The 3rd ASEAN School of Business Network International Conference 2026
www.aseansbn.org August 6-7, 2026 Pathum Thani, Thailand

Developing Intercultural Competence Among Medical Students in Thailand Through Peer Assisted Learning

Thant Kyaw Swar[1], Win Win Pyi[2], Bo Bo Oo[3], Shwe Wint Hlwa[4], Aung Phone Pyae[5], Hnin April Lwin[6], Mohamed Shadih Shahid[7], Gary Ambito Torremucha[8]*

[1,2,3,4,5,6,7,8]Rangsit University, Pathum Thani, Thailand

*Corresponding Author: garyrsu@gmail.com, gary.t@rsu.ac.th

ABSTRACT

Intercultural competence has become an essential competency for healthcare professionals as globalization, internationalization, and increasingly multicultural healthcare environments require effective communication across diverse cultural backgrounds. Despite its growing importance, medical education in Thailand has traditionally emphasized clinical knowledge while providing limited opportunities for authentic intercultural interaction. Peer-Assisted Learning (PAL) has emerged as a collaborative educational approach that promotes communication, teamwork, and reflective learning, yet its contribution to intercultural competence in medical education remains underexplored. This study examined the effectiveness of PAL in developing intercultural competence among undergraduate medical students in Thailand. Guided by Byram's Intercultural Competence Framework and Vygotsky's Sociocultural Theory, the study employed a quantitative research design using a 30-item questionnaire administered to 114 medical students participating in multicultural PAL activities. Descriptive statistics and correlation analyses were conducted to evaluate students' intercultural competence across five dimensions. The findings revealed a high overall level of intercultural competence (M = 4.18, SD = 0.68), with attitudes demonstrating the highest mean score (M = 4.40, SD = 0.69). Strong positive correlations were identified among all five dimensions (r = 0.66–0.89), indicating that intercultural attitudes, knowledge, interaction, and critical cultural awareness are closely interconnected. These findings suggest that PAL provides an effective student-centered learning environment that strengthens intercultural competence through collaborative interaction and shared learning experiences. The study highlights the potential of PAL as a practical and sustainable educational strategy for preparing culturally responsive healthcare professionals and supporting the internationalization of medical education in Thailand and other multicultural ASEAN contexts.

Keywords: Intercultural Competence, Peer-Assisted Learning, Medical Education, Medical Students.

DOI: https://doi.org/10.64458/asbnic.v3.179

Introduction

Background of the Study

In the contemporary globalized healthcare environment, intercultural competence (IC) has become an increasingly essential attribute for healthcare professionals and medical students (Holmes & O'Neill,

2012; Spencer-Oatey & Dauber, 2019). Globalization, migration, multicultural societies, and international healthcare services have transformed healthcare systems into culturally diverse environments where effective intercultural communication is critically important (Deardorff, 2009; Rukadikar, 2022). Medical professionals are now expected not only to possess clinical knowledge and technical expertise but also to communicate effectively and respectfully with patients from different cultural, linguistic, religious, and socioeconomic backgrounds (Liu et al., 2022; Schwarzenthal et al., 2020). Consequently, medical education institutions worldwide have increasingly recognized IC as a fundamental learning outcome for future healthcare professionals (Hackett et al., 2023; Holmes & O'Neill, 2012).

IC refers to the ability to interact appropriately and effectively with individuals from different cultural backgrounds through communication skills, cultural knowledge, empathy, openness, and critical cultural awareness (Byram, 1997; Deardorff, 2009). Within healthcare settings, IC contributes significantly to patient-centered care, healthcare equity, communication effectiveness, and patient satisfaction (Rukadikar, 2022; Liu et al., 2021). Healthcare professionals who lack IC may unintentionally create misunderstandings, reduce patient trust, and negatively affect treatment outcomes and healthcare experiences (Liu et al., 2022; Schwarzenthal et al., 2020). Therefore, developing IC among medical students has become increasingly important within modern medical education systems (Hackett et al., 2023).

Thailand represents an important context for IC development in healthcare education because it has become a major regional center for tourism, migration, international education, and medical tourism in Southeast Asia (Jampaklay et al., 2022). Thai healthcare institutions regularly serve culturally diverse populations, including patients from neighboring ASEAN countries, ethnic minority communities, refugees, expatriates, and international tourists (Rukadikar, 2022). Additionally, the internationalization of higher education in Thailand has increased diversity within university classrooms, including medical schools and healthcare training programs (Jampaklay et al., 2022). These developments require medical students to communicate effectively across cultural boundaries and adapt to multicultural healthcare environments (Spencer-Oatey & Dauber, 2019).

Despite the increasing importance of IC, traditional medical education in Thailand has historically focused primarily on biomedical knowledge, memorization, and clinical training, often providing limited opportunities for intercultural learning and communication development (Liu et al., 2022). Existing educational approaches frequently emphasize theoretical understanding while offering insufficient authentic interaction with culturally diverse peers and patients (Holmes & O'Neill, 2012). Previous research has emphasized that meaningful IC development requires structured opportunities for communication, collaboration, reflection, and intercultural engagement rather than passive exposure to diversity alone (Sobkowiak, 2021; Schwarzenthal et al., 2020).

One educational strategy that has gained increasing attention in higher education and medical education is Peer-Assisted Learning (PAL) (Burgess et al., 2014; Tai et al., 2016). PAL is a structured educational approach in which students support one another's learning through peer interaction, collaborative discussion, mentoring, and shared problem-solving activities (Mandrusiak et al., 2014). Unlike traditional teacher-centered approaches, PAL promotes active participation, communication, teamwork, collaborative learning, and reflective practice (Carr et al., 2016; Glynn et al., 2006). PAL has become increasingly popular in medical education because it improves academic performance, communication skills, confidence, and professional development while reducing reliance on faculty resources (Preece et al., 2015; Zhang & Maconochie, 2022).

