Cross-Cultural Communication and Co-Directional Theory: Assessing the Impact of Cultural Background on Communication Efficacy Among International Students in Malaysia

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Article Information	ABSTRACT
Article Type: Research Article **Dates:** **Received:** 02 January 2024 **Revised:** 20 February 2024 **Accepted:** 01 March 2024 **Available online:** 03 March 2024 **Copyright:** This work is licensed under creative common licensed ©2024 **Corresponding Author:** Qinghao Guo aaronguo676@gmail.com	The association of intercultural communication (IC) and international students has become increasingly evident in the global expansion of higher education. This study introduces the Cross-Cultural Communication model (CCCM), which explains Cultural Background (CB), Level of Cross-Cultural Adaptation (LCCA), Proficiency in Common Language (PCL), and Communication Efficacy (CE) as distinct stages in intercultural development. Focusing on international students in Malaysia, the research employed a quantitative survey method analyzing data from 215 among multi-cultural students. Our findings show cultural background's has positive and significant impact on cross-cultural adaptation, proficiency in common language, and communication efficacy. There was also a direct and significant impact of a level of cross-cultural adaptation and proficiency in common language on communication efficacy. Moreover, the extent to which individuals adapt to different cultures and their proficiency in a common language mediate the association between cultural background and communication efficacy. The findings reveal a progression from acquiring a cultural background (CB) to developing a level of cross-cultural adaptation (LCCA), enhancing proficiency in common language (PCL), and achieving communication efficacy (CE). These findings lend empirical support to the foundational assertions of the CCCM. **Keywords:** Cross-Cultural Communication, Co-Directional Theory, Cultural Background, Communication Efficacy, International Students

1. INTRODUCTION

The global movement of higher education has had a massive impact on the connections between different fields and has resulted in significant changes on a global scale. These changes have made it easier for many people to learn, creating a knowledge-based economy worldwide, with educational rankings getting growing attention (Wirba, 2021). It is always challenging for international students to quickly merge into newly environment and involve engaging in cross-cultural dialogue. Although such attractions are challenging, their effectiveness is profoundly intertwined with their personal and cultural identities. It significantly determines their overall adaptation and well-being in the host country (Bethel et al., 2020). It has often been realized that it is not easy for international students to adapt a new settings, which causes their academic performance to be compromised (Jackson et al., 2019; Shields, 2019). Therefore, there is a great need to foster feasible educational strategies to enhance cultural integration to make it easier for new students to adjust to a new cultural setting (Bender et al., 2019; Rivas et al., 2019).

The inquiry of CC offers a variety of perspectives, concepts, and theories to illuminate the various facets of human interaction (Sinicrope et al., 2007). Four necessary factors in CC literature-- Cultural Background, the Level of Cross-Cultural Adaptation, Proficiency in Common Language, and Communication Efficacy (Jones & Quach, 2007)--are indispensable for all students studying abroad. These dimensions, now brought together under their current terminology and having been introduced in the 1970s (Spitzberg & Changnon, 2009), have usually appeared to overlap conceptually when studied in research terms. Nevertheless, this study differentiates between these concepts because they belong to separate theory lines.

Efforts to define CC began with Hammer et al. (1978), who initially called it "cross-culturality" Later, they changed the definition and called this ability cross-cultural effectiveness and further subdivided its components into sensitivity, skills, and awareness (Bennett, 1986; Chen & Starosta, 2000; Fritz et al., 2005). Based on this model, the Developmental Model of Intercultural Sensitivity (DMIS) was further established. The deepening of understanding proceeds through six stages, progressing from ethnocentrism to ethnorelativism. During this period, various research scholars in the field looked at it from different angles and perspectives using various models and theories (Arasaratnam, 2016; Deardorff, 2006), but they could not come up with a single term for language use. To resolve these contradictions, Deardorff (2006) conducted a Delphi study. The resulting definition of intercultural competence has gained widespread consensus as "the ability to communicate effectively and appropriately."

It should be noted that evaluating a person's motivation, attitude, and knowledge of intercultural competence is an ongoing process. When immersed in another culture, giving oneself repeated self-assessments becomes more critical (Deardorff, 2006). It derives from concepts of cultural background and level of cross-cultural assimilation. Meanwhile, Spitzberg and Changnon (2009) distinguished between language-based competence in a common tongue and communication effectiveness. They identified the former as assimilation and change, referring to an individual's minimum stress or cultural shock without significant alternation of lifestyle during a phase of adapting to another culture; they describe the latter as accommodation. Lewthwaite (1996) argues that effective communication is the prerequisite for successful adaptation. Therefore, we can rightly state that cultural background, cross-cultural adaptation skills, and language proficiency are separate but interrelated entities in a culturally diverse or multicultural environment (Chen & Starosta, 2000; Ting-Toomey & Chung, 2005). The primary objective of this study is to explore the multifaceted nature of intercultural communication (IC) among international students and develop a Comprehensive Model of Intercultural Communication (CMIC). This model aims to explain the journey from cultural understanding to effective cross-cultural engagement, emphasizing the crucial stages of cultural background recognition, cross-cultural adaptation, language proficiency, and communication efficacy.

The Co-Directional Theory, a critical IC theory proposed by Jones & Quach (2007), extend beyond the traditional understanding of communications as mere information exchange. It emphasizes the importance of mutual understanding and strategic integration in communication, particularly in culturally diverse environments. This theory posits that effective communication in intercultural settings involves not just the transmission of messages but also a deep comprehension and appreciation of different cultural perspectives. This approach to communication is co-directional in nature, implying that all parties in the communication process actively contribute to and shape the interaction. Furthermore, the Co-Directional Theory has been validated across various environments, proving its applicability and relevance in multiple cultural contexts. It has been particularly effective in exploring and explaining crucial IC concepts such as

the role of cultural background in shaping communication patterns and the achievement of communication efficiency in diverse settings.(Ting-Toomey & Dorjee, 2018). In response to the limitations observed in IC research, scholars have increasingly turned to bi-cultural and multicultural frameworks to ensure broader applicability of their findings (Arasaratnam, 2007; Ting-Toomey & Chung, 2005). This study integrates the multicultural perspective with the principles of the Co-Directional Theory, offering a unique approach to examining IC among international students.

