.7 Summary

This chapter presents the results of analysis from the two data sets of student- and teacher-level to examine the interactions between teacher-level and student-level factors that might determine students' English language achievement. The two-level models of how much they succeeded were investigated using HLM analysis. WLE scores of each one-factor structure were used in the analysis. For multidimensional factor structures, the factor scores of all latent variables were deployed in the HLM analysis. This analysis started by examining the null model, followed by examining the student-level (Level-1) model and teacher-level (Level-2) model. Then the final model was analysed to examine student- and teacher-level models.

The results of HLM analysis show some predictors of the student- and teacher-levels are found to have a direct effect on students' English achievement (EACH). Seven factors on the student-level yield a direct effect on English achievement, namely ABIL, SURF, POA, ANXI, HW, SGENDER, STREAM. ABIL and SURF are found to have a positive direct effect, while POA and ANXI have a negative effect on English achievement. In terms of SGENDER and STREAM, female students are noted as achieving better in English than male students, and students enrolled in public senior high schools demonstrate better success in English than those

from vocational high schools Regarding time spent for doing homework, students spend less time doing homework which does not deter students' high achievement.

At the teacher-level, two variables (TGENDER and TEDU) influence directly students' English achievement. Some interactions were observed between teacher variables and student variables that influence the level of achievement. Teacher knowledge (TKW) and teacher-focused teaching approach (ITTF) are interacting positively with the slope of ANXI which then leads to the outcome variable, EACH. Meanwhile, negative interactions were observed between teacher peer observation activities (TPOB) and student-focused teaching approach (CCSF) on the slope of teacher practice in assessment (POA) affecting students' English achievement (EACH). Teacher gender (TGENDER) was also interacting with the slope of ability-approach goals (ABIL) where students' motivation to achieve certain performance approach goals are shaped more by female teachers, and this positively influenced students' level of success in learning the English language.

Finally, the HLM analysis examines the estimation of variance components in the two-level model. The results of these components confirm that the final model explains about 32% of the total variance available. This outcome subsequently informs how much variance from the predictors of student- and teacher-level effects on students' English achievement (EACH) which is the outcome variable.

CHAPTER 10

DISCUSSION AND CONCLUSION

10.1 Introduction

English has been a part of curriculum in the Indonesian educational system. It serves as the primary foreign language taught to students from elementary through secondary schools, aiming to equip students with certain competencies to use English effectively. As a part of curriculum, the success of English teaching and learning process is often determined by the results of academic achievement at the end of each level. Despite being the foreign language taught for many years at school, student achievement in English has shown unsatisfactory results creating concerns among scholars in the field. Numerous studies have been undertaken to investigate the limited English proficiency of school students with the aim of providing valuable insights for researchers and policymakers in evaluating the educational system. Findings indicate that complex interconnections among factors tied to both individual and contextual circumstances have influenced English performance in school settings.

This study aims to examine factors related to students and teachers that influence English achievement among general and vocational secondary school students in West Java, Indonesia. This chapter presents the discussion from the results of SEM and HLM analysis supported by the findings from the interview with students and teachers. It presents the impacts of student-related factors and the interrelationships between these student factors, as well as the influence of teacher-related variables and their interplay on students' English achievement. Additionally, this chapter addresses limitations, suggests avenues for future research, explores implications of the study, and concludes the discussion.

10.2 The effects of Students' Demographic Characteristics on English Achievement

The hypotheses put forward in this study suggest that certain demographic characteristics of students play a role in shaping their motivational variables, approaches to learning, and ultimately their English achievement. The findings of the study unveiled that specific student characteristics had direct impacts on English achievement. Notably, factors such as the school stream (i.e., the type of program or curriculum chosen), gender, and the amount of time dedicated to homework were found to significantly influence English achievement outcomes. However, the study did not find any significant influences of parents' educational background, study time, or enrolment in private courses on English achievement.

The study revealed a significance difference in English achievement between students enrolled in public schools and those attending public vocational schools in Indonesia. The results indicated that students in public high schools generally exhibited higher levels of English achievement compared to their counterparts in public vocational high schools. The explanation to this could be related to their readiness for their future career. In Indonesia, public secondary school students are prepared for college preparation, and thus they may have more academic programs influencing their achievement as a pathway to higher education. Meanwhile, vocational secondary schools primarily focus on equipping students for employment rather than preparing them for tertiary education. This finding builds upon prior research that has explored disparities in academic achievement between public and private schools. It provides valuable insights into the factors that influence English language proficiency among students in Indonesia by focusing on the variation in English achievement between different types of public schools.

In addition, the regression analysis reveals a negative coefficient in the relationship between student gender and English achievement. This indicates a significant distinction between female and male students regarding their English proficiency, with female students generally demonstrating higher English achievement compared to their male counterparts. This corroborates findings from previous studies claiming that female students are more successful than male students in learning English (Samiyan, 2015; Suharti, 2013).

An intriguing observation emerges regarding the impact of homework time spent by students on English achievement: students who spend less time on homework tend to exhibit higher levels of English achievement. This finding echoes the previous study conducted by Lye (2016) suggesting that the more time spent by the students to do homework, the lower English achievement. This finding contributes to the ongoing debate about the effectiveness of homework in high school. In a synthesis of research conducted by Cooper et al. (2006), it is found that there was a moderate correlation between time spent on homework and achievement among high school students. In another study conducted by Cool and Keith (1991) on the effect of homework on achievement, the study found that homework no longer yields significant effects on academic achievement. The explanation to this could be related to the homework quality provided by teachers in EFL classrooms. In Amiryousefi's (2016) study, EFL students spend less time doing homework because it is not based on students' needs and interest. They perceive homework assignments hinder the improvement of English skills and the development of self-regulated learning.

This finding also adds to the discussion of the complexity of homework in schools. Trautwein and Köller (2003) argue on the complexity of homework since it involves different actors, like teachers, students, and parents. It also involves various purposes (like achievement improvement), serves different tasks quality (like routine tasks or complex tasks), and impacts

lesson organization (like checking and grading). The finding from the interview with a student participant in this present study might be one of many examples that reflect the practice of homework in EFL classrooms.

> "My teacher sometimes gives us homework to do. Honestly, sometimes I'm a bit lazy to do the homework because it is not interesting. Sometimes the instructions are not clear, so I am confused [Ana]."

The excerpt above indicates that the student views some aspects related to homework: the perceived interest and task given which influence the amount of time spent on homework. It suggests that a more structured style and self-motivated homework is preferable among EFL secondary school students (Hong, 2001). To sum up, in the context of English achievement, the amount of time spent on homework does not impact on improved achievement, and thus this raises questions about the effectiveness of giving more homework to improve English achievement in secondary school contexts.

The results of the study provide valuable insights into the various factors that influence English language achievement among secondary school students. Specifically, the study highlights the significance of specific student characteristics in shaping English language attainment. Some variables significantly impact English achievement while certain factors have limited effects on the achievement.

10.3 The Effects of Classroom Assessment Environment, Classroom Learning Environment, and Conceptions of Learning English on English Achievement

The main objective of the study is also to examine other predictors of English achievement, like contextual factors and students' conceptions of learning. This study highlights the effects of classroom learning environment, assessment environment, and conceptions of learning on

English achievement among secondary school students in West Java, Indonesia. The findings revealed that classroom assessment environment had a direct impact on student achievement. In this study, students' perceived classroom assessment environment is assessed by their perceptions on learning-oriented and performance-oriented assessment environment. While learning-oriented environment focuses on content mastery, feedback on learning, and opportunities to improve performance, performance-oriented environment emphasizes on less meaningful tasks, focus on grade and student comparison (Alkharusi, 2011). The results of the study revealed that performance-oriented assessment environment has a negative influence on English achievement. This finding confirms previous studies claiming the negative association between performance-oriented assessment environment and academic achievement (Alkharusi, 2009, 2011). It is interesting to note that the presence of a learning-oriented assessment environment does not demonstrate a direct significant impact on English achievement. Instead, it is found that the relationship between learning-oriented assessment and achievement is mediated by the relationship among learning environment and motivation and English achievement.

In addition, another noteworthy observation from this study is that the classroom learning environment did not emerge as a predictor of English achievement among secondary students. This finding is inconsistent with previous studies indicating that classroom learning environment is a predictor of English achievement (Rahmi & Diem, 2014). Besides, conceptions of learning are also found to be insignificantly predicting English achievement among secondary school students. This finding contradicts to the findings of Lye's (2016) study, which suggested that a conception of learning English as a process of reproducing and transforming knowledge is negatively associated with overall English proficiency. Students' conceptions of learning English that focus on knowledge reproduction and transformation in Lye's study was related to the lower English proficiency. However, in the current study,

conceptions of learning do not hinder English achievement, and this highlights the complexity of the association between students' beliefs about learning English and academic outcomes.

10.4 The Effects of Motivational Variables on English Achievement: Achievement Goal Orientations, Students' English Classroom Anxiety, and Attitude towards English Classroom

In addition to student characteristics, contextual factors, and conceptions of learning, this study also revealed significant impacts of students' motivational attributes on English achievement. The findings emphasize the importance of motivation as a crucial factor in English language learning and its association with students' achievement. Specifically, the study demonstrated that students who exhibited performance-approach achievement goals to outperform their peers displayed higher levels of English achievement. The more students were driven to excel compared to their peers, rather than focusing solely on task mastery or avoidance, the more likely they achieved higher proficiency in English. This confirms previous findings suggesting the positive predictor of performance-approach goal orientations on achievement in English among high school students (Bong, 2001, 2005).