The theoretical foundations of PAL are closely associated with Sociocultural Theory (SCT), which conceptualizes learning as a socially mediated process occurring through interaction, collaboration, and dialogue (Vygotsky, 1978; Zhao & Lantolf, 2026). According to SCT, learning occurs within the Zone of Proximal Development (ZPD), where students develop knowledge and skills through interaction with more knowledgeable peers and supportive learning environments (Soyoof et al., 2026). Within PAL environments, students actively exchange ideas, discuss problems, provide feedback, and support each

other's development through collaborative engagement (Loda et al., 2020). These interactional processes may also contribute to IC development because students are exposed to diverse perspectives, communication styles, cultural values, and collaborative learning experiences (Hackett et al., 2023; Holmes & O'Neill, 2012).

Previous research has demonstrated the academic and communicative benefits of PAL in medical education contexts (Burgess et al., 2014; Seifert et al., 2016). Studies have shown that PAL improves communication competency, teamwork, confidence, self-efficacy, and clinical learning among medical students (Carr et al., 2016; Nomura et al., 2017). Furthermore, PAL creates socially supportive and cognitively congruent learning environments where students may feel more comfortable communicating openly with peers than with instructors (Loda et al., 2020). Such environments may encourage students to participate more actively, reduce communication anxiety, and strengthen interpersonal relationships within multicultural educational contexts (Tai et al., 2016).

Although previous studies have demonstrated the academic and communicative benefits of PAL, relatively limited research has examined its role in fostering IC, particularly in medical education and Southeast Asian contexts (Hackett et al., 2023). Existing research on IC has focused mainly on study abroad programs, intercultural workshops, and instructor-led interventions rather than peer-based collaborative learning environments (He et al., 2017). Furthermore, there remains limited empirical evidence regarding how PAL contributes to intercultural development among medical students in Thailand and other multicultural healthcare education settings (Schwarzenthal et al., 2020).

Therefore, further research is needed to examine whether PAL can function as an effective educational strategy for promoting IC within multicultural medical education environments in Thailand (Hackett et al., 2023). Investigating this issue may provide valuable insights for curriculum development, intercultural healthcare training, and communication education among future healthcare professionals (Liu et al., 2022).

The Intervention: Peer-Assisted Learning

Peer-Assisted Learning (PAL) is a structured educational strategy in which students collaboratively support each other's academic, communicative, and interpersonal development through organized peer interaction (Olaussen et al., 2016). PAL may include peer mentoring, peer tutoring, collaborative discussion, cooperative problem-solving, group learning activities, and shared reflective practice (Tai et al., 2016). Within medical education, PAL has become increasingly recognized as an effective educational approach for promoting active learning, communication skills, teamwork, and professional competence (Burgess et al., 2014).

PAL is grounded in Sociocultural Theory, which emphasizes that learning occurs through social interaction and collaboration within meaningful educational environments (Vygotsky, 1978). According to SCT, students develop knowledge and skills through interaction with more knowledgeable peers within the Zone of Proximal Development (ZPD) (Zhao & Lantolf, 2026). Through collaborative engagement, learners receive scaffolding, communicative support, feedback, and interpersonal encouragement that contribute to both academic and personal development (Soyoof et al., 2026).

In culturally diverse educational contexts, PAL may also function as an effective platform for intercultural learning and communication development (Hackett et al., 2023). Through repeated peer interaction, students are exposed to diverse perspectives, communication styles, cultural values, and problem-solving approaches (Holmes & O'Neill, 2012). These experiences encourage students to develop empathy, openness, adaptability, cultural awareness, and respect for diversity (Deardorff, 2009). Previous studies have shown that meaningful intercultural development occurs most effectively through active engagement and authentic communication rather than passive exposure to diversity alone (Schwarzenthal et al., 2020). Therefore, PAL may represent a practical, scalable, and student-centered strategy for fostering IC among medical students in Thailand (Preeceet al., 2015).

Research Problem

Although IC is increasingly recognized as a critical objective in medical education, significant gaps remain regarding how IC can be effectively developed within authentic educational settings (Hackett et al., 2023). Existing studies have focused mainly on instructor-led approaches, cultural workshops, and study abroad programs, while comparatively limited attention has been given to PAL as an intercultural educational intervention (He et al., 2017).

Additionally, most previous PAL studies have focused primarily on academic achievement, communication skills, and clinical performance rather than IC outcomes (Zhang & Maconochie, 2022). Limited research has systematically examined whether PAL contributes to measurable improvements in intercultural attitudes, communication, cultural awareness, empathy, and collaborative engagement among medical students (Carr et al., 2016). Furthermore, few studies have investigated this issue within Southeast Asian higher education contexts, particularly in Thailand where increasing cultural diversity creates important educational challenges for healthcare training (Jampaklay et al., 2022).

As a result, higher education institutions and medical schools currently lack sufficient empirical evidence regarding the effectiveness of PAL as a scalable strategy for developing IC among medical students in Thailand (Hackett et al., 2023). Therefore, this study seeks to address this research gap by examining the role of PAL in fostering IC within Thai medical education settings.

Research Purpose and Objectives

The primary purpose of this study is to examine the effectiveness of PAL in developing IC among medical students in Thailand. The objectives of the study are:

1. To examine the impact of PAL on IC among medical students in Thailand.
2. To explore how peer interaction contributes to intercultural communication, cultural awareness, empathy, and collaborative learning experiences.
3. To investigate students' perceptions and experiences regarding intercultural learning within PALenvironments.