By integrating the Co-Directional Theory, this research underscores the practical and adaptable aspects of mastering IC, especially for international students who must navigate multiple cultural contexts. The novelty of this study lies in its holistic approach to intercultural communication, integrating the Co-Directional Theory with Cultural Adaptation theory. Previous studies usually focus on developing these competencies, while after-achievement progression is less analyzed. This study provides a Comprehensive Model of IC (CMIC), containing the fundamental principles arising from Co-Directional Theory and key stages conforming to Cultural Adaptation theory. The model flows from understanding one's cultural background to cross-cultural adaptation, capability in common language, and communication efficacy. This approach will provide new insights into the dynamic cultural adaptation process and communication effectiveness among international students.

2. LITERATURE REVIEW

The Co-Directional Theory is a seminal theoretical framework that plays a crucial role in the study of intercultural communication. In the study conducted by Ting-Toomey & Chung (2005), a theory was developed that offers a distinctive perspective on the interaction between cultural background, cross-cultural adaptation, language proficiency, and communication efficacy. It emphasizes that effective intercultural communication is not just about the exchange of information but involves a dynamic, two-way process of mutual understanding and strategic integration of diverse cultural perspectives. This theory is particularly relevant in dissecting how these factors collectively influence the communication experiences of international students in multicultural environments like Malaysia. The following subsections delve into each of these key concepts, examining them through the insightful perspectives offered by the Co-Directional Theory. The literature review is organized into four distinct subsections, each focusing on one of the key concepts, such as cultural background (CB), level of cross-cultural adaptation (LCCA), proficiency in common language (PCL), and communication efficacy (CE). This arrangement allows for a comprehensive analysis and comparison of these ideas.

2.1 Cultural Background (CB)

Talking between people from different cultures or ethnic groups is mainly about how they interact with each other despite their differences (Arasaratnam & Doerfel, 2005). Cultural background is good when confusion decreases and talking works well (Gudykunst & Nishida, 2001). (Neuliep, 2012) defines cultural background as the shared comprehension of the sender's intended message by the recipient. The co-directional theory provides a prominent and orderly study of cultural background (Duong, 2024b). This idea is explained straightforwardly using surface reasons, leading causes, and balance processes, helping to understand cultural background (Smith & Khawaja, 2011). Simple reasons include wanting to talk and first feelings while leading causes deal with worry and uncertainty. Mindfulness is stressed as a significant

control process for getting a cultural background. These things help people deal with worry and uncertainty in different cultures (Ting-Toomey & Chung, 2005; Neuliep, 2017).

Cultural Background (CB), as defined by Zhang et al. (2024), forms the foundation of our understanding in intercultural communication. It shapes the initial interactions and perceptions between individuals from different cultures. The Co-Directional Theory, as proposed by Duong (2024a), further illuminates this by emphasizing the interaction of surface reasons, underlying causes, and balancing processes in CB. This theory suggests that effective CB, characterized by reduced confusion and improved interaction (Wang et al., 2022), facilitates a smoother transition to LCCA. When individuals have a well-developed CB, they are better equipped to adapt to new cultural settings, as they can effectively navigate the complexities of intercultural interactions. Furthermore, proficiency in a common language (PCL) is inherently tied to CB. As individuals become more culturally aware, they can more effectively learn and use a common language, thereby enhancing their ability to communicate across cultural boundaries. This relationship is supported by studies that show a correlation between cultural understanding and language proficiency (Lashari et al., 2023). Finally, communication efficacy (CE) is the culmination of this process. Susila and Risvan (2022) describe CE as encompassing effective communication, stress management, and the ability to form cross-cultural friendships. As CB and LCCA improve, along with PCL, individuals are more likely to achieve CE. This is because they are better equipped to understand and be understood by others, manage the stresses of cross-cultural interactions, and form meaningful connections across cultural divides. Therefore, we hypothesize that,

Hypothesis 1: There is a positive relationship between cultural background and level of cross-cultural adaptation.

Hypothesis 2: There is a positive relationship between cultural background and proficiency in common language.

Hypothesis 3: There is a positive relationship between cultural background and communication efficacy.

2.2 Level of Cross-Cultural Adaptation (LCCA)

LCCA, as explained by Chio et al. (2021), is the essential knowledge and motivation to interact with people from different cultures correctly. This idea has always been an essential component of ongoing dialogue. Giacomella (2021) explain that LCCA means excellent and proper management of relationships between people from different cultures. However, there was much confusion in early LCCA research. LCCA is considered to have multiple appearances, is a theoretical way of thinking, and can be changed for different reasons (Ting-Toomey & Chung, 2005). In the past, LCCA was considered a mixture of words and things. It includes caring for others, performing well in respected assigned roles, being friendly to others (not just to our own culture), and controlling how we talk to each other (Kim, 2017). Schauer (2020) proposed a five-factor LCCA model, including skills, knowledge, and attitudes. This is very important for helping students to have a long-term, in-depth understanding or appreciation of foreign cultures. Teachers believe LCCA combines thinking, feeling, and action (Arsenovic et al., 2021).

People have looked at the theory behind LCCA in different ways. Understanding different cultures is very important. Models like MIS proposed by Luo et al., (2021) are a big part of this concept. These models show steps moving away from a focus on one's group to understanding different groups. It shows

how lower levels shift towards higher ones in developing LCCA. Research goes on to find out what causes LCCA. It looks at factors such as being friendly, knowing about the host culture, and having a good mood (Gong et al., 2021). The cultural universal approach (Barrett, 2020) advocated and the comprehensive LCCA model of IMLCCA help to understand the predictive factors of LCCA in cross-cultural environments in various attempts. Although LCCA has been extensively studied as a structural, theoretical method, or outcome variable, its progress still needs further investigation. The subsequent state of CE is where an individual is satisfied and flexible with the new cultural environment. Therefore, we hypothesize that,

Hypothesis 4: There is a positive relationship between Level of Cross-Cultural Adaptation and communication efficacy

2.3 Proficiency in Common Language (PCL)

Common Language Skill (CLS) is usually seen as feeling mentally happy and content in foreign cultural places (Fennig & Denov, 2021). According to Pérez-Almendros et al. (2020), PCL involves modifying behaviors or thoughts to adapt to a new environment and achieve specific objectives effectively. This subject holds significance in academic discourse concerning intercultural communication in educational and professional settings involving individuals from diverse cultural backgrounds (Baldwin et al., 2023). General adjustments involve basic living needs such as food, healthy weather, and family, while interactive changes involve the difficulty of social interaction among host group members (Jarrott et al., 2022; Timmis & Ramos, 2021). For students from other countries, they need to pay attention to these two changes in order to understand their PCL. The main theoretical idea is the PCL U-shaped model Chio et al. (2021) proposed. It lists seven steps for better transformation from the first step to the new cultural venue.