One possible explanation to this is the prevailing practice of English learning at secondary schools where the primary measure of successful learning performance is often based on grades. When students adopt performance-approach goal orientations, students tend to engage in learning to perform better in comparison with others. In this context, students direct their efforts towards attaining high grades as an indicator of outperforming their classmates. Their desire to demonstrate superiority derives their motivation to engage in learning activities. This pattern of behaviour suggests that students predominantly endorse extrinsic motivation, which is motivated by external rewards or recognition, such as grades in this case. It implies that the students' motivation to learn English is influenced by the external outcome of achieving high grades, rather than an inherent enjoyment or interest in the language itself. This is supported

by prior research suggesting that secondary school students exhibit a higher inclination towards instrumental motivation rather than integrative motivation when it comes to acquiring English language skills (Al-Munawwarah, 2018; Hong & Ganapathy, 2017).

Furthermore, English classroom anxiety emerges as another motivational factor that significantly impacts English achievement in this study. English classroom anxiety manifests as a state anxiety, distinct from trait anxiety, as it is experienced by students who are actively learning or utilizing a new language in classroom settings (Horwitz, 2017). The finding reveals that English classroom anxiety has a significant negative direct effect on English achievement indicating that students who experienced higher levels of anxiety in the English classroom were more likely to have lower levels of English achievement. The findings corroborate the results from previous studies indicating consistent results of the negative effect of English classroom anxiety on English achievement (Bernaus & Gardner, 2008; Hasan, 2013; Lye, 2016).

The possible explanation to this finding could be attributed to students' apprehension about making mistakes while learning English and their fear of being mocked by peers when using English in class, as indicated by the descriptive findings in this study. Fear of negative evaluation has been one of significant sources of anxiety within English classrooms (Horwitz, 2001; Horwitz et al., 1986), particularly in EFL classrooms that emphasize English production or oral communication (Kim, 1998). In the Indonesian context, given the extensive use of communicative language teaching in Indonesian secondary schools to teach English, classroom activities are specifically designed to encourage English interaction and develop students' communicative competence. EFL students are expected to showcase their productive skills, such as speaking and writing in English, which often triggers feelings of anxiety. Previous studies conducted among students in upper secondary schools in Indonesia provide evidence indicating that students experience anxiety due to their fear of making mistakes and receiving

negative evaluations when using English (Juhana, 2012; Mukminin et al., 2015; Noprival, 2016).

Additional findings from the study indicated that mastery and performance-avoidance goal orientations did not have a direct impact on English achievement. Furthermore, the study revealed that attitude towards English learning did not serve as a predictor of English achievement. However, despite these specific results, the study's findings have made a valuable contribution to the broader discourse surrounding the importance of motivational factors in relation to English achievement within secondary school settings. Specifically, the findings shed light on the noteworthy phenomenon of performance-approach goal orientations influencing achievement outcomes. Additionally, the study emphasized the detrimental influence of anxiety on English achievement among secondary school students. These provide valuable insights into the complex interplay between motivation, attitudes, and English achievement in the context of secondary education.

10.5   The Effects of Approaches to Learning on English Achievement

One of the hypotheses tested in this study is to examine the effect of approaches to learning adopted by secondary school students on their achievement in English subject. Students' approaches to learning encompass various methods and strategies through which students engage in the learning process. These approaches are widely recognized as significant factors that influence the overall quality of student learning in secondary and higher education (Asikainen & Gijbels, 2017; Buckley et al., 2010; Cano, 2005).

The results of this study contribute to the discussion of association between approaches to learning and English achievement in a secondary school context. Descriptive findings reveal that students expressed a strong interest in studying English due to the intriguing topics covered in the classroom. They made efforts to establish connections between their learning and real-

life applications. As for their achieving motives, they revealed that they pursued English learning with the aim of achieving optimal outcomes. They employed the strategy of reviewing teachers' feedback and learning from their mistakes. In terms of surface learning, students tended to focus on memorizing facts without necessarily comprehending them.

This study also reveals that students' learning approaches have an impact on their English achievement, specifically when it comes to surface approaches. The findings of this study indicate that the utilization of surface approaches to learning has a detrimental effect on English achievement. Students relying on such surface approaches in learning may hinder their progress and impede their achievement in English. By engaging with the language in a more superficial manner, students may limit their ability to fully comprehend and apply English language skills effectively. These results are consistent with previous research that has also demonstrated the negative impact of surface approaches on English proficiency (Cano, 2005; Lye, 2016).

Surface approaches to learning are characterized by a focus on superficial aspects, such as memorization and rote learning. Prior research has reported similar perceptions among secondary school students regarding their adoption of surface learning approaches in learning English (Lye, 2016; Mak & Chik, 2011). In contrast to tertiary students who tend to emphasize the use of deep learning approaches in studying English (Gow et al., 1991; Santosa, 2017; Santosa et al., 2021), students at the secondary level are typically in the process of acquiring fundamental English language competencies, involving activities such as vocabulary development and memorizing grammar rules and sentence patterns in English (Mak & Chik, 2011). In these instances, students tend to solely learn facts without gaining a deeper understanding of the underlying concepts, often prioritizing materials that are relevant solely for examinations. These may lead to poor performance of English.

According to this study, it was found that the student participants exhibited a greater inclination towards adopting deep and achieving approaches to learning, rather than surface approaches. In fact, students employed different approaches when learning English depending on the skills and learning activities provided by the teachers. It is reported from the interviews that students sometimes used mixed approaches to learning English material.

"I just learn what is instructed by the teacher. But sometimes, I learn more if the topic is interesting. For example, when the teacher gives a video about how to make a job application letter, I try to understand it more because I think the task is relevant for me [Ana]."

"I learn English by memorizing the material from the teacher. I easily forget the material, so I try to memorize, especially when I face a test or an exam. I try to memorize so that I can understand it [Lia]."

In the interview excerpt, Ana (pseudonym) approached her learning in different strategies. She studied English only what is set by the teacher. But, when she found a topic that was relevant to her, she attempted to understand the material. On the other hand, Lia (pseudonym) reported that she learned English by memorizing facts, particularly before the exam. Findings from the interviews showed that students sometimes memorize the material to really understand the topic better. In this case, memorizing was used for understanding. These findings suggest that secondary school students tend to use mixed approaches to learning. The findings also supported the argument that approaches to learning are not two different poles, but they are a continuum in which students use one approach to complement another approach. The findings also corroborate previous studies indicating that secondary students tended to use a strategy that focus on form which features a memorization of grammatical structure to construct a well-

structured English, and on the other hand, they adopted strategy that focus on meaning which requires understanding other expressions (Weda, 2014).

10.6 The Interrelationships of Student-level Factors

The findings from the study have also found interrelationships among factors at student level. This part discusses the findings on how those factors at student level are related to one another.

Motivational variables and approaches to learning

The findings in this study reveal that students' motivational variables were found to have an effect on the adoption of approaches to learning among secondary school students. Attitude toward English classroom had a negative influence on the use of surface learning approaches. It shows that the more positive attitude towards English, the less likely that students use surface learning. Surface learning features studying many ideas without relating them, lack of reflective practice on purpose and strategy, and focusing on memorizing facts (Hattie & Donoghue, 2016). This finding in this study confirms previous studies showing that more positive attitude towards English classroom negatively affected surface strategies, particularly memorizing strategies as direct strategies in language learning (Platsidou & Kantaridou, 2014). A possible explanation could assume that students who hold positive attitude by viewing learning English as enjoyable and interesting will allocate less time to memorizing facts and spend more effort in learning that involves reflective practice and making connections among ideas rather than focusing on memorization and rote learning. This could support the reason why metacognitive strategies are more popular among upper secondary school students in Indonesia than memory strategies (Melvina et al., 2020). Students will tend to engage in learning that prioritize a deeper understanding and meaningful learning.

Another finding suggests that anxiety has a direct positive influence on students' adoption of surface learning approaches. This indicates that when students experience anxious feelings in

English classroom, they tend use surface learning approaches, characterized by repetition and memorizing facts and limited use of understanding. This is supported by previous studies suggesting that anxiety-provoking situations may induce a surface approach to learning (Fransson, 1977; Spada et al., 2006). This can be explained that in the context of learning English as a foreign language at schools, students' anxious feelings may relate to complex learning tasks and taking risk associated with making mistakes. For example, in reading tasks, text difficulty and unfamiliar vocabulary are found to create reading anxiety among secondary school students (Aisyah, 2017; Hwang & Bae, 2022). In this situation, anxious students tend to focus on memorizing individual details of information with less focus on connected facts or ideas from texts. Besides, students who are nervous or uneasy are less likely to communicate and engage in English learning activities (Liu & Jackson, 2008; Ningsih et al., 2018). As a result, students may opt for learning approaches that minimize mistakes and avoid negative evaluations without deeper understanding.

The findings in this study also contribute to the discussion on the association between motivation, in this case achievement goal orientations, and learning approaches in EFL secondary school settings. Even though motivation and approaches to learning have been regarded as important predictors of learning outcomes (Deci & Ryan, 2004; Trigwell & Prosser, 1991), studies examining the link between motivation and approaches to learning tend to focus on higher education (e.g., Kyndt et al., 2011) while the associations between them are lacking in secondary education context. Therefore, the findings in this study may contribute to the interplay of motivation, particularly achievement goal orientations, and approaches to learning among secondary students.