Research Questions

1. To what extent does PAL contribute to the development of IC among medical students in Thailand?
2. How does peer interaction influence intercultural communication, empathy, and cultural awareness among medical students?
3. What are medical students' perceptions and experiences of intercultural learning within PAL environment

Significance of the Study

This study contributes to the growing literature on IC and medical education by providing empirical evidence regarding the role of PALin fostering intercultural development among medical students in Thailand (Hackett et al., 2023). The study addresses an important research gap because relatively limited studies have examined PAL as a structured intercultural educational intervention within Southeast Asian medical education contexts (He et al., 2017).

From a theoretical perspective, the study contributes to the application of Byram's IC Model and Sociocultural Theory in understanding how IC develops through collaborative peer interaction (Byram, 1997; Zhao & Lantolf, 2026). The findings may provide deeper insight into how socially mediated learning environments support intercultural communication, empathy, openness, and cultural awareness among medical students (Holmes & O'Neill, 2012).

From a practical perspective, the study offers valuable guidance for medical educators and higher education institutions seeking effective and sustainable strategies for promoting IC among

healthcare students (Liu et al., 2022). The findings may support curriculum development initiatives that integrate PAL into medical education programs as a resource-efficient and student-centered approach for fostering intercultural learning and collaborative communication (Preece et al., 2015; Tai et al., 2016).

Additionally, the study may benefit medical students by highlighting the importance of communication, collaboration, cultural sensitivity, and empathy within healthcare practice (Rukadikar, 2022). As healthcare systems become increasingly multicultural, future healthcare professionals must be prepared to interact effectively with diverse patients and healthcare teams (Spencer-Oatey & Dauber, 2019). Therefore, the findings of this study may contribute to improving culturally responsive healthcare education, patient-centered care, and intercultural communication within healthcare settings in Thailand and similar multicultural contexts (Deardorff, 2009; Schwarzenthal et al., 2020).

Literature Review

Intercultural Competence in Medical Education

Developing IC has become an increasingly important objective in contemporary medical education due to globalization, international mobility, and the growing cultural diversity of healthcare environments. Medical professionals are now expected not only to possess clinical expertise but also to demonstrate effective communication, empathy, cultural sensitivity, and the ability to interact appropriately with individuals from diverse sociocultural backgrounds. Within this context, higher education institutions have increasingly emphasized IC as a fundamental graduate attribute, particularly in health professions education where communication and patient-centered care are central to professional practice. Studies have consistently demonstrated that culturally competent healthcare professionals are better equipped to establish trust, reduce communication barriers, and improve patient outcomes across multicultural settings (Thongprayoon et al., 2020; Deardorff, 2006; Byram, 1997; Akman et al., 2026; Eichbaum & Bleakley, 2026). Consequently, medical schools worldwide have sought innovative pedagogical approaches capable of fostering intercultural understanding alongside academic and clinical development.

IC generally refers to an individual's ability to communicate and behave effectively and appropriately in intercultural situations based on one's knowledge, attitudes, and skills (Deardorff, 2006). Similarly, Byram (1997) conceptualized intercultural communicative competence as the integration of cultural knowledge, interpretive skills, critical cultural awareness, and intercultural attitudes that enable meaningful interaction between individuals from different cultural backgrounds. In medical education, IC extends beyond simple awareness of cultural differences and encompasses empathy, adaptability, collaborative communication, and culturally responsive healthcare practices. Thongprayoon et al. (2020) further argued that intercultural communicative language learning competencies involve intercultural knowledge, intercultural attitudes, intercultural skills, and critical cultural awareness, all of which are essential for students participating in international and multicultural educational environments. Research has also indicated that healthcare students with stronger ICdemonstrate improved interpersonal communication, greater openness toward diversity, and stronger collaborative abilities in clinical practice (Akman et al., 2026; Ferrer et al., 2026; Maude, 2016; Reimers & Chung, 2016; Baldwin et al., 2014).

Moreover, globalization and the internationalization of higher education have intensified the necessity for medical students to develop intercultural sensitivity and communication skills in preparation for increasingly multicultural healthcare systems. As healthcare professionals increasingly interact with patients from diverse linguistic, ethnic, and cultural backgrounds, the ability to communicate effectively across cultures has become a critical professional competency (Baldwin et al., 2014; Maude, 2016; Ferrer et al., 2026). Educational institutions have therefore sought to integrate intercultural learning into medical curricula to prepare students for culturally responsive practice. Previous research has demonstrated that IC contributes not only to communication effectiveness but also to empathy, patient trust, ethical awareness, and collaborative professionalism within healthcare

settings (Eichbaum & Bleakley, 2026; Akman et al., 2026; Thongprayoon et al., 2020; Reimers & Chung, 2016; Deardorff, 2006).

Sociocultural Theory and Intercultural Learning

The growing emphasis on IC in medical education can be theoretically understood through Sociocultural Theory, which emphasizes the role of social interaction, communication, and collaboration in cognitive and social development. According to Vygotsky (1978), learning occurs through interaction with others within sociocultural contexts, where knowledge is co-constructed through dialogue and shared experiences. This perspective is particularly relevant to PALenvironments because students develop understanding, communication strategies, and interpersonal competencies through collaborative engagement with peers. Within intercultural educational settings, social interaction enables students to negotiate meaning, encounter diverse perspectives, and gradually develop intercultural awareness through authentic communication experiences (Tai et al., 2016; Topping, 1996; Henning et al., 2008; Thongprayoon et al., 2020; Torremucha & Bacon, 2025).

One of the central concepts within sociocultural theory is the Zone of Proximal Development (ZPD), which refers to the difference between what learners can achieve independently and what they can accomplish with support from more knowledgeable individuals (Vygotsky, 1978). In PALcontexts, students benefit from scaffolding, guidance, modeling, and collaborative interaction provided by peers who possess relatively greaterknowledge or experience. Such interactions facilitate not only academic development but also communication confidence, empathy, reflective thinking, and interpersonal growth (Topping, 1996; Tai et al., 2016; Lin et al., 2025; Cardoso Pinto et al., 2026; Xie et al., 2026). This is particularly important within multicultural educational settings where students must learn to communicate effectively with individuals from diverse backgrounds.