The co-directional theory also discussed PCL. It explains how people adapt to new cultures (Djelantik et al., 2021). Nakanishi et al. (2021) discusses how people can change culture. This focuses on things like solitude and collaboration and puts them on all other topics it discusses. This small idea also supports the development of plans to help integrate quickly and smoothly into the host country's culture. Research has shown that the duration of someone's residence in a particular place and their language knowledge can greatly influence cultural change (Lou & Noels, 2020). Although there are many articles about PCL, we do not have any suggestions on how it affects the subsequent steps of adapting to different cultures. Unlike cultural background (CB) and cross-cultural adaptation (LCCA), PCL combines general and conversational changes. This means that adapting to different cultures does not always mean accepting it. From this understanding, it can be understood that communication effectiveness (CE) may have emerged after PCL. Therefore, we hypothesize that

Hypothesis 5: There is a positive relationship between proficiency of common language and communication efficacy.

2.4 Mediating effect of level of cross-communication and proficiency in common language.

In intercultural communication research, understanding the dynamics of cultural interaction is crucial. Cultural Background (CB) is fundamental, as it shapes initial perceptions and interactions in a new cultural environment. Studies by (Yuvaraj et al., 2021) and Suh et al. (2020) suggest that a well-developed CB reduces confusion and enhances interaction quality, leading to effective communication. Building on this, the Level of Cross-Cultural Adaptation (LCCA) and Proficiency in Common Language (PCL) emerge as key mediators in this process. LCCA, as discussed by Huang et al. (2021), involves cognitive, behavioral, and affective adjustments, playing a crucial role in adapting to new cultural settings. This adaptation is pivotal in transforming CB into effective communication practices. Similarly, PCL is essential for bridging cultural gaps. Effective communication in a shared language, as shown by Rustamov and Mamaziyayev (2022), enhances intercultural interactions, facilitating better understanding and reducing misunderstandings. Ultimately, Communication Efficacy (CE) is the goal, where individuals achieve successful communication in diverse cultural settings. The Co-Directional Theory, integrating these elements, suggests a dynamic IC process through various stages of cultural adaptation. This theory proposes that effective IC involves a sequential progression from CB to CE, mediated by LCCA and PCL, aligning with the theory's emphasis on mutual understanding and strategic integration in diverse environments. Therefore, we hypothesize that,

Hypothesis 6: The level of cross-cultural adaptation mediates the relationship between cultural background and communication efficacy.

Hypothesis 7: Proficiency in common language mediate a relationship between cultural background and communication efficacy.

Based on the literature review and proposed hypotheses we have drawn research framework which is shown in figure 1 below.
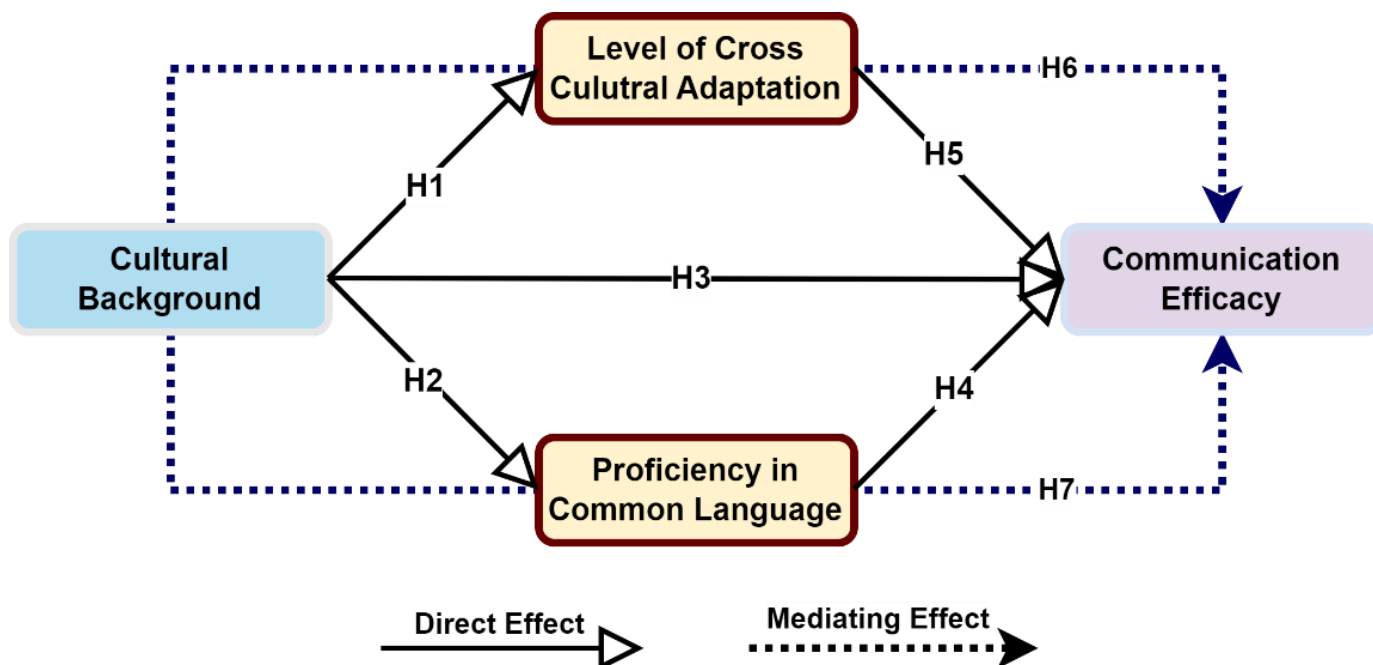
Figure 1: Research Framework

3. METHODOLOGY

3.1 Research sites

This research centers on an in-depth examination of the Cross-Cultural Communication model (CCCM), particularly its effectiveness in the context of international students in the multicultural milieu of Kuala Lumpur, Malaysia. Unlike conventional studies that often limit their scope to a single educational institution, this investigation expands its horizon to encompass multiple prestigious universities in Kuala Lumpur, such as the University of Malaya, UCSI University, University of Kuala Lumpur, and International Islamic University of Malaysia. This broader approach enriches our data with a diverse range of cultural perspectives, reflecting the city's vibrant international student population. Kuala Lumpur's unique cultural tapestry, woven with varied traditions and lifestyles from across the globe, presents an ideal setting for exploring the nuances of cross-cultural communication among international students. The city's academic environment, teeming with students from numerous backgrounds, offers a living laboratory for observing and analyzing the practical applications and challenges of CCCM.

