

CHAPTER 1

INTRODUCTION

This chapter provides an introduction to the present study comprising six main sections: study background, research questions, research objectives, research hypotheses, scope of the study, and definitions of terms.

1.1 Study background

Preparing students to become ready-to-work graduates with desired attributes for the 21st century responding to the competitive labor market requires effective cooperation from both educational institutions and workplaces to improve graduates' competencies to fulfill the employers' expectations (Chonsalasin & Khampirat, 2022; Khampirat et al., 2018) and enable them to develop their workplace skills (Alanson & Schomaker, 2018; Bamrungsin & Khampirat, 2022; Holmes, 2017; McRae et al., 2016). Accordingly, co-operative (co-op) education has been launched as one of the effective pedagogical programs combining academic concepts and practices and allowing students to gain more work experience and higher career mastery (Srisa-an & Pramoolsook, 2019; Zegwaard et al., 2018) empowering students to integrate their knowledge (Ferns & Zegwaard, 2014), positive attitude and motivation (Han, 2023) and developing their skills for employability before their graduation (Björck, 2021; Hall et al., 2017; Qiubo et al., 2016).

A vital ability required by new graduates for employability is English competency (Creely et al., 2021; Durga, 2018) as it is considered one of the most important languages and is commonly spoken among native and nonnative speakers to overcome language barriers (Davison & Copp, 2023; Evans & Suklun, 2017; Holmes, 2017).

A good command of English is accepted as the desired communication skill for international communication (Gomez, 2022; Le Donne, 2018) in sharing information technology and exchanging knowledge (Ahmadi & Reza, 2018; Gareyev, 2022; Meniado, 2019). As global citizens, English literacy enables people to engage in effective communication and have a mutual understanding (Dall, 2017; Gomez, 2022) and empowers individuals with a better understanding of different communication systems of a particular language in diverse contexts, norms, and cultural rules (Litvinova & Larina, 2023; Martins, 2017).

Developing students' English competency to interact with people from different countries in the globalized context requires an appropriate educational system and pedagogical methods (Ahmadi & Reza, 2018; Sera et al., 2023; Tuncel & Aricioglu, 2018). Notably, English and culture cannot be taught independently (Samovar et al., 2015; Villacañas de Castro et al., 2022; Wu, 2015). Cultivating English skills requires well-prepared teaching and learning methods designed by teachers or educators to help students enhance their language knowledge and communicative skills for effective social interaction, together with gaining an understanding of different cultures and individual identities (Mesh, 2016; Villacañas de Castro et al., 2022).

Several studies have been conducted to reveal the students' English learning outcomes and possible affecting factors based on individual learner's differences (Leong & Ahmadi, 2017; Yuan et al., 2023) such as sociological factors (Montero et al., 2014), psychological aspects (Mahripah, 2014), political influences (Nguyen, 2018), cultural circumstances (Nejabat, 2016), environmental features (Mirhadizadeh, Internal and external factors in language learning), socio-economic status (SES) (Moreno & Callejas, 2018) and educational institution variables (Asif, Xuhui, Nasiri, & Ayyuub, 2018) as the foundation for improving English language learning outcomes.

Additionally, English language skills can be influenced and developed through other factors, such as internationalization at both home and international institutions (Beelen & Jones, 2018; Corder & U-Mackey, 2015). Regarding internationalization at the home university, studies mentioned the influencing aspect of family background on students' second language learning performance and achievement of international communication (Beelen & Jones, 2018). They also focused on the academic institutions providing development processes and policies regarding recruiting international students, establishing partnerships with institutions abroad, and developing

international curricula and accreditation that could bring global elements into home institutions (Dumitrescu et al., 2022; Leask et al., 2013). Thus, students' higher learning outcomes can be enhanced without leaving their home campus.

According to Chuanpongpanich (2021) and Kachru (2005) Thailand is considered one of the countries in has been promoting English to be taught at all levels of education to enhance students' English literacy (OECD/UNESCO, 2016), however, Thai students' learning outcomes could not be achieved as expected, and it was reported that Thai students' English proficiency level was relatively low compared to its neighboring countries (First, 2018; TOEFL, 2018). Not only do Thai students still face enormous difficulties and have slow progress in English language development (Kaur et al., 2016; S., 2021) but also those who graduate and become part of the workforce encounter problems in all English skills for communication causing them to return to English training courses for professional advancement (Franco & Roach, 2018; Nimnuch, 2011; Xie, 2021). This indicates that the English ability of Thais should be particularly developed as one of the key qualities for human capital in the competitive world of the international labor market and employability (IMD, 2017; Kaewkunha & Sukying, 2021).

Since co-op education has been applied, students have worked in various companies and positions. However, only a few studies have been conducted to assess their English proficiency, investigate the effects of the influential factors on English improvement, and the students' opinions on companies' roles in enhancing students' English levels (Coll et al., 2003; H. & Yiran, 2022; Srichannil, 2014). Therefore, this research intends to investigate students' English proficiency according to companies' requirements, compare co-op students' levels of self-perception of English competency before and after co-op education, examine influencing factors, and discover opinions of co-op students toward the roles of previous workplaces on mastering English (Franco & Roach, 2018; Geale et al., 2015).

This study's results are significant regarding its pedagogical application (Hanley, 2017) and students' decision-making in selecting their future companies and positions for co-op education (Hora et al., 2020). In addition, the results of this study will provide valuable implications for future co-op education research on developing English language skills as one of the desirable attributes of Thailand's labor market as well as the international competitive labor market.

1.2 Research questions

This study formulates the research questions as follows:

1. What is Thai co-op students' desired English competency level according to the requirements of eastern economic corridor (EEC) workplaces?
2. What are the differences in English competency of Thai co-op students before and after co-op education?
3. What are the effects of socio-demographic background, educational institution factors, and workplace environments on the levels of English competency of Thai co-op students?
4. What are Thai co-op students' opinions of the roles of workplaces in improving their English competency?

1.3 Research objectives

The objectives of this study are stated as follows:

1. To investigate the desired English competency of Thai students according to the requirements of EEC workplaces
2. To compare the English competency of Thai co-op students before and after co-op education
3. To examine the effects of the students' socio-demographic background, educational institution factors, and workplace environments on English competency levels of Thai co-op students
4. To explore Thai co-op students' opinions of the roles of workplaces in improving their English competency

1.4 Research hypotheses

The statements of hypotheses are postulated as follows:

- 1.4.1 After the co-op education program, Thai co-op students' self-perception of English competency level significantly differs from their pre-co-op education.
- 1.4.2 There are significant causal relationships between socio-demographic background, educational institution factors, and workplace environments on the English competency level of Thai co-op students.

14.3 Thai co-op students have positive opinions on the roles of workplaces in improving their English competency.

1.5 Scope of the study

1.5.1 The present study's participants are 1,085 research informants that can be divided into two groups as follows:

1.5.1.1 The first group for needs analysis of the English requirements for the workplace is 1,000 job mentors or supervisors in workplaces located in three EEC provinces: Chachoengsao, Chon Buri, and Rayong, which provide student job opportunities and positions.

1.5.1.2 The second group for examining English competency, influencing variables, and opinions on workplace roles is 2,115 co-op students from various academic institutions, specifically working in the three EEC provinces.

1.5.2 The study's variables are as follows:

1.5.2.1 The independent variables are socio-demographic background, educational institution factors, and workplace environments.

1.5.2.2 The dependent variable is English competency.

1.5.3 The study context is the industrial area named "Eastern Economic Corridor or EEC," covering three provinces: Chachoengsao, Chon Buri, and Rayong (ONESDB, 2016). This study aims to collect data from the participants who are job mentors who are in charge and responsible for co-op supervision and co-op students who completed their co-op education program in EEC workplaces to discover the specific needs of English for workplaces and the maximal post-level of co-op students' English competency.

1.6 Definition of terms

English competency refers to students' ability to engage and deal with English communication situations in formal and informal interactions (Evans & Suklun, 2017; He & Song, 2022; Holmes, 2017; Le Donne, 2018). In this study, four macro skills of the English language will be measured by an English competency questionnaire with 30 underlying items adapted from Ho (2019), Mognhode and Z. (2015), Perinpasingam et al. (2015), Liao et al. (2017), Briana et al. (2019). Co-op students will be requested to

complete the questionnaire indicating their English language competency levels to compare their pre-post co-op program levels. In addition to the operational term of English competency, it refers to overall English skills for workplace communication as details in the questionnaire. All skills, listening, speaking, reading and writing which will be used in specific job operation in the company and will be obtained and assessed by using the adapted questionnaire for students' self-assessment.

English needs analysis refers to assessing English language learners' or users' needs and deficiencies. The results can assist the particular course developer or designer in selecting the appropriate content for specific language needs (Briana et al., 2019; Macalister & Nation, 2010; Nallaya, 2012) to measure whether the course or training program contains relevant and useful topics and information (Moslehifar & Ibrahim, 2012), or investigate what the learners already know and what they desire to learn (Briana et al., 2019). In this study, English needs analysis will be measured by a questionnaire related to English competency with 30 underlying items adapted from Ho (2019), Perinpasingam et al. (2015), Liao et al. (2017), Briana et al. (2019) to collect data from company representatives who work in the companies in the EEC area to discover their expectation and satisfaction toward Thai co-op students' English competency.

Influencing factors refer to specific characteristics or drivers that influence individual performance and further improvements to a higher level of particular knowledge or skill (Barbarà-i-Molinero et al., 2017; Islamia & Sembiring, 2022).

Socio-demographic background refers to the indication of an individual's age, sex, education level, income, marital status, occupation, religion, family, social behavior, attitude, personality, and lifestyle resulting from their own personal social and economic experiences, which affect their behaviors, beliefs, and personal growth in society (Abda, 2017; Dall, 2017; H. & Yiran, 2022; Judith, 2018; Meniado, 2019; Norman, 2016; Pinilla-Portino, 2018; Völkel et al., 2016). This research focuses on investigating the effects of socio-demographic background as an influential factor affecting individuals' second language learning outcomes, (H. & Yiran, 2022; Ho, 2019; Phon, 2017; Rintaningrum et al., 2017; Salameh & Sathakathulla, 2018; Yen et al., 2019) to gain a deeper understanding of co-op students in the EEC context. All co-op students were requested to record their personal information in the questionnaire subject to their consent and permission policy of research ethics on humans.

Educational institution factors refers to various forms and academic practices provided to students as educational assistance related to students' learning outcomes improvement and career achievement (Leong & Ahmadi, 2017), specifically comprising academic institute's support such as academic programs, scholarships, and learning facilities. This study focuses on examining institutional factors such as providing learning resources and opportunities (Dang, 2015), enabling the students to develop their international competencies (Beelen & Jones, 2018), recruiting international teachers and students into the local campus (Dang, 2015; Javadi-Elmi et al., 2022; Leask et al., 2013), and enhancing students' global knowledge without leaving their home campus (Beelen, 2018; Beelen & Jones, 2018). All co-op students were requested to report information in the questionnaire related to English courses, international courses, exchange programs, or training programs their universities provide.

EEC Workplace environment refers to workplace located in three provinces of Eastern Economic Corridor Chachoengsao, Chon Buri, and Rayong (EEC, 2019). These three provinces are located in the designated area of the EEC subject to the Development Plan under the scheme of Thailand 4.0, and these three provinces were developed with modern technology and innovation, state-of-the-art transportation systems, logistics hubs, and foreign investment (Ootsahkarn, 2018). These types of workplaces are selected for this study for obtaining elements that influence co-op students to gain new academic knowledge, experiences, and practices to enhance their work competencies and career development before graduation (Mangion, 2022; Srisa-an & Pramoolsook, 2019). This study aims to conduct this study in this area because, according to the establishment of the EEC area, it was to promote and enhance the eastern area of Thailand to be the industrial production base for innovative industries and a logistic hub with good infrastructure in the era of Thailand 4.0 (Bhrammanachote, 2019), to empower economic development and growth as an excellent hub of both domestic and foreign trade and investment, a regional transportation and logistics hub, an important center for human resources, and a significant tourist destination of the country as the most modern gateway to the Association of Southeast Asian Nations countries (OECD, 2016). Therefore, this study investigates the effects of workplace factors in international, national, or local companies, such as workplace language, co-op job position, company representatives, and the number of foreign employees. All

co-op students will be requested to report the information related to their workplaces after their co-op program.

Opinion refers to students' thoughts or ideas related to the actions and role of workplaces in providing supervision, academic knowledge, and training during their co-op program, which empowers students to develop what they need and lack at work as a part of routine work leading to the development of students' skills and competence to become qualified and professional before their graduation (Bamrungsin & Khampirat, 2022; Khampirat et al., 2018; Zegwaard et al., 2018). This study focuses on analyzing students' opinions on workplace roles through various aspects, such as assigning the right jobs and giving constructive feedback. After their co-op program, they were requested to report their opinions on workplace roles in the questionnaire items.

Co-operative education, as the co-op tool in this study, refers to the educational program launched to combine the concepts and skills that could not be taught or learned in the classroom to gain more fruitful experiences and career mastery. This program aims to bridge the gap between learning and teaching theory and the practice of work-integrated learning by combining the knowledge between educational institutions and the workplace to gain authentic learning experiences from the real world under the supervision of a mentor or job supervisor directing the students' work. This is done with the hope of preparing students or new graduates with the required performance abilities and attributes for the workplace (Ferns & Zegwaard, 2014; Hanley, 2017; Jackson, 2018; Munawar & Chaudhary, 2019; Rowe & Zegwaard, 2017; Srisa-an & Pramoolsook, 2019).

Cooperative and Work Integrated Education (CWIE) is a co-designed educational program that asks workplaces to participate in the design of the student learning outcomes and the program's management system (Eames & Cates, 2011). The objective of CWIE program is to provide an opportunity for students to gain hands-on experience through working as full-time staff in actual workplaces (Khampirat & McRae, 2017). This will enhance their potential and competencies to effectively meet the rising and ever-changing demands of the workforce and labor market (MHESRI, 2020).

Thai co-op students refer to fourth-year undergraduate students working in the co-op education program in international companies for at least sixteen weeks in the academic year 2019.

1.7 Significance of the study

The findings of this study are expected to provide the results which will be significant regarding to the following aspects.

17.1 In terms of the English curriculum and instruction design, enhancing students' English competency to communicate and interact with people from different countries effectively requires an appropriate educational system and pedagogical methods (Ahmadi & Reza, 2018; Sera et al., 2023; Tuncel & Aricioglu, 2018), and requires well-prepared teaching and learning methods designed by teachers or curriculum developer to help students enhance their language knowledge and communicative skills for effective social interaction (Mesh, 2016; Villacañas de Castro et al., 2022). Therefore, this study is expected to provide the results which indicate the English skills for workplace communication from the gap analysis study of expectation and satisfaction of the workplace, in order to provide the information as the meaningful resources for future English course development.

17.2 In terms of the differences of pre-post co-operative education program, the expected results of this study is to discover the comparison of co-op students' self-assessment towards their English competence before and after the co-op program which will help assess how well the workplace variables develop their English competency. In addition, it will be able to reveal students' strengths and weaknesses on English skills for workplace communication leading to the appropriate English curriculum and instruction design and promote the co-operative education program. Besides, students' opinions on the roles of the workplace in improving their English competency will also be beneficial for future decision of the students in workplace selection for their future co-operative education program (Hora et al., 2020). In addition, the results of this study will provide valuable implications for future co-op education research on developing English language skills as one of the desirable attributes of Thailand's labor market as well as the international competitive labor market.

17.3 In terms of the effects of the students' socio-demographic background, educational institution factors, and workplace environments on English competency levels of Thai co-op students, the expected results which will be obtained from this study will help indicate the influencing and affecting variable as a factor to develop

English competency. The predictive variables will be expected to be found from statistical analysis which its significant results shall be contributing to English competency development and meaningful information for future development.

CHAPTER 2

LITERATURE REVIEW

This chapter reviews literature related to the study. The major content involves a review of the Social Development Theory by Lev Vygotsky, English competency, influencing factors on English language skills, and previous studies relating to English competency. The framework of the present study is listed as follows:

- 2.1. Social Development Theory by Lev Vygotsky (1978)
 - 2.1.1 Social and cultural interaction
 - 2.1.2 More knowledgeable others (MKO)
 - 2.1.3 Zone of proximal development (ZPD)
- 2.2. Co-operative education (co-op)
 - 2.2.1 Co-operative education (co-op)
 - 2.2.2 Cooperative and Work Integrated Education (CWIE)
- 2.3 Eastern Economic Corridor (EEC)
- 2.4. English proficiency
 - 2.4.1 English for the workplace in the 21st century
 - 2.4.2 Factors influencing English competency
 - 2.4.2.1 Socio-demographic background
 - 2.4.2.2 Psychological factors
 - 2.4.2.3 Educational institution variables
 - 2.4.2.4 Workplace environment
 - 2.4.2.5 ICT and social networking
 - 2.4.3 Summary of previous studies

2.1. Social Development Theory by Lev Vygotsky

This section reviews the Social Development Theory by Lev Vygotsky (1978) as a learning theory that indicates how children, students, and people learn from social

interaction and various communication contexts, such as their learning communities, leading to their cognitive development (Vygotsky, 1978). In addition, a social environment was considered a crucially influencing factor in the learning process that could occur through students' social interactions, discussions, collaboration, and feedback from other potential and skilled people who possess higher abilities, knowledge, and work experiences and help enhance their learning outcomes (Damşa & Ludvigsen, 2016; Daniels, 2012; Esterhazy & Damşa., 2019; Vygotsky, 1962; Vygotsky, 1978). *“Every function in the child’s cultural development appears twice: first, on the social level, and later, on the individual level; first, between people (inter psychological) and then inside the child (intra psychological). This applies equally to voluntary attention, to logical memory, and to the formation of concepts. All the higher functions originate as actual relationships between individuals (Vygotsky, 1978, p. 57)”*.

Based on the theoretical principles, Vygotsky (1978) believed that humans learn new things and complex tasks through their interactions with others leading to the construction of knowledge. This theory highlights that the learning process occurs by 1) the social and cultural interaction leading to skills development, awareness, and cognition; 2) with more knowledgeable others' assistance, suggesting who can assist in enabling them to complete the complex tasks; and 3) in the ZPD as discussed below.

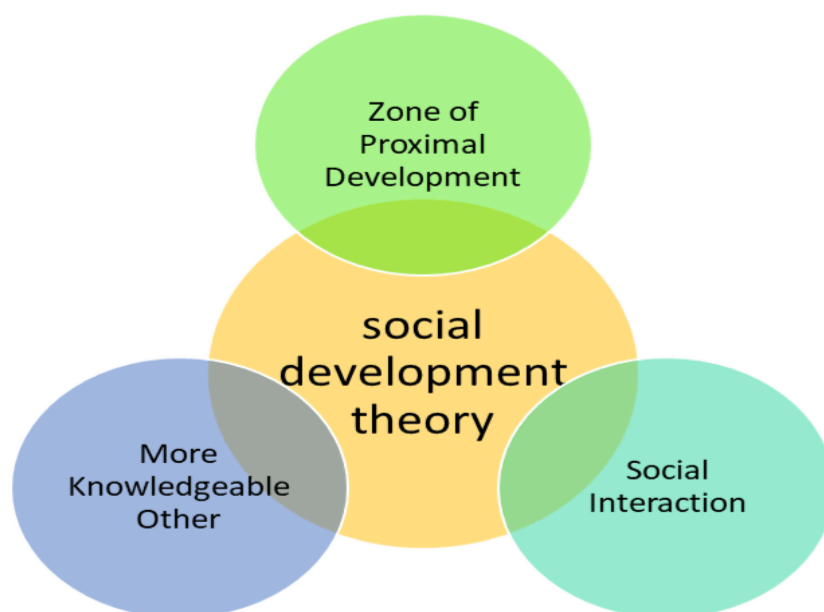


Figure 2.1 Social development theory of Vygotsky (1978)

2.1.1 *Social and cultural interaction* is regarded as a fundamental process of social learning that influences an individual's development through the social context in which the students or learners are engaged. Therefore, students' learning outcomes and skills development can be shaped by their learning environment of Vygotsky (1978)

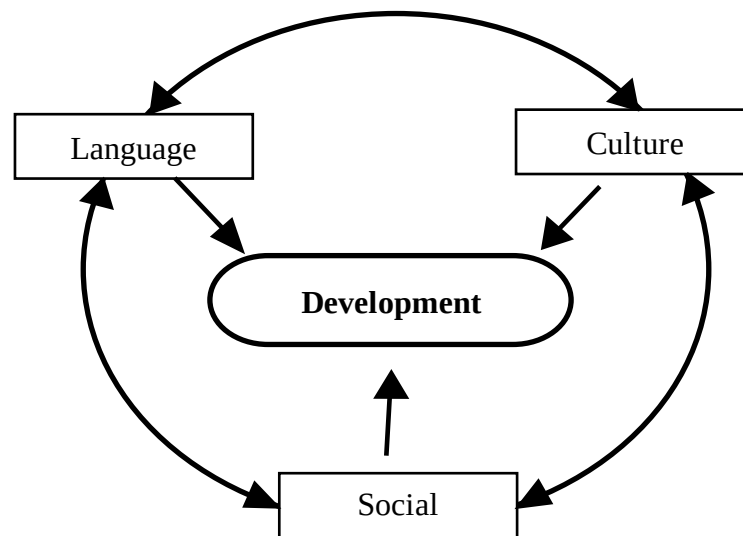


Figure 2.2 Social and cultural interaction theory of Vygotsky (1978)

2.1.2 *More knowledgeable others* (MKO) refer to anyone with a deeper understanding, higher ability, and better skills in a particular learning context in which students are placed and belong to. With assistance, proper guidelines, and suggestions from those more skilled or knowledgeable, students can be assisted in learning and enhancing their current skills to complete difficult tasks more effectively and gain better learning outcomes (Vygotsky, 1978).

2.1.3 *Zone of proximal development* (ZPD) refers to the connection between the students and more knowledgeable people in the learning context where students and teachers interact and share experiences. In this zone, students may lack the ability to perform or complete complex tasks by themselves. Nevertheless, appropriate advice, guidance, and collaboration from more knowledgeable people can be crucial tools that are introduced as external support to accelerate students' abilities and knowledge, leading to higher professional skills (Vygotsky, 1978).

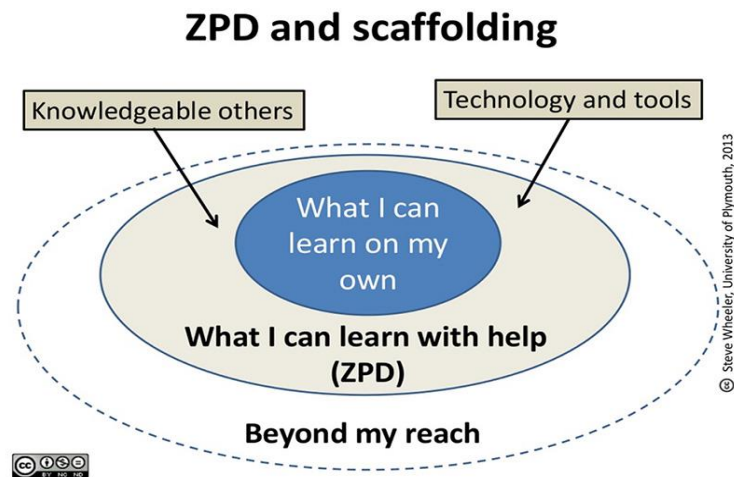


Figure 2.3 Zone of the proximal development of Vygotsky (1978)

The abovementioned information implies that developing students' learning, skills, knowledge, and ability are derived from social interaction with different learning environments in which more knowledgeable and skilled people help develop learner's socio-pragmatics behaviors and learning experiences in different cultures, such as in the workplace where newly trained and untrained workers can work and learn new things and skills through collaborative teams (Cornelissen, 2016; Cornelissen et al., 2017). Similarly, the learning theory of co-op and work-integrated education focuses on students' learning in the workplace and is a learner-centered concept (Srisa-an & Pramoolsook, 2019), where the teachers act as facilitators. In contrast, the student plays a crucial role in selecting, exploring, comparing, analyzing, criticizing, and synthesizing the knowledge into the work environment, developing their awareness and sensitivity to authentic working situations and domains (Eames & Cates, 2011).

Through social interaction, the students as language learners will have more chances to learn and acquire various aspects of linguistics, cultures, effective and appropriate ways of communication, and proper behavior among people from different cultures and circumstances in the international context (Koester & Lustig, 2015). Both language and cultural knowledge are considered a requirement of language learners to communicate effectively, interpret texts or events of other cultures, and acquire new knowledge (Byram, 2011; Deardorff, 2011) in international and intercultural learning contexts (Holmes, 2017).

Communicating and contacting people who speak other languages and from different cultures using English as a lingua franca (ELF; Park, 2010; Fantini, 2012) enable learners to have more opportunities to contact other MKOs, develop their English knowledge, and enhance communication skills (Holmes, 2017). Byram (2012) indicated how successful people were able to achieve their expected outcomes, manipulate communication strategies in order to interact effectively, realize the rules of communication, avoid breaking those rules, and deliver messages fluently (Byram, 2012).

In multinational workplaces, having different cultural knowledge and English language ability could reduce stereotypical prejudices and rejection of new cultures (Bennett, 2011). This is because it helps people understand their own culture, understand others and reach business communication goals (Morley & Cerdin, 2010; Leung, Ang, & Tan, 2014; Lieberman & Gamst, 2015). In the globalization era, people communicate more and more, and English is not representative of a speaker of a particular mother tongue. However, it is an international language that many people use in the global workplace context (Holmes, 2017) in which many migrant employees and foreign colleagues gather together and have intercultural communication for business purposes (Fornalska & Skurczyński, 2015). Therefore, having more social interactions would give students a greater ability to deal with international and intercultural contacts. Therefore, they would be able to develop their ability to communicate, connect, reconcile, and fill the gap between cultural differences among people (Martin, 2015; Martin & Nakayama, 2015; Bücken, Furrer, & Lin, 2015).

Based on this study's objectives, Vygotsky (1978)'s Social Development Theory, together with the concepts and practices of co-op education, will be applied and integrated for developing learners' socio-pragmatic behaviors through social interaction and dealing with their learning experiences in different cultures. Additionally, it focuses on the development of students' English competency in workplace domains influenced by various factors such as their personal background and experiences, university environment, and workplace factors under their co-op education program (Eseryel & Klein, 2006), new knowledge and experiences (Cornelissen et al., 2017), and career mastery (Sovilla & Varty, 2011). Furthermore, it will enable students to integrate knowledge between educational institutions and the workplace as a cross-sector study

(Coll & Zegwaard, 2011) and prepare new graduates with the required performance levels and attributes for their future careers (Ferns & Zegwaard, 2014).

2.2 Co-operative education

2.2.1 Background of co-operative education

Co-op education originated and was implemented in the United States of America by Schneider, the previous engineering professor, dean, and university president of the University of Cincinnati. It was developed and integrated with engineering and other academic programs (Sovilla & Varty, 2011). In Thailand, co-op education has been launched since 2002 at the Suranaree University of Technology (SUT) by Professor Dr. Wichit Srisa-arn, who has been regarded as the “Father of Co-operative Education in Thailand” (Thai Association for Co-operative Education, 2009). Since then, SUT’s co-op education model has been extended to public and private universities throughout Thailand and has still been promoted by the government until the present (Luekitinan, 2018).

According to the concept and practices of co-op education, the co-op program focuses on the academic development conducted jointly between educational institutes and workplaces to produce graduates with better qualities and working performance to become qualified as ready-to-work employees who can integrate, adapt, and apply knowledge to their working contexts before graduation (Srisa-arn & Pramoolsook, 2019). It was developed purposively and aimed to combine the concepts and skills that could not be taught and learned in the classroom (Billett & Choy, 2011) to gain more fruitful experiences and career mastery, focusing on learning outcomes and enhancing effective skills (Groenewald et al., 2011). Additionally, it was developed to bridge the gap between learning and teaching theory and the practice of work-integrated learning to gain authentic learning experiences from the real world (Dressler & Keeling, 2011), thus enhancing the students’ working competence as a professional with better understanding and learning outcomes throughout the working lives (Luekitinan, 2018).

For the benefits of the co-op, all the parties should understand the principles and collaboratively help plan the proper process of instruction (Nulton & Hoekje, 2018), such as having an appropriate plan and design for developing students’

learning outcomes, improving their academic skills and personal growth, gaining more work experiences for self-assessment, and learning more about the human skills required in the 21st century to prepare for the actual work in the coming future (Martin & Rees, 2018).

2.2.2 Cooperative and Work Integrated Education (CWIE)

Cooperative and Work Integrated Education (CWIE) is a co-designed educational program that asks workplaces to participate in the design of the student learning outcomes and the program's management system (Eames & Cates, 2011). The objective of CWIE program is to provide an opportunity for students to gain hands-on experience through working as full-time staff in actual workplaces (Khampirat & McRae, 2017). This will enhance their potential and competencies to effectively meet the rising and ever-changing demands of the workforce and labor market (MHESRI, 2020).