Findings from the study reveal that students' achievement goals were predictive of students' approaches to learning. In this study, of particular interest is that the adoption of mastery or

task goal orientations among upper secondary school students studying English was found to have a direct effect not only on deep approaches, as typically found in previous studies (Elliot & McGregor, 2001; Greene et al., 2004; Liem et al., 2008) but also on achieving approaches to learning. One possible explanation to this finding may relate to the importance of mastering English skills for students' future needs and getting good grades in English. Students who are more motivated to learn English skills because they find it interesting or valuable tend to engage in learning more to gain understanding and at the same time obtaining good grades in their study (Biggs, 1987; Marton & Säljö, 1976). As Muslim, Hamied, and Sukyadi (2020) reported, most Indonesian secondary school students agreed to the value of learning English and acquiring good English skills necessary for their learning and for communication and their future career. Therefore, students approach their learning English by employing deep and achieving strategies to reach the intended goals.

In addition, another possible explanation may be related to the nature of English as a mandatory subject and of the examination-oriented culture at secondary schools in Indonesia. According to Biggs and Moore (1993), achieving approach focuses on the product, which is obtaining high grades. English classrooms may feature academic tasks provided to monitor students' comprehension, and grades are used to show successful criteria on the given tasks. Graded midterm and final tests are designed as a form of evaluation. Therefore, students focus on time management and organize techniques to engage with the tasks, which indicate the use of metacognitive strategies of learning. These metacognitive strategies have been found to be the most popular strategies used by Indonesian upper secondary school students learning English (Melvina et al., 2020).

With regards to surface approaches to learning, the findings showed that performance-avoidance goals positively influenced the adoption of surface learning approaches. This finding

suggests that the more the endorsement of performance-avoidance goals or the desire to avoid performing more poorly that other students do, the more likely students adopt surface strategy in learning English. The finding corroborates previous studies suggesting that performance-avoidance goals linked to the adoption of surface learning (Church et al., 2001; Elliot & McGregor, 2001; Karabenick, 2004; Liem et al., 2008) and provides further evidence that performance-avoidance goals typically impact on less adaptive patterns than the performance-approach goals (Elliot, 1999; Tanaka et al., 2006). The explanation to this finding could relate to the mindset and approach that secondary school students use when learning English at schools. Instead of striving for skill mastery and understanding, students with performance-avoidance goals focus more about being judged negatively by others. They tend to view that appearing incompetent is unfavourable which then results in certain negative behaviour and feelings when learning English. For example, students with fear of negative judgement from peers experience anxious feelings (Daniels et al., 2009), and tend to demonstrate superficial learning characterized by limited risk-taking and engagement in interaction and reduced language production. Meanwhile, learning a foreign language is characterized by interaction using the target language, and to interact with others students need to take risk in using the language (Brown, 2014). However, students who are avoidance-goal oriented and fear looking ridiculous tend to avoid the task and taking risks, and thus tend to use surface learning by minimizing their effort to learn (Meece et al., 1988). This could be true for many upper secondary students in Indonesian schools that risk taking in English classrooms is avoided leading to less engagement and social interaction in the classroom (Ningsih et al., 2018).

Classroom assessment environment and approaches to learning

This study also addresses a research gap from the investigation of classroom environment as a contextual factor of learning that may impact on the adoption of learning approaches in learning English within the context of secondary education in Indonesia. It has been documented that

classroom assessment environment has an influence on students' adoption of learning approaches (Yuen-Yee & Watkins, 1994). The classroom assessment environment encompasses students' experiences when teachers establish assessment tasks, give feedback, and monitor their learning. In this study, two assessment environments are addressed to include learning-oriented and performance-oriented classroom learning environment (Alkharusi, 2011).

The findings in this study reveal that both learning- and performance-oriented assessment environments influence students' learning approaches. It is interesting to note that learning-oriented assessment environment has an indirect effect on students' approaches to learning through classroom learning environment. When students view assessment environment emphasises on learning and skill mastery, students view learning environment is more positive, in which this positive learning environment gives a stronger effect on the adoption of deep and achieving approaches than surface approaches. This can be explained that in EFL contexts, learning-oriented assessment environment may feature authenticity as an important aspect in English learning material and tasks. Task authenticity refers to students' perceptions on assessment tasks that are relevant and connected to their real-life experiences and everyday circumstances (Brown, 2014). In EFL classrooms, authentic tasks and assignments allow students to communicate and participate actively through pair-work or discussion activities to achieve outcomes (Guariento & Morley, 2001; Tomlinson, 2011). The tasks are expected to promote understanding materials, foster curiosity and engagement, and stimulate interest to create more positive learning environment in learning English and lead to the adoption of deep approaches to learning (Alkharusi, 2013; Hargreaves et al., 2002). It is even noteworthy that students in vocational schools need more authentic learning material and tasks to facilitate their learning (Rahman, 2017). When they perceive that assessment tasks are more authentic, they

are more likely to view classroom learning environment as positive and thus lead them to use deep approaches to learning (Gulikers et al., 2006).

Meanwhile, performance-oriented assessment environment had a more positive and stronger impact on surface approaches than on deep and achieving approaches. When students perceived assessment environment as performance-oriented which is characterized by an emphasis on grading and student comparison, a mismatch between materials and assignments, and lack of transparency in grading system, they are likely to adopt more surface approaches. This finding is inconsistent with a previous study claiming that assessment tasks that highly match between the learning objectives and the activities were associated with surface learning approaches (Alkharusi, 2013). In addition, findings showed that assessment practices in English classroom that focused on harshness of assessment, grading, and comparing students' learning positively predicted the use of deep approaches by the students. This finding may be explained by the context of English learning in secondary schools in which students put an emphasis on scores or ranking. It is possible that students were more competitive when assessment tasks were challenging enough, and teachers stressed on comparing students' performance.

Classroom learning environment and approaches to learning

This study also examines high school perceptions of classroom environment in their actual English classrooms with regards to their views on student cohesiveness, teacher support, investigation, participation, and task orientation. Findings from the descriptive analysis showed that students had positive perceptions on English classroom learning environment. In particular, students reported their agreement on their teachers who are supportive and display genuine interest in their learning, English classrooms that encourage investigation and active participation, and importance of task orientation, indicating their desire to concentrate on the subject matter and successfully complete activities as instructed by teachers. This finding is in

line with the previous studies examining high school students' positive perception on EFL learning environment (Goksu, 2015).

In addition, this study reveals that classroom learning environment positively predicted students' use of learning approaches in English classrooms. In this study, students reported that positive English classrooms characterized by student cohesiveness, supportive teachers, promoting investigation and participation, and focusing on tasks or activities tend to promote deeper and more achievement-oriented approaches to learning. This finding supports previous studies that highlight the crucial role of a supportive atmosphere and a stimulating learning environment that offers engaging and challenging activities and tasks (Yuen-Yee & Watkins, 1994) and fosters participation and develops investigative skills for problem-solving which increases the likelihood of secondary school students adopting deep learning approaches (Dart et al., 1999; Dart et al., 2000). The explanation to this finding lies in the context of English as a Foreign Language (EFL) settings such as Indonesia, where English is not commonly utilized for everyday communication but rather taught as a compulsory subject in schools. In this context, the primary objective of teaching English at the secondary school level is to develop students' communicative competence. Consequently, English teachers extensively employ a communicative approach to encourage interaction and facilitate language learning. According to Brown (2014), in communicative language teaching, interaction is at the core of communication, and it requires students to actively engage in the learning process and employ deep-processing strategies to generate and comprehend the language. English teachers play a vital role in fostering a classroom environment that facilitates interactions in English because increased support from English teachers directly impacts students' level of engagement in English learning. When students perceive their teachers as providing assistance and guidance throughout the learning process, they gain confidence in tackling tasks, actively participate in

English learning, and employ deep-processing strategies to comprehend the content (Lawson & Lawson, 2013; Liu et al., 2023).

Interrelationships among motivational variables

The findings in this study also reveal the interrelationships among motivational variables. Students' attitude towards English learning is found to be directly influenced by mastery goal orientations. The finding indicates that students' motivation to acquire English knowledge and skills positively impacts on their attitude towards learning English. The more they are motivated to learn English to improve their knowledge and skills, the more positive their attitude towards learning English. This finding confirms previous studies claiming mastery goals as a significant predictor of positive attitude toward their class (Ames & Archer, 1988).

Some variables also indirectly impact on attitude towards learning English. It is found that mastery goal orientations play as a mediating role between performance-approach goal orientations and attitude towards English learning. This indicates that when students are motivated to perform better than others, they are also motivated to acquire knowledge and skills in English, they have more positive attitude towards English. Mastery goal orientations also mediates the relationship between conceptions of learning and attitude towards learning. This suggests that when students conceive learning as reproductive and constructive, they are more motivated to acquire knowledge and skills, and it leads to more positive attitude towards English. Apart from that, mastery goal orientations mediate the link between learning environment and attitude through mastery orientations indicating that the more positive students feel about their learning environment, the more motivated they are to learn English knowledge and acquire skills, the more positive their attitude towards learning English. In a similar vein, learning oriented assessment environment indirectly influences attitude through learning environment and mastery goals. This shows that assessment that enhance student

learning creates a more positive environment for students so that students can be motivated to learn and acquire skills and finally contribute to positive attitude towards English learning. This complex interplay shows how attitude toward English learning are influenced by contextual factors and other motivational variables.

With regards to English classroom anxiety, some variables are found to directly impact on students' anxiety level. In terms of gender, the study found that there was a significant difference between male and female students in their level of anxiety towards English classrooms. The study discovered that male students generally exhibit higher levels of anxiety in their English classrooms compared to their female counterparts. This finding aligns with previous research that has consistently reported higher levels of anxiety among male students in English learning environments when compared to female students (Hussain et al., 2011; Lian & Budin, 2014). As similar finding is also found in English as a second language (ESL) context (Kumar & Suresh, 2021), the finding in the current study contributes to the existing body of knowledge surrounding gender differences in language learning anxiety among secondary school students, specifically within the context of EFL classrooms.

