



## OPEN ACCESS

## EDITED BY

Douglas Ashwell,  
Massey University Business School,  
New Zealand

## REVIEWED BY

Gregory Siy Ching,  
National Chengchi University, Taiwan  
Stephanie Kelly,  
North Carolina Agricultural and Technical State  
University, United States  
Peyman G. P. Sabet,  
Curtin University, Australia

## \*CORRESPONDENCE

Muhammad Umar Nadeem  
✉ umarnadeem@shisu.edu.cn

RECEIVED 02 November 2023

ACCEPTED 13 November 2023

PUBLISHED 30 November 2023

## CITATION

Nadeem MU and Zabrodska A (2023) A comprehensive model of intercultural communication for international students living in culturally diverse societies: evidence from China. *Front. Commun.* 8:1332001. doi: 10.3389/fcomm.2023.1332001

## COPYRIGHT

© 2023 Nadeem and Zabrodska. This is an open-access article distributed under the terms of the [Creative Commons Attribution License \(CC BY\)](https://creativecommons.org/licenses/by/4.0/). The use, distribution or reproduction in other forums is permitted, provided the original author(s) and the copyright owner(s) are credited and that the original publication in this journal is cited, in accordance with accepted academic practice. No use, distribution or reproduction is permitted which does not comply with these terms.

# A comprehensive model of intercultural communication for international students living in culturally diverse societies: evidence from China

Muhammad Umar Nadeem<sup>1\*</sup> and Anastassia Zabrodska<sup>2</sup>

<sup>1</sup>SISU Intercultural Institute (SII), Shanghai International Studies University (SISU), Shanghai, China, <sup>2</sup>Baltic Film, Media and Arts School, Tallinn University, Tallinn, Estonia

Intercultural communication (IC) and international students go side by side in this era of internationalization of higher education. The key concepts of IC, namely intercultural effectiveness (ICE), intercultural competence (ICC), intercultural adjustment (ICA), and intercultural adaptation (ICN) are used interchangeably in the literature. However, the present study argues that the stated concepts are theoretically different and further proposes that ICE, ICC, ICA, and ICN are phases of IC. Based on these conceptual differences, a comprehensive model of IC (CMIC) is proposed in this study. The CMIC explains that these four concepts are principally developmental phases for international students to become interculturally effective in adapting to a new culture. The current research further offers preliminary testing of CMIC, which is applied to international students in Shanghai, China through quantitative research followed by a survey. Instruments developed by experts were used in this study. International students were approached to participate in the survey at the convenience of the researcher. One hundred and seventy-one international students represented 18 different cultures, which reconfirms the culture-general approach by considering the stance of more than two different cultures. The findings revealed that international students became interculturally effective and competent which further enabled them to adjust to China. Later, their adjustment helped them adapt better to the new culture. The findings of this study validated the core predictions of the CMIC. As this is the first testing of CMIC on a relatively small sample, more extensive testing is expected soon to validate its assumptions in different contexts, such as Pakistan, Malaysia, and Australia, among others. The CMIC also suggests practical implications for policymakers and institutes of host countries regarding international students and other people living in a culturally different society.

## KEYWORDS

intercultural communication, international students, effectiveness, competence, adjustment, adaptation, CMIC, China

## 1 Introduction

The internationalization of higher education has played a significant role in regional transformations and has brought about important global shifts. These shifts include making education accessible to a larger number of people, the rise of a global knowledge-driven economy, and greater emphasis on institutional reputation and rankings (de Wit, 2019). When exposed to a new culture, an international student's initial encounters revolve

around intercultural communication (IC). The effectiveness of IC is an indication of their stay, satisfaction, and adjustment to the host culture (Nadeem et al., 2020a). A failure in effective IC can lead to discouragement, dissatisfaction, and frustration, ultimately negatively impacting the student's higher education objectives (Nadeem et al., 2020b). Therefore, it is recommended by experts of IC that individuals possess attitudes, skills, and knowledge that emphasize both effectiveness and appropriateness, which can then facilitate a smoother transition into new cultural environments (Chen and Starosta, 1996; Deardorff, 2006; Spitzberg and Changnon, 2009).