In response to the national strategy on developing and strengthening human capital, the Ministry of Higher Education, Science, Technology and Innovation (MHESI) launched the CWIE promotion policy as one of the key flagship programs with an aim to produce qualified and competent graduates who meet the future workforce requirements. Therefore, commitment and collaboration among higher education institutions, public and private sectors as well as community to promote CWIE implementation and raise CWIE standards are of great importance. To make this initiative move forward in a sustainable manner, MHESI deemed it crucial to introduce and establish "The Manpower Demand-Driven Education Platform for Employability and Career Development through Cooperative and Work-Integrated Education: University-Workplace Engagement" to be an important mechanism for standardizing and systematizing CWIE provision. This platform is composed of 5 procedures implemented under the quadruple-helix collaboration (higher education institutions, public and private agencies, and local communities) which are as follows: 1) Sharing Information, 2) Matching Collaborations, 3) Co-design and Implementation, 4) Assessment and Development, and 5) Outreach Activities (MHESRI, 2020).

The students participating in the CWIE programs will be able to improve their skills and competencies to effectively meet the demand for skilled workforce of workplaces and the labour market. They will also be able to achieve their career and professional goals within domestic or international contexts, or become productive entrepreneurs contributing to the country's socio-economic growth (MHESRI, 2020).

2.3 Eastern economic corridor

The EEC was established and legally approved in 2018 to promote and enhance the eastern area of Thailand to be the industrial production base for innovative industries and a logistic hub with good infrastructure in the era of Thailand 4.0 (Bhrammanachote, 2019). The promotional zone of EEC covers three provinces: Chachoengsao, Chon Buri, and Rayong, which are designated to empower economic development and growth, advancing to become a state-of-the-art metropolitan, an excellent hub of both domestic and foreign trade and investment, a regional transportation and logistics hub, an important center for human resources, and a significant tourist destination of the country as the most modern gateway to the Association of Southeast Asian Nations countries (OECD, 2016).

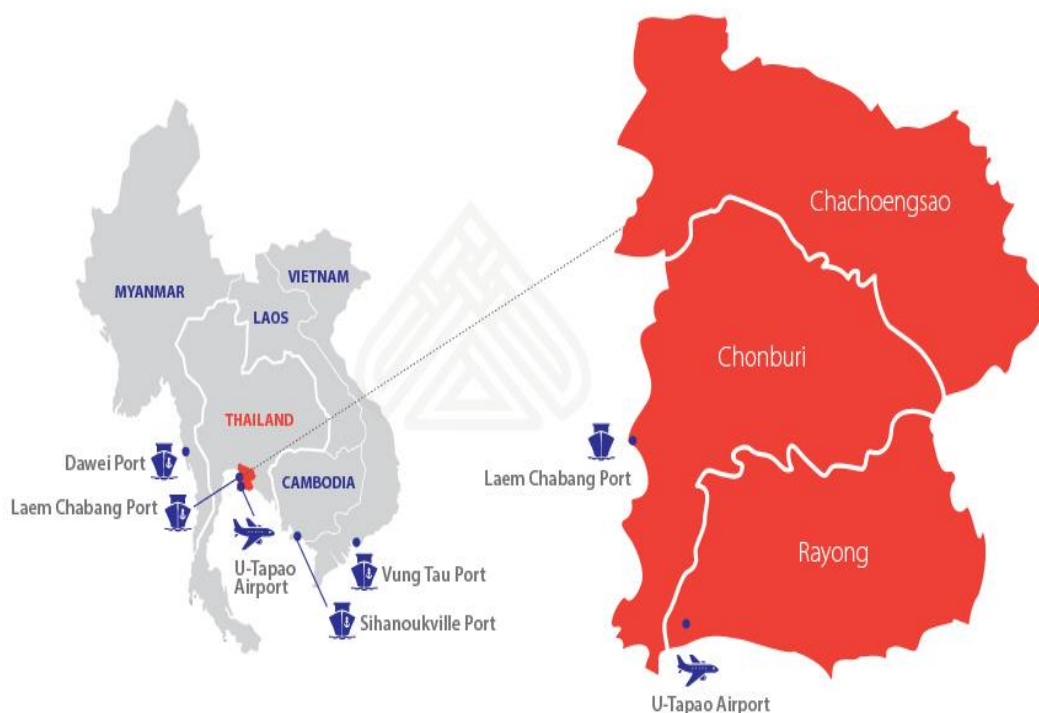


Figure 2.4 Eastern economic corridor of Thailand of DSAARR (2018)

According to the government of Gazette (2018), the Office of the EEC introduced measures to promote investment in the three provinces to commit all types of workplaces and companies to educate and improve the quality of students prepared for work in the EEC industries. The regulations were stipulated under

conditions for cooperation with educational institutions, research institutes, or the Center of Excellence per the specified model of cooperation, such as Talent Mobility, work-integrated Learning, co-op education programs, the Special Vocational Project in EEC or any cooperation to develop Thai personnel in science and technology as approved by the Board of Investment (Gazette, 2018). Therefore, the EEC industrial zone becomes the promotional area for not only developing Thailand's economic growth and attracting more investment to the area but also providing learning-by-doing concepts for students from all academic institutions for further learning expansion along with the purposive development to combine the concepts and skills that could not be taught and learned in the classroom to gain more fruitful experiences and career mastery (Buapliensee, 2018).

2.4 English competency

2.4.1 English for the workplace in the 21st century

English is accepted as one of the world's most influential languages and is used as a workplace language for global business communication among employers and employees in many international companies (Le Donne, 2018). In the workplace context, English has been a vital tool for more effective interpersonal communication for workers from different backgrounds of the mother language, and it enables them to learn the organizational culture, self-adjustment to a working environment, and sustainable work productivity (Evans & Suklun, 2017). Notably, English knowledge could be beneficial to both native speakers themselves and local employees as it helps both have a mutual understanding (Holmes, 2017). On the contrary, the inability to communicate could lead to less job efficiency and satisfaction, frustration, and turnover among staff in the workplace (Ahmad, 2016; Fabian Jintae Froese & Kyung, 2012).

Likewise, for job mobility and transfer to other countries, English becomes the corporate language between all foreign workers and local employees from various countries and is an effective tool for cross-cultural managerial work in their daily communication and business correspondence (Wang et al., 2014). This illustrates the need and importance of English for communication (Le Donne, 2018) in workplaces where there is a lot of flow of migrants (Brown & Cooke, 2009).

For the reasons mentioned above, ELF and English as an international language have been used among nonnative speakers in many countries where English is not the first language, such as Thailand (Ngampramuan, 2016). Nowadays, Thai people have become more active and aware in learning English because having better English communication skills positively affects their social interaction for creating relationships and communicating in diverse social and cultural contexts such as educational institutions and workplaces. Furthermore, it provides better opportunities for career development and promotion (Chottum et al., 2018).

For better quality of life and work performance required for the 21st century (Keser & Özdamlı, 2012), people have paid more attention to the development of their English literacy through convenient and accessible methods through Internet surfing, social networking, and interactive games (Costley, 2014). These tools can increase the motivation of learners to learn languages independently (Ahmadi & Reza, 2018). Accordingly, many academic institutions have launched teaching and learning technology innovations as crucial elements of English language education (Gilakjani et al., 2013) with the expectation of increasing students' motivation and engagement to achieve better learning (Eady & Lockyer, 2013; Godzicki et al., 2013).

In the globalization era, developing students to become ready-to-work graduates with critical skills, abilities, and attributes for the labor markets is regarded as the primary purpose of all academic institutes (Campbell & Price, 2016). It cannot be denied that English skills for communication in workplaces are necessary for all working contexts (Imeokparia & Kennedy, 2012; Trilling & Fadel, 2009). They are among the commonly required attributes of university graduates (Hill, 2016) as they are used in daily communication and business correspondence worldwide by those who employ people with different native languages (Le Donne, 2018). Therefore, in the workplace setting, interns or co-op students should have an opportunity to improve their English skills and enhance cultural knowledge through social interaction with different people: other interns, co-workers, and supervisors who could provide and support an active learning environment during their working lives (Myles, 2009).

To prepare the students with essential English, an appropriate workplace for a co-op program should be considered where English knowledge for students could lead them to become confident speakers in both informal and formal real-life settings and successful employees (Habib zade & Hashemi, 2014). An appropriate workplace

can cause learning through authentic experiences, solving problems students had never experienced in the classroom, and having more direct interpersonal skills. These are believed to significantly influence attitudes, individual behaviors, confidence levels, and willingness to communicate in English, which are required for their future careers (Hadzantonis, 2013).

After graduation, having English literacy can lead students or new graduates to be successful in business operations, have a strong ability to deal with any problematic situations, and solve difficult problems using communication strategies to accomplish specific goals (Holmes, 2017; Leong & Ahmadi, 2017; Nulton & Hoekje, 2018). These are required attributes of the 21st century to prepare for actual work in the future (Martin & Rees, 2018).

Notably, workplace success in the 21st century requires specific knowledge, skills, and abilities for working in an industry or business sector, as having broader knowledge and skills and workplace competency is considered essential for supporting and developing the business (Clark & Ivankova, 2016). The required workplace competencies are knowledge, critical skills, and attributes or behaviors of individuals or workers required for a specific job or future career used to measure personal effectiveness leading to the success of graduate employability and getting the right job as expected in the particular working context (Holtzman & Kraft, 2011; Pouratashi & Zamani, 2019; Suarta et al., 2014; Suarta et al., 2018).

However, to develop students' required skills through co-op education programs, higher education institutions should evaluate how students can learn, integrate their knowledge, and be able to integrate new things they learned from their work environment (Podeschi, 2016). HEIs should conduct an English needs analysis to discover what sort of English ability a workplace needs from students (Briana et al., 2019) as an essential step to assist the course developers or designers in ensuring that the course would contain relevant and useful topics to address specific needs and deficiencies (Macalister & Nation, 2010). In addition, conducting needs analysis assists English teachers in reconciling their material design and content selection for students' interests, creating a learner-centered curriculum and an exciting learning environment, and encouraging students to engage in-class activities (Mohammed, 2016), where they can apply the knowledge learned from the classroom as an effective tool to meet their real-life needs (Nimasari, 2018). This study conducts a needs analysis to determine

the workplaces' needs for Thai students' English competency to develop an appropriate English language teaching course that responds to their specific needs and work competencies.

2.4.2 Factors influencing English competency

According to previous studies related to factors influencing English competency, many studies reveal the English competency and possible factors affecting the learning outcomes of language learners or/and based on individual learner's differences, including many important underlying variables (Koban Koç, 2016; Leask et al., 2013; Moreno & Callejas, 2018; Tomul & Polat, 2013; Yahaya et al., 2011). These are regarded as influencing children's language learning performance and achievement (Arratibel & Alastuey, 2015; Koban Koç, 2016; Kormos & Kiddle, 2013; Manison Shore, 2015; Moreno & Callejas, 2018; Pinilla-Portino, 2018; Salameh & Sathakathulla, 2018), workplace environment (Crain, 2016; Cuyler & Hodges, 2015; Hora et al., 2019; Marinaş et al., 2018; Nghia & Duyen, 2017; Petrila et al., 2015; Seyitoğlu & Yirik, 2015; Wang & Chen, 2015), and information and communications technology (ICT) and social networking community (Adi Kasuma, 2017; Al-Jarrah et al., 2019; Al-Tamimi et al., 2018; Aydın & Özdemir, 2019; Chepkemoui et al., 2018; García Trejos et al., 2018; Hsu & Beasley, 2018; Jassim & Dzakiria, 2019; Kaboocha & Elyas, 2018; Klimova & Pikhart, 2019; Nurmy, 2017; Punar & Uzun, 2019; Wayan & Gunada, 2017; Zaidi et al., 2018) were considered influential factors that could affect and enhance the students' English skills. These reviewed variables are presented in Table 2.1 in the next section.

2.4.2.1 Socio-demographic background

Socio-demographic background refers to the characteristics and personal information of an individual, which was compiled using demographic data and SES (Muzindutsi & Viljoen-Bezuidenhout, 2016; Silva et al., 2017), including various index factors: age, sex, education, migration background and ethnicity, religious affiliation, marital status, household, employment, and income (Egwurugwu et al., 2017). Socio-demographic factors have been examined to explore their correlation with English competency and to discover both direct and indirect influencing factors on students' English language learning outcomes, language competency, and various underlying factors presented in Table 2.1.

Table 2.1 Summary of studies focusing on the socio-demographic background

Socio-demographic factors	Author(s)												
	Meniado (2019)	Ho (2019)	Yen et al. (2019)	Moreno and Callejas (2018)	Judith (2018)	Djahimo et al. (2018)	Asif et al. (2018)	Salameh and Sathakathulla (2018)	Dall (2017)	Zamani (2017)	Phon (2017)	Abdul rahman et al. (2017)	Rintaningrum et al. (2017)
Sex	●	●			●			●	●		●		●
Age								●			●		●
Parents' Education	●			●	●						●		●
Parents' job	●		●					●			●		
Parents' salary			●		●			●	●		●	●	●
Home language						●	●						
International exposure	●		●							●			●
Types of school					●								
Civil status	●												

Sex (Dall, 2017; Ho, 2019; Judith, 2018; Meniado, 2019; Phon, 2017; Rintaningrum et al., 2017; Salameh & Sathakathulla, 2018), age (Phon, 2017; Rintaningrum et al., 2017; Salameh & Sathakathulla, 2018), parents' highest educational degree Related literature claimed that various influencing factors such as socio-demographic background (M. Asif et al., 2018; Dall, 2017; Djahimo, 2018; Ho, 2019; Judith, 2018; Meniado, 2019; Moreno & Callejas, 2018; Phon, 2017; Rintaningrum et al., 2017; Salameh & Sathakathulla, 2018; Yen & Leasure, 2019), psychological factors (Abdul Rahman, Abdul-Mumin, et al., 2017; Abdul Rahman, Rajab, et al., 2017; Ariani &

Ghafournia, 2016; M. Asif et al., 2018; Dall, 2017; Djahimo et al., 2018; El-Omari, 2016; Hasirci & Cosgun, 2018; Ho, 2019; Judith, 2018; Khansir et al., 2016; Meniado, 2019; Moreno & Callejas, 2018; Phon, 2017; Phuong et al., 2019; Rintaningrum et al., 2017; Salameh & Sathakathulla, 2018; Yen et al., 2019; Zamani, 2017), educational institution variables (Abdul Rahman, Rajab, et al., 2017; S. Asif et al., 2018; Beelen, 2018; Beelen & Jones, 2018; Djahimo et al., 2018; Hasirci & Cosgun, 2018; Judith, 2018; Leong & Ahmadi, 2017; Phuong et al., 2019; Quezada-Sarmiento et al., 2017; Rintaningrum et al., 2017; Salameh & Sathakathulla, 2018; Yen et al., 2019) occupation (Dall, 2017; Meniado, 2019; Phon, 2017; Salameh & Sathakathulla, 2018; Yen & Leasure, 2019), income (Abdul Rahman, Rajab, et al., 2017; Dall, 2017; Judith, 2018; Phon, 2017; Rintaningrum et al., 2017; Salameh & Sathakathulla, 2018; Yen et al., 2019), first language and origin (M. Asif et al., 2018; Djahimo et al., 2018), language experiences and international exposure (Meniado, 2019; Rintaningrum et al., 2017; Yen et al., 2019; Zamani, 2017), types of school and schooling system students attended (Judith, 2018), and citizenship of the country (Meniado, 2019) were reported as significantly influencing students' English competency and had a key role on their second language acquisition and development of English language improvement.

2.4.2.2 Psychological factors

Psychological factors refer to the mental state of a person, which influences the actions, life conditions, and behaviors of each individual (Rugulies & Aust, 2019; Stansfeld & Candy, 2006). Some of the critical psychological factors influencing English language acquisition were self-confidence, self-perception, anxiety, attitude, motivation, and learner autonomy, and they have been examined based on whether they influenced the students' learning process negatively and positively for the success of learning a foreign language (Ariani & Ghafournia, 2016; El-Omari, 2016; Khansir et al., 2016).

Table 2.2 presents the summary of the identified variables for the success of learning a foreign language from previous studies indicating the effects of self-confidence (M. Asif et al., 2018; Dall, 2017; Zamani, 2017), self-perception (Asif et al., 2018; Hasirci and Cosgun, 2018), anxiety (Phuong & Vo, 2019; Djahimo et al., 2018; Dall, 2017), attitude (Phuong & Vo, 2019; Djahimo et al., 2018; Dall, 2017; Phon, 2017; Abdul Rahman et al., 2017), motivation (Phuong & Vo, 2019; Djahimo et al., 2018; Dall, 2017; Zamani, 2017; Phon, 2017; Abdul Rahman et al., 2017), and learner autonomy (Yen et

al., 2019; Phuong & Vo, 2019). Those were considered as the personal and psychological factors influencing students' English competency and learning achievement. Suggestions to reduce internal and external barriers to English language learning and enhance students' proper learning process, English language performance, and language acquisition, leading to higher academic achievement are directions recommended for future research (El-Omari, 2016; Zamani, 2017; Ariyanti, 2016; Phuong & Vo, 2019; Yen et al., 2019).

Table 2.2 Summary of psychological factors

Psychological factors	Author(s)								
	Yen et al. (2019)	Phuong and Vo (2019)	Djahimo et al. (2018)	Asif et al. (2018)	Hasirci and Cosgun (2018)	Dall (2017)	Zamani (2017)	Phon (2017)	Abdul rahman et al. (2017)
Self-confidence				●		●	●		
Self-perception				●	●				
Anxiety		●	●			●			
Attitude		●	●			●		●	●
Motivation		●	●			●	●	●	●
Leaner autonomy	●	●							

2.4.2.3 Educational institution variables

Educational institution variables refer to the characteristics and attributes that academic institutions such as schools, colleges, and universities possess. Educational institution variables include campus location, type and size of the institution, population, and program of the studies (Arop & Owan, 2018) that could affect the development of students' learning outcomes and their academic dimensions (Beelen & Jones, 2018). Many aspects related to educational institution variables have also been examined regarding the commitment of higher education institutes providing educational systems for their students with global opportunities without leaving their home country or university campus (Dang, 2015), enabling the development of their

foreign language and international competencies (Beelen & Jones, 2018). The key (Arop & Owan, 2018) practices of internationalization at home should be conducted subject to the proper integrating policy of an international and global dimension (Beelen, 2018; Beelen & Jones, 2018; Walenkamp et al., 2019). This is done through exchange programs, partnerships with institutions abroad, accredited curricula of universities as well as the recruitment of international students into the local campus (Beelen, 2018; Dang, 2015; Leask et al., 2013). These practices help establish international degree programs and stimulate internationalization at home to produce graduates ready for the global labor market (Ishikura, 2015).

Table 2.3 shows the summary of the previous studies related to the educational institution variables with its effective underlying factors, which were teacher support (Yen et al., 2019; Asif et al., 2018; Hasirci & Cosgun, 2018; Salameh & Sathakathulla, 2018; Abdul Rahman et al., 2017), peer influence (Yen et al., 2019; Phuong & Vo, 2019), learning resources (Yen et al., 2019; Phuong & Vo, 2019; Judith, 2018; Djahimo et al., 2018; Salameh & Sathakathulla, 2018; Rintaningrum et al., 2017), classroom design/activity (Djahimo et al., 2018; Asif et al., 2018), teaching method (Asif et al., 2018; Salameh & Sathakathulla, 2018; Abdul Rahman et al., 2017; Rintaningrum et al., 2017), policy (Quezada-Sarmiento et al., 2017), and internationalization at home (Beelen, 2018; Beelen & Jones, 2018; Beelen & Walenkamp (Eds.), 2018). These were claimed as the crucial features influencing the students' second language acquisition, significant positive influences on students' academic achievement, and the enhancement of students' global knowledge (Leong & Ahmadi, 2017).

Table 2.3 Summary of educational institution variables

Educational institution variables	Author(s)												
	Yen et al. (2019)	Phuong & Vo (2019)	Judith (2018)	Djahimo et al. (2018)	Asif et al. (2018)	Hasirci & Cosgun (2018)	Salameh & Sathakathulla (2018)	Beelen (2018)	Beelen & Jones (2018).	Beelen & Walenkamp (Eds.) (2018)	Quezada-Sarmiento et al. (2017)	Abdul rahman et al. (2017)	Rintaningrum et al. (2017)

Teacher support	●				●	●	●					●	
Peer influence	●	●											
Learning resources	●	●	●	●			●						●
Classroom design/activity				●	●								
Teaching method					●		●					●	●
Policy											●		
Internationalization at home								●	●	●			

2.4.2.4 Workplace environment

Table 2.4 Summary of educational institution variables

Workplace environment	Author(s)								
	Seyitoğlu and Yirik (2015)	Petrila et al. (2015)	Cuyler and Hodges (2015)	Wang and Chen (2015)	Nghia and Duyen (2017)	Crain (2016)	Mohamad, Othman, and Ruslan (2018)	Marina Ş, Iğret, and Marinas (2018)	Hora et al. (2019)
Job arrangement and positions			●		●			●	
Mentorship and employability benefits			●					●	
Learning content / Relatedness to academic program		●		●	●			●	●
Academic supervision / Supervisor support	●	●	●					●	
Bureaucracy and accessibility								●	
Organizational environment and contextual factors	●	●					●		

Financial support/compensation	●	●				●			●
Training program provision	●				●				●

The workplace environment is a crucial learning context influencing the quality of the co-op education program, students' learning outcomes, and desired working skills for employability (Dressler & Keeling, 2011; Harteis & Billett, 2008). In workplaces, students who were offered work experiences as a part of everyday activities could enhance their professional skills through different domains (Virtanen et al., 2014), so they could develop higher skills from what they learned to meet organizational expectations (Zegwaard et al., 2018). Therefore, knowledge obtained and learned both formally and informally is regarded as an integral part of the knowledge and self-efficacy they created through learning (Khampirat et al., 2018) social interactions, coaching and mentoring, and practicing, leading students to have more efficient workplace competencies (Cacciattolo, 2015).

Previous studies revealed several factors in the workplace influence students' learning outcomes and work quality (Crain, 2016; Cuyler & Hodges, 2015; Hora et al., 2020; Marinaş et al., 2018; Nghia & Duyen, 2017; Petrila et al., 2015; Seyitoğlu & Yirik, 2015; Wang & Chen, 2015). These identified factors were claimed as significant variables influencing students' learning outcomes, perspectives, and attitudes toward their internship and co-op program. As seen in Table 2.4, job arrangements and the positions the students were placed in a workplace influenced individual learning outcomes through their work responsibilities, perceived individual and social learning support (Cuyler & Hodges, 2015; Marinaş et al., 2018; Nghia & Duyen, 2017). These were related to the effectiveness of developing both soft and hard skills, and the students' expertise led to successful learning outcomes and their future employability (Khampirat & Pop, 2017).

Moreover, the job position assigned to the students under the proper supervision of the employers or person in charge (Cuyler & Hodges, 2015; Marinaş et al., 2018; Petrila et al., 2015; Seyitoğlu & Yirik, 2015) together with expert mentorship and employability benefits (Cuyler & Hodges, 2015; Marinaş, Iğret, & Marinas, 2018) could also affect and lead to the successful job opportunity after the program completion (Green et al., 2011). Therefore, for developing professional skills,

workplaces should consider providing meaningful learning content and relatedness to academic programs (Petrila et al., 2015; Wang & Chen, 2015; Nghia & Duyen, 2017; Marinaş, Iğret, & Marinas, 2018; Hora et al., 2019). Additionally, training programs (Seyitoğlu & Yirik, 2015; Nghia & Duyen, 2017; Hora et al., 2019) on the organizational environment and contextual factors could improve students' knowledge and ability to integrate their prior knowledge and connect new learnings from their work environments such as communication, management, office, and problem-solving skills to adapt to their work more effectively (Podeschi, 2016), and develop professionally (Martin & Rees, 2018).

However, one of the most critical problems and concerns was, in many organizations or workplaces, there might not be enough qualified employees who can effectively and efficiently conduct adequate job supervision that could help students enhance their required working skills, and some employees were reluctant to share crucial information with students (Bukaliya, 2012). This refrains students from being exposed to the real world of work and learning new things that would fill gaps in their knowledge, leading to the authentic implementation of knowledge in real-life work situations (Jackson, 2018). Therefore, to provide students with the chance to learn from the workplace and increase their workplace competence (Jackson, Fleming, & Rowe, 2018), all the parties should understand the principles of co-op education and create policies that stakeholders could follow and work together to obtain mutual benefits from the co-op program (Braunstein et al., 2011).

However, both academic institutions and workplaces should collaboratively plan the new process of instruction for better learning outcomes and should start applying the new instruction as a key tool to enhance the students' effectiveness in many aspects, such as developing their learning outcomes, improving their academic skills, having personal growth, learning work-related skills, and gaining more work experience to assess themselves before their actual work life (Nulton & Hoekje, 2018).

2.4.2.5 ICT and social networking community

ICT and social networking have become the most common tools of daily communication and a language learning source both inside and outside the classroom, helping learners to improve their English learning outcomes (Ahmadi, 2018).

Many new technologies provide interaction between people such as business people, teachers, and learners with comprehensible input and output of effective learning, promoting learners' autonomy (Ahmadi & Reza, 2018), sharing information, creating learning communities, contributing to business networking, and improving collaboration and social cohesion among groups (Hassan et al., 2018). These lead to better relationships, communication in a diverse social context, and opportunities for learners' career development (Chottum, Kunchai, & Khampirat, 2018).

In the 21st century, ICT and social networking are considered effective learning resources assisting language learners with a wider range of English skills and providing many benefits to students' academic performance (Ahmad, 2016; Boholano, 2017). Previous studies revealed the influencing factors underlying ICT and social networking such as YouTube (Kaboocha & Elyas, 2018; Zaidi et al., 2018; Wayan & Gunada, 2017), Skype (Punar & Uzun, 2019; García Trejos, Díaz Pascuas, & Artunduaga Cuellar, 2018; Hsu & Beasley, 2018), Facebook (Al-Jarrah, Talafhah, & Al-Jarrah, 2019; Aydın, & Özdemir, 2019; Jassim, & Dzakiria, 2019; Klimova & Pikhart, 2019; Al-Tamimi, Al-Khawaldeh, & Alnatsheh, 2018; Chepkemioi, Situma, & Murunga, 2018; Hsu & Beasley, 2018; Adi Kasuma, 2017, Nurmy, 2017), Instagram and Twitter, which were preferable social network easily accessed through mobile applications (Desmal, 2017).

Several previous studies, as presented in Table 2.5, showed that many new technologies provide interaction between people, such as business people, teachers, and learners, providing effective learning opportunities and promoting learners' autonomy (Ahmadi & Reza, 2018). Moreover, some studies were conducted to investigate Facebook for language learning and indicated that learning English was positively correlated with Facebook through status posting and replies using English, word count, and the length of writing sentences and accuracy (Bailey, 2017; Bailey et al., 2017). This was because learners had more chances to learn and improve their English through interaction, feedback, and comments from others leading them to gain higher language competency (Cassidy & Bailey, 2018).

Another well-known online learning resource is YouTube which is an integrated online learning platform for English language learning and teaching since students can access the website and learn anytime (Almurashi, 2016). Previous studies indicated that the use of YouTube could also enhance students' confidence and engage them in the proper learning process, providing them with the ability to deal

with language problems as well as improve their communication skills (Alhamami, 2013; Bastos & Ramos, 2009; Kaboooha & Elyas, 2018).

Table 2.5 Summary of ICT and social networking community

ICT and social Net working community	Author(s)													
	Al-Jarrah, Talafhah, & Al-Jarrah (2019)	Aydin, & Özdemir (2019)	Jassim, & Dzakiria (2019)	Klimova & Pikhart (2019)	Punar & Uzun (2019)	Al-Tamimi, Al-Khawaldeh, & Alnatsheh (2018)	Chepkemoi, Situma, & Murunga (2018)	García Trejos, Díaz Pascuas, & Artunduaga Cuellar (2018)	Hsu & Beasley (2018)	Kaboooha & Elyas (2018)	Zaidi et al. (2018)	Adi Kasuma (2017)	A.R Nurmy (2017)	Wayan & Gunada (2017)
Facebook	●	●	●	●		●	●		●			●	●	
YouTube										●	●			●
Skype					●			●	●					

Until this point, it could be concluded that many learning technologies are effective learning resources, assisting language learners with a more comprehensive range of English skills and other benefits (Ahmadi & Reza, 2018; Ito, 2023). This study considers this as one of the influencing factors concerning English language competency with an expectation to discover new meaningful knowledge to EFL pedagogy.

2.4.3 Summary of previous studies

Related literature claimed that different workplaces for co-op education programs and various influencing factors such as demographic and socio-economic background, institutional factors, and workplace variables could affect and enhance the students' English skills (Arratibel and Alastuey, 2015; Koban Koç, 2016; Kormos and Kiddle, 2013; Huseynpur, Moghaddam, and Rezaie; 2015; Manison Shore, 2015; Moreno

and Callejas, 2018; Pinilla-Portino, 2018; Salameh and Sathakathulla, 2017; Ariani and Ghafournia, 2016; Zamani, 2017; Völkel, Seabi, Cockcroft, and Goldschagg, 2016; Norman, 2016; Altschul, 2012; Kim, Curby, and Winsler, 2014; Yahaya, Yahaya, & Ismail, 2011; Dall, 2017; El-Omari, 2016; Abda, 2017; Hall, Pascoe, & Charity, 2017; Djahimo, Bili Bora, and Huan, 2018; Khampirat, & Pop, 2017; Martin, & Rees, 2018; Zegwaard, Johansson, McRae, Ferns, & Hoskyn, 2018; Chottum, Kunchai, & Khampirat, 2018; Virtanen, Tynjälä & Eteläpelto, 2014; Hill, Walkington, & France, 2016; Zegwaard et al., 2018; Jackson, Fleming, & Rowe, 2018; Khampirat, Pop, & Bandaranaike, 2018; Nulton & Hoekje, 2018; Martin & Rees, 2018).