Sociocultural theory also emphasizes that learning is inseparable from cultural participation and social engagement. Through interaction with peers from different cultural backgrounds, students are exposed to varying communication styles, perspectives, social norms, and cultural values. Such experiences may foster intercultural sensitivity and the ability to adapt behavior appropriately across different social situations (Thongprayoonet al., 2020; Torremucha & Bacon, 2025; Baldwin et al., 2014; Maude, 2016; Reimers & Chung, 2016). Therefore, sociocultural theory provides a strong conceptual foundation for understanding how PAL may contribute to the development of IC among medical students.

Peer-Assisted Learning in Medical Education

PAL has become an increasingly prominent pedagogical strategy within medical and health professions education. PAL generally refers to collaborative learning processes in which students from similar educational or social backgrounds assist one another's learning through discussion, tutoring, mentoring, or shared activities (Topping, 1996). Unlike traditional teacher-centered approaches, PAL encourages active participation, reciprocal learning, and collaborative knowledge construction. Medical education researchers have increasingly emphasized PAL due to its potential to improve academic achievement, communication skills, learner engagement, and professional development (Lin et al., 2025; Xie et al., 2026; Cardoso Pinto et al., 2026; Tai et al., 2016; Henning et al., 2008).

Several studies have demonstrated the academic benefits of PAL within medical education. Xie et al. (2026) found that peer-assisted problem-based learning significantly enhanced medical students' clinical reasoning abilities, knowledge application, and learning satisfaction compared to lecture-based instruction. Similarly, Yepes-Velasco et al. (2026) reported that near-peer teaching improved students' diagnostic reasoning and radiographic interpretation skills within clinical education contexts. Natto (2026) also observed that peer-led blended learning approaches increased postgraduate students' engagement, satisfaction, and research competence. These findings suggest that PAL supports deeper

learning by promoting active discussion, critical reflection, and collaborative problem-solving among learners.

Beyond academic performance, PAL has also been associated with important interpersonal and psychosocial outcomes. Cardoso Pinto et al. (2026) argued that peer-learning communities contribute to students' confidence, inclusivity, motivation, and emotional wellbeing. Similarly, Lin et al. (2025) reported that PAL reduces academic stress and creates more supportive learning environments by encouraging collaboration and social interaction among students. Within peer-learning environments, students often feel more comfortable asking questions, expressing uncertainty, and discussing difficulties because peers are perceived as less intimidating than faculty members (Yepes-Velasco et al., 2026; Tai et al., 2016; Topping, 1996). Consequently, PAL promotes not only knowledge acquisition but also communication confidence, teamwork, empathy, and professional identity formation.

Additionally, PAL has become increasingly important within contemporary medical education because healthcare practice requires strong collaborative and interpersonal competencies. Through peer interaction, students learn how to communicate effectively, provide feedback, negotiate differing perspectives, and work cooperatively within teams (Henning et al., 2008; Tai et al., 2016; Lin et al., 2025; Cardoso Pinto et al., 2026; Xie et al., 2026). Such competencies are particularly relevant to intercultural medical education because collaborative interaction exposes students to diverse viewpoints and communication styles. Therefore, PAL may function as an effective educational strategy for promoting both academic competence and intercultural development among medical students.

Peer-Assisted Learning and Intercultural Competence Development

The relationship between PAL and IC development has gained increasing attention within higher education and medical PAL and IC development. The relationship between PAL and IC development has gained increasing attention within higher education and medical education research. IC is often strengthened through opportunities for meaningful communication, collaborative engagement, and interaction with culturally diverse individuals. PAL creates structured learning environments where students exchange ideas, negotiate meaning, and develop mutual understanding through continuous social interaction (Torremucha & Bacon, 2025; Thongprayoon et al., 2020; Tai et al., 2016; Baldwin et al., 2014; Reimers & Chung, 2016). These collaborative experiences may help students develop cultural awareness, empathy, communication adaptability, and openness toward diversity.

Torremucha and Bacon (2025) found that PAL sessions significantly enhanced the cultural adaptation and IC of Burmese biomedical science students studying in Thailand. Their findings demonstrated that peer mentoring enabled international students to better understand Thai communication styles, social expectations, and cultural practices while simultaneously improving leadership and communication skills. Similarly, Thongprayoon et al. (2020) emphasized that intercultural interaction and socialization are essential mechanisms for developing intercultural communicative competencies among university students. Through repeated intercultural engagement, students gradually develop the ability to communicate appropriately and effectively within multicultural settings.

Research has also suggested that PAL contributes to empathy and interpersonal sensitivity, which are important dimensions of IC. Akman et al. (2026) identified significant relationships between cultural competence, empathy, and caring behaviors among healthcare professionals. Likewise, Eichbaum and Bleakley (2026) argued that intercultural relational empathy enables healthcare practitioners to understand patients' perspectives across cultural boundaries and therefore improves patient-centered care. Through collaborative peer interaction, students may become more aware of differing perspectives, cultural experiences, and communication preferences. Such experiences encourage reflective thinking and intercultural sensitivity while reducing prejudice and communication barriers (Baldwin et al., 2014; Maude, 2016; Reimers & Chung, 2016; Akman et al., 2026; Eichbaum & Bleakley, 2026).