In addition, the study yielded a significant finding indicating that performance-avoidance goal orientations positively predicted students' anxiety levels in English classrooms. This outcome aligns with existing discussions and literature highlighting the association between performance-avoidance goals and negative outcomes, such as anxiety (Skaalvik, 1997; Tanaka et al., 2006). This finding suggests that when students adopt a mindset focused on avoiding failure or negative evaluations in their English learning, it contributes to heightened anxiety levels. The statement holds particular relevance within English classrooms where a significant emphasis is placed on tests and grades. The fear of feeling inferior to others poses a significant dilemma for EFL learners, particularly among secondary school students. These students often

experienced heightened concerns and anxieties centred around the possibility of failing exams, overshadowing their focus on acquiring language skills, indicating a shifting of focus from genuine language acquisition to solely striving for exam success (Lian & Budin, 2014). Test-taking situations are widely recognized as anxiety-provoking scenarios that instil fear and apprehension in students, primarily due to the potential negative consequences associated with receiving poor grades. In such an environment, the presence of performance-avoidance goal orientations can indeed lead to heightened anxiety levels among students. It has been found that among the secondary school students the fear of negative judgment from peers has a more pronounced impact on male students (Hasan & Fatimah, 2014).

Moreover, performance-avoidance goals also play in mediating the relationship between conceptions of learning and classroom anxiety. The tendency for students to view learning as both reproductive to classroom anxiety can be partly explained by a fear of performing worse than their classmates. This mediational relation supports previous findings in a different domain (Putwain & Symes, 2012; Tanaka et al., 2006).

Apart from that, classroom assessment environment has a direct and indirect influence on anxiety level among the secondary school students in this study. Performance-oriented assessment environment has a direct influence on anxiety levels experienced by students in English classrooms. This suggests that the nature of assessment practices that prioritize grading and student comparison can contribute to the heightened levels of anxiety among students. This finding may be related to the concept of task diversity as a predictor of performance-oriented assessment environment as identified in the existing literature on assessment practice in higher education (Cheng et al., 2015). Within the context of EFL learning in secondary setting that puts an emphasis on scores and rankings, diversity can intensify students' desire to outperform peers leading to heightened competition among others. This may create a sense of pressure and

stress among students which can lead to a fear of failure. This explanation is also relevant to the finding in the current study showing the mediating effect of motivation to outperform others. The finding suggests that when students perceive the classroom assessment environment to be more focus on performance and grade, students tend to endorse goal orientations that avoid failure in English classrooms, which then lead to anxious feelings experienced by the students.

Another motivational variable is achievement goal orientations. The study found that students' conceptions of learning directly influence mastery, performance-approach, and performance-avoidance goal orientations. The finding suggests that both reproductive and constructive level of learning conceptions among secondary school students predict their goal orientations. This finding confirms that identifying conceptions of learning have the potential to explain students' learning behaviour (Purdie & Hattie, 2002). In this study, this finding adds to the discussion that links conceptions of learning and motivation to learn in secondary school settings, particularly in English classrooms, as previous findings examine the relationships in other subjects, like science (Ho & Liang, 2015; Tsai et al., 2011) and biology (Sadi & Lee, 2022).

The explanation to this finding could be related to how secondary school students conceive their learning as learning English to memorize, prepare for English test, practice using English, communicate, and see English in a new way. These conceptions motivate them to learn English, particularly in acquiring skills, outperforming their peers, and avoiding feelings of incompetence in English classrooms. An illustration of this is frequently observed in English as a Foreign Language (EFL) settings, particularly in secondary school contexts, where students engage in activities such as reading texts and participating in group communication exercises to enhance their English abilities. To succeed in such activities, students need to possess a broad vocabulary and be familiar with various expressions, which requires them to

memorize and practice extensively (Özkan & Kesen, 2008). Additionally, students are expected to perform well in English tests, prompting them to invest effort in practicing and reviewing the material. This repetition practice ultimately deepens their understanding of the language confirming how repetitive practice is associated with understanding among Asian students (Dahlin & Watkins, 2000).

Apart from that, conceptions of learning also mediate the relationship between perceived learning environment and performance orientations. Students perceive learning environment in English classrooms as positive when it is characterized by cohesiveness among students, teacher support, clear task orientation, more investigative skills, and participation. When students believe that the English learning environment is positive, they are likely to have both reproductive and constructive conceptions of learning, which in turn influence their performance goal orientations. The finding suggests the role of conceptions of learning playing as a mediating effect between in the relationship between learning environment and performance goal orientations. While previous research confirms a direct influence of learning environment on achievement goal orientations (Dart et al., 2000; Sadi & Lee, 2022), this study found the effect of learning environment on goal orientation is mediated by conceptions of learning.

With regards to assessment environment, this study found that assessment environment focusing on performance predicted negatively on mastery goal orientations but positively on performance-avoidance orientations. Performance-oriented assessment focuses more on grade and student comparison. The finding suggests that when students perceive that assessment environment in the classrooms focuses more on performance, they are less motivated to engage and improve their English skills and knowledge. On the other hand, students are likely to be motivated to avoid lack of competence in the classrooms. These results support the findings

regarding the role of classroom assessment and students' achievement goal theory reported in different cultural perspectives, like Oman (Alkharusi, 2008) and the United States (Brookhart, 1997).

10.7 The Effects of Teachers' Demographic Characteristics on English Achievement

The analysis of hierarchical linear modelling (HLM) shows how factors in teacher level influence factors in student level. In this study, the results of HLM analysis display the interaction effects between predictors in teacher and student level and the outcome in the student level. Teachers' demographic characteristics are found to have some interactions with students' factors that impact on English achievement. One of the findings reveals that teacher professional development activities, i.e., peer observation, plays a moderating role in the effect of performance-oriented assessment environment on English achievement. It means that the effect of assessment oriented to performance on their English achievement is weaker when students are taught by teachers who have involved in teacher professional activities, like peer observation. This finding emphasizes the importance of teacher professional development activities to improve their teaching practices, including assessment practices. According to Rhodes et al. (2004), peer observation is an integral component of in-class peer coaching, facilitating teachers in supporting and collaborating with one another to reflect upon and enhance their teaching methodologies. Peer observation activities have been discovered to be a less daunting approach to evaluating teachers, enabling them to contemplate their instructional methods during a particular lesson while receiving support from fellow teachers, and this collaborative process enhances their future teaching performance more effectively (Ahmad, 2020; Rhodes et al., 2004; Robbins, 2015). Studies have documented that teachers participating in peer observation activities tend to have increased self-efficacy and improved teaching practices (Ben-Peretz et al., 2018; Koch, 2014). A study reported by Motallebzadeh

et al. (2017) suggest that peer observation serves as a valuable reflective tool that can significantly enhance the professional development of English as a Foreign Language (EFL) teachers. Teachers recognize its importance due to the multitude of benefits it offers, such as acquiring innovative teaching strategies and formative assessment practices from fellow teachers to improve student learning outcomes.

In addition to that, this study found that teacher gender also influences the slope of performance-approach goals on English achievement. In other words, the positive effect of performance-approach goals on English achievement is stronger for students who are taught by female English teachers. This finding shed light on the role of student-teacher relationship, particularly on teacher gender and student motivation. The finding also corroborates previous studies claiming that classrooms taught by female teachers influence students' learning motivation and engagement in high school settings (Martin & Marsh, 2005). This could be related to female teachers' teaching practices that are reported to adopt mastery-oriented practices (Butler, 2007; Retelsdorf et al., 2010). Therefore, it is likely that these practices moderate the impact of students' performance-approach orientations on English achievement.

10.8 The Effects of Teacher Knowledge on English Achievement

One of the interactions identified in the analysis is the effect of teacher knowledge on the slope of classroom anxiety on English achievement. The interaction indicates that the negative effect of anxiety on students' achievement is stronger when students are taught by teachers who have low level of knowledge. It has been argued that teacher knowledge has played a significant role in contributing the effective teaching and student learning outcomes. As reported by Kleickmann et al. (2013), content and pedagogical content knowledge are found to be the key elements of teacher competency that impact on student improvement. In relation to classroom anxiety, when teachers have high level of knowledge in content and pedagogy, it is likely that

they can manage classrooms well, including applying strategies that lower student anxiety level in English classrooms.

10.9 The Effects of Teachers' Approaches to Teaching on English Achievement

Another interaction found in the analysis is the moderating effect of information transmission/teacher-focused approach on the slope of anxiety on English achievement. It is interesting to note that the presence of teaching approaches that focus on teachers affect the magnitude of negative effect of classroom anxiety on English achievement. The finding reveals that when students are taught by teachers who use less information transmission/teacher-focused approach in their teaching, the negative effect of students' anxiety on their achievement is stronger. In another finding, the study found that conceptual change/student-focused approach impacts on the slope of performance-oriented assessment environment on English achievement. It is found that the negative effect of performance-oriented assessment on English achievement is stronger when students in the classrooms are taught by teachers who adopt more student-focused approach.

Information transmission/teacher-focused approach centres on transmitting information to students where students often play a passive role in the teaching process, absorbing information through lectures and textbooks (Prosser & Trigwell, 2006). Meanwhile, in English classrooms, teachers often promote active participation and engagement than relying on information transmission. Teachers give opportunities for students to practice their English and learn from each other. For some students, this can enhance their learning to be more interactive and collaborative. However, other students find it more challenging to participate and engage in learning. For students experiencing anxiety in such a classroom, it may influence their English learning and performance. This could also be a similar case with classroom assessment that focus on grade or difficult task which could also increase pressure for some students. When a

teacher promotes active involvement in learning, the negative effect of this assessment practice on their performance may be intensified. It is also reported in the teacher interview that teaching and learning process in English classrooms are often characterized by discussion and group work, but many students are quite hesitant to participate in the activities.