According to Table 2.1, various factors have been examined to explore their correlation with English language competency in terms of both direct and indirect influences on learning outcomes. Demographic and socio-economic factors have been studied to discover their influential effects on students' English language learning outcomes, language competency, and key developments in English language improvement. The variables considered were sex, health, age of starting language learning both at home and school, schooling system, home language, language experiences, family characteristics and origin, residential places (Ariani and Ghafournia, 2016; Völkel, Seabi, Cockcroft, and Goldschagg, 2016; Norman, 2016; Judith, 2018; Dall, 2017; Meniado, 2019; Abda, 2017; Kim, Curby, and Winsler, 2014), parents' education background and jobs, social class, income level, and language policy (Arratibel and Alastuey, 2015; Koban Koç, 2016; Kormos and Kiddle, 2013; Huseynpur, Moghaddam, and Rezaie; 2015; Manison Shore, 2015; Moreno and Callejas, 2018; Pinilla-Portino, 2018; Salameh and Sathakathulla, 2018; Ariani and Ghafournia, 2016; Zamani, 2017; Völkel, Seabi, Cockcroft, and Goldschagg, 2016; Norman, 2016; Altschul, 2012; Kim, Curby, and Winsler, 2014; Judith, 2018; Yahaya, Yahaya, & Ismail, 2011; El-Omari, 2016; Abda, 2017; Zamani, 2017; Kim, Curby, and Winsler, 2014). Several studies reported that those underlying actors of the socio-economic and demographic factors significantly influenced students' English language competency and had a crucial role in their second language acquisition of English.

In addition, individual efforts, learning styles, and verbal intelligence of individual students have been taken into consideration as key factors influencing students' proper learning process and English language learning performance leading to their higher academic achievement (Arratibel and Alastuey, 2015; Khansir,

Jafarizadegan, and Karampoor, 2016; Huseynpur, Moghaddam, and Rezaie, 2015; Moreno and Callejas, 2018; Yahaya, Yahaya, & Ismail, 2011; El-Omari, 2016; Zamani, 2017).

The academic institution and school experiences such as extramural exposure, teacher support, peer support, teacher role in the classroom, and the education support for the educational institutes in which the students belong have been studied as the influencing factors to illustrate the effects of those on their classroom performance and their improvement of English language ability in the EFL/ESL context (Manison Shore, 2015; Huang, Eslami, and Hu, 2010; Yahaya, Yahaya, & Ismail, 2011; Abad, 2013; Kim, Curby, and Winsler, 2014; Abda, 2017; Moreno and Callejas, 2018). Furthermore, they also relate to the development of motivation, attitude, confidence, anxiety, and perception of English language learning which are considered the significant affecting factors to get students engaged and encouraged to learn inside the language classroom for further improvement (Huang, Eslami, and Hu, 2010; Hashemi, 2011; Arratibel and Alastuey, 2015; Huseynpur, Moghaddam, and Rezaie, 2015; Khansir, Jafarizadegan, and Karampoor, 2016; Norman, 2016; Moreno and Callejas, 2018; Djahimo, Bili Bora, and Huan, 2018).

Based on the literature review, the researcher applies and groups influencing factors of the present study as 1) demographic and socio-demographic background with its underlying features: students' parents' educational level, jobs, and incomes, sex, study major, home language, international exposure, type of high school, 2) the educational support of the university: teacher support, peer support, and co-op education program, and 3) the variables of workplaces with the purpose to investigate those factors affecting the English achievement of Thai co-op students and lead to discovery the appropriate methods in developing students' English language competency as one of the desirable attributes of new graduates in the 21st century for higher employability in both domestic and international labor markets.

Meniado (2019) examined the demographic variables influencing the development and the level of English proficiency of 41 adult learners aged 20–69 in the Philippines using the descriptive-correlational research design. The research participants were classified according to their demographic variables, such as sex, age, civil status, length of work experience, highest educational degree, career and academic specialization, and job position. The survey questionnaire was used to

collect data to investigate the significant differences in the participants' four macro-linguistic skills: listening, speaking, reading, and writing, to reveal if there were significant correlations between the respondents' English proficiency and the identified demographic factors. The results showed that the English proficiency of the research participants was B1 level according to the Common European Framework of Reference for Languages (CEFR). It was considered lower than expected from academicians in a higher learning institution where English was used as an official language. Moreover, it indicated that there were significant differences in the participants' level of proficiency in all English skills, and demographic factors such as age, educational attainment, and length of service were positively correlated with English proficiency. Conversely, sex, civil status, specialization, and job designation were negatively correlated. The results implied that further enhancement of English proficiency was required for proper course development, pedagogical assessment, and language policy of the academic institutions.

Ho (2019) examined the relationship between age and English language learning outcomes in English language learners aged 65–89 in an ESL community program using one-on-one interviews and written questionnaires. All participants were requested to report their English language learning experiences inside and outside the classrooms, and they narrated their personal learning challenges and difficulties during English learning and what affected their learning in the past. The result showed that second language acquisition could occur in English language students who were older than 65 years old. It recommended that the ESL teacher should conduct their appropriate instruction with well-designed strategies, which could encourage them to learn more effectively with better learning outcomes.

Yen et al. (2019) reviewed features in the literature, namely student-related, teacher-related, and context-related factors influencing the learning outcomes of the English learning process. Student-related variables refer to students' learning autonomy, such as planning, organizing, and self-monitoring ability in learning independently. Teacher-related factors focus on the quality of teaching skills, application of teaching methods, and assessment and feedback for students' development. Context-related features included socio-economic variables such as family structure, parents' education and income, input–output opportunities in having contact with foreigners, time spent using the English language, meaningful learning

resources, and supportive classrooms. This indicated that all related stakeholders should be involved in language development: students should develop their own learning autonomy, teachers should continue developing their knowledge, teach learning techniques and conduct assessments to help their students, and, finally, the policymakers of academic intuitions and educators should provide more professional development opportunities to the teachers to gain new knowledge and pedagogical techniques of English language teaching.

Phuong et al. (2019) examined *factors affecting 229 Vietnamese ESL students' learning process: students' learning autonomy and involvement, such as classroom participation, time of self-study, English-speaking environment, motivation, and attitude, were positively correlated to students' English learning outcomes and language literacy, consistent with previous particular studies. All research participants were requested to complete a 5-point Likert scale survey questionnaire. The results showed that identified factors were key in improving students' English proficiency. In addition, if the students had a higher level of autonomy, they would achieve higher English proficiency. Additionally, if the students spent more time on classroom participation and activities, they would gain a higher proficiency in the English language. Moreover, it revealed that students' learning autonomy and their classroom participation in all designated activities were considered the most influential in their English proficiency level. This study implied that if the English language teacher wanted to improve their students' English proficiency, they should focus on enhancing students' learning autonomy, motivation, and classroom participation.*

Moreno and Callejas (2018) examined variables in Content and Language Integrated Learning (CLIL), focusing on the educational level of the 129 bilingual students' parents in three levels: high, which referred to parents with university degrees; medium, which referred to parents with secondary education levels or vocational training; and low, which referred to parents with who had not studied or completed just the compulsory levels. Data were collected using the questionnaire adapted from Santamaría et al. (2016), Pelechano's (1994), and Sundqvist and Sylvén's (2014). All participants were asked to complete all instruments, and data were analyzed using SPSS 21.1. The results revealed that bilingual CLIL and non-CLIL groups had no different language acquisition through the CLIL program and were not influenced by their parents' educational background but had effects on the L1 and

EFL groups. It implied that having high motivation could enhance students' effective learning outcomes, especially those of low-SES students, and motivating students to be exposed to new experiences in English with a proper compliment would be the better way leading to improvement of L1 and EFL students.

Judith (2018) examined the factors affecting English proficiency among 45 second-year students of the Bachelor of Technical Teacher Education of Carlos Hilado Memorial College in the Philippines in the Academic Year 2014–2015 and explored the significant relationship between the factors influencing profile variables using the “Factors Influencing English Proficiency Descriptive Questionnaire” as the primary research instrument adapted from Rany (2013). The results indicated that 1) the personal factors which were grouped as sex, type of school they graduated from, parents' education, exposure to media, and academic achievement influencing English proficiency were found as “Very Highly influential,” 2) Regarding English teachers, subject, learning strategies, and outside-classroom activities were “Highly influential,” 3) educational factor was significantly related to sex, type of school graduated from, parent's educational attainment, economic status, exposure to mass media, and academic achievement was “Highly influential,” and 4) there was a significant difference among identified variables in various subsets of variables influencing English proficiency such as learning strategies and outside class learning activities, and various exposure to media and English proficiency.

Djahimo et al (2018) investigated the impact of 25 Indonesian students' anxiety on their speaking performance and examined the influencing factors that would refrain students from effective learning outcomes and speaking performance. The results revealed an enormous impact on students' speaking performance, and they had various problems, making it challenging to communicate using English. In addition, influencing factors such as inhibition, lack of topical knowledge, mother-tongue use, low or uneven participation, and low motivation influenced students' speaking performance and made them feel uncomfortable when speaking. However, it was suggested that teachers should establish friendly teaching strategies and a motivating classroom atmosphere to help them enhance their confidence and push them from their comfort zone to improve their speaking ability.

Asif, Bashir, and Zafar (2018) investigated the influencing variables that

limited students' and teachers' levels of English for communication in Pakistan. This qualitative research was conducted by collecting data from 130 EFL research participants between the ages of 19-22 with four native languages but a different English language proficiency level. Data was collected using a developed questionnaire, semi structured interviews with individual students, and focus-group interviews for data triangulation. The results showed that participants belonged to different levels of English and had various perspectives on using English. They preferred to communicate in English and be a part of English-speaking situations only. This indicated the learning style subject to the language policy, and it was revealed that many influencing factors such as linguistic, individual, social, psychological, and institutional variables were considered critical, affecting students' beliefs, willingness to communicate in English, needs, and desires of language learning. This study contributed in-depth insight for policymakers to address these EFL issues related to English language proficiency for communication and as a medium of classroom instruction in Pakistan.

Hasirci and Cosgun (2018) investigated Turkish English-medium university students' perceptions of the change in their English ability, the crucial variables influencing the change, and the impacts of using English as a medium of classroom instruction. This qualitative research was designed to explore the experiences and perceptions of 12 undergraduate students on their language development in the English medium instruction (EMI) context. For the research instruments, the authors conducted semi structured interviews comprising open-ended questions using face-to-face interviews with different participants to understand students' perceptions of the impacts of EMI and examine the factors that enhanced and reduced language development. Results showed the following: 1) when participants were highly exposed to English and were required to use it productively for their studies, they perceived that there was greater development in their language skills and abilities; 2) participants thought that constructive feedback had a significant and positive effect on assisting them to focus their attention on the form; and 3) speaking skill was perceived and considered as their weakest and least improved skill. This study provided pedagogical implications on language teaching in terms of providing a friendly teaching classroom to help reduce students' anxiety, giving focused and appropriate comments and solutions on the accuracy of language use,

and providing students with a bilingual glossary of technical terms and their explanations for better comprehension and effective learning outcomes.

Salameh and Sathakathulla (2018) assessed the impact of socio-economic factors on 60 male and 60 female students' English language performance in EFL classrooms in Dubai's public secondary schools to reveal the factors related to students' sexes, ages, parents' educational levels, occupations, and financial status which influenced students' English language performance. The research instruments were interviews and questionnaires designed to evaluate the effects of economic and social factors on students' performance in learning the English language. The study's results indicated that those factors affected the participants' English learning proficiency and classroom performance. It was also claimed when students had more opportunities to speak English at home, it would be good practice and could enhance their English proficiency. Moreover, family factors such as a well-provided home environment and wealth significantly affected students' learning performance and confidence. However, an interesting point mentioned in this study was to conduct further research on an integration technique involving home and school affecting students' language learning performance.

Dall (2017) examined the motivation and demotivation determinants of English language proficiency of 558 first-year students at the University of Eastern Philippines for deeper insights into language teaching. The study examined their profile and its relation to students' English language proficiency to ascertain the relationships and differences between the level of motivation and demotivation to those selected participants' language proficiency using the descriptive-correlational research method. The instruments of Gardner (2004) and of Kormos and Csizer (2008) were utilized to investigate the level of motivation and demotivation and the DLSU Basic Grammar Test for English language proficiency. This was done to measure students' English language proficiency and conduct focus group discussions to understand the factors influencing the students' English language proficiency. The results showed that female participants dominated, implying that women were more interested in obtaining a higher education. Most students were willing to have immediate employment after graduation, as most of them were from low-income families. Additionally, most students were motivated to learn, and a small allowance during the study affected their learning outcome; the factors that influenced students' English language learning

were sex, course, their weekly allowance, motivation and demotivation, self-confidence, negative attitude, anxiety, and teaching methodology and materials. In addition, the results indicated that English language teaching should be designed for better understanding, enabling and motivating students to learn for more improvement.

Using mixed methods, Abda (2017) examined factors affecting teaching second-year students' speaking skills. The research instruments were questionnaires with close and open-ended items for students, semi structured interview questions for instructors, and classroom observation checklists with semi structured question items to collect data from two instructors and one hundred students. The data obtained from questionnaires were analyzed to describe using frequency and percentages, whereas interviews and classroom observation were analyzed qualitatively to facilitate the triangulation process. The results revealed that the participants' difficulties influencing their speaking skills were due to the following factors: the lack of motivation, fear of making mistakes, lack of self-confidence, poor grammar knowledge, shortage of vocabulary, lack of exposure, and poor background experience. Therefore, from the study, it was suggested that all stakeholders should collaborate in the development process. First, teachers should develop teaching methods that enhance, motivate, and engage students to learn with a higher sense of responsibility. Second, students should learn to develop their confidence and awareness of an effective learning style. Finally, academic institutes should design and provide more supplementary materials and learning resources for students on campus for better improvement.

Zamani (2017) investigated the effect of low SES as the factor influencing a student's development, English language proficiency, and learning motivation since it had been believed that low socio-economic background was a central obstacle impeding their English learning. This research examined the positive factors which would help those students to overcome learning difficulties affected by their low SES, which was considered by family income as a key indicator. Three participants were selected by purposive sampling for the in-depth semi structured interviews to obtain qualitative data for the thematic content analysis. The results indicated that individual, family, and school were crucial factors influencing low SES students' academic success and proficiency in English. In addition, at home and school,

students should be encouraged to have higher internal motivation and effort as important factors driving success in learning the English language.

Phon (2017) examined the levels of 15 Cambodian students' English language proficiency and investigated the relationship between students' English proficiency levels and their SES, their learning motivations and attitudes, and their learning opportunities. In this quantitative research, the non-English speaking participants selected were undergraduate students majoring in the English language at a rural public, academic institution named Mean Chey University in Cambodia and were asked to respond to a set of questionnaires as the research instrument adapted from the general theory of language learning of Spolsky's (1989) model. The data collected were analyzed using SPSS 21.0 for coding and analyzing data to discover whether or not there was any significant relationship among the identified variables of the study. The results showed the strongest correlation between students' learning motivation, attitude, and the levels of their English language proficiency. Additionally, the relationship between students' learning opportunities and their English proficiency levels was moderate, and the relationship between students' socio-economic factors and their levels of English proficiency was weak. For the study's implications, it was suggested that developing a more effective and interesting learning community was necessary to improve students' learning motivation of the English language for higher proficiency. However, the author claimed that the results' generalizability should be carefully done due to the time limitation and the number of research participants.

Quezada-Sarmiento et al. (2017) investigated the influencing factors of English teaching affecting the English language teaching-learning process and discovered what extent the factors concerning teachers affect English learning in the e-society and students' learning outcomes in high schools in Ecuador. This mixed-method research was conducted from 2010 to 2012. For the data collection process, the researcher applied the two research instruments: 1) the teacher's validated questionnaire to collect their opinions on their career training, language proficiency, and teaching experiences, and 2) the observation sheet to gather more information seen from the classrooms for supporting data from the questionnaire. A total of 1,155 Ecuadorian teachers as the research participants were requested to complete the data tool, and obtained data were analyzed using Cronbach's alpha coefficient. The results indicated that most teachers obtained a degree in EFL, but their teaching and

professional practice were affected by the lack of appropriate training in language teaching, low English proficiency, and inappropriate application and selection of teaching-learning technological resources as well as the ineffective classroom management that influenced e-education in Ecuador.

Abdul Rahman, Rajab, et al. (2017) determined the factors that influenced students' motivation to learn the English language of 80 Malaysian students of Sekolah Menengah Kebangsaan Lepar Utara. This survey study attempted to identify the students' motivation for learning English with identified factors: parental influence, teacher influence, and the students' own attitude. All research participants were asked to complete a set of 5-point Likert scale research questionnaires adapted from Mohamed Amin, Juriah, and Mohd Isa (2001). The data obtained were analyzed using the Statistical Package for Social Sciences (SPSS) Version 20 for frequency, mean and standard deviation. The results showed that 1) Teachers had a high influence in motivating students to learn English, and it was revealed that students preferred both having teachers-centered learning and providing them with chances to discuss and work with classmates; 2) Students' personal attitudes were at a moderate level, and it indicated that students tried to learn English because they realized that it was important although they thought it was difficult; and 3) Parental Influence was shown at a moderate level. However, it was found that most parents always encouraged students to learn English, although parents themselves had less chance to help students improve or practice at home. It could be summarized that teachers had the most influence on students' learning outcomes. Therefore, teachers should try harder to improve their teaching methods, learn more ICT knowledge, and provide meaningful learning resources and feedback for students.

Rintaningrum et al. (2017) examined a set of issues related to the education systems in an Indonesian university. Affecting factors comprising age, sex, prior achievement, and EFL learning were analyzed to investigate their influence on EFL proficiency and its relationship among those identified factors. This study was conducted in engineering universities in Indonesia by collecting data from 5,597 undergraduate students. It employed partial least squares path analysis (PLSPATH) to identify an exploratory way the variables had significant direct or indirect effects on English language proficiency. After analyzing data and dealing with missing data, the final results of the study indicated that students' backgrounds, such as sex, SES, faculty

of instruction, English 1 score, and semester that students enrolled in English 2 had only direct effects on EFL proficiency. In contrast, prior achievement of the students had both direct and indirect effects on EFL proficiency.

Koban Koç (2016) investigated SES as the crucial factors such as parents' educational background, income levels, place of residence, students' educational support, type of school students graduated from, and commute distance from their homes to the university influencing students' academic performance and their GPA. Data were collected using the adapted questionnaire adapted from Van Damme, Liu, Vanhee, & Pustjens (2010). The results revealed a significant relationship between the distance from students' homes and academic achievement. However, other influencing factors were not significant because, in this country, most students studied in government schools that provided equal education to every student.

Khansir et al. (2016) explored the relationship between SES and motivation of 130 EFL male and female students from different family backgrounds in Iran. The research instrument was the English–Persian questionnaire which was based on Gardner's AMTB (1985) in the form of a 4-point Likert scale (agree, strongly agree, disagree, strongly disagree), and its statements were adapted to fit the EFL learning context for the process of data collection, and SES questionnaire adapted from Bourdieu's (1986) to collect students' family information. The results showed that motivation was a key factor in language learning, influencing students' learning outcomes according to the positive relationship between SES and motivation in EFL language learning. This indicated that any families whose parents had a high degree of education and income could afford to support their children more, leading them to be better in English proficiency. Therefore, it was suggested that students' motivation should be enhanced through various learning settings, such as classrooms, to help students increase their positive learning.

El-Omari (2016) investigated the effect that certain factors: attitudinal, social, socio-economic, and extracurricular, would have on the achievement of 496 male and female students learning English as a foreign language in Jordan. Data were collected by using the instruments developed by teachers and considered reliable (0.73) to measure the achievement tests in three subjects mathematics, Urdu (national language), and life skills (Islamyat, social studies, and science); the questionnaires were for teachers and students to understand various possible factors affecting

achievement. All participants were asked to complete both instruments and data were analyzed using SPSS. The results showed a significant relationship between those influencing factors and the English learning achievement of Jordanian students.

Ariani and Ghafournia (2016) explored the probable relationship between SES, general language learning outcomes, and their beliefs about language learning of 350 postgraduate students at the Islamic Azad University of Neyshabur. All participants were grouped by five SESs: the upper class, upper-middle class, middle class, lower-middle class, and lower class, and were tested in terms of a general language test of proficiency (Practice test of a TOEFL Test). The results showed a positive relationship between the students' SES and general language learning outcomes. To clarify the points, SES affects students' attitudes, language learning achievement, and learning outcome, and it could be the crucial predictor of success and failure, including motivation in learning a foreign language in each social class of the students. In addition, this study's results implied that language teachers were regarded as a group who should provide the necessary information and proper learning process in dealing with those with negative beliefs and attitudes, which significantly affected the students' language achievement.

Völkel et al. (2016) conducted a South African-based study in the multicultural context and demographic variables to investigate the effects of sex, SES, and home language of 834 students' reading comprehension in the five primary public schools in the KwaZulu-Natal. The biographical questionnaire was used as the research instrument to obtain the biographical data: regarding the participants' home language, age, sex, health, support at home, and school work, whereas SES was considered if those participants were granted free school meals. Another instrument used was the Suffolk Reading Scale 2 (SRS2) to obtain reading comprehension scores. The results revealed that students' reading comprehension was affected by various factors. However, there was no statistical difference between male and female students in reading comprehension scores, but some information indicated that female students performed better than their counterparts. In terms of the participants' SES, the results showed that students from a low socio-economic background performed significantly better than those from a high socio-economic background, and those who spoke English as a first language had a higher mean reading comprehension score than those who used English as an additional language. In addition, it was suggested that future

research tools to measure reading comprehension should be standardized and administered in multiple languages for reliability and validity.

To summarize, reviewing previous studies provides academic knowledge and benefits in terms of the recent research interests conducted in the last few years from various countries related to influencing factors affecting English proficiency, such as socio-demographic and psychological factors, educational institution variables, workplace environment, and ICT and social networking which can help discover more significant factors to be studied in this present research. In addition, the research methodology related to factor analysis aligns with the learning objectives and the requirement of the co-op program, construction, and adaptation of research instruments used to discover the specific findings and results. Finally, the literature review is necessary for this present study to understand the integrated values of co-op education to students, educational institutions, and workplaces. This study can thus help graduates develop a high degree of employability and career development pathway, understand the proper direction for research design to increase resources of enhancing the engagement-oriented practice and partner-based learning, and share academic knowledge as the stakeholders to educate students to become the skillful graduates as expected and required. Therefore, the conceptual framework of this research is provided in the Figure 2.5 as follows:

2.5 Conceptual framework of the research

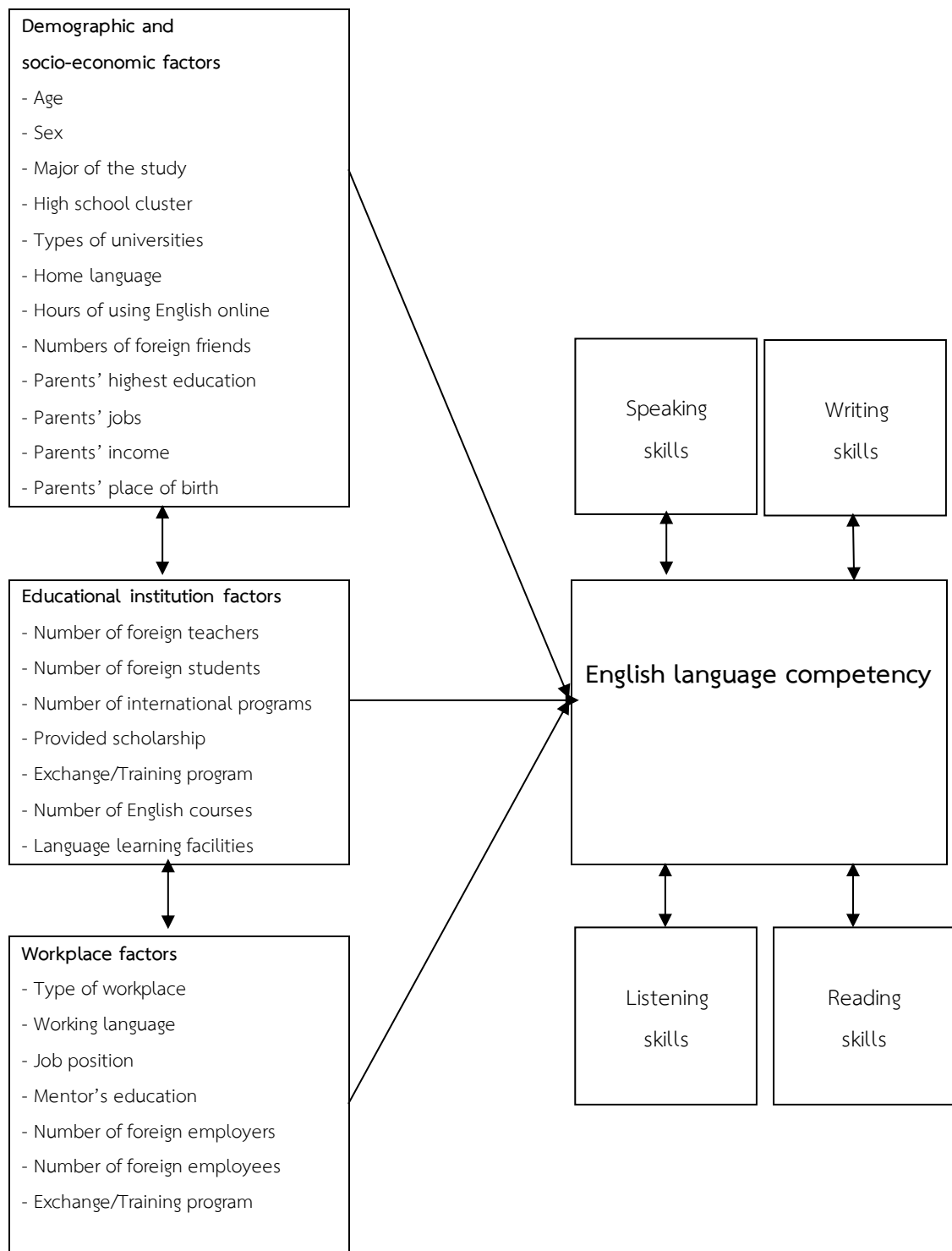


Figure 2.5 Conceptual framework of the research

CHAPTER 3

RESEARCH METHODS

This research attempts 1) to investigate the desired English competency of Thai students according to the requirements of EEC workplaces, 2) to compare the differences between the pre-post levels of English competency of Thai co-op students, 3) to examine the students' socio-demographic background, educational institution factors, and workplace environments on the levels of English competency of Thai co-op students, and 4) to explore Thai co-op students' opinions on the roles of workplaces on improving their English competency. This chapter describes details of the research design, population and participants, the context of the study, variables and research instruments, data collection procedures, and data analyses as listed follows:

3.1 Research design

3.2 Population and participants

3.3 Study context

3.4 Variables and instruments

3.5 Data collection procedure

3.6 Data analysis

3.6.1 Descriptive statistical analysis

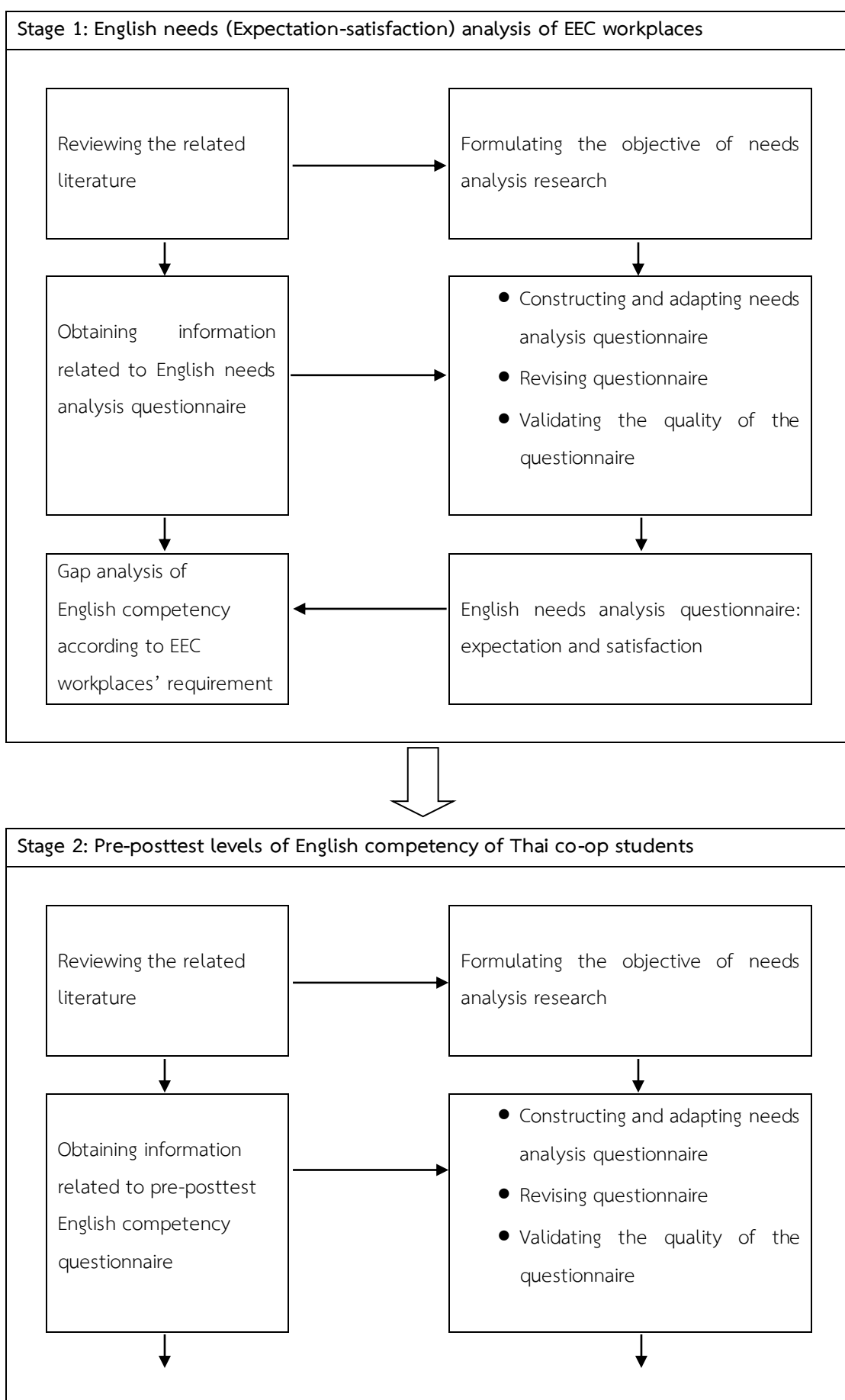
3.6.2 Testing the means difference

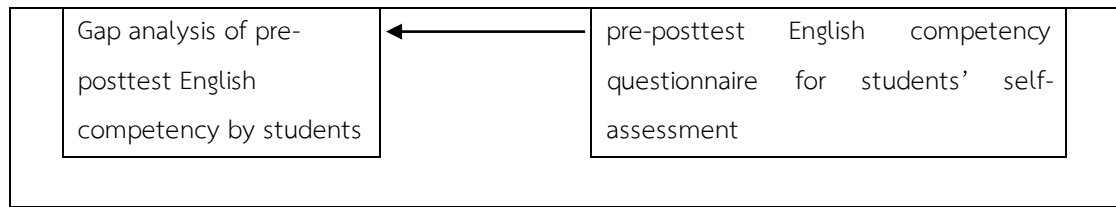
3.6.3 Multiple linear regression (MLR) analysis

3.6.4 Exploratory factor analysis (EFA) and confirmatory factor analysis (CFA)

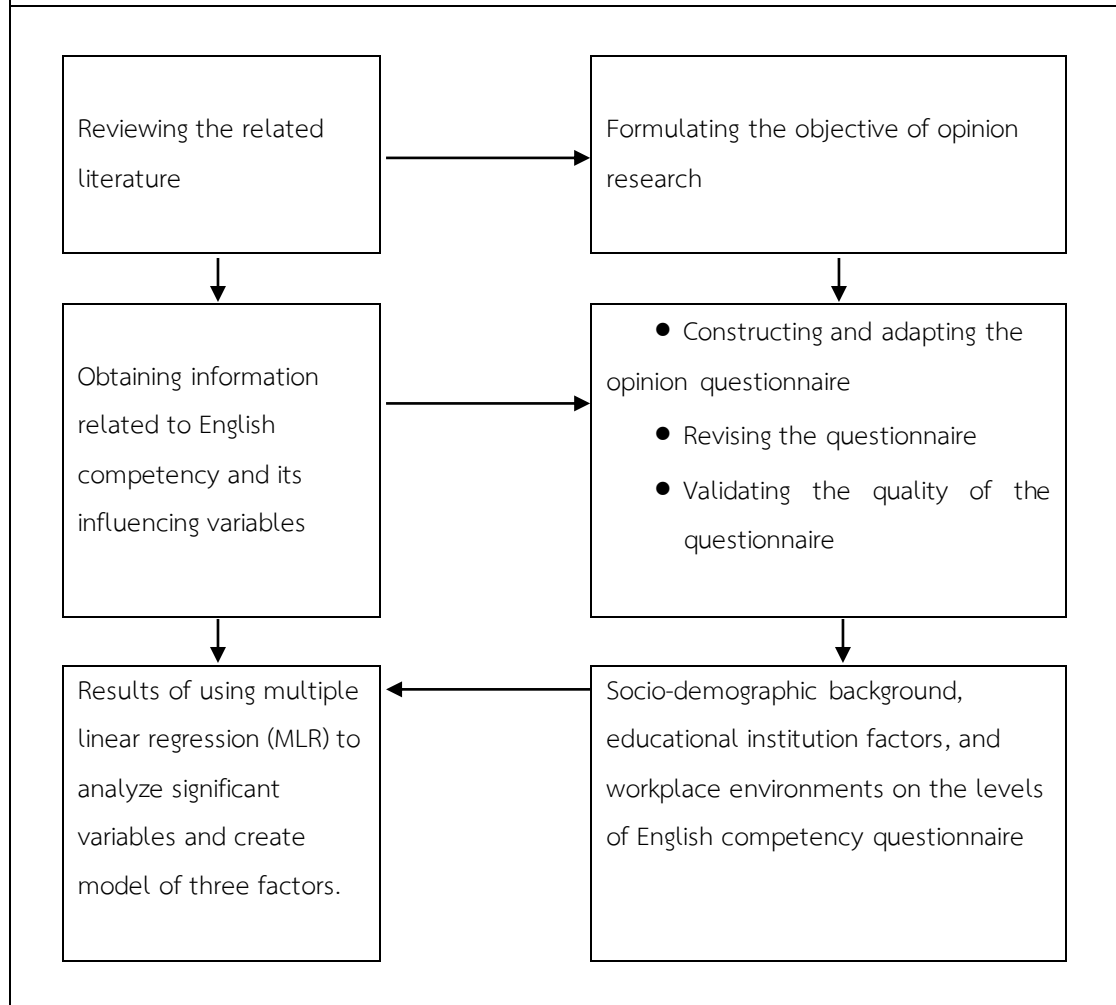
for testing the construct validity.

Based on the research objectives, the research procedures for assessing the English competency of Thai co-op students in terms of the impact of socio-demographic factors, educational institution variables, and EEC workplace environment were divided into three stages, as seen in the flow chart of the research procedure below.

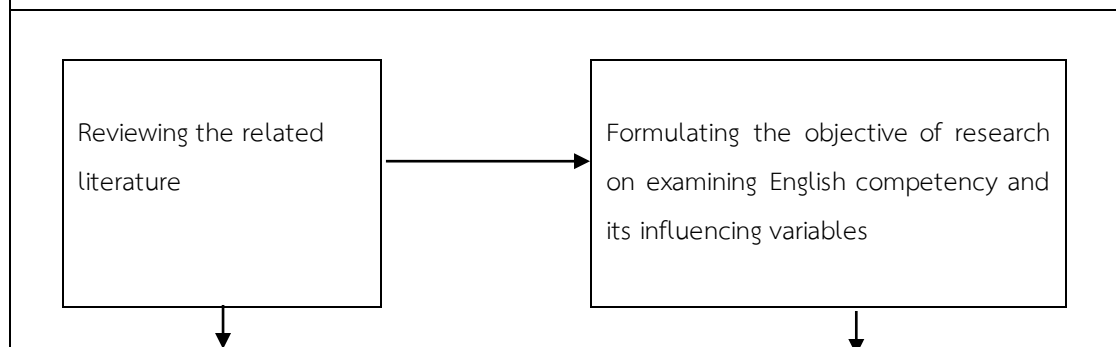




Stage 3: Socio-demographic background, educational institution factors, and workplace environments on the levels of English competency



Stage 4: Students' opinions on the role of the workplace



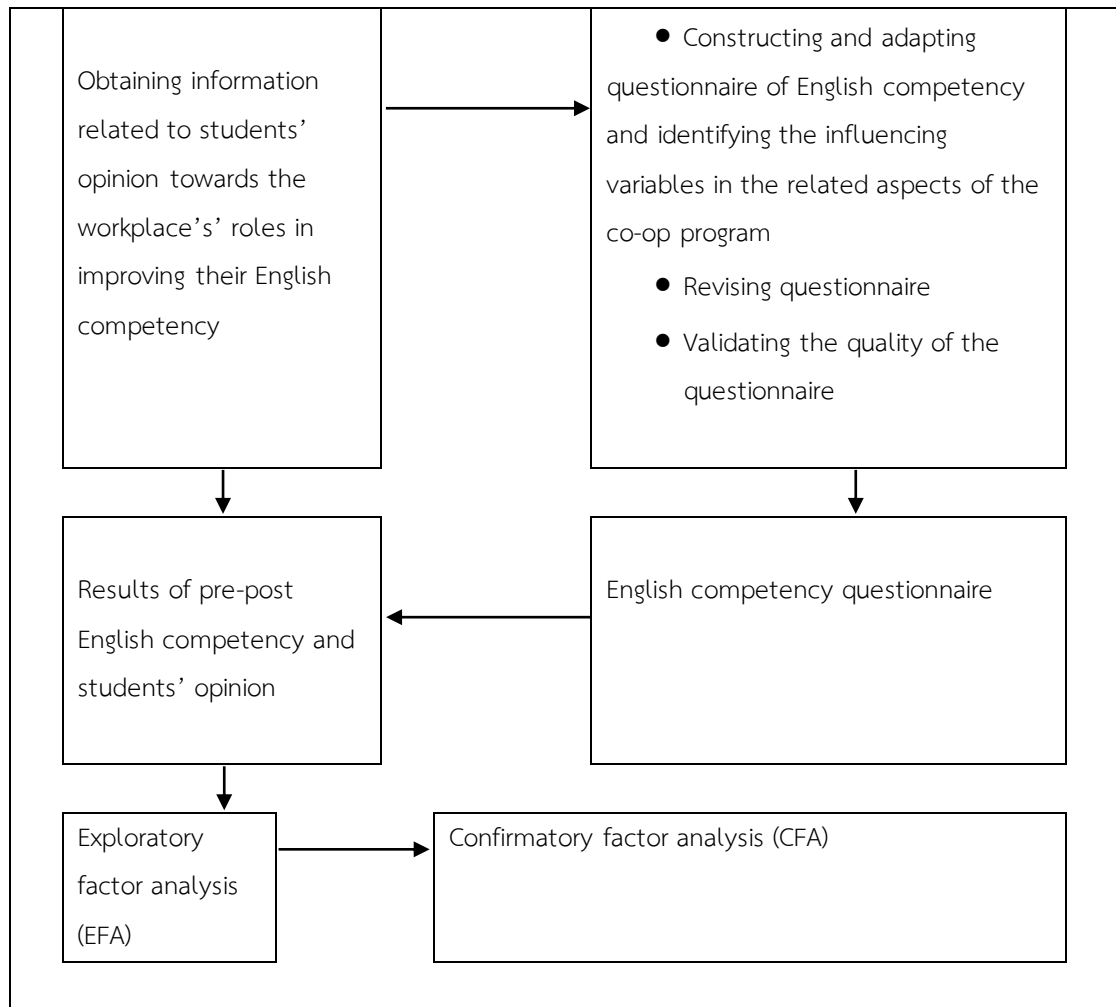


Figure 3.1 Flow chart of the research procedure

3.1 Research design

3.1.1 The related literature concerning factors affecting English competency was reviewed to reveal the definitions, concepts, theoretical framework, and other influencing variables. According to the key concept and practices, co-op education was developed purposively as a joint educational program with educational institutions and workplaces (Srisa-an & Pramoolsook, 2019) that work together to support students' academic development, bridge the gap between learning and teaching theory in academic institutions and the authentic practice in workplaces, or so-called on-and-off campus study (McRae et al., 2016), and stimulate students to gain the authentic learning experiences from the real world for future career and employability (Rowe & Zegwaard, 2017). Therefore, this research examines the factors influencing Thai co-op

students' English competency: socio-demographic background, educational institution factors, and workplace environment claimed to be the critical parties for this academic program.

3.1.2 The survey research design followed the procedures of quantitative research, which was the research process that enabled the researcher to administer a survey and gather numerical data from a large population size. This was done to illustrate the opinions, behaviors, and characteristics of the research participants (Creswell, 2014) and measure obtained information on targeted factors using standardized techniques of data collection such as surveys, questionnaires, and observation, which could be transformed into the usable data to find the relevant answers and evaluate the levels and the statistical outcomes (Bacon-Shone, 2015; McCusker & Gunaydin, 2014). In addition, quantitative research enables the researcher to investigate how the independent variables affected the dependent variables, the relationship between independent and dependent variables, and both direct and indirect influences of independent variables on dependent variables (Williams, 2007), which respond to the objectives of this research.

3.2 Population and participants

3.2.1 Population

The population of this research comprises two groups as follows:

1) For exploring the expectation and satisfaction of English competency of Thai co-op students, the first group comprises company representatives who worked in all types of companies in the EEC area covering three provinces: Chachoengsao, Chon Buri, and Rayong. This group was expected to have experience and be in charge of mentoring or supervising co-op students during the years of 2019 - 2020. They were selected for the needs analysis for this research as they were able to reveal crucial information related to the English competency for the workplace per the specific requirements of the workplace competencies (Durga, 2018), such as completing particular tasks for target situations and different working domains (Al-Jarrah et al., 2019). The data obtained from the needs analysis of this population was not only expected to reflect their ideas and perspectives related to the English requirements for workplace communication that Thai students should be aware of for their future

workplace competencies in the EEC area but also provided meaningful answers for English instructors in developing their teaching methodology and English course design for the future employability.

2) The second group was Thai co-op students from academic institutions working in the co-op education program in EEC workplaces. This population group was expected to provide information related to their socio-demographic background, pre-post information on English competency by their self-assessment, co-op workplace information, and their opinions on the roles of workplaces in developing their English in response to the research objectives. In addition, the importance of English for workplace communication for English language teachers in higher education institutions is indicated for developing the appropriate course in response to the students' needs and deficiencies regarding the requirements of EEC workplaces.

3.2.2 Participants

The research participants of the study were divided into two groups.

1) The first group of participants was company representatives from all types of business of EEC workplaces who were assigned to be in charge of and responsible for training and had experiences in supervising co-op students. According to the Social Security Office data (SSO, 2018), the number of workplaces in the EEC area as of December 2018 was 37,846 workplaces which could be respectively classified subject to provinces: 23,394 (61.81%) workplaces located in Chon Buri, 9,211 (24.34%) workplaces located in Rayong, and 5,241 (14.32%) workplaces located in Chachoengsao (MOL, 2018). In addition, the average increase of EEC workplaces in Chon Buri was highest in the number of business extensions and investments (MOL, 2017), as seen in the bar chart below. In addition, this study aims to conduct this study in this area because, according to the establishment of the EEC area, it was to promote and enhance the eastern area of Thailand to be the industrial production base for innovative industries and a logistic hub with good infrastructure in the era of Thailand 4.0 (Bhrammanachote, 2019), to empower economic development and growth as an excellent hub of both domestic and foreign trade and investment, a regional transportation and logistics hub, an important center for human resources, and a significant tourist destination of the country as the most modern gateway to the Association of Southeast Asian Nations countries (OECD, 2016). Therefore, there will be higher opportunities for Thai students to use English for communication.

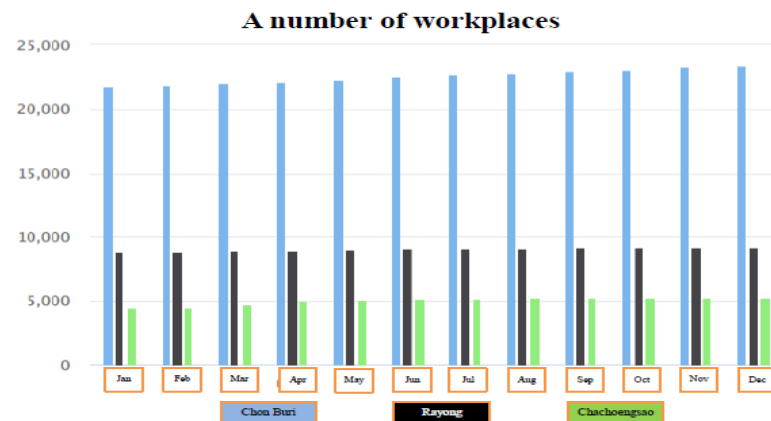


Figure 3.2 Summary of the number of EEC workplaces of SSO (2018)

Based on the data above and the research objectives that proceeded to conduct factor analysis: EFA and CFA, the sample size determination and the selection of participants in this research were considered in relation to the maximum likelihood estimation to establish the reliable estimates and avoid any violation of multivariate normality assumptions (Hair et al., 2011). The research participants were selected according to the trustworthy sample size of the Rules of Thumb for a factor analysis that was primarily applied in multivariate statistical techniques, which were between 500 (as very good) – 1,000 (as excellent) respondents (Kyriazos, 2018). Therefore, the research participants were 1,000 EEC company representatives selected by a snowball sampling technique as a purposeful method where participants helped recruit other participants from among their members of the organization, co-workers, business partners, and acquaintances (Naderifar et al., 2017). The snowball sampling technique is a chain referral sampling method of survey sample selection applied in this research to identify potential participants who are otherwise inaccessible for obtaining data (Johnson, 2014). The initial sample participants' assistance was requested to provide information identifying the same network group of people, lead the researcher to more respondents, and save time and budget for the study (Naderifar et al., 2017). However, based on the data obtained, the study's results may not be generalized to other contexts or should be carefully made (Streeton et al., 2004).

2) From the above multivariate statistical techniques applied, the second group of participants was 2,115 co-op students in various academic fields from

universities throughout Thailand who finished their co-op program in the academic year 2019–2020. They were selected using convenience sampling. However, respondents were limited to co-op students who completed their co-op programs in the designated area of the three EEC provinces.

3.2.3 Research ethics for research involving human participants

This present study collected data from participants who were company representatives and co-op students. However, although this study focuses on assessing humans' English competency and opinions, the study complied with all requirements of human research training. Additionally, the research was conducted in compliance with the international guidance on human research protection, such as keeping all individual information confidentially in a secure place with the highest awareness of not disclosing research participants' personal information and identities.

3.3 Study context

3.3.1 Eastern Economic Corridor

Chachoengsao, Chon Buri, and Rayong are located in the designated area of the EEC subject to the Development Plan under the scheme of Thailand 4.0, and these three provinces were developed with modern technology and innovation, state-of-the-art transportation systems, logistics hubs, and foreign investment (Ootsahkam, 2018).

3.3.2 Workplaces in EEC

According to the objectives, this study focused on investigating the needs analysis of the English competency of Thai students required by workplaces in the EEC area, the development of English competency of Thai students before and after the co-op education, influencing factors of the workplace environment and, from student's opinions on the workplaces' roles on assisting to improve their English. Therefore, data were collected from research participants: mentors/supervisors and co-op students who work in all types of workplaces in the EEC area.

3.3.3 Duration

The co-op education program of most higher education institutions was designated at least sixteen weeks in the first semester of the final year of the Bachelor's degree program. Data from research participants who were company

representatives were collected along the research process to obtain data concerning the needs analysis related to the expectation and satisfaction of English competency of Thai co-op students. In collecting the data of this group of participants, it started from 2019 to 2020 by contacting to the company in which the researcher needed to go for the co-op supervision. During each visit, the researcher, as a co-op supervisor from the university, had a chance to discuss the key issues related to the students' performances, and, during discussion with the company representatives, the researcher got recommended to their network companies as applying the snow ball sampling techniques. This provided the better and broader opportunities to have more contact information. Then, the researcher had contacted the particular company as well as either mailing or emailing the permission letter to the company before each visit for data collection.

Also, the co-op students who were on their co-op program from 2019 to 2020 were requested to complete the research questionnaires about their English competency and opinions after the completion of their co-op education as well as providing their opinion towards the roles of the workplaces in improving their English competency. During two years of collecting the data to maximize the numbers of the participants, the researcher, together with the research assistant and coworkers who either were assigned to visit the sites or been requested to meet the company representative online, tried to collect the data by both providing the questionnaire paper and online form with the clear instruction in completing the questionnaire to enhance the understanding and the convenience of the participants.

3.4 Variables and instruments

3.4.1 Variables

1) The independent variables were socio-demographic background, educational institution factors, and workplace environment.

2) The dependent variable was English competency.

3.4.2 Research instruments

According to the study objectives, two research instruments adapted from previous studies, as items indicated in Tables 3.1 and 3.2, were used to gather the data related to the needs analysis of the English competency required by EEC workplaces,

the English competency of co-op students before and after the co-op program, and students' opinions on the roles of workplaces on improving their English competency as details of each instrument below.

1) Needs analysis questionnaire for company representatives in the form of a closed-ended questionnaire was adapted from Yusuf (2014) Briana et al. (2019) and Liao et al. (2017) and Perinpasingam et al. (2015).

Part I Personal information in the type of "Check List" item to obtain the participants' demographic information and personal experiences. The participants were requested to report their demographic information, such as sex, educational level, type of workplace, job position, years of job supervision, and the number of foreign employers and employees.

Part II This part was a selected-response item type. It comprised 40 statement items in the format of a typical five-point Likert scale: 1 means "Least important," 2 means "Less important," 3 means "Moderately important," 4 means "Very important," and 5 means "Most important". This instrument attempted to capture and assess Workplace English Competency Needs in four macro-skills: listening, speaking, reading, and writing, which are required in workplaces and expected from Thai students, as detailed below.

Table 3.1 Item summary of the workplace English competency needs questionnaire

Item(s)	Measures	Scale(s)	Author(s)
1, 4	Listening	Rating scale (1–5) 2 items Positive items = 2 Negative items = 0	Tsai-Ting Liao et al. (2017)
2	Listening	Rating scale (1–5) 1 item Positive items = 1 Negative items = 0	Briana et al. (2019)
3	Listening	Rating scale (1–5) 1 item Positive items = 1 Negative items = 0	Perinpasingam et al. (2015)
5,6	Listening	Rating scale (1–5) 2 items Positive items = 2 Negative items = 0	Mognhode & Woldemariam (2015)

Item(s)	Measures	Scale(s)	Author(s)
7, 8, 9, 11	Speaking	Rating scale (1–5) 4 items Positive items = 4 Negative items = 0	Briana et al. (2019)
10	Speaking	Rating scale (1–5) 1 item Positive items = 1 Negative items = 0	Yusuf (2014)
12	Speaking	Rating scale (1–5) 1 item Positive items = 1 Negative items = 0	Perinpasingam et al. (2015)
13, 14	Speaking	Rating scale (1–5) 2 items Positive items = 2 Negative items = 0	Mognhode & Woldemariam (2015)
15, 16, 17, 20, 23, 24	Reading	Rating scale (1–5) 6 items Positive items = 6 Negative items = 0	Briana et al. (2019)
18, 22	Reading	Rating scale (1–5) 2 items Positive items = 2 Negative items = 0	Perinpasingam et al. (2015)
19	Reading	Rating scale (1–5) 2 items Positive items = 2 Negative items = 0	Tsai-Ting Liao et al. (2017)
21	Reading	Rating scale (1–5) 1 item Positive items = 1 Negative items = 0	Mognhode & Woldemariam (2015)
25, 25	Reading	Rating scale (1–5) 2 items Positive items = 2 Negative items = 0	Yusuf (2014)
27, 20	Writing	Rating scale (1–5) 1 item Positive items = 1 Negative items = 0	Tsai-Ting Liao et al. (2017)
28, 29	Writing	Rating scale (1–5) 1 item Positive items = 1 Negative items = 0	Briana et al. (2019)

2) English competency and opinion questionnaires for co-op students in the form of a closed-ended questionnaire and the formats of a typical five-point Likert scale: 1 means “Least important,” 2 means “Less important,” 3 means “Moderately important,” 4 means “Very important,” and 5 means “Most important,” was adapted from Yusuf (2014), Haqq and Winarso (2022), Mognhode and Z. (2015), Perinpasingam et al. (2015), Briana et al. (2019), and Perinpasingam et al. (2015) for conducting a survey in four parts.

Part I Personal information in the type of “Check List” items to obtain the research participants’ socio-demographic background. The participants were requested to report their socio-demographic information such as sex, family background and features, mother language, majors in their university studies, type of co-op workplaces, job position, number of foreign friends, employers, and employees, years of English studies, and number of times in using English.

Part II This part was a selected-response item type in a typical five-point Likert scale format. It comprised 30 statement items measured by the “Rating Scale,” and this instrument attempted to capture and assess English competency in four macro-skills: listening, speaking, reading, and writing, comparing the pre-post levels of English skills after the co-op program.

Part III This part was a selected-response item type. It comprised 10 statement items in a typical five-point Likert scale format measured by the “Rating Scale.” This instrument attempted to capture and assess students’ academic experiences, learning programs, and facilities for improving their English provided by their academic institutes.

Part IV This part was a selected-response item type. It comprised 12 statement items in a typical five-point Likert scale format measured by the “Rating Scale.” This instrument attempted to capture and assess students’ opinions on the roles of their co-op workplace in improving their English competency.

Table 3.2 Item summaries of the pre-post English competency, academic institute information, and opinions questionnaire

Item(s)	Measures	Scale(s)	Author(s)
1, 4	Listening	Rating scale (1–5) 2 items Positive items = 2	Tsai-Ting Liao et al. (2017)

Item(s)	Measures	Scale(s)	Author(s)
		Negative items = 0	
2	Listening	Rating scale (1–5) 1 item Positive items = 1 Negative items = 0	Briana et al. (2019)
3	Listening	Rating scale (1–5) 1 item Positive items = 1 Negative items = 0	Perinpasingam et al. (2015)
5,6	Listening	Rating scale (1–5) 2 items Positive items = 2 Negative items = 0	Mognhode & Woldemariam (2015)
7, 8, 9, 11	Speaking	Rating scale (1–5) 4 items Positive items = 4 Negative items = 0	Briana et al. (2019)
10	Speaking	Rating scale (1–5) 1 item Positive items = 1 Negative items = 0	Ho (2014)
12	Speaking	Rating scale (1–5) 1 item Positive items = 1 Negative items = 0	Perinpasingam et al. (2015)
13, 14	Speaking	Rating scale (1–5) 2 items Positive items = 2 Negative items = 0	Mognhode & Woldemariam (2015)
15, 16, 17, 20, 23, 24	Reading	Rating scale (1–5) 6 items Positive items = 6 Negative items = 0	Briana et al. (2019)
18, 22	Reading	Rating scale (1–5) 2 items Positive items = 2 Negative items = 0	Perinpasingam et al. (2015)
19	Reading	Rating scale (1–5) 2 items Positive items = 2 Negative items = 0	Tsai-Ting Liao et al. (2017)
21	Reading	Rating scale (1–5) 1 item Positive items = 1 Negative items = 0	Mognhode & Woldemariam (2015)
25, 25	Reading	Rating scale (1–5) 2 items Positive items = 2	Yusuf (2014)

Item(s)	Measures	Scale(s)	Author(s)
		Negative items = 0	
27, 20	Writing	Rating scale (1–5) 1 item Positive items = 1 Negative items = 0	Tsai-Ting Liao et al. (2017)
28, 29	Writing	Rating scale (1–5) 1 item Positive items = 1 Negative items = 0	Briana et al. (2019)
31–40	Academic institution information	Rating scale (1–5) 10 items Positive items = 10 Negative items = 2	Linder & Brandenburg (2019)
42, 50, 51, 52	Opinion	Rating scale (1–5) 5 items Positive items = 5 Negative items = 0	Jackel (2011)
41, 43, 44, 45, 46	Opinion	Rating scale (1–5) 7 items Positive items = 7 Negative items = 0	Kipreos & Dimitropoulos (2016)
47, 48	Opinion	Rating scale (1–5) 7 items Positive items = 7 Negative items = 0	Sahrir et al. (2016)
49	Opinion	Rating scale (1–5) 1 item Positive items = 1 Negative items = 0	Rengranathan et al. (2011)

3.4.2.1 Quality of the questionnaire: validity and reliability

The process of testing the quality of the instrument is presented in Figure 3.1 and is detailed below.

3.4.2.1.1 The research instruments adapted from experts and previously studied in various contexts were translated into two parallel versions of Thai and English and submitted to the research advisor for feedback and comments in terms of appropriateness, accuracy, and usefulness.