IC research has provided a broad range of perspectives, models, and theories to assess almost every aspect of the human population (Sinicrope et al., 2007). The four major concepts in the IC literature are ICE, ICC, ICA, and ICN—all of which are elements that cannot be dismissed or disregarded by international students, given that they aid in navigating life within culturally-diverse or multicultural societies (Nadeem et al., 2020b). The terms ICE, ICC, ICA, and ICN were initially used in the 1970s (Spitzberg and Changnon, 2009). Theoretically, the terms discussed are considered to be similar concepts across past studies (Ruben and Kealey, 1979; Gudykunst, 1995; Gibson and Zhong, 2005; Nadeem et al., 2020b); however, the current study treats each concept differently because of the strong theoretical conceptualization of these phenomena. The historical evolution of the above-mentioned terms, along with their explanations, must be briefly considered before heading toward the aims of the current research.

The initial effort to explain the concept of IC was done by Hammer et al. (1978) who labeled it as “intercultural effectiveness.” Subsequently, the researchers opted for the term “intercultural competence” and classified its dimensions as sensitivity, skills, and awareness (Chen and Starosta, 1996, 2000; Fritz et al., 2005). Following the same pattern, Bennett (1986, 1993) introduced the developmental model of intercultural sensitivity (DMIS), and which contains six stages ranging from ethnocentrism to ethnorelativism for a better understanding of cultural differences. During this timeframe, multiple intercultural experts explored this concept through different models, theories, and perspectives (Arasaratnam and Doerfel, 2005; Arasaratnam, 2016); however, these authors did not reach an agreement on a unified term and description. Deardorff (2006) conducted a Delphi study to eliminate such ambiguities and complexities from this concept and came up with a universally-acceptable and clear definition of ICC from the consensus of a majority of experts as “the ability to communicate effectively and appropriately in intercultural situations as based on one's intercultural knowledge, skills, and attitudes” (p. 247–248).

A person's motivation, attitude, knowledge, and skills regarding the ICC can be evaluated at some point. This assessment is a continuous process that occurs when an individual delves deeper into a culturally-distinct society (Deardorff, 2006). The distinction is mainly based on the concepts of ICE and ICC. On the other hand, Spitzberg and Changnon (2009) further clarified the differences between ICA and ICN. They described ICA as a state in which an individual encounters minimal stress or cultural shock and successfully adapts to a new culture. In addition, they highlighted

ICN as a shift in communication behavior aligned with the host context, further corresponding to adjustment and assimilation. Lewthwaite (1996) confirmed that ICN cannot be attained if students are not competent in communication. It is evident that ICE, ICC, ICA, and ICN are significantly different from one another and must, therefore, be fostered while living in a culturally-diverse or multicultural society (Chen and Starosta, 1996; Nadeem et al., 2020b).

The anxiety uncertainty management (AUM) theory has emerged as a strategically-structured and comprehensive theory in IC research (Nadeem and Koschmann, 2023). The strength of AUM is not limited to the conception of strangers and their primary communication behaviors (Gudykunst, 1991, 1993, 1995, 2005). However, the core assumptions and theorems of the AUM have been validated across various areas and contexts, even as the theory has expanded (Nadeem et al., 2023). An overlooked area of AUM is its foundational predictions and explanations, which have been applied to ICE (Gudykunst, 1991, 1993; Nadeem and Koschmann, 2023), ICC (Nadeem et al., 2020a), ICA (Gudykunst, 1995, 2005), and ICN (Hammer et al., 1998) separately. This reaffirms the central focus of the study. The ongoing debate on IC research was either subjected to only two cultural groups (such as the USA and Japan, or to the home and host cultures) or considered the multicultural standpoints (more than two cultures) for maximum generalizability of the research findings. These two cultural approaches are culture-specific, and more than two cultural approaches are known as culture-general approaches (Arasaratnam, 2007; Nadeem, 2022). Therefore, the culture-general approach was favored and further integrated into the current study.

Relying solely on IC is insufficient for international students and cannot facilitate their journey toward a meaningful stage or phase. In fact, a student should possess the effectiveness, competence, and both the ability and adaptiveness to adjust within an intercultural context. Previous studies have examined only the factors that contribute to the stages and processes by which one can reach the discussed concepts (ICE, ICC, ICA, or ICN). However, what transpires after the attainment of any individual concept (such as ICE or ICC) remains uncharted in the IC research literature. This study aims to answer this question by proposing a comprehensive model of IC (CMIC) that links four major concepts of IC as the phases necessary for adapting to a new culture. The model proposes that a student must be effective (ICE) which then paves the path for competence (ICC), leading to adjustment (ICA) in an intercultural setting. Upon successfully navigating these three stages, there is a probability that they can adapt (ICA) to the new culture. The following section explains the differences in the supportive literature and proposes CMIC.

## 2 Literature review

The literature is further divided into four key subsections—ICE, ICC, ICA, and ICN—in which research practices and differences among the mentioned concepts are gathered individually and discussed further.