3.2 Data Collection

To garner a representative and comprehensive dataset, we adopted a convenience sampling method, targeting international students from the selected universities. Our methodology involved active engagement with the student community, including visits to campuses and leveraging social media groups dedicated to international students. These efforts were aimed at encouraging a broad spectrum of students

to participate and share their experiences, thus providing a rich and detailed understanding of the CCCM's efficacy in a real-world, culturally diverse academic setting."

3.3 Sampling and Ethical Considerations

International students were exclusively considered for gathering the required sample size for the current study. In place of the sample-to-variable ratio method previously used, this study employed the GPower statistical analysis tool to determine an adequate sample size. Using GPower, with a small effect size ($f^2 = 0.15$), an alpha level of 0.05, and a power of 0.80, the analysis suggested a target sample size. Considering our model, the required sample size was determined to be approximately 98 international students. This size ensures sufficient power for the statistical tests planned in the study. To get enough students involved, around 400 questionnaires were distributed among international students to universities in Kuala Lumpur. The questionnaire was distributed online through the circle of friends and research groups. Finally, we collected around 250 filled questionnaires, which is more than a response rate of over half. After checking for incomplete or missing details, 215 sample size were chosen for the statistical analysis. Furthermore, ethical considerations were paramount. Participants were provided with a consent form at the survey's outset, ensuring they were informed of their right to withdraw at any time and affirming the confidentiality of their responses. This approach respected participant autonomy and safeguarded their personal information.

3.4 Instruments

The questionnaire, primarily administered in English, was segmented into three essential parts. The first part included the title of the survey, comprehensive instructions for respondents, and a mandatory consent form to ensure ethical compliance. The subsequent part featured a series of descriptive queries, initiating with a question about the respondent's nationality, followed by a section to provide their response. This was succeeded by questions determining the respondent's gender (options being male or female), academic status (either undergraduate or postgraduate), and their experience with cross-cultural interactions, answerable with a straightforward yes or no. Additionally, respondents were required to select their age bracket from the provided options.

The third section was critical, including questions about the study's specific variables. Responses were measured on a five-point Likert scale for each item related to the variables Cultural Background (CB), Level of Cross-Cultural Adaptation (LCCA), Proficiency in Common Language (PCL), and Communication Efficacy (CE). The study used established scales from intercultural communication literature for these variables, known for their high reliability. These scales were chosen over others because of recommendations from intercultural communication experts and their relevance to the variables in this study. A detailed list of the number of items for each variable and their sources is presented in Table 1.

Table 1. Variables

Variable	Number of Items	Source
Cultural Background (CB)	10	Johnson and Lenartowicz (1998), and Mushquash and Bova (2007)
Level of Cross-Cultural Adaptation (LCCA)	8	Ward and Kennedy (1999), and Epstein et al. (2015)
Proficiency in Common Language (PCL)	7	Brislin (1970), and Kaushanskaya et al. (2020)
Communication Efficacy (CE)	9	Gaffney (2011)

3.5 Data analysis technique

Data analysis was conducted using the Statistical Package for Social Sciences (SPSS) for descriptive statistics and preliminary analysis, including calculating means, standard deviations, and frequency distributions. For more complex analyses, Analysis of Moment Structures (AMOS) was employed, especially for structural equation modeling (SEM) to explore the relationships between Cultural Background (CB), Level of Cross-Cultural Adaptation (LCCA), Proficiency in Common Language (PCL), and Communication Efficacy (CE). The combination of SPSS and AMOS allowed for a comprehensive and robust analysis of the data, leveraging SPSS's capabilities for basic analysis and AMOS's strength in modeling complex variable relationships.

4. RESULTS AND DISCUSSION

4.1 Participants

Findings in the Table 2 indicated that about (N=215) international students from the diverse cultural backgrounds participated in this study. The international student from the top contributing countries are from China (N=50, 23.3%) , Indonesia (N=40, 18.6%), India (N=35, 16.4 , Bangladesh (N=25, ,11.6) and Pakistan (N=20, 9.3%). The gender distribution was balanced, with 51.2% male and 48.8% female. Of these students, 130 enrolled in undergraduate programs, while 85 pursued postgraduate degrees. A significant 74.4% had previous intercultural experiences before their education in Malaysia. Regarding age groups, 32.6% were between 18–22 years, 39.5% were 23–27 years old, 18.6% were 28–32 years old, and 9.3% were 33 years or older.

Table 2. Study Demographic

Category	Demographics	Frequency	Percentage
Gender			
	Male	110	51.2
	Female	105	48.8
Age Group			
	18-22	70	32.6
	23-27	85	39.5
	28-32	40	18.6
	33 and above	20	9.3
Country of Origin			
	China	50	23.3
	Indonesia	40	18.6
	India	35	16.3
	Bangladesh	25	11.6
	Pakistan	20	9.3
	Nigeria	15	7.0
	Yemen	10	4.7
	Vietnam	10	4.7
	Others	10	4.7
Education Level			
	Undergraduate	130	60.5
	Postgraduate	85	39.5
Intercultural Experience			
	Yes	160	74.4
	No	55	25.6

4.2 Normality and Multicollinearity

Table 3 presents normality and multicollinearity assessments for four variables and we has used skewness and kurtosis as common tests to check if the variables are normal and reliable. Table 3 showed a little tilt or bias of the data. But we need to remember that most of the variable's scores were within an accepted range from +2 down to -2, as Heckman et al. (1998) suggested. This range usually shows a normal distribution, which means our data for this study is likely to follow the idea of being normal.