3.4.2.1.2 Each of the research instruments was examined in terms of validity by requesting five experts, such as English language teachers, company professionals, and human resources representatives, to examine the Index of Item

Objective Congruence (IOC) for the content validity, face validity, objectivity, and correct-Thai-English translation of the question items. This was done to evaluate the validity of the question items and whether or not they measured what they claimed to measure (Drost, 2011; Kimberlin & Winterstein, 2008; Mohajan, 2017; Rovai et al., 2014). The total scores of question items were evaluated, and the consistency index ranking at or above 0.50 was selected and accepted as its validity.

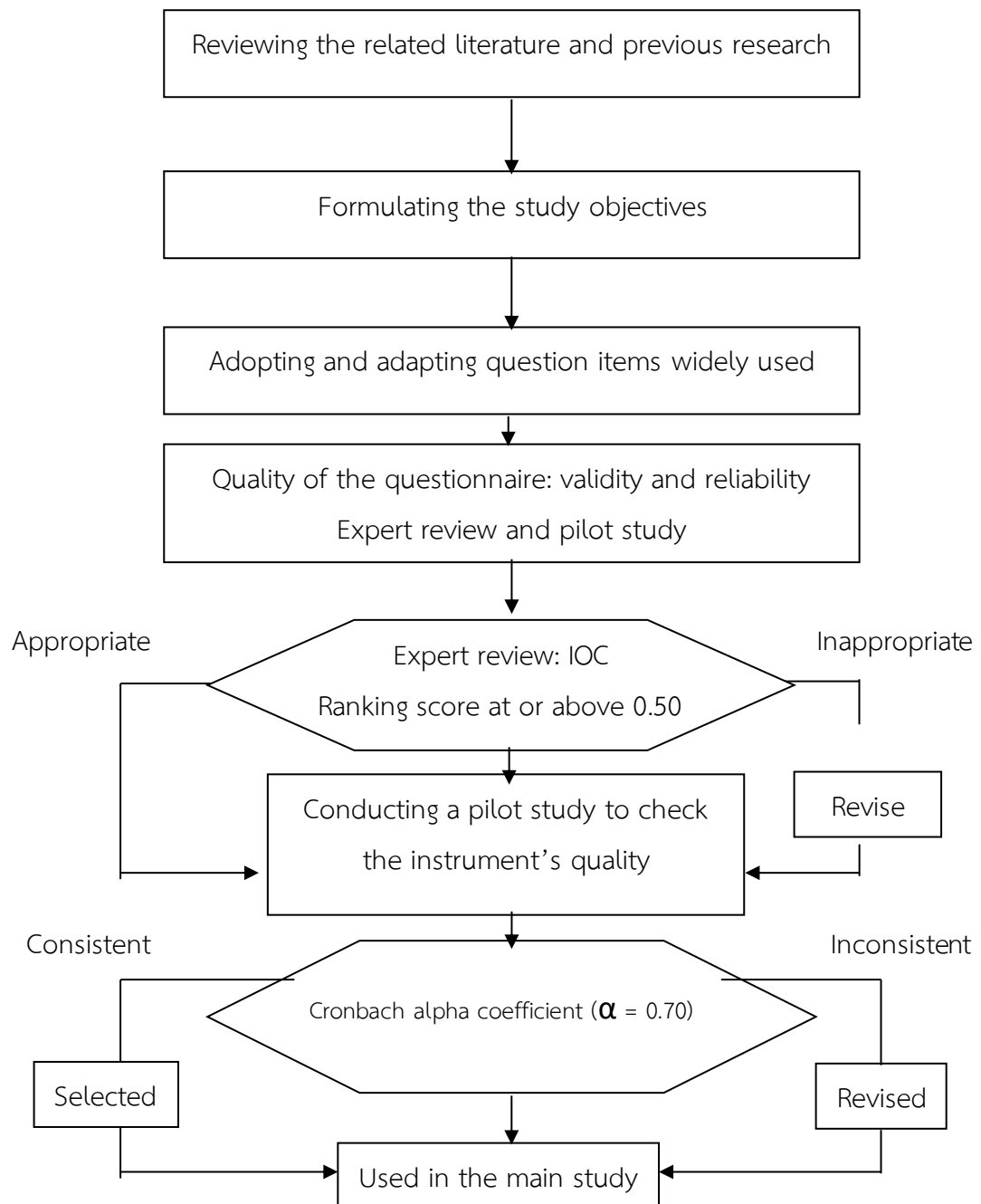


Figure 3.3 The process of testing the questionnaire's quality

3.4.2.1.3 After testing the quality of the research instrument using IOC, the research questionnaire was revised per the experts' comments and feedback to ensure that those instruments are consistent with the research objectives. Then, the reliability of the research instrument was tested to ensure reliable and consistent results contributing to the stable measurement, which was calculated using the Cronbach alpha coefficient (Drost, 2011; Kimberlin & Winterstein, 2008). Therefore, a pilot questionnaire was used with the sample group of 30 respondents, and the question items with the value of Cronbach alpha coefficient of at least $\alpha = 0.70$ were compiled for the main study (Mohajan, 2017; Rovai et al., 2014).

3.5 Data collection procedure

Data collection for this research was conducted using the following steps:

3.5.1 In the process of collecting the data from the company representatives, company representatives were collected along the research process to obtain data concerning the needs analysis related to the expectation and satisfaction of English competency of Thai co-op students. In collecting the data of this group of participants, it started from 2019 to 2020 by contacting to the company in which the researcher needed to go for the co-op supervision. During each visit, the researcher, as a co-op supervisor from the university, had a chance to discuss the key issues related to the students' performances, and, during discussion with the company representatives, the researcher got recommended to their network companies as applying the snow ball sampling techniques. This provided the better and broader opportunities to have more contact information. Then, the researcher had contacted the particular company as well as either mailing or emailing the permission letter to the company before each visit for data collection.

Also, the co-op students who were on their co-op program from 2019 to 2020 were requested to complete the research questionnaires about their English competency and opinions after the completion of their co-op education as well as providing their opinion towards the roles of the workplaces in improving their English competency. During two years of collecting the data to maximize the numbers of the participants, the researcher, together with the research assistant and coworkers who either were assigned to visit the sites or been requested to meet the company

representative online, tried to collect the data by both providing the questionnaire paper and online form with the clear instruction in completing the questionnaire to enhance the understanding and the convenience of the participants. To maximize the numbers of participants in data collection procedure and for participants' convenient choices for providing their information, the completely revised version of the questionnaires was also uploaded using Google Forms and be sent and forwarded through/via the applications such as E-mail, Line Application, Facebook, and Messenger directly to the groups. This facilitated the process for research participants to provide information and complete the questionnaire.

3.5.2 After data collection, the completeness of the questionnaire from the respondents was checked for the number of questionnaires responded to and received. The incomplete forms were terminated, whereas the complete ones were used for data analysis.

3.6 Data analysis

According to the research objectives, EFA was conducted to identify the numbers and natures of underlying latent variables. Then, CFA was calculated to confirm the hypothesized factor structure. For the calculation of the means (M), standard deviations (SD), EFA, and CFA were as follows:

3.6.1 Descriptive statistical analysis

Descriptive statistics relating to the socio-demographic information of the respondents were used to analyze the data. Means (M) and standard deviations (SD) were calculated. Additionally, the Pearson correlation (r) matrix was constructed to examine the relationship between the variables in the model.

3.6.2 Testing the means difference

Inferential statistics relating the calculation of percentages (%) and standard deviations (SD) in terms of the significance level and testing the comparative means scores of the sample group were calculated to indicate the holistic result indicating the level of each question item.

3.6.3 EFA and CFA for testing the construct validation

For testing the construct validity, factor analysis is the data reduction process that seeks to reveal and test the underlying or latent factors to describe the covariance

relationship among many variables. EFA disclosed more data relating to the factor structure of a particular dataset since this procedure uses as many variables as can be specified with some restrictions for extracting factors. Additionally, CFA was employed to test how well the structure fits or describes the data and allow the researcher to assess the statistical quality of each factor based on its corresponding variables.

3.6.3.1 EFA was analyzed to indicate the common factors, clarify the relationship between observable variables, and explore the main dimensions of the theory from a relatively large set of unobservable constructs represented by a set of items. The result usually indicated the reduction of those observable variables by constructing new common variables (Henson & Roberts, 2006; Hogarty et al., 2005; Thompson, 2007; Williams et al., 2010).

3.6.3.2 CFA was analyzed as the second stage of the construct validity to investigate the correlation of the data obtained and the model since the coefficient alpha is not a sufficient condition to assess uni-dimensionality to correlate the errors and increase the goodness of fit indices of the model. It provides a better estimate of reliability than coefficient alpha, examines the stability of the factor structure in scale construction, and ensures that all measures used in this present study are reliable; therefore, the result will be able to provide the researcher with greater confidence in the individual items and consistent measurements (Hafiz & Shaari, 2013; Thompson, 2007).

Chapter 4

Results

Research analysis results are based on four objectives: 1) To investigate the desired English competency of Thai students according to the requirements of EEC workplaces. 2) To compare Thai co-op students' English competency before and after co-op education. 3) To examine the effects of the students' socio-demographic background, educational institution factors, and workplace environments on the levels of English competency of Thai co-op students, and 4) To explore Thai co-op students' opinions on the roles of workplaces in improving their English competency.

4.1 Desired English competency of Thai students

This study's first objective was to investigate the desired English competency of Thai students according to the requirements of EEC workplaces. Therefore, the needs analysis between expectation and satisfaction of English competency was employed using information from 1,085 job mentors or supervisors (see the general information of mentors and supervisors in Table 4.1). These workplaces are in three EEC provinces: Chachoengsao, Chon Buri, and Rayong, and provide job opportunities and student positions. This study measured English needs analysis using a questionnaire related to English competency with 30 underlying items adapted from Yusuf (2014), Moghnade and Z. (2015), Perinpasingam et al. (2015), Perinpasingam et al. (2015), Liao et al. (2017), and Briana et al. (2019). The results are presented in Table 4.2.

Table 4.1 General information on mentors and supervisors in workplaces (n = 1,085)

General characteristics of respondents	number (people)	percentage
Sex		
Male	450	41.47
Female	635	58.53

General characteristics of respondents	number (people)	percentage
Respondent's position		
Senior management	55	5.06
Manager or Assistant Manager	453	41.75
Manager	577	53.19
Tenure		
3–5 years	396	36.49
6–10 years	631	58.15
11–15 years	48	4.42
16 years or older	10	0.94
Average tenure 8 years		
The maximum age of tenure is 18 years.		
Minimum age of office 3 years		
Province where the establishment is located		
Chachoengsao	53	4.88
Rayong	302	27.83
Chonburi	730	67.29
Type of business		
Agriculture, livestock, and aquatic farming	6	0.55
Service sector	787	72.53
Industry	292	26.92
Type of workplace		
Government	36	3.31
State enterprise	46	4.23
Private	1,003	92.46
Management level		
Local and community levels	48	4.42
National level	76	7.00
International level	961	88.58
Nationality of the establishment		
United States of America	12	1.10
Republic of Singapore	14	1.29
Australia	20	1.84
Federal Republic of Germany	31	2.85
Taiwan	42	3.87

General characteristics of respondents	number (people)	percentage
South Korea	43	3.96
Kingdom of Thailand	107	9.86
People's Republic of China	282	25.99
Japan	534	49.24
Proportion of English usage by establishments		
40%	4	0.36
50%	94	8.66
60%	196	18.06
70%	393	36.22
80%	384	35.39
90%	14	1.31
Types of employees in the establishment		
Thai employers	85	7.83
Foreign employer	1,000	92.17
Thai staff	77	7.09
Foreign employees	1,008	92.91

As presented in Table 4.1, it was found that most of the respondents who were employers in the workplace were 635 women (58.53%) and 450 men (41.47%). Most of the respondents' positions were supervisors, 577 people (53.19%), followed by managers or assistant managers, 453 people (41.75%), and senior executives, 55 people (5.06%). The tenure of most respondents was between 6–10 years, 631 people (58.15%), followed by positions between 3–5 years, 396 people (36.49%), and between 11–15 years, 48 people (4.42%).

In terms of the location of the establishment, most of them were located in Chonburi Province, 730 places (67.29%), followed by 787 places in Rayong (27.83%), and 53 places in Chachoengsao Province (4.88%). Most were in the service sector, 787 places (72.53%), followed by the industrial sector, 292 places (26.92%), and the agricultural sector, livestock, and aquatic farming, 6 places (0.55%). Most establishments were private companies, 1,003 places (92.46%), followed by state enterprises, 46 places (4.23%), and the government, 36 places (3.31%). The level of management of most establishments was international, 961 places (88.58%), followed by 76 at the national level (7.00%), and 48 local communities (4.42%). Concerning the

nationality of the establishment, 534 were Japanese investors (49.24%), followed by 282 Chinese people (25.99%), and 107 Thais (9.86%). In terms of the proportion of English used the workplace, 70% of usage comprised 393 people (36.22%), followed by about 80% with 384 people (35.39%) and 60% with 196 people (18.06%). Finally, the type of employees in the workplace; The division was primarily 1000 foreign employers (92.17%) and 85 Thai people (7.83%). Most of the employees in the establishment are foreigners, that is, 1,008 people (92.91%), and only 77 of them were Thais (7.09%).

Items of English competency needs	Expectation level of English competency							Satisfaction level of English competency						
	<i>Mean</i>	<i>SD</i>	<i>Level</i>	<i>MIN</i>	<i>MAX</i>	<i>SK</i>	<i>KU</i>	<i>Mean</i>	<i>SD</i>	<i>Level</i>	<i>MIN</i>	<i>MAX</i>	<i>SK</i>	<i>KU</i>
SPK1: Asking for clarification of work instruction / Requesting coaching	3.59	0.504	High	3	5	-0.220	-1.627	3.38	0.494	Moderate	2	4	0.393	-1.55
SPK2: Able to explain information or procedures	4.16	0.811	High	2	5	-0.339	-1.284	2.98	0.309	Moderate	2	4	-0.401	7.429
SPK3: Participate in discussions/meetings	3.55	0.497	High	3	4	-0.213	-1.958	2.79	0.538	Moderate	1	4	-1.297	2.425
SPK4: Able to share and express your own thoughts	3.62	0.508	High	3	5	-0.241	-1.338	2.98	0.416	Moderate	1	4	-0.842	5.975
SPK5: Able to pronounce the correct word	3.87	0.599	High	3	5	0.053	-0.303	3.66	0.598	High	3	5	0.294	-0.657
SPK6: Able to speak face-to-face and over the phone	3.11	0.552	Moderate	2	4	0.051	0.135	3.64	0.798	High	2	5	0.555	-0.926
SPK7: Able to ask and answer questions in the meeting	3.17	0.505	Moderate	2	5	0.798	1.631	3.09	0.618	Moderate	2	4	-0.059	-0.415
SPK8: Able to make an appointment with a foreign customer	3.47	0.683	Moderate	2	5	0.352	-0.161	3.85	0.702	High	2	5	0.147	-0.835

Items of English competency needs	Expectation level of English competency							Satisfaction level of English competency						
	<i>Mean</i>	<i>SD</i>	<i>Level</i>	<i>MIN</i>	<i>MAX</i>	<i>SK</i>	<i>KU</i>	<i>Mean</i>	<i>SD</i>	<i>Level</i>	<i>MIN</i>	<i>MAX</i>	<i>SK</i>	<i>KU</i>
Reading skill (RED) (M = 3.481, SD = 0.370) Moderate (M = 3.569, SD = 0.462) High														
RED1: Able to read and understand working instructions	2.94	0.642	Moderate	1	4	-0.642	1.347	3.34	0.53	Moderate	3	5	1.217	0.471
RED2: Able to read and understand documents, notices, and announcements	3.4	0.88	Moderate	1	5	-0.748	0.126	3.36	0.595	Moderate	3	5	1.447	1.023
RED3: Able to read and understand technical vocabulary at work	3.51	0.807	High	2	5	0.208	-0.488	3.89	0.721	High	2	5	-0.012	-0.679
RED4: Able to read and understand letters and emails	3.54	1.026	High	2	5	-0.211	-1.104	3.7	0.615	High	2	5	-0.564	0.466
RED5: Able to read and translate job information according to translation methods	3.19	0.964	Moderate	1	5	0.353	-0.554	3.7	0.887	High	1	5	-0.705	0.197
RED6: Able to read and understand general information	4.06	0.834	High	2	5	-0.651	-0.111	3.57	0.618	High	2	5	-0.634	-0.021

Items of English competency needs	Expectation level of English competency							Satisfaction level of English competency						
	<i>Mean</i>	<i>SD</i>	<i>Level</i>	<i>MIN</i>	<i>MAX</i>	<i>SK</i>	<i>KU</i>	<i>Mean</i>	<i>SD</i>	<i>Level</i>	<i>MIN</i>	<i>MAX</i>	<i>SK</i>	<i>KU</i>
RED7: Able to read and understand organizational notes	3.87	0.572	High	2	5	-0.356	0.834	3.17	0.572	Moderate	2	4	-0.008	-0.194
RED8: Able to read and understand safety instructions	3.91	0.57	High	2	5	-0.368	1.046	3.44	0.834	Moderate	1	5	-0.808	0.296
RED9: Able to read and understand reports and work summaries	3.32	0.858	Moderate	2	5	0.515	-0.320	3.46	0.595	Moderate	3	5	0.891	-0.201
RED10: Able to read and understand the attitude and opinions of the authors	3.96	0.803	High	1	5	-0.442	0.217	3.18	0.555	Moderate	2	4	0.047	-0.116
Writing skill (WRT) (<i>M</i> = 3.727, <i>SD</i> = 0.519) High (<i>M</i> = 3.803, <i>SD</i> = 0.583) High														
WRT1: Able to answer emails and business letters	3.78	0.67	High	2	5	-0.766	0.971	3.33	0.946	Moderate	1	5	-0.364	-0.203
WRT2: Able to accurately record information from the meeting	3.39	0.851	Moderate	1	5	-0.182	-0.251	3.82	0.695	High	2	5	0.064	-0.565

Items of English competency needs	Expectation level of English competency							Satisfaction level of English competency						
	<i>Mean</i>	<i>SD</i>	<i>Level</i>	<i>MIN</i>	<i>MAX</i>	<i>SK</i>	<i>KU</i>	<i>Mean</i>	<i>SD</i>	<i>Level</i>	<i>MIN</i>	<i>MAX</i>	<i>SK</i>	<i>KU</i>
WRT3: Able to write messages for correct information	3.24	0.683	Moderate	2	5	0.042	-0.271	4.06	0.607	High	3	5	-0.029	-0.298
WRT4: Able to use the language, vocabulary, grammar, and punctuation marks in basic writing correctly	3.78	0.828	High	2	5	-0.804	0.263	3.99	0.686	High	3	5	0.012	-0.871
WRT5: Able to describe the object or procedure	3.62	0.685	High	1	5	-0.913	1.601	3.62	0.83	High	2	5	0.57	-0.939
WRT6: Able to write a work summary and a self-report correctly	3.94	0.586	High	2	5	0.524	-0.480	3.75	0.645	High	1	5	0.357	0.393

The analysis results, presented in Table 4.2, were divided into the expectation and satisfaction of the workplace on the English competency of Thai co-op students. It was found that the mean score and expectation level of listening, speaking, reading, and writing skills were 3.530, 3.670, 3.569, and 3.803 at high levels, respectively. The mean score and satisfaction level of satisfaction with listening, speaking, and reading were 3.380, 3.330, and 3.481 at moderate levels, respectively, and writing was 3.727 at a high level. Additionally, Table 4.3 and Figure 4.1 present the results of the comparison of mean scores of 30 items of the satisfaction and expectation of English competency assessed by mentors and supervisors.

Table 4.3 Mean scores comparison of expectation and satisfaction

Items	Comparison of mean scores			Need for improvement Or Higher than expectation
	Expectation (E)	Satisfaction (S)	E-S	
LIS1: Understand basic conversation in daily life	3.45	4.04	-0.59	Higher than expectation
LIS2: Understand work instruction	3.69	3.38	0.31	Need for improvement
LIS3: Understand telephone conversations	3.43	3.73	-0.3	Higher than expectation
LIS4: Understand requesting information and job-related questions	4.19	3.16	1.03	Need for improvement
LIS5: Understand the meeting conversation related to work	3.61	3.07	0.54	Need for improvement
LIS6: Understand both formal and informal languages and various English accents	3.9	3.56	0.34	Need for improvement
SPK1: Asking for clarification of work instruction / Requesting coaching	3.59	3.38	0.21	Need for improvement

Items	Comparison of mean scores			Need for improvement Or Hiher than expectation
	Expectation (E)	Satisfaction (S)	E-S	
SPK2: Able to explain information or procedures	4.16	2.98	1.18	Need for improvement
SPK3: Participate in discussions/meetings	3.55	2.79	0.76	Need for improvement
SPK4: Able to share and express your own thoughts	3.62	2.98	0.64	Need for improvement
SPK5: Able to pronounce the correct word	3.87	3.66	0.21	Need for improvement
SPK6: Able to speak face-to-face and over the phone	3.11	3.64	-0.53	Hiher than expectation
SPK7: Able to ask and answer questions in the meeting	3.17	3.09	0.08	Need for improvement
SPK8: Able to make an appointment with a foreign customer	3.47	3.85	-0.38	Hiher than expectation
RED1: Able to read and understand working instructions	2.94	3.34	-0.4	Hiher than expectation
RED2: Able to read and understand documents, notices, and announcements	3.4	3.36	0.04	Need for improvement
RED3: Able to read and understand technical vocabulary at work	3.51	3.89	-0.38	Hiher than expectation
RED4: Able to read and understand letters and emails	3.54	3.7	-0.16	Hiher than expectation
RED5: Able to read and translate job information according to translation methods	3.19	3.7	-0.51	Hiher than expectation
RED6: Able to read and understand general information	4.06	3.57	0.49	Need for improvement

Items	Comparison of mean scores			Need for improvement Or Hiher than expectation
	Expectation (E)	Satisfaction (S)	E-S	
RED7: Able to read and understand organizational notes	3.87	3.17	0.7	Need for improvement
RED8: Able to read and understand safety instructions	3.91	3.44	0.47	Need for improvement
RED9: Able to read and understand reports and work summaries	3.32	3.46	-0.14	Hiher than expectation
RED10: Able to read and understand the attitude and opinions of the authors	3.96	3.18	0.78	Need for improvement
WRT1: Able to answer emails and business letters	3.78	3.33	0.45	Need for improvement
WRT2: Able to accurately record information from the meeting	3.39	3.82	-0.43	Hiher than expectation
WRT3: Able to write messages for correct information	3.24	4.06	-0.82	Hiher than expectation
WRT4: Able to use the language, vocabulary, grammar, and punctuation marks in basic writing correctly	3.78	3.99	-0.21	Hiher than expectation
WRT5: Able to describe the object or procedure	3.62	3.62	0	-
WRT6: Able to write a work summary and a self-report correctly	3.94	3.75	0.19	Need for improvement

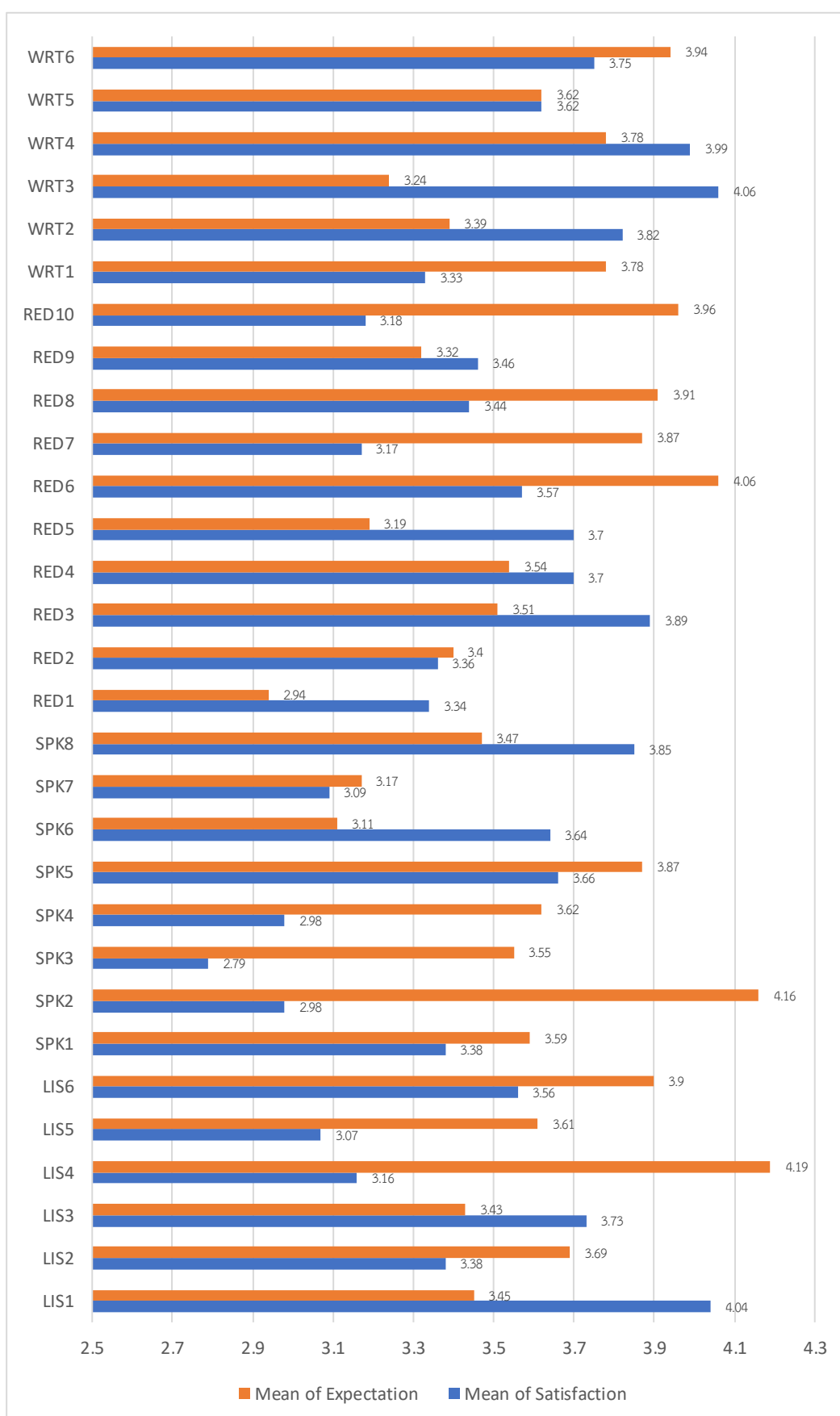


Figure 4.1 Comparison of the expectation and satisfaction of English competency

The satisfaction of organizational English skills English expectation (E) and satisfaction (S) of Thai students' scores range from negative to non-negative. The more negative the scores imply that the workplace needs English skills, but students' proficiency in this skill cannot respond to the organization's requirements. This is presented in Table 4.4.

Table 4.4 Requirements for desired English competency

E-S	Items	Requirement	Items' details
-0.82	WRT3	√	WRT3: Able to write messages for correct information
-0.59	LIS1	√	LIS1: Understand basic conversation in daily life
-0.53	SPK6	√	SPK6: Able to speak face-to-face and over the phone
-0.51	RED5	√	RED5: Able to read and translate job information according to translation methods
-0.43	WRT2	√	WRT2: Able to accurately record information from the meeting
-0.40	RED1	√	RED1: Able to read and understand working instructions
-0.30	LIS3	√	LIS3: Understand telephone conversations
-0.38	SPK8	√	SPK8: Able to make an appointment with a foreign customer
-0.38	RED3	√	RED3: Able to read and understand technical vocabulary at work
-0.21	WRT4	√	WRT4: Able to use the language, vocabulary, grammar, and punctuation marks in basic writing correctly
-0.16	RED4	√	RED4: Able to read and understand letters and emails
-0.14	RED9	√	RED9: Able to read and understand reports and work summaries
0.00	WRT5	-	WRT5: Able to describe the object or procedure
0.04	RED2	-	RED2: Able to read and understand documents, notices, and announcements

E-S	Items	Requirement	Items' details
0.08	SPK7	-	SPK7: Able to ask and answer questions in the meeting
0.19	WRT6	-	WRT6: Able to write a work summary and a self-report correctly
0.21	SPK1	-	SPK1: Asking for clarification of work instruction / Requesting coaching
0.21	SPK5	-	SPK5: Able to pronounce the correct word
0.31	LIS2	-	LIS2: Understand work instruction
0.34	LIS6	-	LIS6: Understand both formal and informal languages and various English accents
0.45	WRT1	-	WRT1: Able to answer emails and business letters
0.47	RED8	-	RED8: Able to read and understand safety instructions
0.49	RED6	-	RED6: Able to read and understand general information
0.54	LIS5	-	LIS5: Understand the meeting conversation related to work
0.64	SPK4	-	SPK4: Able to share and express your own thoughts
0.70	RED7	-	RED7: Able to read and understand organizational notes
0.76	SPK3	-	SPK3: Participate in discussions/meetings
0.78	RED10	-	RED10: Able to read and understand the attitude and opinions of the authors
1.03	LIS4	-	LIS4: Understand requesting information and job-related questions
1.18	SPK2	-	SPK2: Able to explain information or procedures

According to the analysis results of the satisfaction of English skills by the organization and students' English competency assessed by job mentors or supervisors present the desired English competency of Thai students according to the requirements of EEC workplaces as follows: there are 17 items (SPK2, LIS4, RED10, SPK3, RED7, SPK4, LIS5, RED6, RED8, WRT1, LIS6, LIS2, SPK1, SPK5, WRT6, SPK7, RED2 (Score –1.18–0.04). These results imply that workplaces need students with English skills, such as explaining information or procedures, understanding requesting information and job-related questions, reading and understanding the authors' attitudes and opinions, participating in discussions/meetings, and so on.