## 2.1 Intercultural effectiveness

IC is best defined as “people of two different ethnic groups or cultures trying to communicate, perhaps despite their differences” (Arasaratnam and Doerfel, 2005, p. 155). ICE is assumed to occur when misunderstandings can be minimized between communicators and when communication becomes effective (Gudykunst and Nishida, 2001). Neuliep (2012) defined ICE as “the notion that a person receiving and interpreting a message attaches a meaning to the message that is relatively similar to what was intended by the transmitter” (p. 4). The AUM theory appears to be the most promising theory which discussed ICE in greater depth, comprehensiveness, and systematic detail (Nadeem et al., 2023). AUM’s theoretical framework defines a systematic procedure with three important components—superficial causes, fundamental causes, and a moderation process—which informs the approach to ICE (Gudykunst, 1993).

AUM contains six major superficial causes (e.g., the motivation to interact with strangers, connections with strangers, reactions to strangers, and others) in broader terms, and every category is further divided into various factors. The subsequent stage concerns basic causes, including the management of anxiety and uncertainty, and the final step includes the moderation process of mindfulness to attain ICE (Neuliep, 2012). In summary, superficial causes, individually or collectively, function as a guide for individuals in navigating anxiety and uncertainty during interactions with strangers, and they must be mindful of being effective in IC (Nadeem and Koschmann, 2023). Furthermore, it has been claimed that the communication process remains consistent regardless of whether or not the communicators are from the same cultural background (Gudykunst, 1991; Neuliep, 2012).

The AUM theory labels these communicators as potential strangers, and they are considered strangers in their basic and initial interactions. ICE goes beyond the simplified method of interpersonal or intercultural encounters that require effective interactants (Gudykunst, 1993). Intercultural scholars have defined it slightly differently depending on the requirements of their relevant domains of interest (Nadeem et al., 2020b). The consensus among most experts is that achieving appropriateness and effectiveness in intercultural interactions depends on an individual’s motivation, skills, attitudes, and knowledge (Nadeem, 2022). In terms of AUM, ICE is achieved when the receiver can understand the message in the same way as intended by the sender during an intercultural interaction (Gudykunst, 2005). The central emphasis is on the effectiveness of the individuals engaged in the communication process and their ability to be effective throughout the process.

During early attempts to conceptualize ICE, Hammer et al. (1978) noted three prevailing dimensions: the capacity to communicate effectively, managing psychological stress, and cultivating intercultural relations. In the coming years, the AUM theory elaborated that ICE is a multifaceted process that can be attained when individuals are able to manage anxiety or uncertainty and can remain mindful during intercultural interactions (Gudykunst, 1993, 1995, 2005). Subsequently, this proposition was reconfirmed within the non-Western cultural contexts of Pakistan (Nadeem and Koschmann, 2023) and

China (Nadeem et al., 2023), with ICE being shaped by various factors, such as sensation seeking, anxiety, empathy, and uncertainty, and moderated by mindfulness. The discussed assumption demonstrates that ICE is an output of certain processes (Gudykunst, 2005) rather than having several dimensions that can portray it.

As is quite evident, ICE only emphasizes the effectiveness of individuals engaged in an intercultural interaction according to the experts of ICE (Gudykunst, 1993; Neuliep, 2012). This suggests that effectiveness is achieved when the receiver accurately interprets the sender’s message as it was intended. Careful examination of the conceptualization of ICC reveals that both communication effectiveness and appropriateness stem from individuals’ knowledge, attitudes, and skills. This finding suggests that ICE precedes the conscious manifestation of ICC through an individual’s skill set. Based on this reasoning, it can be argued that ICE (effectiveness) is a prerequisite for ICC (appropriateness and effectiveness) and that ICE could directly impact the ICC of the individual.

Hypothesis 1: There is a direct influence by ICE on ICC.

## 2.2 Intercultural competence

ICC is defined as “the knowledge, motivation, and skills to interact effectively and appropriately with members of different cultures” (Wiseman, 2002, p. 208). The term ICC and its definition have been the focus of continued discussion for a long time. Spitzberg and Changnon (2009) referred to ICC as “the appropriate and effective management of interaction between people who, to some degree or another, represent different or divergent affective, cognitive, and behavioral (*sic*) orientations to the world” (p. 7). In addition, numerous contradictions and ambiguities become noticeable when critically examining previous ICC studies. For example, ICC is a multidimensional construct, a theoretical approach, and ICC can be influenced by various predictors (Nadeem et al., 2018).