Furthermore, PAL environments may facilitate professional identity formation and collaborative professionalism among medical students. Apiraksakorn and Howden (2019) found that PAL activities within a Thai medical school contributed to students' self-development, empathy, dialogue skills, and reflective learning. Their findings also highlighted the influence of hidden curriculum elements, including social interactions, cultural norms, and organizational practices, on students' learning experiences. These informal dimensions of learning may significantly shape students' attitudes toward diversity, collaboration, and intercultural communication (Hafferty, 1998; Apiraksakorn & Howden, 2019; Tai et al., 2016; Cardoso Pinto et al., 2026; Lin et al., 2025). Consequently, PAL environments may serve as important spaces for both formal and informal intercultural learning.

Intercultural Competence and Medical Education in Thailand

The development of IC has become increasingly important within the context of higher education internationalization in Thailand. Thai universities have expanded international programs and multicultural educational initiatives in response to globalization and growing international student mobility (Lavankura, 2013). These developments have created increasingly diverse educational environments where students from different linguistic, ethnic, and cultural backgrounds interact regularly. However, international students in Thailand often encounter challenges related to language barriers, cultural adjustment, communication difficulties, and social integration (Chaiyasat, 2024; Rhein, 2016; Torremucha & Bacon, 2025; Thongprayoon et al., 2020; Baldwin et al., 2014).

Medical education in Thailand has similarly experienced significant transformation due to educational reform, globalization, and the growing need for internationally competent healthcare professionals. Mei et al. (2022) observed that Thai medical education systems have increasingly adopted student-centered learning approaches and collaborative educational models to improve professional competency development. Nevertheless, studies have also identified ongoing challenges related to student wellbeing, educational environment, communication competence, and intercultural interaction within Thai medical schools (Hongkan et al., 2018; Puranitee et al., 2022; Apiraksakorn & Howden, 2019; Torremucha & Bacon, 2025; Thongprayoon et al., 2020).

Within multicultural healthcare contexts, medical students must eventually interact with patients, colleagues, and healthcare professionals from diverse backgrounds. Therefore, the development of IC is increasingly recognized as an essential component of medical professionalism in Thailand and globally. Educational strategies that encourage collaborative interaction, communication practice, empathy, and cultural adaptation may therefore play an important role in preparing medical students for culturally responsive healthcare practice (Deardorff, 2006; Byram, 1997; Maude, 2016; Ferrer et al., 2026; Eichbaum & Bleakley, 2026).

Research Gap

Although previous studies have extensively examined PAL and IC independently, limited research has specifically explored how PAL contributes to the development of IC among medical students in Thailand. Existing literature has primarily focused on PAL's impact on academic achievement, clinical reasoning, communication skills, and student satisfaction (Xie et al., 2026; Natto, 2026; Lin et al., 2025; Yepes-Velasco et al., 2026; Cardoso Pinto et al., 2026). Other studies have examined IC and cultural adaptation within international education contexts without specifically addressing collaborative peer-learning mechanisms within medical education (Thongprayoon et al., 2020; Torremucha & Bacon, 2025; Deardorff, 2006; Byram, 1997; Baldwin et al., 2014).

Furthermore, relatively few studies have investigated how sociocultural interaction within PAL environments shapes intercultural communication, empathy, and cultural adaptation among medical students in Southeast Asian contexts. Given the increasing internationalization of Thai higher education and the growing cultural diversity of healthcare environments, understanding how PAL may facilitate IC development represents an important area for further research. Therefore, this study seeks to address

the existing gap in the literature by examining the role of PAL in developing IC among medical students in Thailand.

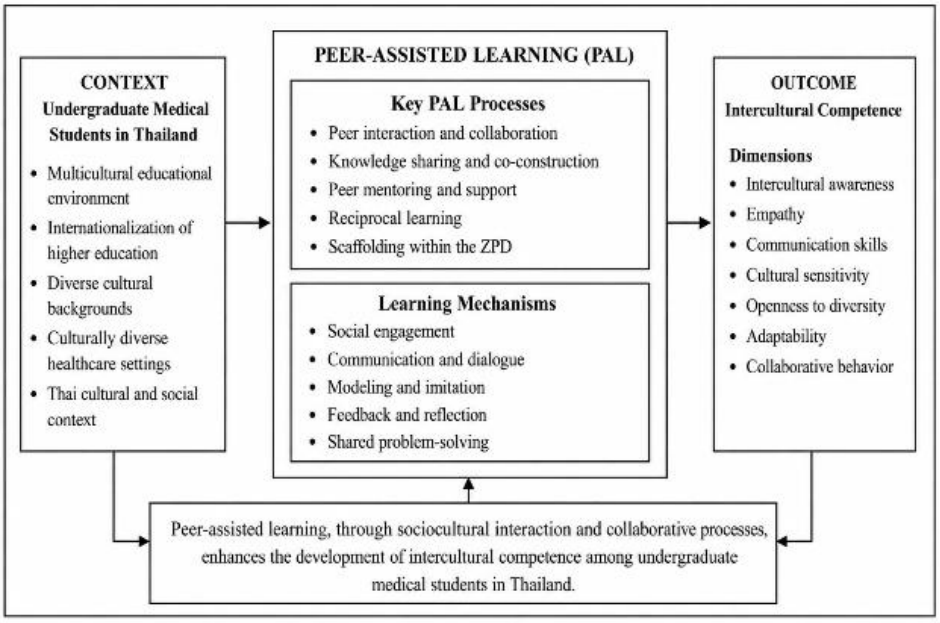


Figure 1. Theoretical Framework

This study is grounded in Vygotsky's Sociocultural Theory, which emphasizes that learning occurs through social interaction, collaboration, and engagement within sociocultural environments. Within PAL contexts, students construct knowledge and develop interpersonal competencies through communication and collaborative participation with peers. In multicultural educational settings, these interactions may facilitate the development of intercultural competence, including empathy, cultural awareness, communication adaptability, and sensitivity toward diversity. Therefore, this study conceptualizes PAL as a sociocultural learning mechanism that contributes to the development of intercultural competence among undergraduate medical students in Thailand.