4.2 English competency before and after participating in co-op education

The results of the descriptive statistical analysis of Thai co-op students were: frequency distribution, percentage, and background data of co-op students, consisting of gender, the field of study, year of study, type of university studying, type of high school, college, or institute that completed a bachelor's degree native language province of origin foreign friends' number of hours communicating in English Job positions that perform co-op.

Table 4.5 The background of Thai co-op students.

(n = 2,115)

General characteristics of respondents	Number (People)	Percentage
Gender		
Male	521	24.63
Female	1,594	75.37
Major		
Agribusiness	32	1.51
Accounting	48	2.26
Mechatronics	69	2.97
Information and communication technology	73	3.45
Tourism management	76	3.59
Engineering	92	4.34
International Business Management	106	5.01
Chinese	118	5.57

General characteristics of respondents	Number (People)	Percentage
Logistics and transportation management	164	7.75
Marketing	238	11.25
English	361	17.06
Management	738	35.24
Year of study		
4	2,115	100.00
Type of university studying		
Autonomous university	386	18.25
Private university	652	30.82
Government university	1,077	50.93
Type of high school		
Private	372	17.58
Government	1,743	82.42
Native language		
Khmer	4	0.18
Thai Lanna	22	1.04
Thai Thin Korat	29	1.37
Southern Thai	79	3.73
Thai Isaan	185	8.74
Thai	1,796	84.94
Province of origin		
Bangkok	15	0.70
Chonburi	90	4.25
Roi Et	197	9.31
Nakhon Ratchasima	278	13.14
Chachoengsao	287	13.56
Si Sa Ket	1,248	59.04
Foreign friends who regularly chat		
Have	630	29.78
Do not have	1,485	70.22
1	240	38.09
2	238	37.77
3	74	11.74
4	14	2.26
5	39	6.19

General characteristics of respondents	Number (People)	Percentage
6	4	0.63
7	13	2.06
10	8	1.26
Number of hours communicating in English per week		
Did not communicate	294	13.90
Communicate	1,821	86.10
1-5 hours per week	593	32.56
6-10 hours per week	525	28.83
11-15 hours per week	426	23.29
16-20 hours per week	198	10.87
21 or more hours per week	79	4.45
Additional time to study English		
6-10 years	10	0.47
11-15 years	350	16.54
more than 15 years	1,755	82.99
Job positions that perform cooperative education in foreign enterprises		
Package Tour Agent Department	25	1.18
Product inspection department	30	1.41
Research and development department	46	2.17
The food and beverage department	49	2.31
Accounting department	55	2.60
Production department	91	4.30
IT department	92	4.34
Warehouse department	114	5.39
Sales and Purchasing Department	303	14.32
Reception	322	15.22
Human Resource Management Department	453	21.41
Administrative department	535	25.35
Proportion of English usage in the workplace		
0%-25%	29	1.37
26%-50%	453	21.41
51%-75%	995	47.04
76% and above	638	30.18

General characteristics of respondents	Number (People)	Percentage
Father's highest level of education		
Basic level	1,201	56.78
Diploma level and vocational training	552	26.09
Total	362	17.13
Mother's highest level of education		
Basic level	1,391	65.76
Diploma level and vocational training	326	15.41
Total	398	18.83
Father's main occupation		
State enterprise	45	2.12
Government service	129	6.09
Business owner	202	9.55
Farmer	840	39.71
General employee	899	42.53
Father's main occupation		
State enterprise	65	3.07
Government service	110	5.20
Business owner	328	15.50
Farmer	609	28.79
General employee	1003	47.53
Father's country of origin		
Thailand	2,115	100.00
Father's country of origin		
Thailand	2,115	100.00

The results of the analysis in this section It was found that most Thai cooperative education students were 1,594 females, representing 75.37 percent, and 521 males, representing 24.63 percent of the fields that Thai cooperative studies students were studying. Management major of 738 people, representing 35.24 percent, followed by English major of 361 people, representing a percent and marketing majors of 238 people, representing 11.25 percent, most of them studying in the fourth year of 1,790 people, representing 84.64 percent and studying in the third year of 325 people, representing 15.36 percent Thai affairs studies are mostly in government universities of 1,077 people, representing 50.93 percent, followed by private universities of 652 people, representing 30.82 percent, and studying in autonomous

universities of 386 people, representing 18.25 percent. Of the upper secondary schools, most Thai cooperative education students graduated from public schools, 1,743, representing 82.42 percent, and from private schools, 372 students, representing 17.58 percent.

Regarding the native language of Thai cooperative education students, most of them used the native language of 1,796 people, representing 84.94 percent, followed by Isan Thai of 185 people, representing 8.74 percent, and the southern Thai dialect of 79. people, representing 3.73 percent, the province where most of the Thai cooperative education students were from Sisaket Province, 1,248 people, representing 59.04 percent, followed by Chachoengsao Province, 287 people, representing 13.56 percent, and Nakhon Ratchasima Province, 278 people accounted for 13.14 percent. The number of foreigners that Thai cooperative education students regularly discussed was 1 person, representing 38.09 percent, followed by 2 people, representing 37.77 percent, and 3 people, representing 11.74 percent, which cooperative students Most Thai cooperative students do not have foreign friends of 1,485 people, representing 70.22 percent, and there are 630 friends who regularly chat, representing 29.78 percent. The number of hours that Thai cooperative students converse in English per week 1 – 5 hours per week, 593 people, representing 32.56 percent, followed by a conversation in English per week, 6 – 10 hours per week, 525 people, representing 28.83 percent, and conversation in English per week 11 – 15 hours per week, number 426 people, representing 23.29 percent, of which most Thai cooperative education students communicate in English per week, amounting to 1,821 people, representing 86.10 percent and not communicating in English, 294 people, representing 13.90 percent of the time studying English Most of the cooperative education students in Thailand will study more than 15 years, 1,755 people, representing 82.99 percent, followed by additional study in English for 11 - 15 years, 350 people, representing 16.54 percent, and learning additional English 6 - 10. year, 10 people, representing 0.47%

Regarding the job positions that Thai cooperative education students went to work in cooperative education in foreign enterprises in the administrative department, 535 people accounted for 25.35 percent, followed by the human resource management plan of 453 people, representing 21.41 percent and reception 322 people, representing 15.22 percent, and the proportion of using English in Thai co-educational student establishments uses English about 51% - 75% of 995 people, representing 47.04 percent, followed by about 75 English. % or more of 638 people, representing 30.18 percent, and using English about 26% - 50% of 453 people, representing 21.41 percent, respectively.

The results of the analysis in this section It was found that the highest level of education of most fathers graduated from the basic level 1,201 people, representing 56.78 percent, followed by graduating with a higher vocational certificate and vocational training, number 552, representing 26.09 percent, and graduating Higher education of 362 people, representing 17.13 percent. The highest level of education of most mothers graduated with basic education of 1,391 people, representing 65.76 percent, followed by tertiary education of 398 people, representing 18.83 percent and graduating. Diploma and vocational training, 326 people, accounting for 15.41 percent

The main occupation of the general mercenary father was 899 people, representing 42.53 percent, followed by farmers of 840 people, representing 39.71 percent and business owners of 202 people, representing 9.55 percent, and the main occupation of general mercenary mothers, number 1,003. people, representing 47.53 percent, followed by farmers of 609 people, representing 28.79 percent, and business owners 328 people, representing 15.50 percent, which the country of origin of the father and mother being Thailand, all 2,115 people representing 100.00 percent according to the number.

The comparative analysis results of Thai co-op students in English competency before and after co-op education are presented in Table 4.6 and Figure 4.2.

Table 4.6 Results of English proficiency before and after co-op education (n = 2,115).

Items	Comparison of English skills	Mean	SD	t	p
(1) Listening skills (LIS)	Before	2.698	.615	56.967*	.000
	After	3.718	.603		
(2) Speaking skills (SPE)	Before	2.801	.756	35.388*	.000
	After	3.380	.656		
(3) Reading skills (REA)	Before	3.142	.829	29.778*	.000
	After	3.687	.592		
4) Writing skills (WRI)	Before	2.858	.798	39.7047*	.000
	After	3.490	.639		

Note: * $p < 0.05$, ** $p < 0.01$

The mean and the overall standard deviation of the observed variables were the factors of the English competency development of Thai co-op students. Classification before and after co-op education found that Thai co-op students who

returned from co-op work in the workplace had increased English language skills in all four types as follows: 1) the average English listening skills before going to work in the co-op ($M = 2.698$, $SD = 0.615$) and after the co-op showed an increase ($M = 3.718$, $SD = 0.603$). 2) English speaking skills before ($M = 3.380$, $SD = 0.656$) and after going to work in the co-op also showed an increase ($M = 3.142$, $SD = 0.829$). 3) Similar results were seen in English reading skills after going to work on the co-op ($M = 3.687$, $SD = 0.592$). 4) Finally, according to the analysis results, the average English writing skills before going to the co-op ($M = 2.858$, $SD = 0.798$) and after the co-op had increased ($M = 3.7490$, $SD = 0.639$). The differences in the observed variables of differentiated English skills before and after going to the co-op were significantly different at the 0.05 level.

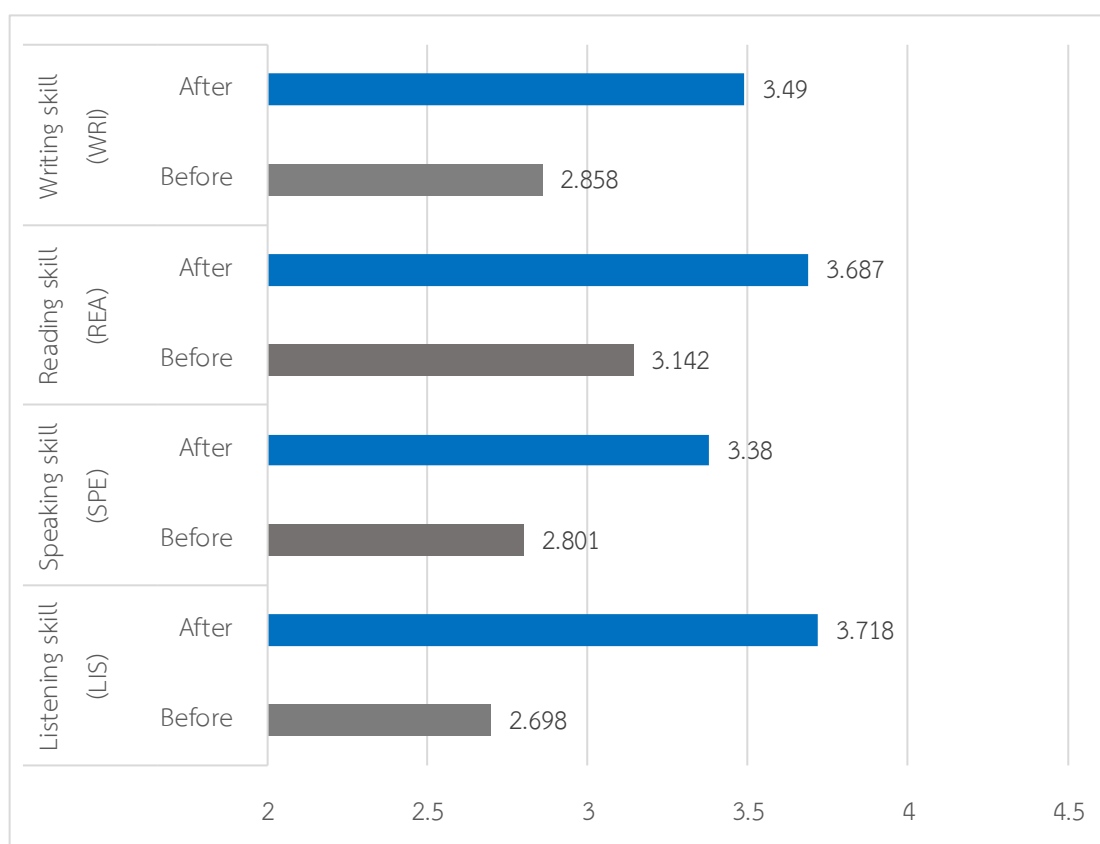


Figure 4.2 Mean score comparison of English before and after co-op

The M scores, SD, and % of improvement of 30 items of English skills before and after participating in the co-op are presented in Table 4.6 and Figure 4.3.

Table 4.7 The mean scores, SD, and % of improvement of 30 items before and after co-op

		Before		After		M	%
Item		M	SD	M	SD	After - Before	Developed differences
English skills							
	M score for listening skills	2.70	0.86	3.64	0.81	0.94	35.60
1	LIS1: Understand basic conversation in daily life	3.06	.859	3.93	.787	0.87	28.55
2	LIS2: Understand work instruction	2.73	.808	3.78	.709	1.05	38.58
3	LIS3: Understand telephone conversations	2.65	.966	3.68	.912	1.04	39.22
4	LIS4: Understand requesting information and job-related questions	2.47	.731	3.67	.741	1.20	48.68
5	LIS5: Understand the meeting conversation related to work	2.31	.873	3.29	.802	0.99	42.72
6	LIS6: Understand both formal and informal languages and various English accents	2.98	.937	3.45	.891	0.47	15.82
	M score for speaking skills	2.80	0.92	3.39	1.02	0.59	21.36
7	SPK1: Asking for clarification of work instruction / Requesting coaching	2.92	.824	3.50	.712	0.58	19.73
8	SPK2: Able to explain information or procedures	2.69	.722	3.42	1.778	0.73	27.11
9	SPK3: Participate in discussions/meetings	2.40	.830	3.00	.798	0.60	25.02
10	SPK4: Able to share and express your own thoughts	2.68	.792	3.40	.962	0.72	26.80
11	SPK5: Able to pronounce the correct word	3.12	.991	3.50	.839	0.38	12.13
12	SPK6: Able to speak face-to-face and over the phone	2.97	1.109	3.47	1.062	0.50	16.97
13	SPK7: Able to ask and answer questions in the meeting	2.58	.910	3.15	.958	0.57	22.09
14	SPK8: Able to make an appointment with a foreign customer	3.04	1.211	3.68	1.076	0.64	21.02
	M score for reading skills	3.14	0.95	3.69	0.83	0.55	17.45

		Before		After		M	%
Item		M	SD	M	SD	After - Before	Developed differences
English skills							
15	RED1: Able to read and understand working instructions	3.07	.766	3.74	.746	0.67	21.94
16	RED2: Able to read and understand documents, notices, and announcements	3.20	.822	3.78	.740	0.58	18.25
17	RED3: Able to read and understand technical vocabulary at work	2.95	.859	3.46	.850	0.51	17.29
18	RED4: Able to read and understand letters and emails	3.39	1.190	3.77	.903	0.39	11.43
19	RED5: Able to read and translate job information according to translation methods	2.97	1.031	3.32	1.061	0.35	11.71
20	RED6: Able to read and understand general information	3.31	.970	3.80	.794	0.49	14.87
21	RED7: Able to read and understand organizational notes	3.05	.892	3.92	.730	0.87	28.64
22	RED8: Able to read and understand safety instructions	3.40	1.162	3.98	.805	0.58	17.05
23	RED9: Able to read and understand reports and work summaries	3.04	.870	3.64	.840	0.60	19.88
24	RED10: Able to read and understand the attitude and opinions of the authors	3.05	.963	3.45	.786	0.41	13.43
	M score of writing skills	2.86	0.91	3.49	0.80	0.63	22.18
25	WRT1: Able to answer emails and business letters	3.12	1.105	3.63	.792	0.51	16.36
26	WRT2: Able to accurately record information from the meeting	2.66	.837	3.27	.830	0.60	22.64
27	WRT3: Able to write messages for correct information	2.79	.785	3.29	.754	0.51	18.20
28	WRT4: Able to use the language, vocabulary, grammar, and	2.90	.982	3.58	.876	0.68	23.53

		Before		After		M	%
Item		M	SD	M	SD	After - Before	Developed differences
English skills							
	punctuation marks in basic writing correctly						
29	WRT5: Able to describe the object or procedure	2.84	.890	3.50	.793	0.67	23.55
30	WRT6: Able to write a work summary and a self-report correctly	2.85	.876	3.67	.775	0.82	28.80

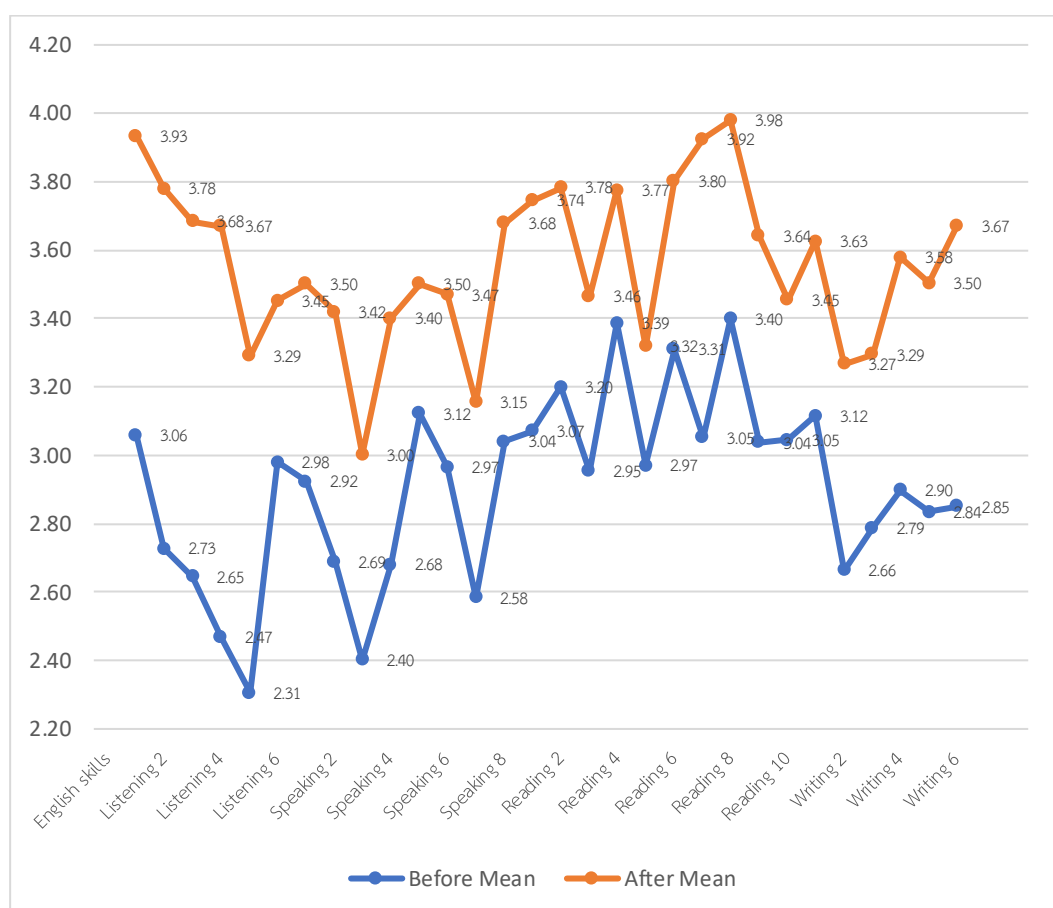


Figure 4.3 Mean score of English skills before and after the co-op

The percentage of English skills improvement after the co-op is presented in Figure 4.5.

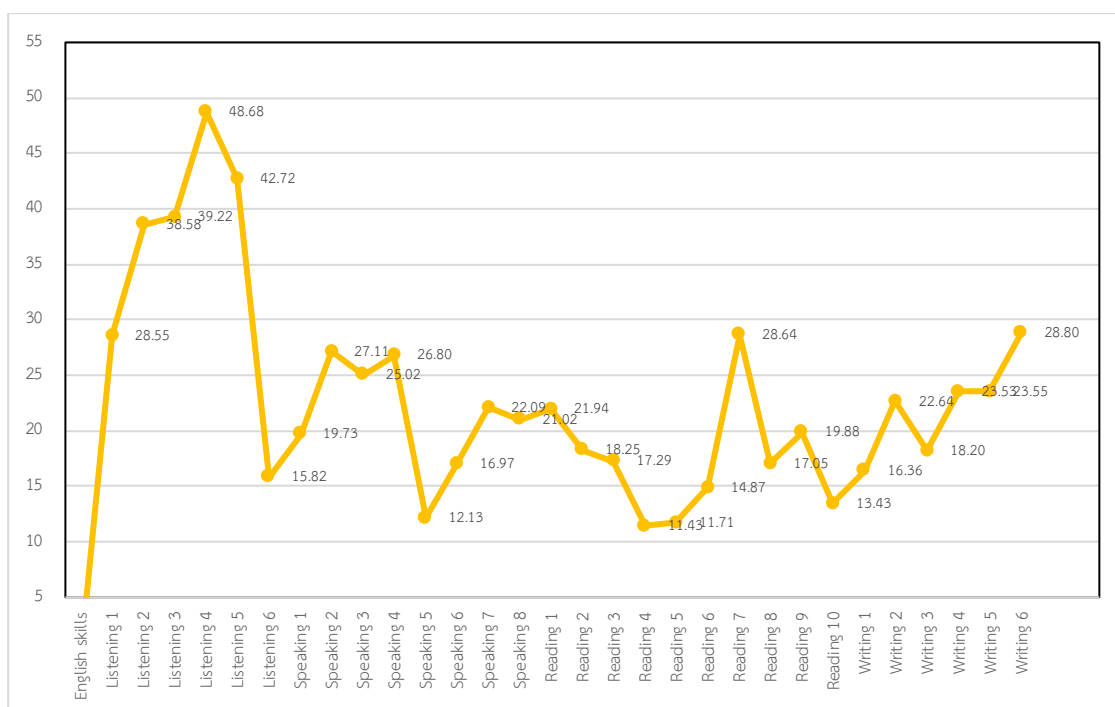


Figure 4.4 Percentage of English skills improvement after the co-op

As presented in Table 4.6 and Figures 4.4 and 4.5, all 30 skills showed dramatic improvement after co-op education. The highest percentage of improvement was LIS4: Understand requesting information and job-related questions (48.68%), the second was LIS5: Understand the meeting conversation related to work (42.72%), and the third was LIS3: Understand telephone conversations (38.58%). The lowest score was RED4: Able to read and understand letters and emails (11.43%). When considering the percentage of improvement based on the four English skills, listening (35.60%), speaking (21.36%), writing (22.18%), and reading (17.45%) were the highest to the lowest score prospectively.

4.3 Effects of the socio-demographic background, educational institution, and workplace environments

This section attempts to fulfill the third objective of this study which is to examine the effects of the students' socio-demographic background, educational institution factors, and workplace environments on the levels of English competency of Thai co-op students. To accomplish this, the framework of this objective was designed as follows:

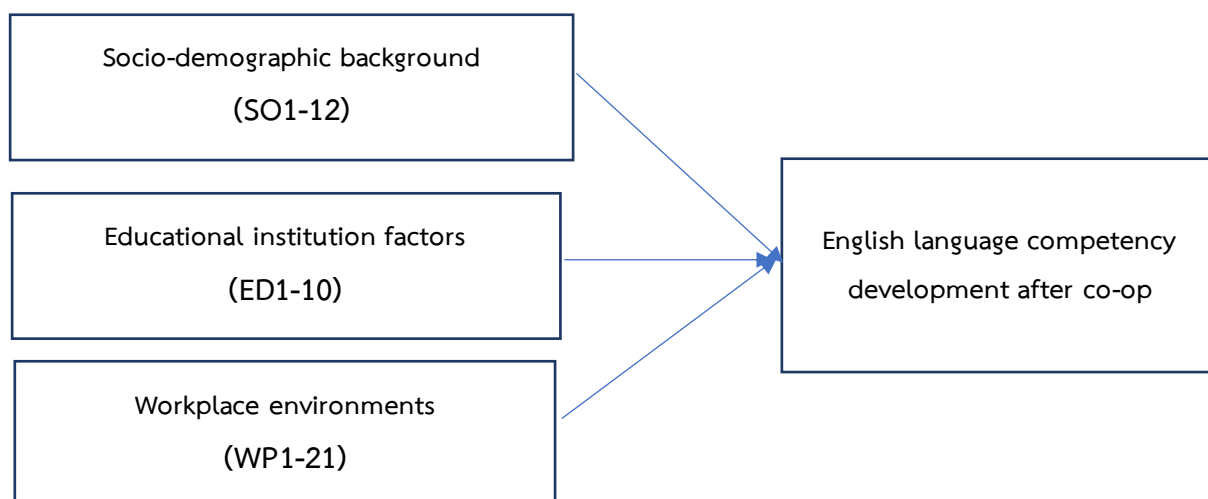


Figure 4.5 Framework of competency development using for MLR

According to the interpretation of the mean score (Bowling, 1997; Florczak, 2005):

- 5 = Strongly Agree,
- 4 = Agree,
- 3 = Neutral,
- 2 = Disagree,
- 1 = Strongly Disagree.

The mean of the 5-point Likert scale can be analyzed and interpreted according to the following interpretation (Bowling, 1997; Florczak, 2005):

- 1.00–1.79 = Poor,
- 1.80–2.59 = Fairly poor,
- 2.60–3.39 = Fair,
- 3.40–4.19 = Fairly high,
- 4.20–5.00 = High.

The results of English competency improvement after co-op is at a reasonably high level ($M = 3.55$, $SD = 0.55$). The three factors were assessed using descriptive statistics and are presented in Table 4.7.