Table 3. Normality and multicollinearity

Variable	N	Std. Error	Kurtosis	Skewness	Tolerance	(VIF)
Cultural Background (CB)	215	0.16	-0.24	0.12	0.71	1.41
Level of Cross-Cultural Adaptation (LCCA)	215	0.15	-0.30	0.14	0.69	1.45
Proficiency in Common Language (PCL)	215	0.17	-0.15	0.19	0.72	1.39
Communication Efficacy (CE)	215	0.16	-0.20	0.08	0.74	1.35

CB (Cultural Background), LCCA (Level of Adaptation to Cultural Differences), PCL (Proficiency in Common Language) and CE (communication efficacy) Beginning with Cultural Background (CB), it has a typical mistake of around 0.16. The kurtosis value is about -0.24 showing that the range and shape in CB scores are slightly tighter than what could be expected from an ideal or normal spread pattern. The tilt is about 0.12, with an average mistake of 0.17 which means there's a little bit more on the right side or positive skewness in the distribution where some outliers might show up even though it isn't too strong overall. Next, we look at Level of Cross-Cultural Adaptation (LCCA). This method has a standard error around 0.15. The kurtosis number is about -0.30, with a mistake of 0.33 which shows nearly the same shape but less bumpy and lighter sides in its distribution model. LCCA's skewness is about 0.14 with a small amount of error, or in other words it has slightly more big numbers than little ones. For being good at everyday language (PCL), it shows a usual difference of about 0.17. The kurtosis number is around -0.15, with an error of 0.33 normally happening when it's close to normal and just a small difference in how the distribution is shaped up. The sideways tilt is about 0.19, with a mistake measure of 0.17 showing slight upward skewness like other factors did too. In the end, Effective Communication (CE) has a common mistake of about 0.16 or so. The kurtosis is about -0.20, with a standard error of 33%. This means that the distribution isn't as tall and has thinner ends compared to others. The CE measure is about 0.08, with a errorof around 17% going in either direction showing close to equal distribution levels.

Table 4. Factor Loading

Item	Statement	Factor Loading
Cultural Background (CB)		
(Cronbach's Alpha = 0.91; AVE = 0.67)		
1	I grasp cultural references from various countries with ease.	0.81
2	I am aware of various international cultural norms.	0.79
3	I value the cultural diversity around me.	0.80
4	Identifying shared cultural norms in diverse groups is a strength of mine.	0.77
5	My cultural insights aid in my understanding of others.	0.82
6	I actively explore different cultural practices.	0.78
7	Discussing cultural variances is something I am comfortable with.	0.76

Item	Statement	Factor Loading
8	I do not let cultural differences impede my communication.	0.75
9	Interacting with people from varied cultural backgrounds is enjoyable to me.	0.79
10	Embracing cultural diversity in all settings is important to me.	0.74

Level of Cross-Cultural Adaptation (LCCA)
(Cronbach's Alpha = 0.89; AVE = 0.65)

Item	Statement	Factor Loading
1	Adapting to new cultural settings is quick for me.	0.83
2	I am comfortable engaging with individuals from diverse cultures.	0.80
3	Navigating through cultural misunderstandings is a skill I possess.	0.82
4	I modify my behavior to suit different cultural contexts.	0.78
5	Cultural variances in communication are something I respect and understand.	0.81
6	I find myself at ease in various cultural environments.	0.77
7	Making friends across different cultures comes naturally to me.	0.79
8	I am confident about adapting to diverse cultural norms.	0.76

Proficiency in Common Language (PCL)
(Cronbach's Alpha = 0.90; AVE = 0.68)

Item	Statement	Factor Loading
1	Communicating fluently in the prevalent language here is something I can do.	0.82
2	I comprehend both verbal and non-verbal aspects of the common language.	0.80
3	Expressing myself clearly in the common language is within my capability.	0.81
4	I am comfortable in conversations using the common language.	0.78
5	Understanding various accents in the common language is a skill I have.	0.77
6	Complex conversations in the common language are something I can follow.	0.79
7	I can participate effectively in discussions using the common language.	0.76

Communication Efficacy (CE)
(Cronbach's Alpha = 0.88; AVE = 0.66)

Item	Statement	Factor Loading
1	Conveying my thoughts effectively in intercultural settings is something I excel at.	0.84
2	I can modify my way of communication to suit various cultural scenarios.	0.81
3	My skills in intercultural communication across different cultures are strong.	0.83
4	Interpreting messages from culturally diverse individuals is easy for me.	0.78
5	Resolving intercultural communication misunderstandings is a skill I possess.	0.80
6	I use non-verbal cues effectively in intercultural interactions.	0.77
7	Recognizing and respecting different cultural communication styles is something I do well.	0.79
8	I am adept at communicating with people who have varied styles of communication.	0.76
9	Engaging in dialogue across cultures is an area where I am confident.	0.82

The full statements for every item and their loadings are shown in Table 4, which also verifies that every item loaded factor is higher than the CFA minimum value (>0.50). Furthermore, we evaluated reliability and validity using established indicators from scholarly literature. Reliability was assessed through Cronbach's Alpha ($\alpha > 0.70$) for all variables, ensuring measurement consistency. The Cronbach's Alpha values for each variable showed very good to excellent reliability: Cultural Background (CB) = 0.88,

Level of Cross-Cultural Adaptation (LCCA) = 0.92, Proficiency in Common Language (PCL) = 0.91, and Communication Efficacy (CE) = 0.90. The reliability and validity of the variables in this study were thoroughly assessed, as reflected in Table 4. The results showed that Composite Reliability (CR), Average Variance Extracted (AVE), and discriminant validity values for each variable exceeded the minimum criteria (CR > 0.70, AVE > 0.50, discriminant validity > 0.70).

Table 5's hetero-trait mono-trait (HTMT) ratios fell below the thresholds of 0.85 and 0.90, in line with Henseler et al. (2015), affirming discriminant validity.