Throughout the development of the ICC concept, most experts maintained it as a multidimensional construct, that is, both a term and a variable (Wiseman et al., 1989). Ruben (1976) claimed seven underlying dimensions of the ICC: empathy, role behavior, display of respect, knowledge, posture, tolerance for ambiguity, and interaction management. Furthermore, it has been proposed that an individual’s ability to convey these concepts through their actions should be emphasized, rather than relying exclusively on evaluating competency based on attitude, knowledge, intentions, and motives (Ruben, 1976). An interesting approach has noted that individuals’ personal networking with culturally-different people can aid in attaining ICC in intercultural interactions (Kim, 1986). However, this has not been empirically validated by other researchers (Arasaratnam and Doerfel, 2005). The five-factor model for ICC proposed by Byram (1997) includes skills, knowledge, attitudes, discovery and interaction skills, and critical cultural awareness which are considered integral components of ICC. According to scholars, the ICC is a combination of three main dimensions, namely those concerning the cognitive, affective, and

behavioral dimensions (Chen and Starosta, 1996; Spitzberg, 2000; Fritz et al., 2005).

Experts have also examined and established the theoretical rationale behind ICC in diverse ways. Intercultural sensitivity is a crucial aspect of ICC. Chen and Starosta (2000) introduced a model associated with this dimension as (MIS). The model was established in the US and later applied in Germany, yielding significant results (Fritz et al., 2005). One study highlighted that five factors predict intercultural sensitivity: interaction engagement, attentiveness, enjoyment, confidence, and respect for cultural differences (Fritz et al., 2005). Conversely, it is argued that intercultural sensitivity and ICC are different, with intercultural sensitivity being referred to as the ability to differentiate and witness cultural differences, and ICC as the ability to behave appropriately within intercultural settings or contexts (Hammer et al., 2003). The DMIS has also been identified as an important contribution that serves as the basis for assessing intercultural sensitivity and ICC (Sinicrope et al., 2007). DMIS has six stages, in which the first three stages (denial, defense, and minimization) are ethnocentric, and the remaining three (acceptance, adaptation, and integration) are ethnorelative stages (Bennett, 1986, 1993). In simpler terms, these developmental stages shift a person from lower to higher ICC levels.

Other researchers have continued to explore the predictors or antecedents of ICC by observing their direct and indirect influences. Empathy (Gibson and Zhong, 2005; Deardorff et al., 2017), knowledge of the host culture (Wiseman et al., 1989), attitudes, motivation (Arasaratnam et al., 2010), and other factors are direct influencers of ICC. Conversely, sensation seeking (Nadeem et al., 2020b), ethnocentrism (Arasaratnam and Banerjee, 2011), and several others (see, Arasaratnam, 2016) have indirect effects on ICC. Arasaratnam and Doerfel (2005) introduced a unique “culture-general” approach to identify key contributors of ICC. This approach subsequently helped establish an integrated ICC model (IMICC). The IMICC has been applied in the context of the US, Australia, and Malaysia, and has yielded noteworthy results regarding the predictors of ICC (Nadeem, 2022). The underlying strategy behind this model covers the perspective of people who belong to various cultures, and is considered a strength of the IMICC (Nadeem et al., 2022). Thus far, the IMICC version has not been widely tested, despite its strong theoretical foundation. In recent decades, a noticeable trend has emerged wherein the ICC dimensions that were once predominant are now regarded as predictors of ICC itself (Nadeem et al., 2020a).

Based on the studies discussed above, it is evident that ICC can be considered a multidimensional construct, theoretical reasoning (process), or an outcome variable, depending on the nature of the research. However, the studies discussed did not explore the next stage after ICC, and which merits further exploration. In simpler words, the core concept of ICC involves an individual's adept and effective behavior as driven by their skills, with this behavior not to be assumed to reflect a person's satisfaction or comfort level in a different setting. This finding implies the existence of a subsequent stage or phase after one achieves competence in intercultural interactions. The next phase involves ICA for an individual. ICA refers to an individual's contentment derived from both overall and interactional adaptations in a new cultural context. Therefore, it must be assumed that after ICC, people can adjust to a different

environment, and that ICC can directly impact the ICA of an individual in a foreign setting.

Hypothesis 2: There is a direct influence of ICC on ICA.

Hypothesis 3: There is a direct influence of ICE on ICA.