"In my class, I always encourage my students to participate in the activities. I give rooms for my students to practice their English in discussion and group projects. For example, I give students time to read a text individually, then allow them to share what they read with their friends before answering the questions. However, during the discussion, only a few students actively participate. Most of them keep silent or unwilling to express their ideas. I'm afraid this can affect their performance [Mrs. Mira]."

In the interview excerpt, Mrs. Mira (pseudonym) recounts that she used more learner-centred teaching approach in her English classroom. Although she promoted students to participate actively in the classroom, she often observed that students were reluctant to participate. She found some students felt uneasy when expressing their thoughts. This may suggest that when teacher implements less teacher-focused teaching strategy, it could strengthen the negative impact of anxious feeling to their English learning success.

10.10 The Interrelationships of Teacher-level Factors

The study also found some interrelationships among teacher-level factors. Some variables are identified to impact on teacher approaches to teaching. The finding reveals that teacher self-efficacy negatively impacts on information transmission/teacher-focused approach. Teachers with high self-efficacy in engaging students, giving instructions, and managing classroom are likely to use less information transmission/teacher-focused approach in teaching English to

students. The explanation to this could be related to the consequences of teacher self-efficacy on teacher instructional support (Tschannen-Moran et al., 1998). When teachers have a stronger sense of self-efficacy, they tend to have higher confidence in their competence to actively participate in the teaching and learning process. More efficacious teachers tended to adopt teaching approaches that emphasize mastery (Wolters & Daugherty, 2007), and they are more likely to promote deeper engagement, motivation, and meaningful learning experience for their students. Therefore, rather than focusing on traditional teaching method, higher efficacious teachers adopt a teaching method that promotes student engagement, active learning, and student-focused. This is evident among EFL teachers that teacher self-efficacy plays a significant role in instructional development, including the use of learner-oriented instructions and effective teaching strategies emphasizing on communicative competence (Alibakhshi et al., 2020; Chacón, 2005).

Apart from that, teacher self-efficacy also mediates the relationship between teacher knowledge and teacher-focused approach. This finding contributes to the literature, particularly on the mediating role of teacher self-efficacy among EFL teachers. Prior studies reported that the role of teacher self-efficacy to mediate the relationships between self-efficacy sources and student achievement (Mohamadi & Asadzadeh, 2012) and teachers' autonomy and self-regulation (Azari Noughabi & Amirian, 2021). The finding in this study found another mediating role of teachers' self-efficacy in the relationship between teacher knowledge and approaches to teaching. The finding suggests that that when teachers have a high level of knowledge, their sense of self-efficacy is high, and they tend to use of teacher-focused approaches less. This could be explained that teachers with comprehensive knowledge feel more capable of effectively delivering instruction, using appropriate strategies, and facilitating deeper understanding and engagement among students. This suggests teacher knowledge as an essential element of enactive mastery experience since it provides teachers with understanding

to perform their tasks, and this mastery experience has been found to be the most important source of self-efficacy (Bandura, 1986; Mohamadi & Asadzadeh, 2012).

Meanwhile, teachers' adoption of conceptual change/student-focused approaches to teaching is found to be directly predicted by teachers' assessment practices. The study found that the mastery approach to assessment positively influences student-focused approaches to teaching, suggesting the more assessment practices that focus on mastery are used in the classrooms, the more teachers use student-focused approaches to teaching. Mastery approaches to assessment emphasizes on the importance of fostering deep understanding and skill development. This assessment approach enables teachers to set clear goals and assess students' progress continuously. Teachers also provide constructive feedback and identify areas that need improvement from student learning. This implies what teachers practice in mastery-oriented assessment influence their teaching approach focusing on active engagement and fostering understanding, as supported by the alignment between mastery approach to assessment and teaching (Daniels & Poth, 2017).

In addition to this, teachers' assessment practices play a mediating role in the relationship between teacher knowledge and the use of student-focused approach. This indicates the higher the knowledge acquired by teacher, the more adoption of mastery approaches to assessment, the more use of student-focused approaches to teaching. The explanation to this could relate to the notion of knowledge for practice (Cochran-Smith & Lytle, 1999). When teachers possess a comprehensive understanding of content, pedagogy, and assessment, they tend to synchronize their knowledge with their practices in the classroom. This echoes prior research suggesting how assessment knowledge influences assessment practice in the classrooms (Rasyidah et al., 2020). Apart from that, it is also found that the adoption of assessment practices mediates teacher qualification and approaches to teaching. This suggests that the higher teacher

qualification, the more teachers adopt mastery approaches to assessment, the more teachers use student-focused approaches to teaching.

Another finding highlights the influence of teaching experience on the adoption of a conceptual change/student-focused approach to teaching. This approach aims to transform students' ways of thinking and enhance their English learning experience through student-focused strategies, such as discussion and presentation. The results suggest that as teachers gain more experience in teaching English, there is a greater tendency for them to embrace the conceptual change/student-focused approach. This finding contradicts a previous study by Mak and Chik (2011), which asserted that teachers with more experience tend to prefer a collaborative approach to teaching English. However, it can be argued that both approaches share common elements, as they prioritize student engagement and interaction, promote critical thinking, and encourage active learning.

Another finding from the study found that teacher knowledge is found to have a positive direct impact on teacher self-efficacy. This finding suggests that when teachers have knowledge on the subject matter and know how to teach the subject matter, they will have higher sense of self-efficacy. While teacher demonstrate knowledge is found to have negative effect on self-efficacy in general education setting (Fives, 2003), the finding of the current study contributes to the ongoing discussion regarding the effect of teacher knowledge in a particular subject, such as EFL, on teacher self-efficacy. Teacher knowledge primarily aims to empower teachers in carrying out their fundamental responsibility, which is teaching subject matter domains by employing suitable pedagogical principles and skills (Ben-Peretz, 2011). This knowledge is constructed through teachers' participation and experience in initial education or professional development programs (Clarke & Hollingsworth, 2002)

Some teacher characteristics are found to have an impact on teacher preparedness, including teacher age, teaching experience, teacher education or qualification, teacher forum, and teacher formal training. The findings suggest that teacher who are older, have higher qualifications, participate in teacher forum, attend more formal training, and acquire more knowledge in content and teaching, the more prepared they are in teaching English. However, it is interesting to note that teaching experience has a negative path coefficient indicating that the more experienced, the less preparedness of the teachers. Apart from that, teacher knowledge is also found to positively impacts on teacher preparedness, suggesting that the more teacher knowledge, the more prepared the teachers are.

10.11 Limitations and Future Studies

The primary aim of the study is to contribute to the existing body of research on factors contributing to English achievement among secondary school students in an EFL setting. Nevertheless, despite endeavours to address limitations identified in prior research, this study was not exempt from limitations. First, the variables examined in this study were limited to student and teacher factors related to English achievement as mentioned above. Other factors are believed to interact with other student and teacher factors that impact on English achievement. Due to time and financial constraints, the study only included the intended factors. In addition, the study was a cross-sectional study in which data from students and teachers were collected at a point in time and over a short period of time. A longitudinal study would be necessary to obtain a stronger understanding of the predictors of English achievement.

An additional constraint of this study related to the limited sample size of both students and teachers involved in the research. The participants were exclusively sourced from a single province in Indonesia, specifically public high schools and vocational high schools. It is

recognized that broader geographical coverage and a more diverse range of samples could have enhanced the generalizability of this study and provided a comprehensive exploration of factors associated with English achievement.

Further, the data collection process relied on voluntary participation and self-report methodologies. It is possible that students and teachers who willingly engaged in this research might provide responses influenced by social desirability or self-promotion, potentially impacting the accuracy and objectivity of their responses. Additionally, one-to-one interview collected from students and teachers deemed to be time-consuming and may influence the findings.

10.12 Implications of the Study

This study aims to deepen understanding on the interrelationships among student- and teacher-level factors that contribute to English achievement among secondary high school students in Indonesia. The issue of achievement as the outcome of learning has been widely explored in the literature. However, the explorations to student and teacher factors impacting on English achievement among secondary school students in EFL context is limited. Evidence in this study show student and teacher level factors have played a significant role in predicting English achievement. Some interrelationships among factors and interactions between student and teacher factors have been found to influence English achievement in this study. Therefore, this study has provided some implications related to theories, methodology, practice, and policy.

From theoretical perspective, the study provides a model of interrelationships between student- and teacher-level factors that impact on English success among public and vocational secondary schools in West Java Indonesia. Findings from this study shed a light of the importance of student- and teacher-level factors that contribute to influence the success of English learning in EFL secondary school contexts. In the student-level factors, this study

highlights the significance of learning approaches and motivation variables in impacting on student achievement. Based on the findings, students' anxiety and surface approach to learning provide a significant detrimental effect on English achievement. Apart from that, this study also highlights the role of assessment environment and English learning environment in relation to the success of learning English. It reveals that assessment practices and environment in English classrooms influence students' motivation and strategy to learn. These findings imply the importance of addressing student anxiety and creating assessment and learning environment that enhance student motivation to improve English performance among secondary school students in West Java, Indonesia.