Table 5. Hetero-trait mono-trait (HTMT)

Variable	1	2	3	4
Cultural Background (CB)				
Level of Cross-Cultural Adaptation (LCCA)	0.298			
Proficiency in Common Language (PCL)	0.357	0473		
Communication Efficacy (CE)	0.402	0.452	0.395	

4.3 Hypothesis Testing

Table 6 shows the hypothesis testing analysis results indicated a significant direct effect of Cultural Background (CB) on the Level of Cross-Cultural Adaptation (LCCA) ($\beta = 0.281$, t = 4.39, $p < 0.05$) and Proficiency in Common Language (PCL) ($\beta = 0.229$, t = 3.42, $p < 0.05$). Furthermore, LCCA was found to have a significant direct effect on Communication Efficacy (CE) ($\beta = 0.333$, t = 3.92, $p < 0.05$), as well as on PCL ($\beta = 0.408$, t = 5.59, $p < 0.05$). Lastly, PCL significantly influenced CE ($\beta = 0.180$, t = 2.22, $p < 0.05$).

Table 6. Direct effects

		B	SE.	t-value	p-value	Status
H1:	CB LCCA	0.281	0.064	4.39	0.000	Accepted
H2:	CB- PCL	0.229	0.067	3.42	0.000	Accepted
H3:	CB – CE	0.251	0.071	3.53	0.000	Accepted
H4:	LCCA – CE	0.333	0.085	3.92	0.000	Accepted
H5:	PCL - CE	0.180	0.081	2.22	0.001	Accepted

4.4 Mediating Analysis

In our analysis, the investigation of mediation effects was guided by the framework set forth by Zhao et al. (2010). The indirect effects of the independent variable on the dependent variable through the mediators were assessed using this approach. Table 7 shows secondary sub-model uncovered a notable indirect influence of Cultural Background (CB) on Communication Efficacy (CE) was detected ($\beta = 0.113$, $p < 0.05$), with the confidence interval bounds firmly placed between 0.042 and 0.215, establishing Level of Cross-Cultural Adaptation (LCCA) as a significant mediator. In addition, Proficiency in Common Language (PCL) was identified as a mediating variable, with a substantial indirect effect ($\beta = 0.102$, $p < 0.05$) of CB on CE, where the confidence interval did not contain zero, ranging from 0.038 to 0.205. Consequently, all the mediating constructs posited within this research were validated as statistically significant.

Table 7. Mediating Effects

Path	Total Effects	Direct Effects	Indirect Effects	Status
H6: CB → LCCA → CE	0.396**	0.286**	0.113**	Mediation
H7: CB → PCL → CE	0.397**	0.298**	0.101**	Mediation

5. DISCUSSION

In the study, empirical evidence supported each of the posited hypotheses, illustrating a direct causative chain in line with the Co-Directional Theory. The theory's principles were reflected in the findings, showing how a student's cultural background influences their adaptation skills, language mastery, and ultimately, communication efficacy. This progression from cultural background to communication efficacy through levels of cross-cultural adaptation and language proficiency underscores the interconnected nature of these factors in the Co-Directional Theory's framework. The study's findings align with previous research suggesting the significant influence of cultural background on an individual's adaptation process and language proficiency in a new cultural setting, subsequently affecting their communication efficacy. For instance, the direct effect of cultural background on cross-cultural adaptation and language proficiency echoes Kim et al. (2001) emphasis on the impact of cultural factors in adaptation processes. Furthermore, the mediating role of adaptation skills and language proficiency in the relationship between cultural background and communication efficacy is notable. This mediation supports the idea that adaptation and language skills are essential for effective intercultural communication, a concept highlighted in Jackson (2019) work. Overall, the research enriches the field of intercultural communication by empirically validating the complex interplay of these factors and their collective impact on communication efficacy. The findings offer valuable insights into the dynamics of intercultural communication, guided by the principles of the Co-Directional Theory. This theory provides a comprehensive understanding of the progressive and interconnected process of cultural adaptation and effective communication, emphasizing the critical role of mutual understanding and strategic integration in diverse cultural interactions.

6. CONCLUSION AND RECOMMENDATIONS

This study revealed the main parts of communication between international students from different cultures. These are things like cultural history, how well people can live in another culture, knowing a common language and being good at talking with others effectively. It also made a special plan for students from other countries to help them understand this kind of talk. In the model of Cross-Cultural Communication, we believe that going from good communication skills to fitting into a different culture involves many growth phases for people. Considering these phases, this study revealed key aspects of intercultural communication, emphasizing the roles of cultural background, adaptation to new cultures, language proficiency, and effective communication. The Cross-Cultural Communication Model (CCCM) developed here illustrates a progressive journey for international students, from understanding different cultures (CB) to adapting (LCCA), enhancing language skills (PCL), and achieving effective communication (CE) in their new environment. This model integrates various intercultural communication (IC) theories, providing a comprehensive pathway through multicultural experiences. Particularly notable is the application of the CCCM in Malaysia, involving students from diverse backgrounds, including Pakistani students, revealing unique insights into their cultural adaptation process. The CCCM's effectiveness in Malaysian settings encourages its broader application in diverse intercultural contexts. Future implementations of the CCCM, particularly in multicultural educational settings, could benefit from the involvement of experts from varied cultural backgrounds, enhancing its relevance and applicability.

7. RESEARCH LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

Although current studies offer a novel contribution, research limitations need to be surfaced to avoid any discrepancy between the findings. The scope of this study, primarily focused on a specific demographic in Kuala Lumpur, Malaysia, might not fully encapsulate the varied experiences of international students in different global contexts. Such a geographical limitation suggests caution when generalizing the findings to other settings. Future research could expand to include diverse cultural and geographical contexts, allowing for a more comprehensive understanding of the CCCM's applicability across different international student populations. Furthermore, the sample size, while providing robust findings in line with Neuliep (2012), might limit the depth of insights into the complex nuances of intercultural communication. Expanding the sample size and including participants from various cities or countries could provide a richer, more varied set of data. Future studies should also consider longitudinal approaches to better capture the evolving nature of cultural adaptation and communication efficacy over time. The current study's reliance on self-reported data could introduce bias, suggesting the need for mixed-method approaches in future research that combine quantitative surveys with qualitative interviews or observational studies. This would enable a more nuanced understanding of the CCCM and its components in real-world scenarios.