Method

This study employed a quantitative research design to investigate the development of intercultural competence among medical students in Thailand through (PAL). A quantitative approach was selected because the study aimed to measure students' intercultural competence levels, compare learning outcomes, and analyze students' perceptions regarding intercultural communication and collaborative learning. Quantitative research is appropriate for studies involving numerical data collection, statistical comparison, and the examination of relationships between educational variables.

The research was conducted in educational institutions in Thailand involving participants from both the Thai Faculty and the International College. The study focused on students participating in PAL activities within multicultural educational environments. PAL is commonly used in medical education because it encourages collaborative learning, communication, teamwork, and academic support among students. Previous studies have shown that PAL contributes positively to communication skills, confidence, and professional development among medical students (Glynn et al., 2006; Carr et al., 2016).

The target population of this study consisted of undergraduate medical students studying in Thailand. Participants included both local Thai students and international students from diverse cultural backgrounds. The inclusion of students from different cultural and linguistic backgrounds was important because intercultural competence develops through communication and interaction with culturally diverse individuals. The multicultural setting of Thai medical education provided an appropriate environment for examining intercultural learning experiences.

The study used purposive sampling to select participants who had experience participating in PAL activities. Purposive sampling was appropriate because the research specifically focused on students who were actively involved in peer learning and intercultural interaction. This sampling method is commonly used in educational research to ensure that participants possess relevant knowledge and experiences related to the study objectives. The data collection process involved one objective, which is questionnaires based on Byrams model of ICC. Intercultural competence refers to the ability to communicate effectively and appropriately with individuals from different cultural backgrounds (Deardorff, 2006). Questionnaires are widely used in educational research because they provide efficient methods for collecting large amounts of participant data and allow statistical analysis of responses (Creswell, 2014).

Data collection procedures were conducted during the academic semester in coordination with the participating institutions. Participants received explanations regarding the purpose of the study and instructions for completing the research instruments. Participation was voluntary, and informed consent was obtained before data collection began. Students were informed that all responses would remain confidential and anonymous. The collected data were analyzed using descriptive and inferential statistical methods. Descriptive statistics were used to summarize participant demographics and response patterns. Frequencies, percentages, means, and standard deviations were calculated to describe the data clearly. Descriptive analysis helped present overall trends in students' intercultural competence and perceptions of PAL.

The reliability of the questionnaire was evaluated using Cronbach's Alpha to measure internal consistency. Reliability testing is important because it ensures that the research instrument produces stable and consistent results. A Cronbach'sAlpha value above 0.70 is generally considered acceptable in educational research (Taber, 2018). Ensuring reliability strengthened the credibility of the study findings. To ensure validity, the questionnaire items were developed based on previous studies related to intercultural competence and PAL. Content validity was reviewed by academic supervisors and experts in educational research. The use of previously established concepts and validated research frameworks helped improve the accuracy and appropriateness of the research instruments.

Ethical considerations were carefully addressed throughout the research process. Participants were informed about the purpose, procedures, and voluntary nature of the study before participation. Informed consent was obtained from all participants, and confidentiality was maintained by avoiding the use of participants' names or identifying information. Participants had the right to withdraw from the study at any time without penalty. All collected data were securely stored and accessed only by the researcher. Ethical responsibility is particularly important in educational research because students may feel uncomfortable sharing opinions or personal experiences related to cultural interaction. Protecting participants' privacy helped encourage honest and accurate responses.

The theoretical framework of this study was based on intercultural competence theory and collaborative learning theory. Intercultural competence theory emphasizes the importance of communication skills, cultural awareness, empathy, adaptability, and respect for diversity in multicultural environments (Deardorff, 2006). In medical education, intercultural competence is essential because healthcare professionals frequently interact with patients and colleagues from diverse cultural backgrounds. Collaborative learning theory also supports the use of PAL inPALin education. PAL creates student-centered learning environments where learners actively exchange knowledge, provide mutual support, and develop communication skills through interaction. Previous studies have demonstrated that PAL improves confidence, communication ability, academic performance, and teamwork among medical students (Tai et al., 2016; Burgess et al., 2014).

According to Carr et al. (2016), students participating in PAL reported improvements in communication skills, confidence, and collaborative learning experiences. Similarly, Glynn et al. (2006) found that PAL encouraged active participation and strengthened peer relationships in medical

education settings. These findings support the use of PAL as an effective educational strategy for developing interpersonal and intercultural skills.

The multicultural educational environment in Thailand also contributed significantly to the relevance of this study. Thai universities increasingly include students from different countries and cultural backgrounds, particularly within international medical programs. This diversity creates valuable opportunities for intercultural learning but may also introduce communication challenges and cultural misunderstandings. Investigating how PAL supports intercultural competence development in this context can provide useful insights for educators and policymakers.

Despite the strengths of the study, several limitations were acknowledged. First, participant responses in questionnaires may have been influenced by personal bias or social desirability. Some students may have responded positively because they believed positive answers were expected. Second, the unequal number of participants completing the pretest, post-test, and questionnaire may have affected the consistency of the data. Third, the study focused specifically on institutions in Thailand, which may limit the generalizability of findings to other educational contexts.

However, the large participant sample and systematic data collection procedures helped strengthen the reliability and credibility of the research. The combination of pretests, post-tests, and questionnaires provided multiple sources of quantitative data for analysis and comparison. Overall, this methodology was designed to provide a comprehensive understanding of how PAL contributes to the development of IC among medical students in Thailand. By using quantitative research methods and statistical analysis, the study aimed to identify measurable changes in students' intercultural communication skills, cultural awareness, and collaborative learning experiences. The findings may contribute valuable knowledge to the fields of Medical Education and Intercultural Communication and may help educational institutions improve learning strategies that support multicultural understanding and professional communication skills among future healthcare professionals.