Apart from that, this study highlights the significant role of teacher factors that influence student achievement. Some factors in the teacher level, such as teacher knowledge and teacher approaches to teaching, play as mediators to the impact of student factors on English achievement. This provides implications for teacher professional development for teachers to teach English in both public and vocational secondary schools in West Java, Indonesia. This study, from methodological point of view, involves both quantitative and qualitative data to explore the relevant factors related to beliefs, strategies, and English achievement as the outcome of the study. The use of quantitative data offers detailed and objective information which is then supported by the qualitative information gathered from the student and teacher participants. The main aim of qualitative information is to understand deeper about certain findings in this study that relate to the process and the outcome of learning. The use of those methods in this study is relevant to untangle complex relationships among factors. Therefore, appropriate techniques, like SEM and HLM, are applied to reveal the relationships and interactions among student and teacher data. The development of Rasch analysis also offers a statistical framework to improve the quality and accuracy of educational data. The use of these

techniques to understand educational issues, such as English achievement, is not widely applied in the context of EFL learning in Indonesian context.

Although this study has emphasized student and teacher role in English achievement, there are some shortcomings of this study. First, this research is still insufficient since it focuses on student and teacher levels in a specific region in Indonesia, while higher factors like schools or regions are not addressed. By relying on teacher-focused approaches, these teachers may feel more in control and believe they are effectively delivering the necessary content. However, this approach may limit student engagement, participation, and active learning opportunities. It can hinder the development of important skills such as communication and critical thinking, which are essential for language learning.

To address this issue, it is crucial for teachers to receive professional development and support that helps them enhance their knowledge and teaching skills. By improving their knowledge base and developing a higher level of self-efficacy, teachers are more likely to adopt learner-centred approaches that prioritize student engagement, interaction, and the development of communicative competence. This shift can lead to more effective and engaging English language instruction.

10.13 Conclusion

This study examines the interrelationships among student and teacher factors in predicting English as a foreign language achievement in secondary schools in Indonesia. Based on the findings of this study, some factors from student and teacher levels are found to be impacting on the success of learning English among the students. The factors include surface approaches to learning, anxiety towards English classrooms, performance-approach goal orientations, assessment environment that focuses on performance, time spent on homework, teacher knowledge, teacher-focused and student-focused teaching approaches, and teacher peer

observation. Interrelationships among the student-level and teacher-level factors in each model are also identified in this study. Findings from the interview with students suggest that the learning of English in the classrooms seems to focus on surface learning, while limited deep learning approaches to learning English was employed. Meanwhile, interviews with teachers suggest the importance of improving teacher knowledge in the forms of teacher professional development activities, which contributed to teacher preparedness, teacher self-efficacy, and teacher assessment practices, as suggested in this study. This study has contributed to understand the factors influencing English achievement among secondary school students in West Java Indonesia. It also provides some implications from theoretical, practical, and methodological perspectives.

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APPENDICES

Appendix A. Ethic Approval

THE UNIVERSITY of ADELAIDE

RESEARCH SERVICES
OFFICE OF RESEARCH ETHICS, COMPLIANCE
AND INTEGRITY
THE UNIVERSITY OF ADELAIDE

Our reference 34331

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01 April 2020

CRICOS Provider Number 00123M

Dr Igusti Darmawan
School of Education

Dear Dr Darmawan

ETHICS APPROVAL No: H-2020-034
PROJECT TITLE: Modelling the interrelationships among multi-levels factors in predicting English as a foreign language achievement in secondary schools in Indonesia: a mixed-methods approach

The ethics application for the above project has been reviewed by the Low Risk Human Research Ethics Review Group (Faculty of Arts and Faculty of the Professions) and is deemed to meet the requirements of the *National Statement on Ethical Conduct in Human Research 2007 (Updated 2018)* involving no more than low risk for research participants.

You are authorised to commence your research on: 01/04/2020
The ethics expiry date for this project is: 30/04/2023

NAMED INVESTIGATORS:

Chief Investigator: Dr Igusti Darmawan

Student - Postgraduate   Mr Ari Arifin Danuwijaya
Doctorate by Research (PhD):

Associate Investigator: Dr Nina Maadad

CONDITIONS OF APPROVAL: Thank you for addressing the feedback. The revised ethics application submitted on the 1st of April 2020 has been approved.

Ethics approval is granted for three years and is subject to satisfactory annual reporting. The form titled Annual Report on Project Status is to be used when reporting annual progress and project completion and can be downloaded at http://www.adelaide.edu.au/research-services/oreci/human/reporting/. Prior to expiry, ethics approval may be extended for a further period.

Participants in the study are to be given a copy of the Information sheet and the signed consent form to retain. It is also a condition of approval that you immediately report anything which might warrant review of ethical approval including:

- serious or unexpected adverse effects on participants,
- previously unforeseen events which might affect continued ethical acceptability of the project,
- proposed changes to the protocol or project investigators; and
- the project is discontinued before the expected date of completion.

Yours sincerely,

Dr Anna Olijnyk
Convenor

Dr Jungho Suh
Convenor

The University of Adelaide

Appendix B. Approval from Education Department of West Java Province

PEMERINTAH DAERAH PROVINSI JAWA BARAT
DINAS PENDIDIKAN
Jalan. Dr. Radjiman No. 6 Telp. (022) 4264813 Fax. (022) 4264881
Website: http://disdik.jabarprov.go.id/
e-mail: disdik@jabarprov.go.id / sekretariatdisdikjabar@gmail.com
BANDUNG – 40171

Bandung, 12 Desember 2022

Nomor   : 41027/PK.03.04.05-Bid.PSMA   Kepada
Lampiran   : -   Yth. Rektor Universitas Pendidikan
Sifat   : Biasa   Inonesia
Perihal   : Ijin Penelitian   di
                                                                                        Bandung

Membalas surat dari Saudara Nomor : 4148/UN40.F3/PK Tanggal 3 November 2022 Perihal Permohonan Izin Penelitian, Dinas Pendidikan Provinsi Jawa Barat memberi izin kepada Dosen Universtas Pendidikan Indonesia :

Nama   : Ari Arifin D.S.Pd.M.Ed.

NIP   : 198306082015041001

Pangkat/Gol   : Penata Muda Tk.1-IIIb

Jabatan   : Asisten Ahli

Program Studi   : Pendidikan Bahasa Inggris

                                Fakultas Pendidikan Bahasa dan Sastra UPI

Untuk mengumpulkan data di beberapa Sekolah Menengah Atas/Kejuruan di wilayah Jawa Barat dalam pemenuhan tugas akhir studi lanjut berupa karya ilmiah.

Demikian yang dapat disampaikan, untuk digunakan sebagaimana mestinya.

SEKRETARIS DINAS PENDIDIKAN
PROVINSI JAWA BARAT

Ditandatangani secara elektronik oleh :
SEKRETARIS DINAS PENDIDIKAN
PROVINSI JAWA BARAT,

Ir. H.YESA SARWEDI HAMI SENO, M.Pd
Pembina Tk I

Tembusan Yth :
1. Kepala Dinas Pendidikan Provinsi Jawa Barat (sebagai laporan)
2. Kepala Bidang Pembinaan Sekolah Menengah Atas;
3. Kepala Bidang Pembinaan Sekolah Menengah Kejuruan;

Appendix C. Student Questionnaire

STUDENT QUESTIONNAIRE

Information about the questionnaire

This questionnaire aims to investigate student factors related to English achievement. In this questionnaire, you will find some questions about yourself and about your learning in English classroom. You will find some questions about your gender, age, parent education, and other relevant information related to study English. You will also find some questions that ask your perception or belief or attitude about English learning, English classroom environment, and strategies in learning English.

Your response to the questionnaire will be useful to this research and it will not give any effect to your current or future study. Your response and your identity will be confidential and used only for the purpose of the research. Thank you for contributing to the research by completing the questionnaire.

Student Name : _____

School   : _____

SECTION 1 BACKGROUND INFORMATION

These questions are about you. Please answer all of the questions

1. Are you female or male? *(please mark one choice)*
   - ☐ Female
   - ☐ Male

2. How old are you?
   _____ years old *(please write a number)*

3. What is the highest level of formal education completed by your mother? *(please mark one choice)*
   - ☐ High School
   - ☐ Diploma
   - ☐ Bachelor's degree
   - ☐ Master's degree
   - ☐ Doctoral or professional degree (e.g., PhD)

4. What is the highest level of formal education completed by your father? *(please mark one choice)*
   - ☐ High School
   - ☐ Master's degree

5. How much time do you spend for doing English homework? *(Please mark one choice)*

   ☐ My teacher never gives me homework   ☐ 1 to 2 hours a day
   ☐ 30 minutes or less a day   ☐ More than 2 hours a day
   ☐ More than 30 minutes to less than 60 minutes a day

6. How much time do you spend for studying English outside classroom? *(Please mark one choice)*

   ☐ I do not study English outside classroom   ☐ 1 to 2 hours a day
   ☐ 30 minutes or less a day   ☐ More than 2 hours a day
   ☐ More than 30 minutes to less than 60 minutes a day

7. How much time do you spend for attending private English course? *(Please mark one choice)*

   ☐ I do not attend private English course   ☐ 1 to 2 hours a day
   ☐ 30 minutes or less a day   ☐ More than 2 hours a day
   ☐ More than 30 minutes to less than 60 minutes a day

SECTION II STUDENTS' CONCEPTIONS OF LEARNING

In this section, think about your learning of English in the school and rate how you strongly agree or disagree with the following statements.

Please mark one choice in each row.