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Ethical Statement: Permission was taken from the host department before collecting the data, also informed consent was taken from all the participants for the collection and use of the data. The participants were told they can withdraw from the study at any stage of the interview. We also assured the anonymity of all the respondents who participated in this study.

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REFERENCES:

Arasaratnam, L. A. (2007). Research in intercultural communication competence: Past perspectives and future directions. *Journal of International Communication*, *13*(2), 66-73.

Arasaratnam, L. A. (2016). Intercultural competence. In *Oxford research encyclopedia of communication*.

Arasaratnam, L. A., & Doerfel, M. L. (2005). Intercultural communication competence: Identifying key components from multicultural perspectives. *International Journal of intercultural relations*, *29*(2), 137-163.

Arsenovic, J., De Keyser, A., Edvardsson, B., Tronvoll, B., & Gruber, T. (2021). Justice (is not the same) for all: The role of relationship activity for post-recovery outcomes. *Journal of Business Research*, *134*, 342-351.

Baldwin, J. R., González, A., Brock, N., Xie, M., & Chao, C.-C. (2023). *Intercultural communication for everyday life*. John Wiley & Sons.

Barrett, H. C. (2020). Towards a cognitive science of the human: cross-cultural approaches and their urgency. *Trends in cognitive sciences*, *24*(8), 620-638.

Bender, M., van Osch, Y., Sleegers, W., & Ye, M. (2019). Social support benefits psychological adjustment of international students: Evidence from a meta-analysis. *Journal of cross-cultural psychology*, *50*(7), 827-847.

Bennett, M. J. (1986). A developmental approach to training for intercultural sensitivity. *International Journal of Intercultural Relations*, *10*(2), 179-196.

Bethel, A., Ward, C., & Fetvadjiev, V. H. (2020). Cross-cultural transition and psychological adaptation of international students: The mediating role of host national connectedness. *Frontiers in Education*, 5:539950. https://doi.org/10.3389/feduc.2020.539950

Brislin, R. W. (1970). Back-translation for cross-cultural research. *Journal of cross-cultural psychology*, *1*(3), 185-216.

Chen, G.-M., & Starosta, W. J. (2000). The development and validation of the Intercultural Sensitivity Scale. *Human Communication, 3*, 1-15. https://doi.org/10.1037/t61546-000

Chio, C.-H., Tam, K.-W., & Gómez-García, R. (2021). Filtering angular displacement sensor based on transversal section with parallel-coupled-line path and U-shaped coupled slotline. *IEEE Sensors Journal*, *22*(2), 1218-1226.

Deardorff, D. K. (2006). Identification and assessment of intercultural competence as a student outcome of internationalization. *Journal of studies in international education*, *10*(3), 241-266.

Djelantik, A. M. J., Aryani, P., Boelen, P. A., Lesmana, C. B. J., & Kleber, R. J. (2021). Prolonged grief disorder, posttraumatic stress disorder, and depression following traffic accidents among bereaved

Balinese family members: Prevalence, latent classes and cultural correlates. *Journal of affective disorders*, *292*, 773-781.

Duong, C. D. (2024a). Environmental corporate social responsibility initiatives and the attitude-intention-behavior gap in green consumption. *Social Responsibility Journal*, *20*(2), 305-325.

Duong, C. D. (2024b). Using a unified model of TPB, NAM and SOBC to understand students' energy-saving behaviors: moderation role of group-level factors and media publicity. *International Journal of Energy Sector Management*, *18*(1), 71-93.

Epstein, J., Santo, R. M., & Guillemin, F. (2015). A review of guidelines for cross-cultural adaptation of questionnaires could not bring out a consensus. *Journal of clinical epidemiology*, *68*(4), 435-441.

Fennig, M., & Denov, M. (2021). Interpreters working in mental health settings with refugees: An interdisciplinary scoping review. *American Journal of Orthopsychiatry*, *91*(1), 50.

Fritz, W., Graf, A., Hentze, J., Möllenberg, A., & Chen, G.-M. (2005). An examination of Chen and Starosta's model of intercultural sensitivity in Germany and United States.

Gaffney, A. L. H. (2011). Measuring Students' Self-Efficacy for Communication. *International Journal of Art & Design Education*, *30*(2), 211-225.

Giacomella, L. (2021). Techno-economic assessment (TEA) and life cycle costing analysis (LCCA): Discussing methodological steps and integrability. *Insights into Regional Development*, *3*(2), 176-197.

Gong, Y., Gao, X., Li, M., & Lai, C. (2021). Cultural adaptation challenges and strategies during study abroad: New Zealand students in China. *Language, Culture and Curriculum*, *34*(4), 417-437.

Gudykunst, W. B., & Nishida, T. (2001). Anxiety, uncertainty, and perceived effectiveness of communication across relationships and cultures. *International Journal of intercultural relations*, *25*(1), 55-71.

Hammer, M. R., Gudykunst, W. B., & Wiseman, R. L. (1978). Dimensions of intercultural effectiveness: An exploratory study. *International Journal of Intercultural Relations*, *2*(4), 382-393.

Heckman, J. J., Ichimura, H., Smith, J. A., & Todd, P. E. (1998). Characterizing selection bias using experimental data. In: National bureau of economic research Cambridge, Mass., USA.

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the academy of marketing science*, *43*, 115-135.

Huang, M., Dong, Q., Ni, F., & Wang, L. (2021). LCA and LCCA based multi-objective optimization of pavement maintenance. *Journal of Cleaner Production*, *283*, 124583.

Jackson, J. (2019). *Introducing language and intercultural communication*. Routledge.

Jackson, M., Ray, S., & Bybell, D. (2019). International students in the US: Social and psychological adjustment. *Journal of International Students*, *3*(1), 17-28.

Jarrott, S. E., Leedahl, S. N., Shovali, T. E., De Fries, C., DelPo, A., Estus, E., Gangji, C., Hasche, L., Juris, J., & MacInnes, R. (2022). Intergenerational programming during the pandemic: Transformation during (constantly) changing times. *Journal of social issues*, *78*(4), 1038-1065.

Johnson, J. P., & Lenartowicz, T. (1998). Culture, freedom and economic growth: do cultural values explain economic growth? *Journal of world business*, *33*(4), 332-356.