Results

This section of the research presents the findings of the study, which was organised to quantitative data. The quantitative findings yield statistical evidence regarding students' levels of intercultural competence across the five dimensions assessed by the questionnaire, while also illuminating predictive associations among the subscales.

Introduction

This section reports the descriptive statistics of intercultural competence among Medical students in Thailand, derived from a 30-item Likert scale questionnaire constructed in accordance with Byram's framework. The analysis encompasses mean scores, standard deviations, and satisfaction levels for overall intercultural competence, as well as for its constituent dimensions: attitudes, knowledge, interpreting and relating, discovery and interaction, and critical cultural awareness.

Descriptive Statistics for Intercultural Competence

Table 1. Descriptive Statistics for Intercultural Competence for Business Students

Variable	N	Mean	SD	Level
Overall IC	114	4.18	0.68	High
Attitudes	114	4.40	0.69	Very High
Knowledge	114	4.18	0.72	High
Interpreting and Relating	114	4.14	0.69	High
Discovery and Interaction	114	4.12	0.79	High
Critical Cultural Awareness	114	4.14	0.78	High

(Table 1) summarizes the descriptive statistics of intercultural competence among medical students. The overall mean score of 4.18 (SD = 0.68) indicates a high level of intercultural competence across the sample. Among the five dimensions, Attitudes recorded the highest mean (M = 4.40, SD = 0.69), corresponding to a very high level, suggesting that students demonstrate strong openness and respect toward cultural diversity. The dimensions of Knowledge (M = 4.18, SD = 0.72), Interpreting and Relating (M = 4.14, SD = 0.69), Discovery and Interaction (M = 4.12, SD = 0.79), and Critical Cultural Awareness (M = 4.14, SD = 0.78) all fall within the high level range. These results highlight that while students consistently exhibit high competence across all dimensions, their attitudinal disposition toward intercultural engagement is particularly pronounced.

Correlation Analysis for all IC Subscales

Table 2. Correlation Analysis for all IC subscales

	Attitudes	Knowledge	Interpreting and Relating	Discovery and Interaction	Critical Cultural Awareness
Attitudes	1.00	0.74	0.75	0.73	0.66
Knowledge	0.74	1.00	0.89	0.80	0.75
Interpreting and Relating	0.75	0.89	1.00	0.82	0.82
Discovery and Interaction	0.73	0.80	0.82	1.00	0.89
Critical Cultural Awareness	0.66	0.75	0.82	0.89	1.00

(Table 2) presents the correlation analysis among the five subscales of intercultural competence. The results reveal strong positive relationships across all dimensions, with correlation coefficients ranging from 0.66 to 0.89. The highest correlation is observed between Knowledge and Interpreting and Relating (r = 0.89), suggesting that students who demonstrate greater cultural knowledge are also more adept at interpreting and relating cultural meanings.

Similarly, Discovery and Interaction shows a very strong association with Critical Cultural Awareness (r = 0.89), indicating that active engagement in intercultural encounters is closely linked to the ability to critically evaluate cultural perspectives. Moderate-to-strong correlations are also evident between Attitudes and the other dimensions (r = 0.66–0.75), underscoring the foundational role of openness and respect in fostering broader intercultural competence. Overall, the analysis highlights the interdependence of the subscales, suggesting that growth in one dimension is likely to reinforce development in others.

Summary of Quantitative Findings

Section 4 presents the quantitative findings on intercultural competence among medical students in Thailand based on a 30 item Likert scale questionnaire developed from Byram's framework. The results indicate that the participants demonstrated a high overall level of intercultural competence (M = 4.18, SD = 0.68), with Attitudes recording the highest mean score (M = 4.40, SD = 0.69), while the remaining dimensions also showed high levels of competence.

Correlation analysis further revealed strong positive relationships among all five dimensions (r = 0.66 to 0.89), with the strongest associations observed between Knowledge and Interpreting and Relating, and between Discovery and Interaction and Critical Cultural Awareness (r = 0.89). Overall, the findings suggest that the dimensions of intercultural competence are closely related, and that strong attitudes may contribute to the development of overall intercultural competence.

Discussion

The findings of this study indicate that peer-assisted learning (PAL) contributed positively to the development of intercultural competence among international students enrolled in the Global English Program at Rangsit University. The overall mean score of 4.18 (SD = 0.68) demonstrates that participants perceived themselves as highly competent in interacting with people from different cultural backgrounds. This result supports the growing body of literature suggesting that structured peer learning environments provide meaningful opportunities for intercultural interaction and personal development. Unlike traditional classroom settings where communication is primarily instructor-centered, PAL encourages collaborative learning, dialogue, and reciprocal support among students from diverse linguistic and cultural backgrounds.

Among the five dimensions of intercultural competence, attitudes obtained the highest mean score (M = 4.40, SD = 0.69), indicating that participants exhibited openness, curiosity, respect, and willingness to engage with individuals from different cultures. This finding aligns with Byram's (1997) Intercultural Communicative Competence Framework, which identifies attitudes as the foundation upon which intercultural knowledge, skills, and critical cultural awareness are developed. Students who approach intercultural encounters with empathy and respect are more likely to establish meaningful relationships, communicate effectively, and overcome cultural barriers. The strong performance in this dimension suggests that PAL created a supportive environment where students felt comfortable interacting across cultures, reducing anxiety and encouraging positive perceptions of cultural diversity.