	Statements	Strongly Disagree	Disagree	Agree	Strongly Agree
1)	When learning English, I memorize a lot of words, phrases, sentence structures in textbooks.	☐	☐	☐	☐
2)	I will not learn English if there are no tests.	☐	☐	☐	☐
3)	Learning English means practising skills and answering questions.	☐	☐	☐	☐
4)	Learning English means acquiring knowledge and skills to communicate with native speakers.	☐	☐	☐	☐
5)	Learning English helps me to understand the differences between different languages.	☐	☐	☐	☐

6) When learning English, I memorize the important concepts found in the English textbook.	□	□	□	□
7) Learning English means to get good scores on the exams.	□	□	□	□
8) I have great performance in English when I can listen, read, speak, write in English and answer questions well.	□	□	□	□
9) Learning English means acquiring knowledge and skills for traveling abroad.	□	□	□	□
10) Learning English helps me to understand some linguistic phenomena.	□	□	□	□
11) When learning English, I memorize grammar rules, expressions, and sentence structures found in the English textbook.	□	□	□	□
12) Learning English is to get more familiar with all the questions which may appear in the exams.	□	□	□	□
13) Learning English means knowing how to use the correct expressions, vocabulary, and sentence structure when answering questions.	□	□	□	□
14) Learning English means acquiring knowledge and skills for studying abroad.	□	□	□	□
15) Learning English helps me understand more about other cultures and societies.	□	□	□	□
16) When learning English, I remember what the teacher talked about in English class.	□	□	□	□
17) I will learn English because of the exams.	□	□	□	□
18) To learn English well, I need to practice drilling and answering questions.	□	□	□	□
19) Learning English means acquiring knowledge and skills to make friends with native speakers.	□	□	□	□
20) Learning English means expanding my own view on many things.	□	□	□	□
21) When learning English, I usually memorize English symbols, English concepts, and facts.	□	□	□	□
22) Learning English relates to taking exams.	□	□	□	□
23) Learning English means acquiring knowledge and skills to appreciate western movies or TV programs.	□	□	□	□
24) Learning English means using a new viewpoint to understand realities or subject matter related to other countries.	□	□	□	□
25) Learning English means changing my way of viewing phenomena and issues related to other countries.	□	□	□	□

Statements	Strongly Disagree	Disagree	Agree	Strongly Agree
26) Learning English is a way to better understand multi-cultural phenomena.	☐	☐	☐	☐
27) Learning English means finding a more reasonable way to explain issues in our lives.	☐	☐	☐	☐

SECTION III ENGLISH LEARNING MOTIVATION

In this section, think about your learning motivation and rate how you strongly agree or disagree with the following statements.

Please mark one choice in each row.

Statements	Strongly Disagree	Disagree	Agree	Strongly Agree
1) I like English assignments even if I make a lot of mistakes	☐	☐	☐	☐
2) I feel satisfied if I am the only one who could answer the teachers' questions in class.	☐	☐	☐	☐
3) It's very important to me that I don't look stupid in my classes.	☐	☐	☐	☐
4) I get very worried if I make mistakes during English class.	☐	☐	☐	☐
5) I wish I had more English lessons at school this semester.	☐	☐	☐	☐
6) I do my English assignments because I like to learn new things.	☐	☐	☐	☐
7) I want my classmates think I am good at my work.	☐	☐	☐	☐
8) I do my English assignments so that I don't embarrass myself.	☐	☐	☐	☐
9) I am afraid my classmates will laugh at me when I speak English.	☐	☐	☐	☐
10) I like English lessons.	☐	☐	☐	☐
11) I like English assignments best when it really makes me think.	☐	☐	☐	☐
12) I want to do better than my classmates.	☐	☐	☐	☐
13) I do my assignments so my teachers don't think I know less than others.	☐	☐	☐	☐
14) I am worried about my ability to do well in English.	☐	☐	☐	☐
15) English is one of my favourite subjects at school.	☐	☐	☐	☐
16) I do my assignment because I want to get better at it.	☐	☐	☐	☐
17) I would feel successful if I did better than most of my classmates.	☐	☐	☐	☐
18) I do my assignments so others won't think I'm dumb.	☐	☐	☐	☐

19) Improving my English is a burden for me.	☐	☐	☐	☐
20) When the English lesson ends, I often wish it could continue.	☐	☐	☐	☐
21) I do my assignments because I'm interested in it.	☐	☐	☐	☐
22) I'd like to show my teachers that I'm smarter than my classmates.	☐	☐	☐	☐
23) I would not participate in class to avoid looking stupid.	☐	☐	☐	☐
24) I feel nervous in English classes.	☐	☐	☐	☐
25) I work hard in English lessons to make my teacher happy.	☐	☐	☐	☐
26) I do my school work is because I enjoy it.	☐	☐	☐	☐
27) Doing better than my classmates is important to me.	☐	☐	☐	☐
28) One of my main goals is to avoid looking like I can't do my assignments.	☐	☐	☐	☐
29) I enjoy my English lessons because what we do is neither too hard nor too easy.	☐	☐	☐	☐
30) I would rather spend time on subjects other than English.	☐	☐	☐	☐
31) Learning English at school is a burden for me.	☐	☐	☐	☐
32) In English lessons this semester, I am learning things that will be useful in the future.	☐	☐	☐	☐

SECTION IV PERCEPTIONS OF CLASSROOM LEARNING AND ASSESSMENT ENVIRONMENT

In this section, think about your classroom learning and assessment and rate how often you experience the following statements in English classroom.

Please mark one choice in each row.

Statements	Never or almost never	Occasionally	Frequently	Always
1) I make friends among students in this class.	☐	☐	☐	☐
2) I help other class members who are having trouble with their work.	☐	☐	☐	☐
3) In this class I get help from other students.	☐	☐	☐	☐
4) My English teacher takes an interest in my progress.	☐	☐	☐	☐
5) My English teacher try to help me improve my English.	☐	☐	☐	☐
6) My English teacher considers my feeling.	☐	☐	☐	☐

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	Strongly Disagree	Disagree	Agree	Strongly Agree
7) My English teacher helps me when I get trouble with English assignments.	☐	☐	☐	☐
8) My English teacher talks with me about my progress.	☐	☐	☐	☐
9) My English teacher is interested in my problems in English.	☐	☐	☐	☐
10) My English teacher moves around the class to talk with me.	☐	☐	☐	☐
11) My teacher's questions help me to understand.	☐	☐	☐	☐
12) I find out the answer to questions from textbooks rather than from investigation.	☐	☐	☐	☐
13) I do investigations to test ideas.	☐	☐	☐	☐
14) I do investigations to answer questions coming from class discussions.	☐	☐	☐	☐
15) I do investigations to answer questions which are difficult or confusing.	☐	☐	☐	☐
16) I give opinions during discussions.	☐	☐	☐	☐
17) I ask the teacher questions.	☐	☐	☐	☐
18) There is a classroom discussion.	☐	☐	☐	☐
19) I pay attention during English classes.	☐	☐	☐	☐
20) I am ready to start this class on time.	☐	☐	☐	☐
21) I know what I should accomplish in this class.	☐	☐	☐	☐
22) I know the goal for this class.	☐	☐	☐	☐
23) I can finish my English homework on time.	☐	☐	☐	☐
24) I will try to accomplish the assignments in English class.	☐	☐	☐	☐
In my English class…	Strongly Disagree	Disagree	Agree	Strongly Agree
25) I can find out my strengths in English.	☐	☐	☐	☐
26) My teacher helps me identify our weaknesses to improve in future.	☐	☐	☐	☐
27) The assignments and tests encourage thinking.	☐	☐	☐	☐
28) I receive continuous feedback from the teacher about my performance in English.	☐	☐	☐	☐
29) I have opportunity to correct my mistakes.	☐	☐	☐	☐
30) The assignments and activities are related to my everyday life.	☐	☐	☐	☐
31) My teacher holds us the responsibility to learn.	☐	☐	☐	☐
32) My teacher uses a variety of ways (e.g., tests, in-class tasks, homework assignments…etc) to assess my mastery of the learned subject materials.	☐	☐	☐	☐

33) The assignments and tests are returned in a way that keeps my scores private.	☐	☐	☐	☐
34) The tests and assignments are difficult to me.	☐	☐	☐	☐
35) My teacher compares my performances to each other.	☐	☐	☐	☐
36) My teacher gives more importance to the grades than to the learning.	☐	☐	☐	☐
37) There is a mismatch between the learned subject materials and the assigned homework and tests.	☐	☐	☐	☐
38) The in-class and homework assignments are not interesting.	☐	☐	☐	☐
39) My teacher's grading system is not clear.	☐	☐	☐	☐
40) The assessment results do not fairly reflect the effort put in studying the subject.	☐	☐	☐	☐

SECTION V APPROACHES TO STUDYING

In this section, think about how you approach English learning and rate if the following statements are true to yourself.

Please mark one choice in each row.