Table 4.8 Descriptive analysis of the socio-demographic background, educational institution factors, and workplace environments (n = 2,115)

Factors	Minimum	Maximum	Mean	SD	Skewness		Kurtosis	
					Statistic	Std. Error	Statistic	Std. Error
English competency development after co-op	2.20	4.87	3.55	.554	-.428	.053	-.257	.106
Socio-demographic background	1.08	12.08	3.76	2.48	0.86	0.05	2.146	0.106
SO1 Sex	1	2	5.14	3.704	.727	.053	-1.032	.106
SO2 Major	2	4	3.63	.773	-1.645	.053	.707	.106
SO3 Type of high school	0	1	.18	.381	1.704	.053	.904	.106
SO4 Native language	1	7	1.38	.985	2.540	.053	5.433	.106
SO5 Province of birth	0	6	3.44	1.415	.407	.053	-.370	.106
SO6 Father's highest level of education	1	8	3.41	1.793	.163	.053	-1.197	.106
SO7 Mother's highest level of education	1	8	3.00	1.716	.575	.053	-.573	.106
SO8 Father's main occupation	1	11	3.45	2.774	1.370	.053	1.024	.106
SO9 Mother's main occupation	1	10	3.16	2.761	1.426	.053	1.181	.106
SO10 Foreign friends who regularly chat	0	10	.65	1.329	3.091	.053	12.873	.106
SO11 Number of hours communicating in English per week	0	60	10.95	11.740	2.015	.053	4.296	.106
SO12 English study duration	5	7	6.83	.392	-1.945	.053	2.502	.106
Educational institution factors	1.00	5.00	2.76	1.07	0.21	0.05	-0.68	0.11
ED1 Provides exchange programs with foreign universities	1	5	2.20	1.177	.701	.053	-.612	.106
ED2 Provides office and person responsible for education about scholarships and exchange programs abroad	1	5	2.23	1.065	.456	.053	-.982	.106

		Minimum	Maximum	Mean	SD	Skewness		Kurtosis	
Factors						Statistic	Std. Error	Statistic	Std. Error
ED3	Provides useful English learning facilities	1	5	2.81	1.011	-.192	.053	-.923	.106
ED4	Provides teaching and lectures in English and accepts international students to study in various programs	1	5	2.96	1.244	.436	.053	-.879	.106
ED5	Arranges foreign teachers, both native and nonnative speakers, to teach	1	5	3.10	1.260	.124	.053	-1.024	.106
ED6	Provides scholarships to help Thai and international students with exchange activities	1	5	2.28	.817	.230	.053	-.309	.106
ED7	Provides a learning exchange facility between Thai and international students	1	5	2.53	1.174	.384	.053	-.800	.106
ED8	Invites speakers from foreign universities to give lectures in their teaching and learning courses	1	5	2.67	1.063	.216	.053	-.479	.106
ED9	Organizes English language training to prepare various issues	1	5	3.22	.950	.032	.053	-.473	.106
ED10	Establishes learning standards and English proficiency assessments	1	5	3.63	.958	-.316	.053	-.317	.106
Workplace environments		0.65	17.10	4.35	1.91	0.33	0.05	7.87	0.11
WP1	Job positions that perform co-operative education in workplaces	1	24	6.86	3.002	.535	.053	1.411	.106
WP2	Workplace location	0	2	1.18	.622	-.146	.053	-.539	.106
WP3	Type of workplace	0	2	1.87	.413	-3.339	.053	10.670	.106
WP4	Level of administration	0	7	1.78	.670	.369	.053	13.436	.106

		Minimum	Maximum	Mean	SD	Skewness		Kurtosis	
Factors						Statistic	Std. Error	Statistic	Std. Error
WP5	Workplace's nation of investment	1	16	3.23	2.705	1.391	.053	2.375	.106
WP6	Number of Foreign employers	0	17	1.80	1.585	2.187	.053	14.500	.106
WP7	Number of Foreign employees	0	200	9.91	12.985	9.148	.053	121.869	.106
WP8	Types of business	0	28	17.10	6.506	-.922	.053	.513	.106
WP9	Proportion of English usage in the workplace	0	10	6.54	1.518	-.786	.053	.563	.106
WP10	Expresses opinions on English proficiency and provides advice on improving English at work	1	5	3.33	1.015	.148	.053	-.675	.106
WP11	Enhanced my English ability by communicating with people in workplaces of different backgrounds	1	5	3.37	1.076	.088	.053	-.977	.106
WP12	Knowledge of English gained from co-operative education establishments is useful for future work	1	5	3.69	.964	-.181	.053	-.817	.106
WP13	Gained knowledge of English that is useful and important to help me get a job in the future	1	5	3.72	.937	-.239	.053	-.436	.106
WP14	Used interpersonal English communication in the workplace improves my English skills	1	5	3.53	1.009	.027	.053	-.950	.106
WP15	Co-operative education program is important for my learning English	1	5	3.59	.935	.025	.053	-.764	.106
WP16	Co-operative education program in the workplace helped prepare and improve my knowledge of English for the labor market	1	5	3.60	.913	-.043	.053	-.350	.106

[illegible]

Table 4.9 ANOVA test result of MLR

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	105.654	43	2.457	9.354	.000b
	Residual	544.024	2071	0.263		
	Total	649.678	2114			

a Dependent Variable: English Competency

b Predictors: (Constant), WP21, SO2, WP4, SO4, SO11, SO12, WP8, WP2, SO3, WP7, ED6, SO6, WP1, WP3, SO5, WP9, WP5, SO9, ED8, SO10, WP12, SO7, WP6, ED10, SO1, WP20, ED9, ED5, ED3, SO8, WP18, WP19, WP14, WP17, ED2, WP10, WP13, ED7, ED4, WP15, WP11, WP16, ED1

Table 4.10 Coefficients analysis of MLR

Model		Unstandardized Coefficients		Standardized Coefficients		95.0% Confidence							
						Interval for B		Correlations			Collinearity Statistics		
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	2.652	.300		8.838	.000	2.063	3.240					
	SO1	.005	.004	.036	1.357	.175	−.002	.013	.008	.030	.027	.564	1.774
	SO2	.016	.035	.023	.466	.641	−.052	.085	.038	.010	.009	.170	5.880
	SO3	−.057	.032	−.039	−1.797	.072	−.119	.005	−.020	−.039	−.036	.861	1.161
	SO4	−.021	.012	−.037	−1.690	.091	−.045	.003	−.059	−.037	−.034	.826	1.210
	SO5	.004	.008	.010	.449	.654	−.013	.020	.013	.010	.009	.869	1.151
	SO6	−.024	.008	−.077	−3.107	.002	−.039	−.009	−.033	−.068	−.062	.662	1.511
	SO7	.009	.008	.027	1.066	.286	−.007	.025	.014	.023	.021	.632	1.583

Model	Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
						Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
	B	Std. Error	Beta	t	Sig.							
SO8	.000	.006	.002	.063	.949	-.011	.012	-.017	.001	.001	.456	2.192
SO9	.003	.006	.013	.438	.662	-.009	.014	.001	.010	.009	.469	2.134
SO10	.029	.009	.069	3.040	.002	.010	.047	.127	.067	.061	.793	1.261
SO11	.001	.001	.012	.517	.606	-.002	.003	.021	.011	.010	.786	1.271
SO12	-.006	.031	-.004	-.206	.837	-.066	.054	-.017	-.005	-.004	.863	1.158
ED1	.036	.025	.076	1.435	.151	-.013	.085	-.025	.032	.029	.143	6.986
ED2	-.024	.023	-.046	-1.028	.304	-.069	.022	-.032	-.023	-.021	.206	4.849
ED3	.039	.018	.071	2.178	.029	.004	.074	.041	.048	.044	.385	2.600
ED4	-.052	.019	-.117	-2.797	.005	-.088	-.016	-.005	-.061	-.056	.233	4.294
ED5	-.029	.014	-.066	-2.073	.038	-.057	-.002	.000	-.046	-.042	.396	2.524
ED6	.031	.021	.045	1.421	.155	-.012	.073	.052	.031	.029	.403	2.482
ED7	-.003	.019	-.007	-.170	.865	-.040	.034	-.003	-.004	-.003	.250	4.003
ED8	-.004	.015	-.008	-.294	.769	-.034	.025	.004	-.006	-.006	.490	2.040
ED9	.008	.017	.013	.433	.665	-.027	.042	.028	.010	.009	.453	2.208
ED10	.019	.018	.032	1.044	.297	-.016	.054	.134	.023	.021	.421	2.373
WP1	.004	.004	.021	.983	.326	-.004	.012	.063	.022	.020	.867	1.153
WP2	.009	.019	.010	.469	.639	-.029	.047	.024	.010	.009	.873	1.146

Model	Unstandardized Coefficients		Standardized Coefficients		Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
						Interval for B						
	B	Std. Error	Beta	t		Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
WP3	.007	.029	.005	.232	.817	-.050	.063	-.004	.005	.005	.873	1.145
WP4	-.072	.019	-.087	-3.837	.000	-.109	-.035	-.071	-.084	-.077	.786	1.273
WP5	-.012	.005	-.061	-2.740	.006	-.021	-.004	-.027	-.060	-.055	.824	1.213
WP6	-.013	.009	-.038	-1.520	.129	-.031	.004	-.029	-.033	-.031	.635	1.575
WP7	-.001	.001	-.012	-.498	.619	-.002	.001	-.022	-.011	-.010	.721	1.387
WP8	.007	.002	.085	4.000	.000	.004	.011	.098	.088	.080	.906	1.104
WP9	.056	.008	.153	7.026	.000	.040	.072	.183	.153	.141	.850	1.177
WP10	-.010	.020	-.019	-.498	.618	-.050	.030	.211	-.011	-.010	.288	3.470
WP11	.053	.023	.104	2.297	.022	.008	.099	.272	.050	.046	.199	5.032
WP12	.037	.026	.064	1.407	.160	-.014	.088	.213	.031	.028	.195	5.123
WP13	-.027	.024	-.046	-1.136	.256	-.075	.020	.216	-.025	-.023	.244	4.094
WP14	.074	.023	.134	3.262	.001	.029	.118	.274	.072	.066	.238	4.200
WP15	-.035	.026	-.058	-1.353	.176	-.085	.016	.197	-.030	-.027	.217	4.608
WP16	.051	.028	.084	1.843	.066	-.003	.106	.268	.040	.037	.194	5.167
WP17	.036	.023	.058	1.545	.122	-.010	.082	.241	.034	.031	.289	3.459
WP18	-.041	.025	-.068	-1.647	.100	-.091	.008	.232	-.036	-.033	.238	4.204
WP19	.069	.020	.114	3.377	.001	.029	.109	.251	.074	.068	.356	2.809

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
						Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
	B	Std. Error	Beta									
WP20	-.010	.021	-.014	-.462	.644	-.051	.032	.180	-.010	-.009	.448	2.231
WP21	-.042	.025	-.057	-1.650	.099	-.092	.008	.189	-.036	-.033	.339	2.953

Table 4.11 Model summary of MLR

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin–Watson
1	.403 ^a	.163	.145	.51253	1.843

a. Predictors: (Constant), WP21, SO2, WP4, SO4, SO11, SO12, WP8, WP2, SO3, WP7, ED6, SO6, WP1, WP3, SO5, WP9, WP5, SO9, ED8, SO10, WP12, SO7, WP6, ED10, SO1, WP20, ED9, ED5, ED3, SO8, WP18, WP19, WP14, WP17, ED2, WP10, WP13, ED7, ED4, WP15, WP11, WP16, ED1

b. Dependent Variable: English Competency

The multiple linear regression (MLR) method was employed to analyze the significant factors and create a model (Jobson, 1991) to examine the effects of the students' socio-demographic background, educational institution factors, and workplace environments on the levels of English competency of Thai co-op students. The result of the analysis of variance (ANOVA), coefficients analysis, and model summary are displayed in Tables 4.8, 4.9, and 4.10. It can be found that when analyzing the MLR using the Enter method, the results show that 12 out of 43 variables can be used as a factor to develop English competency at the significant level of 0.05 (sig.05), including SO6, SO10, ED3, ED4, ED5, WP4, WP5, WP8, WP9, WP11, WP14, WP19.

Multiple linear regression (MLR) formula

$$y_i = \beta_0 + \beta_1 x_{i1} + \beta_2 x_{i2} + \dots + \beta_p x_{ip} + \epsilon$$

where, for $i = n$ observations:

y_i = dependent variable

x_i = explanatory variables

β_0 = y-intercept (constant term)

β_p = slope coefficients for each explanatory variable

ϵ = the model's error term (also known as the residuals)

$$Y = 2.652 - 0.024(\text{SO6}) + 0.029(\text{SO10}) + 0.039(\text{ED3}) - 0.052(\text{ED4}) - 0.029(\text{ED5}) - 0.072(\text{WP4}) - 0.012(\text{WP5}) + 0.007(\text{WP8}) + 0.056(\text{WP9}) + 0.053(\text{WP11}) + 0.074(\text{WP14}) + 0.069(\text{WP19})$$

Or

$$Y = 2.652 - 0.024(\text{SO6: Father's highest level of education}) + 0.029(\text{SO10: Foreign friends who regularly chat}) + 0.039(\text{ED3: Provides useful English learning facilities}) - 0.052(\text{ED4: Provides teaching and lectures in English and accepting international students to study in various programs}) - 0.029(\text{ED5: Arranges foreign teachers, both native and nonnative speakers to teach}) - 0.072(\text{WP4: Level of administration}) - 0.012(\text{WP5: Workplace's nation of investment}) + 0.007(\text{WP8: Types of business}) + 0.056(\text{WP9: Proportion of English usage in the workplace}) + 0.053(\text{WP11: Enhanced my English ability by communicating with people in workplaces of different backgrounds}) + 0.074(\text{WP14: Used interpersonal English communication in the workplace improves my English skills}) + 0.069(\text{WP19: Gained knowledge of English in addition to my work in the workplace and the co-operative education position that I do}).$$

The effects of the students' socio-demographic background, educational institution factors, and workplace environments on the levels of English competency of Thai co-op students using MLR analysis by the Enter method showed a statistical significance level of 0.05. The factors mentioned below can be taken as those contributing to English competency development at 14.5% (Adjusted R² = 0.145). When considering this, the predictor coefficients can be written as a predictive equation that affects the co-op students' development in English competency at a fairly high level by basing on the three main type factors: 1) students' socio-demographic background, 2) educational institution factors, and 3) workplace environments which can be written in a forecast equation with a raw score as follows:

$$Y = 2.652 - 0.024(\text{SO6}) + 0.029(\text{SO10}) + 0.039(\text{ED3}) - 0.052(\text{ED4}) - 0.029(\text{ED5}) - 0.072(\text{WP4}) - 0.012(\text{WP5}) + 0.007(\text{WP8}) + 0.056(\text{WP9}) + 0.053(\text{WP11}) + 0.074(\text{WP14}) + 0.069(\text{WP19}).$$

4.4 Opinions on the role of workplaces

This section presents the analysis results to fulfill this study's fourth objective, which is to explore Thai co-op students' opinions (OP) on the roles of workplaces in improving their English competency using mean score analysis of 12 opinions and its interpretation as well as CFA to analysis 30 items of English skills improving after co-op at the workplace. 1) According to mean (M), SD scores and their interpretation of 12 items are presented in Table 4.12 and Figure 4.7, the mean score of students' opinion showed that the OP11: After working in the co-operative education program, students can recognize their strengths and weaknesses in their English proficiency (M = 4.10, SD = 0.79), OP12: After working in the co-operative education program, students have improved their ability to use the English language (M = 3.75, SD = 0.75), OP4: students gained knowledge of English that is useful and important to help them get a job in the future (M = 3.72, SD = 0.93), OP3: Knowledge of English gained from co-operative education establishments is useful for their future work (M = 3.69, SD = 0.96), and OP9: students practiced, gained new experiences, and developed most of my English language skills from my co-operative establishment (M = 3.65, SD = 0.89), and the average score of all opinions is 3.63 at the fairly high level. However, there are two points are at the fair level, OP1: Expresses opinions on English proficiency and provides advice on improving English at work (M = 3.33, SD = 1.01), and OP2: Enhanced my English ability by communicating with people in workplaces of different backgrounds (M = 3.37, SD = 1.07).

Table 4.12 Opinions on the roles of workplaces to improve English competency (n=2,115)

Items	Details	M	SD	Interpretation
OP1	Expresses opinions on English proficiency and provides advice on improving English at work	3.33	1.01	Fair
OP2	Enhanced my English ability by communicating with people in workplaces of different backgrounds	3.37	1.07	Fair
OP3	Knowledge of English gained from co-operative education establishments is useful for future work	3.69	.96	Fairly high
OP4	Gained knowledge of English that is useful and important to help me get a job in the future	3.72	.93	Fairly high
OP5	Used interpersonal English communication in the workplace improves my English skills	3.53	1.00	Fairly high

Items	Details	M	SD	Interpretation
OP6	Co-operative education program is important for my learning English	3.59	.93	Fairly high
OP7	Co-operative education program in the workplace helped prepare and improve my knowledge of English for the labor market	3.60	.91	Fairly high
OP8	My co-educational establishment prepares English for work in both the public and private sectors	3.62	.89	Fairly high
OP9	Practiced, gained new experiences, and developed most of my English language skills from my co-operative establishment	3.65	.91	Fairly high
OP10	Gained knowledge of English in addition to my work in the workplace and the co-operative education position that I do	3.64	.91	Fairly high
OP11	After working in the co-operative education program, I can recognize my strengths and weaknesses in my English proficiency	4.10	.79	Fairly high
OP12	After working in the co-operative education program, I have improved my ability to use the English language	3.75	.75	Fairly high
Average scores		3.63	0.93	Fairly high

Besides, mean scores of 12 opinions (OP1-OP12) on the roles of workplaces to enhance English competency of Thai co-op students in the EEC workplaces are presented in the Figure 4.6 as follows:

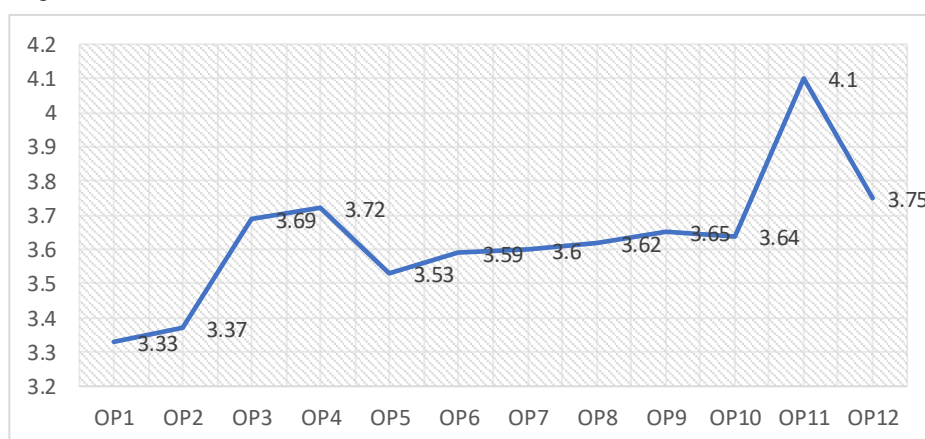


Figure 4.6 Mean scores of 12 opinions on the roles of workplaces in improving English competency

2) The analysis method uses the CFA approach. Model analysis of confirmatory components of English language skills of Thai co-op students was conducted to examine and confirm the linear structural relationship between latent variables and observed variables developed from a theoretical framework and to measure latent variables and confirm that each group of observed variables is a suitable indicator for a given latent variable. The observable and latent variables were analyzed, the measurement model's symbols were used, and the overall fit was checked. The measurement model in this study was created from a review of related concepts and research. A ready-made program that shows the analysis results of the measurement model was used and is presented in Figure 4.8 and Tables 4.13 and 4.14.

The validation of the coherence of the measurement confirmatory component model of the variables related to English language skills with the observed variables of the measurement model found that the chi-square statistic (χ^2) was 278.006, the degrees of freedom (df) was 111, the statistical significance (p -value) = 0.00, meaning that the square statistic is statistically significant, which would normally be considered to fail the criteria. However, Hair et al. (2010) recommended that in the case of a sample of more than 250 people and variables, there are 13 to 29 characters, and the chi-square statistic is expected to be statistically insignificant. In this study, data were collected from students who had completed co-op education, and there were 52 variables observed.

Therefore, based aforementioned study, the researcher can consider that the chi-square statistic passes the criteria. However, the chi-square statistic has limitations depending on the sample size. The researcher, therefore, considered other statistical values, such as the relative chi-square (χ^2/df), which is the ratio between the chi-square and square (χ^2), and degree of freedom (df), which is set to be less than 3.00 (Im, Pesaran, & Shin, 2003). The relative chi-square ($\bar{\chi}/df$) was found to be 2.504, which was less than 3.00, indicating that it passed the criteria. The root mean square error of approximation (RMSEA) was found to be 0.027, which was between 0.05–0.08, and is less than the specified criteria, indicating that it passed the criteria. Correspondingly, the standardized root mean squared residual (SRMR) was found to be 0.018, which was less than equal to or equal to 0.80, indicating that it passed the criteria. Likewise, the goodness-of-fit statistic (GFI) has a value of 0.996, which is greater than 0.900, indicating that it has passed the

criteria. Therefore, it can be concluded that the affirmative component model of English language skills of Thai co-op education students was consistent with the empirical data.

Table 4.13 Evaluating the conformity of the confirmatory component

Fit Index	Consideration	Statistics values	Reference sources	Level of fit
χ^2/df	<2.0	2.504	Hair, 2011	Fairly fit
	2.00–5.00			
RMSEA	<0.05	0.027		Good fit
	<0.08			
	0.05–0.10			
GFI	>0.95	0.996		Good fit
	0.90–0.95			
AGFI	> 0.95	0.986		Good fit
	0.90–0.95			
SRMR	<0.05	0.018		Good fit
	<0.08			

Parameter evaluation is a measurement model comprising 3 latent variables and 30 observed variables able to evaluate the performance of the measurement model considering the convergent validity, measured using 1) factor loading, 2) value construct reliability (CR), and 3) average variance extracted (AVE). Additionally, the factors' names are provided as follows:

- 1) Listening 1 Understand basic conversation in daily life
- 2) Listening 2 Understand work instruction
- 3) Listening 3 Understand telephone conversations
- 4) Listening 4 Understand requesting information and job-related questions
- 5) Listening 5 Understand the meeting conversation related to work
- 6) Listening 6 Understand both formal and informal languages and various English accents
- 7) Speaking 1 Asking for clarification of work instruction / Requesting coaching
- 8) Speaking 2 Able to explain information or procedures
- 9) Speaking 3 Participate in discussions/meetings

- 10) Speaking 4 Able to share and express your own thoughts
- 11) Speaking 5 Able to pronounce the correct word
- 12) Speaking 6 Able to speak face-to-face and over the phone
- 13) Speaking 7 Able to ask and answer questions in the meeting
- 14) Speaking 8 Able to make an appointment with a foreign customer
- 15) Reading 1 Able to read and understand working instructions
- 16) Reading 2 Able to read and understand documents, notices, and announcements
- 17) Reading 3 Able to read and understand technical vocabulary at work
- 18) Reading 4 Able to read and understand letters and emails
- 19) Reading 5 Able to read and translate job information according to translation methods
- 20) Reading 6 Able to read and understand general information
- 21) Reading 7 Able to read and understand organizational notes
- 22) Reading 8 Able to read and understand safety instructions
- 23) Reading 9 Able to read and understand reports and work summaries
- 24) Reading 10 Able to read and understand the attitude and opinions of the authors
- 25) Writing 1 Able to answer emails and business letters
- 26) Writing 2 Able to accurately record information from the meeting
- 27) Writing 3 Able to write messages for correct information
- 28) Writing 4 Able to use the language, vocabulary, grammar, and punctuation marks in basic writing correctly
- 29) Writing 5 Able to describe the object or procedure
- 30) Writing 6 Able to write a work summary and a self-report correctly

Table 4.14 Evaluation of the conformity of the confirmatory component model

Factor/ Variable Abbreviation	Factor Loading	S.E.	Sig	R ²	CR	AVE
LISTENING SKILLS: M = 3.635, SD = 0.603, Cronbach Alpha = 0.839					0.803	0.623
LIS1	0.657*	0.014	0.000	0.432		

Factor/ Variable Abbreviation	Factor Loading	S.E.	Sig	R ²	CR	AVE
LIS2	0.610*	0.018	0.000	0.373		
LIS3	0.705*	0.013	0.000	0.497		
LIS4	0.410*	0.023	0.000	0.168		
LIS5	0.543*	0.017	0.000	0.295		
LIS6	0.855*	0.010	0.000	0.731		
SPEAKING SKILLS: M = 3.380, SD = 0.656, Cronbach Alpha = 0.875					0.928	0.415
SPE1	0.545*	0.017	0.000	0.297		
SPE2	0.556*	0.019	0.000	0.309		
SPE3	0.620*	0.014	0.000	0.385		
SPE4	0.817*	0.009	0.000	0.668		
SPE5	0.746*	0.012	0.000	0.557		
SPE6	0.795*	0.010	0.000	0.632		
SPE7	0.736*	0.012	0.000	0.542		
SPE8	0.713*	0.012	0.000	0.508		
READING SKILLS: M = 3.687 SD = 0.592, Cronbach Alpha = 0.898					0.960	0.496
REA1	0.692*	0.013	0.000	0.480		
REA2	0.737*	0.011	0.000	0.543		
REA3	0.599*	0.016	0.000	0.358		
REA4	0.779*	0.012	0.000	0.606		
REA5	0.709*	0.013	0.000	0.502		
REA6	0.696*	0.015	0.000	0.485		
REA7	0.649*	0.015	0.000	0.421		
REA8	0.661*	0.015	0.000	0.437		
REA9	0.670*	0.015	0.000	0.449		
REA10	0.763*	0.011	0.000	0.582		
WRITING SKILLS: M = 3.490, SD = 0.637, Cronbach Alpha = 0.882					0.928	0.605
WRI1	0.721*	0.011	0.000	0.520		
WRI2	0.740*	0.011	0.000	0.548		
WRI3	0.818*	0.009	0.000	0.668		
WRI4	0.829*	0.009	0.000	0.687		
WRI5	0.778*	0.010	0.000	0.605		
WRI6	0.638*	0.014	0.000	0.407		

Note: * $p < 0.05$, ** $p < 0.01$

Table 4.12 presents the parameter evaluation results of the measurement model. It was found that the overview of the measurement model from factor loadings and raw scores showed that all observed variables were significantly related to latent variables with a significance level of 0.01 (Diamantopoulos & Siguaw, 2000). It was also found that factor loadings scores were standard for all observed variables higher than 0.40, that is between 0.410–0.855. Hair et al. (2017) determined that the factor loadings with a value of 0.50 or higher was the minimum acceptable value and a value of 0.70 or higher was a good value. Overall, each observed variable had a very high level of covariance. The predictive coefficient (R^2), or the reliability of each observed variable, presents the confidence of the variables for each observed variable to describe the covariance of the latent variables. The higher the predictive coefficient (R^2), the greater the reliability (Kline, 2016) of each observed variable with a value close to 1. The overall value (R^2) was between 0.168–0.731, indicating that almost all observed variables were highly stable in explaining the variability.

The joint variance of each latent variable indicates a good structural validity level. The AVE of the latent variable was found to be between 0.415 and 0.623, which was greater than 0.40, defined as the threshold. It is an acceptable criterion (Parasuraman & Colby, 2014), thus indicating that no measurement error causes more variation in the observed variables than the defined latent variable. The CR from the criterion (Ab Hamid et al., 2017) determines that the precision of latent variables is at the threshold level. A simulation of the affirmative factor measurement of English skills of Thai co-op education students found that the latent variables were 0.803–0.960, which was greater than 0.70, which was set as a criterion (Peterson & Kim, 2013). Therefore, it indicates that all latent variables in the measurement model are of high precision. Thus, the evaluation results of the convergent validity of the measurement model conclude that the measurement model has suitable quality and accuracy at a good level.

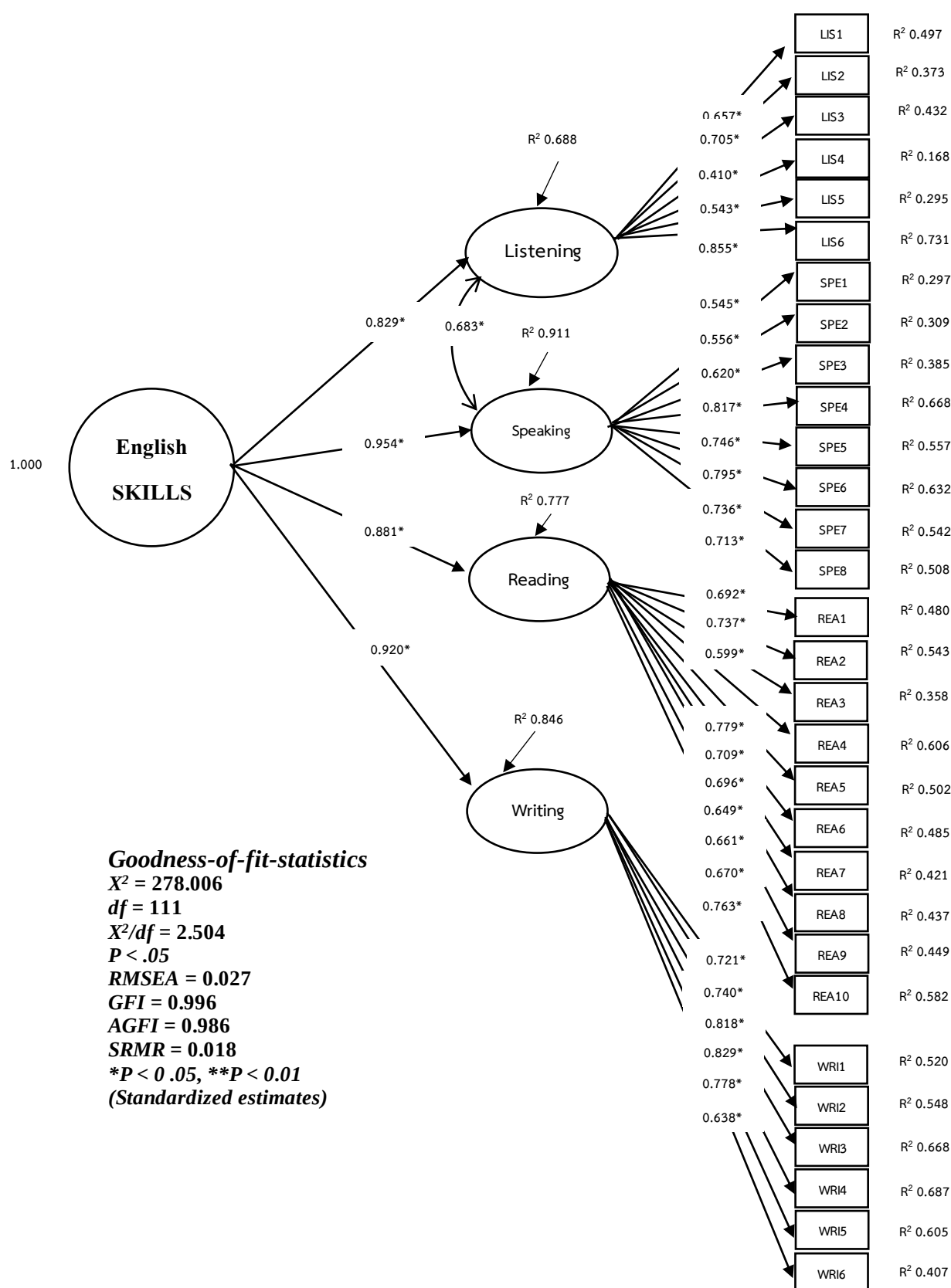


Figure 4.7 Structure and variables of English language skills of Thai co-students

This study was based on a review of theories, concepts, and related research, which comprised five latent variables: 1) workplace and English potential development, 2) listening skills, 3) speaking skills, 4) reading skills, and 5) writing skills. The researcher proposed hypotheses based on the causal relationship and the conceptual research framework as follows: 1) The workplace had a direct influence on the listening and writing skills of Thai co-op education students. 2) Thai co-op education students with good English reading skills had a direct influence on listening, writing, and speaking skills through the ability to integrate knowledge. An CFA analysis of cause and effect factors affecting the English language skill development of Thai co-op education students was conducted using a packaged program to 1) check the conformity of the given CFA with the empirical data and 2) study the direct and indirect influences of causal factors on the development of English language skills of Thai co-op education students.