The dimensions of knowledge and critical cultural awareness also received relatively high ratings, suggesting that students not only appreciated cultural diversity but also developed a better understanding of different cultural practices, values, and perspectives. Through continuous interaction with peers from various nationalities, students were exposed to different communication styles, traditions, and viewpoints that broadened their intercultural understanding. These experiences are consistent with Vygotsky's Sociocultural Theory, which emphasizes that learning occurs through social interaction and collaborative meaning-making. The PAL environment enabled students to construct new knowledge through authentic communication rather than through theoretical instruction alone.

Although skills received a slightly lower mean compared with the other dimensions, the score remained within the high level of interpretation. This finding suggests that while students possessed positive attitudes and adequate cultural knowledge, the practical application of intercultural communication skills may require continued exposure and practice. Skills such as adapting communication styles, negotiating misunderstandings, interpreting culturally specific behaviors, and resolving intercultural conflicts typically develop through repeated real-life interactions. Therefore, sustained participation in intercultural learning activities is likely necessary for students to gain greater confidence and competence in applying these skills across diverse contexts.

The results further revealed strong positive correlations among all five dimensions of intercultural competence, with correlation coefficients ranging from 0.66 to 0.89. These relationships indicate that the dimensions are closely interconnected rather than functioning independently. Students who demonstrated openness toward cultural diversity also tended to possess greater intercultural knowledge, stronger communication skills, and higher levels of critical cultural awareness. Likewise, increased knowledge was associated with improved practical skills and greater ability to critically evaluate cultural assumptions. These findings support Byram's theoretical model, which conceptualizes intercultural competence as a multidimensional construct in which the development of one dimension reinforces the growth of the others.

The particularly strong relationship between knowledge and critical cultural awareness suggests that acquiring cultural information alone is insufficient unless students are also able to reflect critically on cultural similarities, differences, and their own assumptions. Similarly, the high correlation between attitudes and skills indicates that students who are genuinely open and willing to interact with others are more likely to develop effective intercultural communication abilities. These findings

highlight the importance of designing educational experiences that integrate cognitive, behavioral, and affective components of intercultural learning rather than emphasizing knowledge acquisition alone.

The overall findings also demonstrate the educational value of peer-assisted learning within increasingly internationalized higher education environments. As universities continue to attract students from diverse cultural backgrounds, meaningful intercultural interaction becomes an essential component of student development. PAL provides an accessible and sustainable strategy for promoting inclusion, collaboration, and intercultural engagement because learning occurs naturally through academic support and shared experiences. Rather than treating intercultural competence as a separate subject, PAL integrates intercultural learning into students' everyday academic and social interactions.

Furthermore, the findings have important implications for institutions seeking to strengthen internationalization initiatives. The consistently high ratings across all dimensions suggest that structured peer learning programs can complement formal instruction by providing authentic opportunities for intercultural communication. Universities may therefore consider expanding PAL programs beyond language learning to include orientation activities, mentoring programs, collaborative projects, and cross-cultural partnerships that encourage sustained interaction among domestic and international students.

Overall, the findings support the proposition that peer-assisted learning serves as an effective educational approach for fostering intercultural competence among international students. The positive relationships among attitudes, knowledge, skills, critical cultural awareness, and internal outcomes reinforce the view that intercultural competence develops as an integrated and mutually reinforcing process. By creating environments that encourage collaboration, reflection, and meaningful intercultural engagement, higher education institutions can better prepare students to succeed in culturally diverse academic, professional, and global communities.

Conclusion

This study examined the effectiveness of Peer-Assisted Learning (PAL) in developing intercultural competence among international students enrolled in the Global English Program at Rangsit University. The findings demonstrate that participants exhibited a high overall level of intercultural competence, with attitudes emerging as the strongest dimension, followed by knowledge, critical cultural awareness, skills, and internal outcomes. Moreover, the significant positive correlations among all five dimensions indicate that intercultural competence develops as an interconnected construct in which cognitive, affective, and behavioral components reinforce one another. These results are consistent with Byram's Intercultural Communicative Competence Framework and Vygotsky's Sociocultural Theory, both of which emphasize the importance of social interaction and reflective engagement in intercultural learning.

The study highlights the educational value of PAL as a student-centered approach that creates authentic opportunities for meaningful intercultural communication. Through collaborative learning, students develop greater openness toward cultural diversity, strengthen their understanding of different cultural perspectives, and enhance their ability to communicate effectively across cultures. Such experiences contribute not only to academic success but also to students' personal and professional preparedness in increasingly multicultural environments.

The findings suggest that integrating structured PAL activities into higher education can serve as an effective strategy for promoting intercultural competence and supporting institutional internationalization efforts. As ASEAN universities continue to expand international collaboration and student mobility, fostering intercultural competence through collaborative learning will become increasingly important in preparing graduates to thrive in culturally diverse academic, healthcare, and professional settings..

Recommendations

Based on the findings of this study, higher education institutions should strengthen the implementation of Peer-Assisted Learning (PAL) as an integral component of internationalization and student development initiatives. Universities are encouraged to design structured PAL programs that intentionally promote intercultural interaction through collaborative learning activities, peer mentoring, group projects, and cultural exchange opportunities. Such initiatives can provide students with authentic contexts to develop intercultural knowledge, communication skills, and critical cultural awareness while fostering mutual respect among learners from diverse backgrounds.

Faculty members and program administrators should also provide training and guidance for peer mentors to ensure that intercultural learning objectives are effectively integrated into PAL activities. Establishing regular opportunities for reflection and feedback may further enhance students' ability to evaluate their intercultural experiences and apply these lessons in academic and professional settings.

Future research should examine the long-term impact of PAL on intercultural competence using longitudinal or mixed-methods approaches. Comparative studies involving students from different academic disciplines, universities, or ASEAN countries would provide broader evidence of the effectiveness of PAL across diverse educational contexts. Additionally, future studies may investigate how digital collaborative platforms and virtual peer-learning environments can further support intercultural competence in increasingly connected and technology-enhanced higher education systems.

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