Kaushanskaya, M., Blumenfeld, H. K., & Marian, V. (2020). The language experience and proficiency questionnaire (LEAP-Q): Ten years later. *Bilingualism: Language and Cognition*, *23*(5), 945-950.

Kim, B. S., Yang, P. H., Atkinson, D. R., Wolfe, M. M., & Hong, S. (2001). Cultural value similarities and differences among Asian American ethnic groups. *Cultural Diversity and Ethnic Minority Psychology*, *7*(4), 343.

Kim, Y. Y. (2017). Cross-cultural adaptation. *Oxford research encyclopedia of communication*.

Lashari, S. A., Awang-Hashim, R., Lashari, T. A., & Kaur, A. (2023). Acculturation stress and social support for international students' adjustment in Malaysia: does language proficiency matter? *Journal of Applied Research in Higher Education*, *15*(2), 496-508.

Lewthwaite, M. (1996). A study of international students' perspectives on cross-cultural adaptation. *International Journal for the Advancement of Counselling*, *19*(2), 167-185.

Lou, N. M., & Noels, K. A. (2020). Breaking the vicious cycle of language anxiety: Growth language mindsets improve lower-competence ESL students' intercultural interactions. *Contemporary Educational Psychology*, *61*, 101847.

Luo, Q., Liu, L., Lin, Y., & Zhang, W. (2021). Don't miss the labels: Label-semantic augmented meta-learner for few-shot text classification. In *Findings of the Association for Computational Linguistics: ACL-IJCNLP 2021* (pp. 2773-2782).

Mushquash, C. J., & Bova, D. L. (2007). Cross-cultural assessment and measurement issues. *Journal on Developmental Disabilities*, *13*(1), 53-65.

Jones, A., & Quach, X. (2007). Intercultural communication. *The University of Melbourn.*

Ting-Toomey, S., & Chung, L. C. (2005). *Understanding intercultural communication* (p. 352). New York: Oxford University Press.

Nakanishi, M., Kurokawa, G., Niimura, J., Nishida, A., Shepherd, G., & Yamasaki, S. (2021). System-level barriers to personal recovery in mental health: Qualitative analysis of co-productive narrative dialogues between users and professionals. *BJPsych open*, *7*(1), e25.

Neuliep, J. W. (2012). The relationship among intercultural communication apprehension, ethnocentrism, uncertainty reduction, and communication satisfaction during initial intercultural interaction: An extension of anxiety and uncertainty management (AUM) theory. *Journal of Intercultural Communication Research*, *41*(1), 1-16.

Neuliep, J. W. (2017). Anxiety/Uncertainty management (AUM) theory. *The International Encyclopedia of Intercultural Communication*, 1-9.

Page, C. (2021). Pathways of Intercultural Development. *Foundations of Intercultural Teaching*.

Pérez-Almendros, C., Espinosa-Anke, L., & Schockaert, S. (2020). Don't patronize me! An annotated dataset with patronizing and condescending language towards vulnerable communities. *arXiv preprint arXiv:2011.08320*.

Rivas, J., Hale, K., & Burke, M. G. (2019). Seeking a sense of belonging: Social and cultural integration of international students with American college students. *Journal of International Students*, *9*(2), 682-704.

Rustamov, I., & Mamaziyayev, Z. (2022). Development of speaking comprehension in teaching foreign language for professional purposes. *Asian Journal of Research in Social Sciences and Humanities*, *12*(2), 227-233.

Schauer, G. A. (2020). Measuring intercultural competence. In *The Routledge handbook of second language acquisition and language testing* (pp. 359-370). Routledge.

Shields, R. (2019). The sustainability of international higher education: Student mobility and global climate change. *Journal of Cleaner Production*, *217*, 594-602.

Sinicrope, C., Norris, J., & Watanabe, Y. (2007). Understanding and assessing intercultural competence: A summary of theory, research, and practice (technical report for the foreign language program evaluation project).

Smith, R. A., & Khawaja, N. G. (2011). A review of the acculturation experiences of international students. *International Journal of intercultural relations*, *35*(6), 699-713.

Spitzberg, B. H., & Changnon, G. (2009). Conceptualizing intercultural competence. *The SAGE handbook of intercultural competence*, 2-52.

Suh, J., Oh, S.-J., & Cho, S. Y. (2020). Comprehensive review of effective application of questionnaires for clinical research on lower urinary tract symptoms with translation and cultural adaptation to the Korean language. *International Neurourology Journal*, *24*(4), 313.

Susila, T., & Risvan, L. (2022). Recontructing the Formation of Israel's Religion in the context of Old Testament Biblical Text. *Khazanah Theologia*, *4*(2), 117-134.

Timmis, K., & Ramos, J. L. (2021). The soil crisis: the need to treat as a global health problem and the pivotal role of microbes in prophylaxis and therapy. *Microbial Biotechnology*, *14*(3), 769-797.

Ting-Toomey, S., & Dorjee, T. (2018). *Communicating across cultures*. Guilford Publications.

Wang, H., Li, J., Wu, H., Hovy, E., & Sun, Y. (2022). Pre-trained language models and their applications. *Engineering*, *25*, 51-65. https://doi.org/10.1016/j.eng.2022.04.024

Ward, C., & Kennedy, A. (1999). The measurement of sociocultural adaptation. *International Journal of Intercultural Relations*, *23*(4), 659-677.

Wirba, A. V. (2021). Transforming Cameroon into knowledge-based economy (KBE): the role of education, especially higher educatioN. *Journal of the Knowledge Economy*, 1-31.

Yuvaraj, N., Srihari, K., Dhiman, G., Somasundaram, K., Sharma, A., Rajeskannan, S., Soni, M., Gaba, G. S., AlZain, M. A., & Masud, M. (2021). Nature-inspired-based approach for automated cyberbullying classification on multimedia social networking. *Mathematical Problems in Engineering*, *2021*, 1-12.

Zhang, W., Aljunied, M., Gao, C., Chia, Y. K., & Bing, L. (2024). M3exam: A multilingual, multimodal, multilevel benchmark for examining large language models. *Advances in Neural Information Processing Systems*, *36*.

Zhao, X., Lynch Jr, J. G., & Chen, Q. (2010). Reconsidering Baron and Kenny: Myths and truths about mediation analysis. *Journal of consumer research*, *37*(2), 197-206.