## 2.3 Intercultural adjustment

Intercultural or cross-cultural adjustment is best defined as an increased level of psychological satisfaction, comfort, or ease in relatively unfamiliar cultural settings (Black, 1988). Yoo et al. (2006) described ICA as “the process of altering one's behaviors (*sic*) or cognitions in relation to a different environment, in order to better interact with the environment to achieve desired end goals” (p. 346). This construct continues to be prominent in both IC research and professional environments where foreigners and expatriates work within culturally diverse organizations (Froese et al., 2012). Considering its conceptual and theoretical reasonings, the construct is further segmented into three major underlying concepts—general, working, and interaction adjustment (Black and Stephens, 1989)—and which have been reflecting the ICA of individuals for many years. Some fundamental and initial necessities—such as food, health, climate, and housing—are included in the general adjustment (Froese et al., 2012). Conversely, the ease of socialization and interaction with host members fall under the domain of interaction adjustment. Given that the primary focus of this study concerned international students (who are not typically engaged in work), the inclusion of general and interaction adjustments was intended to reveal their ICA.

Researchers from diverse fields have emphasized the significance of enhancing the theoretical understanding of ICA to benefit students, expatriates, the working class, and others. The most promising effort is the development of the U-curve model of ICA which outlines seven stages ranging from low satisfaction to higher adjustment satisfaction for individuals who are exposed to culturally-diverse environments (Gullahorn and Gullahorn, 1963). The model refers to the initial experiences of individuals as the “honeymoon stage” and the final stage of an individual's experiences as “witnessing resocialization” (Spitzberg and Changnon, 2009). The curve of this model defines the experiences of people toward their ICA and their satisfaction within a culture. Another study observed that, following the honeymoon phase—and having to overcome the challenges of adapting to a new culture—individuals tend to gain a higher level of adjustment to foreign cultures (Winkelman, 1994). Conversely, it is also noted that the influencers of ICC can facilitate individuals to better adapt to a new culture and be satisfied with their intercultural relationships (Ruben and Kealey, 1979).

Moreover, AUM theory thoroughly discusses the ICA of strangers in a new culture (Gudykunst, 1995). Nishida (2015) revealed a sub-theory under the umbrella of the main AUM theory and which solely discusses the adjustment of people in relatively different cultures. The primary explanations and predictions of AUM remain the same; however, theorists have expanded a few axioms associated with the adjustment of individuals in this sub theory (Gudykunst, 1995, 2005). Cultural dimensions (individualism-collectivism) and others have been integrated into

the concept of adjustment in AUM (Gudykunst, 1995, 2005; Nishida, 2015). Furthermore, the sub-theory does not focus exclusively on the concept of adjustment; it also suggests training programs aimed at facilitating individuals' adjustment to the host culture in an impressive and efficient manner. A study on ICA revealed that the length of residence and self-evaluation of language competence facilitate the process of adjustment in a different cultural context (Lou and Noels, 2019).

Numerous studies are available within the extant body of literature that can explain how certain factors influence ICA and how ICA can be understood theoretically. However, locating literature that offers guidance on how ICA can further influence another factor, or what the subsequent phase-following adjustment might entail, can be challenging. Looking at the concept of ICA, it is noted that it is a combination of an individual's satisfaction with their general and interaction adjustments in the host context. Therefore, it reconfirms that it is dramatically different from ICE (effectiveness) and ICC (appropriateness and effectiveness) and can be positioned as a different phase. It also means that, if a person is well-adjusted (generally and communicatively) in a host culture, then it does not mean that they have adopted that culture. Given the rationale presented, it can be inferred that ICN may follow ICA and that an individual's adjustment can play a role in their adaptation process.

Hypothesis 4: There is a direct influence of ICA on ICN.

Hypothesis 5: There is a direct influence of ICC on ICN.

## 2.4 Intercultural adaptation (ICN)

Intercultural or cross-cultural adaptation is "the process of establishing (or reestablishing) and maintaining relatively stable, reciprocal, and functional relationships with individuals from different cultures" (Kim, 2001, p. 31). ICN is a process that increases one's level of fitness to meet the demands of a new cultural environment (Kim, 1989). It is similar to other transition processes in life, such as new jobs, new places to live, and studying in large cities (Martin and Nakayama, 2013). The term "third-culture perspective" was introduced by Gudykunst et al. (1977) and represents a broader context beyond an individual's home or host culture. Instead, it is a general foundation that can be used to understand the IC among interactants. Empathy is an integral component of the third cultural perspective. The findings suggest that the third cultural perspective increases an individual's satisfaction with a new culture (Gudykunst et al., 1977) and which may, in turn, help them adapt to that culture.