Statements	Never or only rarely true of me	Generally not true of me	Generally true of me	Always or almost always true of me
1) My English assignments can make me feel really satisfied.	☐	☐	☐	☐
2) I try to obtain high marks in English to compete with others.	☐	☐	☐	☐
3) I only study what has been planned.	☐	☐	☐	☐
4) When I study English, I often think the usefulness of the material in the real life.	☐	☐	☐	☐
5) I often take notes in English class.	☐	☐	☐	☐
6) I am not happy to have a poor mark on a test and worry about the next test.	☐	☐	☐	☐
7) I try hard to do my best in English lessons.	☐	☐	☐	☐
8) For me the only way to learn English is by memorising.	☐	☐	☐	☐
9) When reading I often relate the materials with my prior knowledge.	☐	☐	☐	☐
10) I try to study hard and revise materials before the examinations.	☐	☐	☐	☐

11) For me English becomes very interesting once I get into it.	☐	☐	☐	☐
12) I like the results of English tests to be announced publicly so I can see how good I am compared to others.	☐	☐	☐	☐
13) I try to do all of my English assignments.	☐	☐	☐	☐
14) I worry I cannot do well in an English test even I have studied hard.	☐	☐	☐	☐
15) For me studying some topics in English can be really exciting.	☐	☐	☐	☐
16) I want to be more successful in English and school.	☐	☐	☐	☐
17) I will do only enough to make sure I pass, and no more.	☐	☐	☐	☐
18) I try to relate what I have learned in one subject to what I already know in other subjects.	☐	☐	☐	☐
19) I re-read my notes to understand them as soon as the class is over.	☐	☐	☐	☐
20) I think teachers should not expect me to work on topics that are outside the set course.	☐	☐	☐	☐
21) I will work for top marks in English whether or not I like it.	☐	☐	☐	☐
22) For me it is better to learn just the facts and details about a topic rather than try to understand all about it.	☐	☐	☐	☐
23) I find most new topics interesting and often try to find out more about them.	☐	☐	☐	☐
24) When a test is returned, I check and correct all errors to understand why I made the mistakes.	☐	☐	☐	☐
25) I will continue studying English only for getting a good job.	☐	☐	☐	☐
26) I want to get the best results in English class.	☐	☐	☐	☐
27) I do not learn materials that will not be tested in an exam.	☐	☐	☐	☐
28) I try to read all the references and things suggested by my teacher.	☐	☐	☐	☐

Would you would like to participate in a short interview in the theme of this questionnaire?

☐ Yes

☐ No

Thank you very much for your help!

Appendix D. Teacher Questionnaire

TEACHER QUESTIONNAIRE

Information about the questionnaire

This questionnaire aims to investigate teacher factors related to students' English achievement. In this questionnaire, you will find some questions about yourself and about your beliefs and practice in teaching English in a classroom. You will find some questions about your gender, age, teaching experience, and other relevant demographic information. You will also find some questions that ask your perception or belief or attitude about your preparedness in teaching, knowledge, self-efficacy, approaches to assessment and teaching English.

Your response to the questionnaire will be useful to this research and it will not give any effect to your current or future career. Your response and your identity will be confidential and used only for the purpose of the research. Thank you for contributing to the research by completing the questionnaire.

Teacher Name : _____

School   : _____

SECTION 1 BACKGROUND INFORMATION

These questions are about you. Please answer all of the questions

1. Are you female or male? *(please mark one choice)*

   ☐   Female
   ☐   Male

2. How old are you?
   _____ years old *(please write a number)*

3. How many years of English teaching experience do you have?
   _____ year(s) *(please write a number)*

4. What is the highest level of formal education you have completed? *(please mark one choice)*

   ☐   Diploma   ☐   Master's degree
   ☐   Bachelor's degree   ☐   Doctoral or professional degree (e.g., PhD)

5. What types of formal education/training have you attended?
- ☐ None
- ☐ Few conferences/workshops
- ☐ Less than 1 year training
- ☐ 1- to 2-year training
- ☐ 3- to 4-year training
- ☐ Training with more than 4 years

6. Within 12 months, which of the following professional development activities in English language teaching have you ever participated in? *(please mark more choice in each row)*

Activities	Yes	No
a) Face-to-face/online courses/seminars attended in person	☐	☐
b) Peer and/or self-observation and coaching as part of a formal school arrangement	☐	☐
c) Participation in a network of teachers formed specifically for the professional development of teachers	☐	☐
d) Teacher professional education held by universities	☐	☐

7. To what extent did you feel prepared for each element in your teaching?

Statements	Not at all	Some-what	Well	Very well
1) Managing English classroom	☐	☐	☐	☐
2) Using ICT in teaching English	☐	☐	☐	☐
3) Assessing students in English classroom	☐	☐	☐	☐
4) Monitoring student learning	☐	☐	☐	☐
5) Teaching English content	☐	☐	☐	☐
6) Teaching English in general	☐	☐	☐	☐

SECTION II TEACHER KNOWLEDGE

We would like to ask about your understanding on English language and pedagogy. Please indicate to what extent you have understanding about the following statements.

Statements	Not at all	To some extent	Quite a bit	A lot
1) knowledge about structures and functions of grammar	☐	☐	☐	☐
2) knowledge about the culture of English language communities	☐	☐	☐	☐
3) knowledge about various expressions for English written and spoken communication	☐	☐	☐	☐
4) knowledge about history of language teaching methods	☐	☐	☐	☐
5) knowledge about linguistics (i.e., phonology, syntax, morphology)	☐	☐	☐	☐
6) knowledge of text types and functions	☐	☐	☐	☐

7) how to assess student learning in multiple ways	☐	☐	☐	☐
8) how to choose an appropriate approach to teach learners (i.e., communicative approach, direct method)	☐	☐	☐	☐
9) how to facilitate learning through creating opportunities for individual, partner, group and whole class work	☐	☐	☐	☐
10) how and when to use the target language in the classroom	☐	☐	☐	☐
11) how to keep students on task	☐	☐	☐	☐
12) how to identify linguistic problems experienced by learners (i.e., phonological, lexical or grammatical problems)	☐	☐	☐	☐
13) how to react supportively to learners' interaction	☐	☐	☐	☐
14) how to prepare curricular activities that develop students' language skills.	☐	☐	☐	☐
15) how to adapt a lesson plan in accordance with students' language skill levels	☐	☐	☐	☐
16) how to facilitate intercultural understanding by using technology to engage students with different cultures	☐	☐	☐	☐
17) how to use a range of technologies that enable students to become active participants	☐	☐	☐	☐
18) how to use technology effectively to communicate relevant information to students and peers	☐	☐	☐	☐
19) how to select technologies to use in my classroom that enhance what I teach, how I teach, and what students learn	☐	☐	☐	☐
20) how to use a range of technologies to help students pursue their individual curiosities.	☐	☐	☐	☐
21) how to provide equitable access to digital language learning tools and resources.	☐	☐	☐	☐
22) how to support my professional development by using technological tools and resources to continuously improve the language teaching process.	☐	☐	☐	☐

SECTION III TEACHER SELF-EFFICACY

We would like to ask about your own efficacy beliefs in teaching English. Please indicate to what extent you can do the following activities.

Activities	Not at all	To some extent	Quite a bit	A lot
1) Get students to believe they can do well in school work	☐	☐	☐	☐
2) Help students value learning	☐	☐	☐	☐
3) Craft good questions for students	☐	☐	☐	☐
4) Control disruptive behaviour in the classroom	☐	☐	☐	☐
5) Motivate students who show low interest in school work	☐	☐	☐	☐
6) Make my expectations about student behaviour clear	☐	☐	☐	☐
7) Help students think critically	☐	☐	☐	☐
8) Get students to follow classroom rules	☐	☐	☐	☐
9) Calm a student who is disruptive or noisy	☐	☐	☐	☐
10) Use a variety of assessment strategies	☐	☐	☐	☐
11) Provide an alternative explanation for example when students are confused	☐	☐	☐	☐
12) Vary instructional strategies in my classroom	☐	☐	☐	☐

SECTION IV TEACHER APPROACHES TO ASSESSMENT

We would like to ask about your assessment practices in your English classroom. Please indicate how much you disagree or agree with each of the following statements.

In my classroom…	Strongly Disagree	Disagree	Agree	Strongly Agree
1) I give student opportunities to correct their homework before being assessed for marks.	☐	☐	☐	☐
2) I consider overall improvement along with academic achievement when determining grades.	☐	☐	☐	☐
3) I review a scoring guide with students before using it for assessment.	☐	☐	☐	☐
4) I allow students some choices when selecting essay topics or projects.	☐	☐	☐	☐
5) I help students identify their strengths and weaknesses to improve in future.	☐	☐	☐	☐
6) I use a variety of ways to assess students' mastery (e.g., tests, in-class tasks, homework assignments…etc).	☐	☐	☐	☐
7) I give continuous feedback about students' performance in English.	☐	☐	☐	☐

SECTION V TEACHER APPROACHES TO INSTRUCTION

We would like to ask about your approaches to instruction. Please indicate how much you disagree or agree with each of the following statements.

Statements	Strongly Disagree	Disagree	Agree	Strongly Agree
1) In my teaching, assessment should be an opportunity for students to reveal their changed conceptual understanding of the subject.	☐	☐	☐	☐
2) I encourage students to restructure new way of thinking about the subject.	☐	☐	☐	☐
3) I teach English to help students find their own learning resources.	☐	☐	☐	☐
4) I teach English to help students question their understanding.	☐	☐	☐	☐
5) I try to develop a conversation with students about the topics that are studied.	☐	☐	☐	☐
6) I teach English to give opportunities for students to discuss among themselves and identify the difficulties in learning English.	☐	☐	☐	☐
7) In teaching English, I use difficult or undefined examples to provoke debate.	☐	☐	☐	☐
8) In teaching English, I provide opportunities for students to discuss their changing understanding of the subject.	☐	☐	☐	☐
9) I teach English to give what students have to know for formal assessment items.	☐	☐	☐	☐
10) I teach English to present a lot of facts to students so that they know what they have to learn for this subject	☐	☐	☐	☐
11) I teach English to give students a good set of notes.	☐	☐	☐	☐
12) I should know the answers to any questions that students may ask during learning.	☐	☐	☐	☐
13) I design my teaching with the assumption that most of the students have very little useful knowledge of the topics to be covered.	☐	☐	☐	☐
14) My teaching focuses on covering the information from a good textbook.	☐	☐	☐	☐
15) I structure my English lesson to help students to pass the formal assessment items.	☐	☐	☐	☐
16) When I teach English, I only provide the students with the information they will need to pass the formal assessments	☐	☐	☐	☐

Would you would like to participate in a short interview in the theme of this questionnaire?

☐   Yes
☐   No

Thank you very much for your help!