Chapter 5

Summary of results, discussion, and recommendations

This study primarily examined the causal relationship of each variable that affects the development of English competency of Thai co-op students. The study's objectives were 1) to investigate the desired English competency of Thai students according to the requirements of EEC workplaces, 2) to compare the English competency of Thai co-op students before and after co-op education, 3) to examine the effects of the students' socio-demographic background, educational institution factors, and workplace environments on the levels of English competency of Thai co-op students and 4) to explore Thai co-op students' opinions on the roles of workplaces on improving their English competency.

The review of the literature showed that developing students' English competency to interact among people to help students enhance their language knowledge and communicative skills for effective social interaction, together with gaining an understanding of different cultures and individual identities (Mesh, 2016; Villacañas de Castro et al., 2022), and requires an appropriate educational system and pedagogical methods (Ahmadi & Reza, 2018; Sera et al., 2023; Tuncel & Aricioglu, 2018). Several studies have been conducted to reveal the students' English learning outcomes and possible affecting factors based on individual learner's differences (Leong & Ahmadi, 2017; Yuan et al., 2023) such as sociological factors (Montero et al., 2014) as the foundation for improving English language learning outcomes.

Additionally, In terms of the factors influencing english competency, English language skills can be influenced and developed through other factors, such as internationalization at both home and international institutions (Beelen & Jones, 2018; Corder & U-Mackey, 2015). Regarding internationalization at the home university, studies mentioned the influencing aspect of family background on students' second language learning performance and achievement of international communication (Beelen & Jones, 2018).

They also focused on the academic institutions providing development processes and policies regarding recruiting international students, establishing partnerships with institutions abroad, and developing international curricula and accreditation that could bring global elements into home institutions (Dumitrescu et al., 2022; Leask et al., 2013). Thus, students' higher learning outcomes can be enhanced without leaving their home campus. Therefore, this study focused on three main factors: socio-demographic factors, education institution factors, and workplace environment to be analyzed as those were considered influencing factors toward English competency and key factors according to the concept and practices of co-operative education (Srisa-an & Pramoolsook, 2019) to combine the concepts and skills that could not be taught and learned in the classroom (Billett & Choy, 2011) to gain more fruitful experiences and career mastery, focusing on learning outcomes and enhancing effective skills (Groenewald et al., 2011).

In terms of the research participants of the study were divided into two groups: workplace representatives and co-op students. The first group of participants was company representatives from all types of business of EEC workplaces comprising professionals, human resources personnels, job mentors, supervisors, or those who were assigned to be in charge of and responsible for training and had experiences in supervising co-op students. This research participants were 1,085 EEC company representatives selected by a snowball sampling technique as a purposeful method where participants helped recruit other participants from among their members of the organization, co-workers, business partners, and acquaintances (Naderifar et al., 2017). The snowball sampling technique is a chain referral sampling method of survey sample selection applied in this research to identify potential participants who are otherwise inaccessible for obtaining data (Johnson, 2014). The initial sample participants' assistance was requested to provide information identifying the same network group of people, lead the researcher to more respondents, and save time and budget for the study (Naderifar et al., 2017). However, based on the data obtained, the study's results may not be generalized to other contexts or should be carefully made (Streton et al., 2004). 2). The second group of participants was 2,115 co-op students in various academic fields from universities throughout Thailand who were the fourth-year students and finished their co-op program in the academic year 2019–2020. They were selected using convenience sampling. However, respondents were limited to co-op students who completed their co-op programs in the designated area of the three EEC provinces. They all were requested to assess their English competency according

to their own opinion after the co-operative education program. However, during completing the questionnaire, they were also given information on how to complete the form, and provided the chance to ask for clarification for better understanding while completing the questionnaire.

The research instrument for needs analysis questionnaire for company representative in the form of a closed-ended questionnaire was adapted from Yusuf (2014) Briana et al. (2019) and Liao et al. (2017) and Perinpasingam et al. (2015) used to collect data at the EEC workplaces was a questionnaire comprising two parts: Part 1: Socio-demographic information of the respondents and Part 2: the expectation and satisfaction of English competency of co-op students. Data from research participants who were company representatives were collected to obtain data concerning the needs analysis related to the expectation and satisfaction of English competency of Thai co-op students. In collecting the data of this group of participants, it started from 2019 to 2020 by contacting to the company in which the researcher needed to go for the co-op supervision. During each visit, the researcher, as a co-op supervisor from the university, had a chance to discuss the key issues related to the students' performances, and, during discussion with the company representatives, the researcher got recommended to their network companies as applying the snow ball sampling techniques. This provided the better and broader opportunities to have more contact information. Then, the researcher had contacted the particular company as well as either mailing or emailing the permission letter to the company before each visit for data collection.

The tool used to collect data from fourth year students who had passed the co-op program was the four-part questionnaire was adapted from Yusuf (2014), Haqq and Winarso (2022), Moghnade and Z. (2015), Perinpasingam et al. (2015), Briana et al. (2019), and Perinpasingam et al. (2015) for conducting a survey in four parts. Part 1: background characteristics of co-op students comprising questions about sex, field of study, faculty, year of study, type of high school graduate, and the province where they were born; Part 2: English application ability; Part 3: co-op workplace ability to improve English competency of co-op students; and Part 4: company representative's opinions on students' English competency improvement. The data analysis was per the study's objectives.

For the quality of the instruments in terms of its validity and reliability, each of the research instruments was examined in terms of validity by requesting five experts, such as

English language teachers, company professionals, and human resources representatives, to examine the Index of Item Objective Congruence (IOC) for the content validity, face validity, objectivity, and correct-Thai-English translation of the question items. This was done to evaluate the validity of the question items and whether or not they measured what they claimed to measure (Drost, 2011; Kimberlin & Winterstein, 2008; Mohajan, 2017; Rovai et al., 2014). The total scores of question items were evaluated, and the consistency index ranking at or above 0.50 was selected and accepted as its validity.

5.1 Summary of the results

This study was the result of an effort by the researcher to examine the perspective of professional development professionals by identifying the affecting variables that play a key role in determining their importance and influence their skills, helped assess a new dimension of Thai education that has applied co-op education, as such teaching and learning reflect cooperation in academic networks between higher education institutions and organizations or enterprises that employ graduates, and help co-op education students achieve academic success, gain more confidence in their workplaces after the co-op education program, and understand career development guidelines under four objectives of the study as summarized below.

5.1.1 To investigate desired English competency of Thai co-op students

Conducting a needs analysis of the required English competency of the EEC workplaces assessed by 1,085 job mentors or supervisors in workplaces located in three EEC provinces and analyzing the gap analysis between the expectation (E) and satisfaction (S) analysis of English competency was calculated to reveal the results. The findings were divided into two sections: the expectation and satisfaction, which showed the mean score of the expectation level in the part of listening, speaking, reading, and writing skills were 3.530, 3.670, 3.569, and 3.803 at high levels, respectively. The results presented the desired English competency of Thai students according to the requirements of EEC workplaces comprising 17 items—SPK2: able to explain information or procedures, LIS4: understand requesting information and job-related questions, RED10: able to read and understand the attitude and opinions of the authors, SPK3: participate in discussions/meetings, RED7: able to read and understand organizational notes, SPK4: able to share and express your own thoughts, LIS5: understand the meeting conversation related to work, RED6: able to read

and understand general information, RED8: able to read and understand safety instructions, WRT1: able to answer emails and business letters, LIS6: understand both formal and informal languages and various English accents, LIS2: understand work instruction, SPK1: asking for clarification of work instruction / requesting coaching, SPK5: able to pronounce the correct word, WRT6: able to write a work summary and a self-report correctly, SPK7: able to ask and answer questions in the meeting, RED2: able to read and understand documents, notices, and announcements (SPK2, LIS4, RED10, SPK3, RED7, SPK4, LIS5, RED6, RED8, WRT1, LIS6, LIS2, SPK1, SPK5, WRT6, SPK7, RED2 (Score -1.18–0.04). The results implied that workplaces require students with following English skills, such as explaining information or procedures, understanding requesting information and job-related questions, reading and understanding the authors' attitudes and opinions, participating in discussions/meetings, and so on.

In term of the satisfaction, the mean score and satisfaction level in the part of listening, speaking, and reading skills were found to be 3.380, 3.330, and 3.481 at moderate levels, respectively, with writing skills at a high level of 3.727, reflecting that the satisfaction of organizational English skills (S) and the English expectation (E) of Thai students' scores range from negative to non-negative. The more negative the scores implied that the workplace needs English skills, but students' proficiency in this skill could not reach the organization's requirements and expectation. As presented in Table 4.2, the analysis results of the satisfaction of English skills by the organization and students' English competency which were assessed by company representatives presented that the desired English competency of Thai students according to the requirements of EEC workplaces as follows: there are 17 items (SPK2, LIS4, RED10, SPK3, RED7, SPK4, LIS5, RED6, RED8, WRT1, LIS6, LIS2, SPK1, SPK5, WRT6, SPK7, RED2 (Score -1.18–0.04) were lower than expected. These results illustrated that workplaces needed students with English skills, such as explaining information or procedures, understanding requesting information and job-related questions, reading and understanding the authors' attitudes and opinions, and being to participate in discussions/meetings, and so on. Therefore, those mentioned skills were required to be improved.

5.1.2 English competency before and after participating in the co-op program

The results of a comparative analysis of Thai co-op students in English competency: before and after the co-op program (gap analysis) were presented in this section. It was

found that Thai co-op students who returned from co-op work in the workplace had increased English language skills in all four types as follows: 1) the average English listening skills before going to work in the co-op ($M = 2.698$, $SD = 0.615$) and after the co-op showed an increase in English listening skills ($M = 3.718$, $SD = 0.603$).

Likewise, the before statistics for consistency of English-speaking skills showed an increase ($M = 3.380$, $SD = 0.656$). Notably, English reading skills before working in the co-op ($M = 3.142$, $SD = 0.829$) and after co-op ($M = 3.687$, $SD = 0.592$). Finally, according to the analysis results, the mean English before the co-op program ($M = 2.858$, $SD = 0.798$) and after the co-op showed increased English writing skills ($M = 3.7490$, $SD = 0.639$). The differences in the observed variables of differentiated English skills before and after performing the co-op showed a significance level of 0.05. Additionally, all 30 skills showed an increase in English competency after completing the co-op program, implying that the co-op can be a tool to support the improvement of English competency among Thai students.

5.1.3 Effects of the socio-demographic background, educational institution, and workplace environments. To examine the effects of the students' socio-demographic background, educational institution factors, and workplace environments on Thai co-op students' English competency levels, the MLR analysis method was employed to analyze the significant factors and create a model. Analyzing the MLR (Jobson, 1991) using the Enter method obtained 12 variables out of 43 that can be used as factors for developing English competency, each having a significance level of 0.05 (sig.05). These included SO6, SO10, ED3, ED4, ED5, WP4, WP5, WP8, WP9, WP11, WP14, WP19 that were used to develop the MLR formula.

$$Y = 2.652 - 0.024(SO6) + 0.029(SO10) + 0.039(ED3) - 0.052(ED4) - 0.029(ED5) - 0.072(WP4) - 0.012(WP5) + 0.007(WP8) + 0.056(WP9) + 0.053(WP11) + 0.074(WP14) + 0.069(WP19)$$

Or

$$Y = 2.652 - 0.024(\text{SO6: Father's highest level of education}) + 0.029(\text{SO10: Foreign friends who regularly chat}) + 0.039(\text{ED3: Provides useful English learning facilities}) - 0.052(\text{ED4: Provides teaching and lectures in English and accepting international students to study in various programs}) - 0.029(\text{ED5: Arranges foreign teachers, both native and nonnative speakers to teach}) - 0.072(\text{WP4: Level of administration}) - 0.012(\text{WP5: Workplace's nation of investment}) + 0.007(\text{WP8: Types of business}) + 0.056(\text{WP9: Proportion of English usage in the workplace}) + 0.053(\text{WP11: Enhanced my English ability by communicating with people in workplaces of different backgrounds}) + 0.074(\text{WP14: Used interpersonal English communication in the workplace improves my English skills}) + 0.069(\text{WP19: Gained knowledge of English in addition to my work in the workplace and the co-operative education position that I do}).$$

5.1.4 Opinions on the roles of workplaces

This section presents the analysis results to fulfill this study's fourth objective, which is to explore Thai co-op students' opinions (OP) on the roles of workplaces in improving their English competency using mean score analysis of 12 opinions and its interpretation as well as CFA to analysis 30 items of English skills improving after co-op at the workplace which were presented into 2 parts.

1) According to mean (M), SD scores and their interpretation of 12 items are presented in Table 4.11 and Figure 4.7, the mean score of students' opinion showed that the OP11: After working in the co-operative education program, students can recognize their strengths and weaknesses in their English proficiency (M = 4.10, SD = 0.79), OP12: After working in the co-operative education program, students have improved their ability to use the English language (M = 3.75, SD = 0.75), OP4: students gained knowledge of English that is useful and important to help them get a job in the future (M = 3.72, SD = 0.93), OP3: Knowledge of English gained from co-operative education establishments is useful for their future work (M = 3.69, SD = 0.96), and OP9: students practiced, gained new experiences, and developed most of their English language skills from their co-operative establishment (M = 3.65, SD = 0.89), and the average score of all opinions is 3.63 at the fairly high level. However, there are two points are at the fair level, OP1: Expresses opinions on English proficiency and

provides advice on improving English at work ($M = 3.33$, $SD = 1.01$), and OP2: Enhanced their English ability by communicating with people in workplaces of different backgrounds ($M = 3.37$, $SD = 1.07$).

2) The analysis results of CFA found that the overview of the measurement model from factor loadings and raw scores showed that all observed variables were significantly related to latent variables at a statistical significance level of 0.01 (Diamantopoulos & Siguaw, 2000). Additionally, It was found that factor loadings were standard scores for all observed variables that were higher than 0.40, that is, between 0.410–0.855. Hair et al. (2017) determined that the factor loadings should be a value of 0.50 or higher to be a minimum acceptable value and a value of 0.70 or higher to be a good value. Overall, each observed variable had a very high level of covariance.

The predictive coefficient (R^2) or the reliability of each observed variable shows the confidence of the variables for each observed variable to describe the covariance of latent variables. The higher the predictive coefficient (R^2), the greater the reliability (Kline, 2016) of each observed variable having a value close to 1. The overall value (R^2) was between 0.168–0.731, indicating the overall variability. Almost all of the observed variables were highly stable in explaining the variability, and each latent variable's joint variance indicates a good structural validity level. The extracted variance (AVE) of the latent variable was found to be between 0.415 and 0.623, which was greater than 0.40, defined as the threshold. It is an acceptable criterion (Parasuraman & Colby, 2015), thus indicating that no measurement error causes more variation in the observed variable than the defined latent variable. It depends on the reliability of latent variables (CR).

The criterion (Ab Hamid et al., 2017) determines that the precision of latent variables is at the threshold level. A simulation of the affirmative factor measurement of English skills of Thai co-op education students found that the latent variables were 0.803–0.960, which was greater than 0.70, which was set as a criterion (Peterson & Kim, 2013). Therefore, it indicates that all latent variables in the measurement model are of high precision. It concluded that the CFA model consisting of 4 latent variables (listening, speaking, reading, and writing) and 30 observed variables able to evaluate the performance of the measurement model considering the convergent validity, which is measured using 1) factor loading 2) value CR and 3) AVE.

5.2 Discussion of the results

According to the findings of this study, the processing of concepts and theories related to the development of skills of Thai co-op education students enabled the researcher to understand the determinants of the English language skills of Thai co-op education students. The results can be divided into (1) The gap analysis between the expectation and satisfaction of the English competency of Thai co-op students according to the workplace assessment leading to the guidance for developing English language skills for co-op education students for future career development; (2) the gap analysis of English proficiency before and after co-op education for the students' self-assessment, (3) the results of effects of the socio-demographic background, educational institution, and workplace environments which led to the meaningful information on future development, and (4) students' opinion on the role of workplace as one of the key stakeholder to develop their English competency and the CFA analysis results of English language skills development of Thai co-op education students, which all results can be discussed below.

1) Based on the result of the first objective, the finding indicated the gap analysis between the expectation and satisfaction, assessed by company representatives, of English competency of Thai co-op students. The mean score of the workplace's expectation (E) of organizational English skills (S) and the satisfaction (S) of English competency of Thai students' scores range from negative to non-negative. The more negative the scores imply that the workplace needs English skills, but students' proficiency in this skill cannot respond to the organization's requirements. As seen in the results presented in Table 4.2, it indicated that the mean score and level of expectation level of listening, speaking, reading, and writing skills were 3.530, 3.670, 3.569, and 3.803 at high levels, respectively., whereas the mean score and satisfaction level with listening, speaking, and reading were 3.380, 3.330, and 3.481 at moderate levels, respectively, and only writing skills was 3.727 at a high level.

As mentioned, the results implied that Thai co-op students were facing the challenges of English for workplace communication, and were required to develop working skills of English for the better. Based on the previous studies related to the problems of Thai students in enhancing all skills of English, all levels of Thai students faced general problems of English skills for communication, especially speaking and listening skills which was affected by their first language mostly used in daily communication (Aleeya Tahe, 2020), and were related to many situational factors: having their limited vocabulary use

and pronunciation, their feeling of being scared to be mocked by friends, having no confidence in speaking in public (Anchunda Henry Yuh & Weerarat Kaewurai, 2021), using inappropriate expression in telephone conversation (Tanitwich & Sinwongsuwat, 2021), Those examples from the previous studies were relevant to this present study and were the affecting factors in which to be considered when planning to develop English training courses for enhancing students English skills for professional advancement (Franco & Roach, 2018; Nimnuch, 2011; Xie, 2021). Therefore, responding to the need of developing students' English competency to interact with people in an international context requires an appropriate educational system and pedagogical methods (Ahmadi & Reza, 2018; Sera et al., 2023; Tuncel & Aricioglu, 2018), and requires well-prepared teaching and learning methods by English language teachers to assist students enhance their English language skills for effective communication (Mesh, 2016; Villacañas de Castro et al., 2022) which considers as one of the key qualities for human capital in the competitive world of the international labor market and employability (IMD, 2017; Kaewkunha & Sukying, 2021).

2) Based on the result of the second objective, the finding indicated the gap analysis by self-assessment between before and after co-op program participation as seen in the comparative analysis results of Thai co-op students in English competency before and after co-op education are presented in Table 4.5 and Figure 4.2. The mean score and the overall standard deviation of the observed variables were the factors of the English competency development of Thai co-op students. Classification before and after co-op education found that Thai co-op students who returned from co-op work in the workplace had increased English language skills in all four types, and the differences in the observed variables of differentiated English skills before and after going to the co-op were significantly different at the 0.05 level. The results indicated participating and having the opportunity in co-op program was considered important for developing English language skills for co-op education students' career development and a co-op education program enabled the students to develop their professional potential. In addition, the results implied the relevant and consistent findings to the previous studies that co-op education students were ready for work in terms of their English language skills. Co-op education students experienced working environment and were part of organizations or collaborative workplaces could enhance their working skills, including English in the specific period and under the employment conditions (La Hanisi et al., 2018), developed the desired attributes and workplace competency to fulfill the employers' expectations

(Chonsalasin & Khampirat, 2022; Khampirat et al., 2018), enabled them to develop their workplace skills (Alanson & Schomaker, 2018; Bamrungsin & Khampirat, 2022; Holme, 2017; McRae et al., 2016), and allowed and empowered the co-op students to gain more work experiences and knowledge for higher career mastery (Srisa-an & Pramoolsook, 2019; Zegwaard et al., 2018).

3) Based on the result of the third objective, the finding indicated the confirmation of obtained 12 variables (SO6, SO10, ED3, ED4, ED5, WP4, WP5, WP8, WP9, WP11, WP14, WP19) out of 43 as the effects of the socio-demographic background, educational institution, and workplace environments affecting the development of English skills of Thai co-op students based on the MLR analysis method which was employed to analyze the significant factors and created a model. The results indicated the 3 main factors: the socio-demographic background, educational institution, and workplace environments, were confirmed having the meaningful effects on English learning outcomes and competency of Thai co-op students. In addition, as presented by the statistical significance level of 0.05. The factors mentioned in the model could be taken as those contributing to English competency development at 14.5% (Adjusted R² = 0.145) as a predictive equation that affects the co-op students' development in English competency at a fairly high level. The findings of this study confirmed the meaningful and potential factors which could be taken into consideration for further development of English skills of Thai co-op students and other groups of English learners. In addition, the results confirmed that influencing factors such as demographic and socio-economic background, institutional factors, and workplace variables could affect and enhance the students' English skills, students' English language learning outcomes, language competency, and key developments in English language improvement (Arratibel and Alastuey, 2015; Koban Koç, 2016; Kormos and Kiddle, 2013; Huseynpur, Moghaddam, and Rezaie; 2015; Manison Shore, 2015; Moreno and Callejas, 2018; Pinilla-Portino, 2018; Salameh and Sathakathulla, 2017; Ariani and Ghafournia, 2016; Zamani, 2017; Völkel, Seabi, Cockcroft, and Goldschagg, 2016; Norman, 2016; Altschul, 2012; Kim, Curby, and Winsler; 2014; Yahaya, Yahaya, & Ismail, 2011; Dall, 2017; El-Omari, 2016; Abda, 2017; Hall, Pascoe, & Charity, 2017; Djahimo, Bili Bora, and Huan, 2018; Khampirat, & Pop, 2017; Martin, & Rees, 2018; Zegwaard, Johansson, McRae, Ferns, & Hoskyn, 2018; Chottum, Kunchai, & Khampirat, 2018; Virtanen, Tynjälä & Eteläpelto, 2014; Hill, Walkington, & France, 2016; Zegwaard et al., 2018; Jackson, Fleming, & Rowe, 2018; Khampirat, Pop, & Bandaranaike, 2018; Nulton & Hoekje, 2018; Martin & Rees, 2018).

4) Based on the result of the fourth objective, in the aspects of co-op students' opinion, this present study indicated the positive effect on co-op education students as the Thai co-op students received job coaching from company representatives as their mentors or leaders according to the duties and positions assigned, totaling four duties per month (La Hanisi et al., 2018). In addition, they had a chance to work on a special project related to creation or innovation with a mentor or supervisor and proposed their ideas to graduate user organizations or institutions (Namaziandost et al., 2019). Besides, they were treated as employees in those organizations. Those mentioned were significant reasons that enabled co-op education students to learn from their real-life situation of their career and job position. They were able to consider themselves in terms of finding their strengths and weakness, especially their English language ability which was considered crucial requirement in international organizations. Importantly, co-op education program could change Thai co-coop students' attitudes and behaviors to enable them to be ready for work and help develop their career paths (Namaziandost et al., 2020), encourage them to set their own career goals (Shi & Han, 2019), enables co-op education students to confidently demonstrate their abilities in the public eye based on increased self-esteem (Wang, 2020), where they learn to reach their fullest potential. Co-op education students tend to gain more career confidence through co-op education (Munawar & Chaudhary, 2019). Furthermore, co-op education students are motivated to achieve good results in group activities and co-op education performance (Kraichan & Chanphram, 2021).

5.3 Recommendation for future studies and application

According to the research results as presented and discussed above, it shall be able to used applied in various terms and areas for future research and pedagogy in the following aspects.

5.3.1 In terms of theory of English language instruction and co-operative education, this study's results support the development of the theory of teaching and learning and co-operative education program. During their co-op program, students had the opportunity to harmonize and integrate their knowledge they had learned in the academic institution to apply in their real life of working, and they were able to figure out their own strengths and weaknesses to improve themselves (Chonsalasin & Khampirat, 2022; Khampirat et al., 2018), enhance their better skills to meet the workplaces' standard and requirement (Alanson & Schomaker, 2018; Bamrungsin & Khampirat, 2022; Holmes, 2017; McRae et al.,

2016), such as their specific knowledge related to their job positions and their English competency, which needs to be applied in the workplace or the real world. Besides, it can help to build knowledge with personnel in all relevant departments appropriately, strengthening the principles of integrative work from many disciplines; designing co-op education in each field of study developing students' skills for employability before their graduation (Björck, 2021; Hall et al., 2017; Qiubo et al., 2016).

5.3.2 In terms of the practice of co-operative education program, the study results present that, from their self-assessment, Thai co-op students who returned from co-op work in the workplace had significantly increased English language skills in all four types, and students' opinion illustrated that the selected workplace for their co-op program is important in improving the English competency of students. Therefore, to improve and enhance students' English competency required a strong and good cooperation between educational institutions and workplaces, assisting all stakeholders in combining academic concepts and practices and allowing students to gain more work experience and higher career development (Srisa-an & Pramoolsook, 2019; Zegwaard et al., 2018) empower students to integrate their knowledge (Ferns & Zegwaard, 2014), and create the positive attitude and motivation (Han, 2023). Additionally, the satisfaction and expectation results from company representatives are considered useful and more insightful data on English language teaching in Thailand to apply and develop the specific course and content to improve students in their areas of weakness of English skills for workplace communication.

5.3.3 In terms of the policy, the results indicated the CFA analysis results showing that the variables at the workplace level affected the development of English language skills in all four forms, namely English-speaking skills, listening skills, reading skills, and writing skills. In addition, the variables of educational institutions: providing exchange program, recruiting native English-speaking teachers, and preparing and providing English courses in various aspects and issued, affected students' English learning outcomes and improvement. Therefore, it is suggested that the administrators of higher education institutions should increase the participation of graduate user organizations or enterprises in the educational structure (Sunanto & Hendrowati, 2022), encourage university personnel at all levels to train and learn more in the context of education in the form of co-op education and education that is more integrated with workplaces (Pangesti et al., 2016; Santoso et al., 2022), have co-production of projects or activities that enhance learning and work skills (Islamia & Sembiring, 2022), higher education institutions must implement

a system of reflection that is the result of student work co-op education intensively and dynamically (Rismaini et al., 2022), higher education institutions must create environments and facilities that develop co-op education students in a real workplace (Patil, 2014), higher education institutions should encourage graduate user organizations or enterprises to participate in the mentoring and career development process (Ting et al., 2017), and higher education institutions should establish centers or co-op education offices for career management to achieve more stability in work (Clement & Murugavel, 2018).

5.3.4 In terms of the further research, there should be a data comparison between co-op and non-co-op education students at higher education institutions, namely All of Rajamangala Universities, all of the Rajabhat universities, public universities, autonomous universities, and private universities. In addition, information about variables or other factors for the development of English language skills of co-op education students needs to be collected. This information could be from faculty administrators and heads of departments with co-op education experience. Future research should also collect information from the co-op education faculty members. Co-op education student advisors and mentors in graduate user organizations or establishments to get comprehensive information on all dimensions of co-op education operations. Finally, to make co-op education students truly beneficial, higher education institutions and relevant agencies should conduct institutional research. This can help develop the efficiency of students from the first year to know the intentions of students who want to study in co-op education.

5.4 Research limitations

Based on the results on this present study, it shows that Thai co-op education students who went to work on co-op education had the desirable characteristics required by EEC workplaces and organizations. There was a correlation between the variables indicating the development of English skills before going to work in the co-op education program and after, showing potential enhancement of English language skills of Thai co-op education students. It also contributed to the ongoing support for using CFA analysis in empirical research on career development. However, limitations exist and are as follows:

5.4.1 Sample size: Based on the data from the particular group of company representative using snowball random sampling techniques and from Thai co-op students using the convenient sampling in EEC area, the results couldn't be generalized to all other

companies and other groups of students in Thailand. Therefore, future studies should be conducted to cover other regions and higher education institutions to increase the validity of the results.

5.4.2 Research methods: Based on the research design of the quantitative research, one of the main objectives of this study was to develop and validate a proposed CFA for predicting the English language skills of Thai co-op education students working in establishments. The researcher, therefore, chose a cross-sectional correlation study by design, which cannot directly explain the causal relationship because the independent variables cannot be dealt with. Therefore, the future studies should be conducted to examine these aspects qualitatively (Qualitative Research) to expand the results through the use of in-depth interviews with two groups: (1) representatives of graduate user organizations or establishments willing to accept co-op education students to work; and (2) government establishments. Additionally, research on the private sector's willingness to accept co-op education students who have already graduated will result in empirical data predicting work readiness, career aspirations, and career development paths. However, if compared with empirical data from graduate user organizations or enterprises that wish to accept international co-op education students to work, it would affect cross-cultural work variables. Knowledge of access to the needs of international establishments will be required.

5.4.3 Variable aspect: there are many variables, such as sex, class year, group of disciplines, parent's education level, parent's occupation, and affiliation of graduated high school, that could be causal variables or mediator variables affecting the relationship between English language skills. Therefore, further studies should use experimental methods to understand the model variables' causal relationships.

5.4.4 English competency aspect: based on this study, the results of English competency of Thai co-op students was from students' self-assessment and measured by an adapted English competency questionnaire. Therefore, future studies should be conducted using the standardized test such as the Test of English for International Communication (TOEIC) which is considered one of the required and accepted tests by most workplaces in Thailand.

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