Ruben and Kealey (1979) outlined three key ICN dimensions: cultural shock, psychological adjustment, and intercultural effectiveness. They highlighted that during the initial stages of adapting to a new culture, most individuals experience cultural shocks. However, as they become more comfortable in the new environment, they undergo psychological adjustments and develop a relatively new culture. Following these two phases, individuals are likely to be interculturally effective and adapt to the culture. ICE is often considered

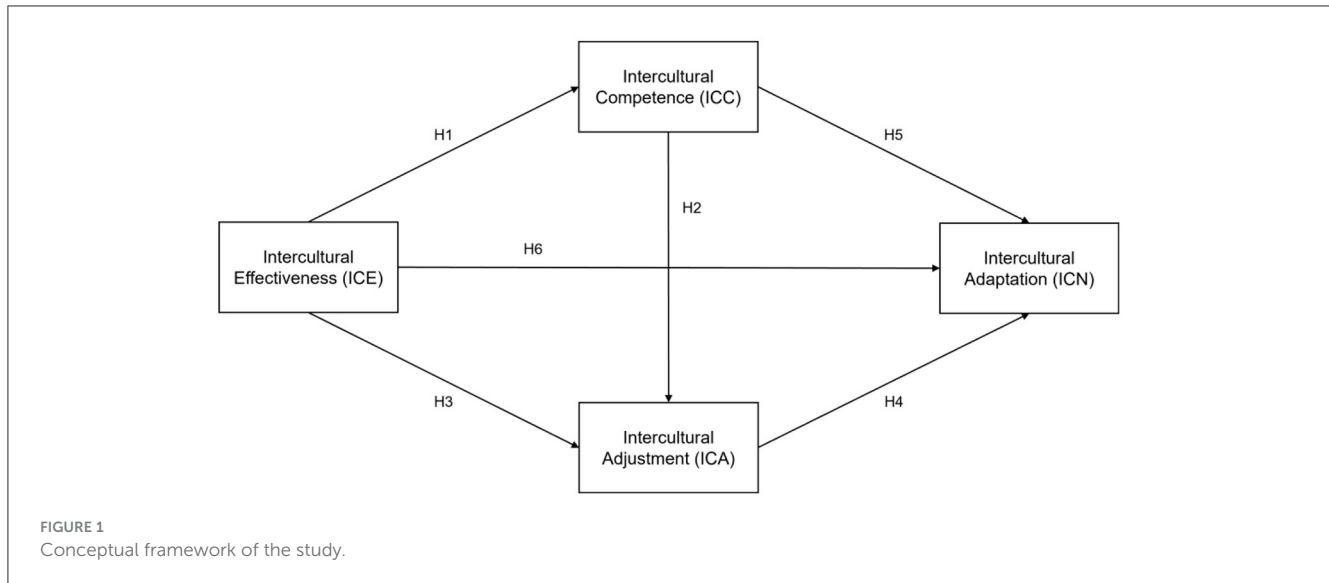
one of the criteria of ICN (Spitzberg and Changnon, 2009).

Conversely, prominent theoretical approaches have enabled researchers to better understand the processes of individual adaptation. The application of AUM has been observed among international students in the United States regarding their adaptation to new cultures (Hammer et al., 1998). The affective, cognitive, and behavioral dimensions of ICN were acknowledged by Ting-Toomey (1993) from the perspective of identity negotiation, which helps individuals adapt to new or unfamiliar cultures. Outlining the major differences between cultural competence and ICC, the systems theory approach explains that competence within a specific context does not imply ICC among other contexts (Kim, 1991). Kim considered adaptability as an individual's capacity to adjust to the requirements of the new culture, which becomes obvious during intercultural encounters (Kim, 1995). Accordingly, adaptability and ICC share the same dimensions: cognitive, behavioral, and affective (Kim, 1995, 2002). Peng and Wu (2019) reconfirmed Kim's assumption that host social and communication competence, as well as basic and advanced intercultural transformations, play an integral role in the development of international students' ICA.

Winkelman (1994) explained, in detail, the stages of cultural shock in individuals exposed to a new culture. These four stages resemble the U-curve model with certain slight distinctions (Gullahorn and Gullahorn, 1963). The first stage is the "tourist" or "honeymoon phase" for a newcomer, followed by the second stage in which individuals experience cultural shocks and crises. The third stage revolves around the initiation of the recovery process from the crisis and the beginning of the process of adjusting to the new culture. The final stage comprises of individuals adapting to the culture by altering their existing behaviors so as to align better with the culture in question. Individuals must undergo substantial behavioral changes for maximum cultural assimilation (Winkelman, 1994). Lewthwaite (1996) discovered how international students can be adapted to new academic and cultural contexts. Students commonly experience frustration, cultural mismatches, and loneliness when adapting to a new culture. The lack of ICC has emerged as a major hurdle hindering ICA.

Based on the critical discussion in this section, it is evident that the terms ICE, ICC, ICA, and ICN are distinct in terms of conceptualization and practical application. It is also an undeniable fact that these terms have been used interchangeably in previous efforts, but with different conceptualisations and theoretical reasoning. In terms of ICN, it is witnessed that it can be achieved when persons are already adjusted to the host country or culture, and can then adopt that culture. Therefore, it is proposed that the ICE can predict and directly impact the ICN of such individuals. Figure 1 presents the conceptual framework of the current study, along with paths indicating the direction of every hypothesis, which is solely based on the strong conceptual and theoretical justifications discussed in this section.

Hypothesis 6: There is a direct influence of ICE on ICN.



## 3 Methods

### 3.1 Research design and technique

Since the current study concerns a preliminary test of the CMIC, a cross-sectional research design followed by a survey technique is preferred. A survey form was designed to test CMIC among international students in Shanghai, China. Previous studies have documented that many researchers have concentrated on a particular university as their research population because of the greater cultural diversity it offers (Nadeem et al., 2020a). However, in the current study, international students from all universities in Shanghai, China were considered a targeted population for a number of reasons. Shanghai stands out as one of the most culturally-diverse cities in China, hosting a relatively large population of international students in its educational institutes when compared to other cities. Moreover, this study adopted a cultural-general approach which necessitated the incorporation of perspectives from at least two different cultural standpoints (Arasaratnam, 2007, 2016). These two concerns can be addressed by using a targeted approach that incorporates international students across various campuses in Shanghai. The participants' inclusion criteria were very clear and driven by three key principles: they must be international students, they must be living in Shanghai, and can be enrolled in any academic degree program.

International students in Shanghai were approached through a convenience sampling approach involving visits to their campuses and invitations to participate in the study. The survey form included a consent statement at the beginning, indicating that students had the freedom to discontinue participation at any time if they felt uncomfortable. In addition, the form guaranteed that the students' identities would be kept confidential. Sample size has been a key issue in studies focusing on international students in the past (Nadeem et al., 2020b, 2023). This study adopts the sample-to-variable ratio technique (Hair et al., 2018). This technique recommends an ideal ratio of 20 samples for each variable (20:1). Based on these criteria, a sample size of

over 80 international students was deemed sufficient for this study (80:4). A sample size of 80 was regarded as the lowest threshold for this study; therefore, more than 300 survey forms were distributed to the international students in Shanghai. Almost 200 questionnaires were returned, indicating a very good response rate of more than 67% of the entire distribution. After the initial screening for missing values and empty sections, 171 usable responses remained for the final data analysis. Thus, the current study collected data from a large number of international students ( $N = 171$ ), surpassing the minimum threshold and meeting the sampling criteria.

### 3.2 Instrumentation

The survey was conducted in English as the primary language. It was broadly divided into three major segments. The first section consisted of the title, instructions for completing the survey, and a consent form. Five distinct types of descriptive questions were presented in the second section, the first asking for the respondent's country of origin, followed by an open-ended space followed by sex (male or female), educational status (undergraduate or postgraduate), and past intercultural experiences (yes or no), all presented with dichotomous response options. Finally, respondents were questioned about their age groups at specified intervals. The third section was of utmost significance because it contained the items of the selected variables for the present study. A five-point Likert-type scale was used to measure the responses for each item across all variables (ICE, ICC, ICA, and ICN). In terms of the instruments chosen for each variable, the current study adopted well-recognized scales in the literature on IC and which have excellent reliability. Despite being alternative worthy scales in various domains, the selected scales were preferred because of their endorsements by experts in IC research and their close alignment with the conceptualization of the chosen variables in the current study. The total number of items for each variable and their sources of adoption are listed in Table 1. The Statistical

TABLE 1 Measurement tools.

Variable	Scale	Item	Source
Intercultural effectiveness (ICE)	1–5	04	Gudykunst and Nishida, 2001
Intercultural competence (ICC)	1–5	10	Arasaratnam, 2009
Intercultural adjustment (ICA)	1–5	11	Black, 1988; Black and Stephens, 1989
Intercultural adaptation (ICN)	1–5	08	Gao and Gudykunst, 1990

Package for Social Sciences (SPSS) and Analysis of Moment Structures (AMOS) were used to analyse the data collected in this study.

## 4 Results

### 4.1 Participants

Eighteen cultures were presented by the international students who participated in this study ( $N = 171$ ). Most were from Malaysia, Nigeria, Pakistan, Russia, and South Korea. Almost 47% of them were female and 53% were male. Among them, 37 were enrolled in undergraduate programs, and 134 were pursuing postgraduate studies. Approximately 77% of the international students had intercultural experiences prior to coming to China. In terms of age groups, 45.6% were between the ages of 21–25, 32.2% were between the ages of 16–20, and 22.2% were between the ages of 26–30. Table 2 presents the complete details of the participants' demographic characteristics. An independent samples  $t$ -test was conducted to evaluate the variance among students who had and did not have prior intercultural experience. The results revealed that students with and without past intercultural experience did not show any statistically significant changes in ICE ( $F = 0.059$ ,  $p > 0.05$ ), ICC ( $F = 0.635$ ,  $p > 0.05$ ), ICA ( $F = 0.069$ ,  $p > 0.05$ ), or ICN ( $F = 0.871$ ,  $p > 0.05$ ).

### 4.2 Assumptions of normality and multicollinearity

Normality and multicollinearity were assessed before examining the reliability and validity of all variables and their respective measurement instruments. Because the normality of data is a prime concern in regression analysis, skewness and kurtosis measures are frequently employed to address statistical normality. Table 3 includes the descriptive statistics and shows that the data of this study were a bit skewed, but that the majority of the variables' scores lie within the threshold of +2 and -2 (Tabachnick and Fidell, 2007), which illustrates that the data were normally distributed.

TABLE 2 Participants details.

		Frequency	Percentage
Country	Bangladesh	15	8.8
	Brazil	2	1.2
	Cambodia	8	4.7
	Indonesia	7	4.1
	Japan	6	3.5
	Kazakhstan	9	5.3
	Lebanon	5	2.9
	Malaysia	11	6.4
	Morocco	6	3.5
	Nepal	7	4.1
	Nigeria	13	7.6
	Pakistan	28	16.4
	Russia	18	10.5
	South Korea	12	7.0
	Thailand	8	4.7
	Ukraine	9	5.3
Uzbekistan	3	1.8	
Yemen	4	2.3	
Gender	Male	91	53.2
	Female	80	46.8
Education	Undergraduate	37	21.6
	Postgraduate	134	78.4
Intercultural experience	Yes	131	76.6
	No	40	23.4
Age	16–20	55	32.2
	21–25	78	45.6
	26–30	38	22.2

Multicollinearity exists when one of the variables in the data set is highly correlated with another independent variable. This can be assessed using the variance inflation factor (VIF), tolerance, and condition index (CI) values. The thresholds for tolerance, VIF, and CI values were 0.10, 10, and 30, respectively. Table 4 shows that the data used in this study did not have multicollinearity issues because the values of tolerance, VIF, and CI lie within the range identified by the researchers (Hair et al., 2010; Sekaran and Bougie, 2010). Common method bias (CMB) was also evaluated so as to identify bias in the data using Harman's one-factor test. The assessment was conducted through exploratory factor analysis (EFA), and all survey items were converted into a single factor to determine the variance proportion. The results revealed that 37.64% of the variance explained by all items is lower than the 50% threshold, suggesting

TABLE 3 Normality.

Variable	N	Skewness	Std. error	Kurtosis	Std. error
Intercultural effectiveness (ICE)	171	-0.571	0.186	-0.428	0.369
Intercultural competence (ICC)	171	-1.042	0.186	0.173	0.369
Intercultural adjustment (ICA)	171	-0.780	0.186	-0.469	0.369
Intercultural adaptation (ICN)	171	-1.007	0.186	-0.062	0.369

TABLE 4 Multicollinearity.

Variable	Tolerance	VIF	Condition index
Intercultural effectiveness (ICE)	0.843	1.186	1.000
Intercultural competence (ICC)	0.769	1.300	8.535
Intercultural adjustment (ICA)	0.745	1.343	9.698
Intercultural adaptation (ICN)	0.843	1.186	11.297

that CMB did not affect the data. Therefore, the data collected for this study are normal and do not have multicollinearity or CMB issues.

### 4.3 Assessment of reliability and validity

Reliability and validity concerns were assessed using known indicators in the literature. Cronbach's Alpha ( $\alpha > 0.70$ ) values were initially examined for all variables to report reliability. The alpha values for each variable appeared to be either very good or excellent based on the results (ICE = 0.89, ICC = 0.94, ICA = 0.93, and ICN = 0.91). Validity was addressed through the measurement model in AMOS with different indicators: confirmatory factor analysis (CFA), composite reliability (C.R.), average variance extracted (AVE), and discriminant validity. Table 5 contains the complete statements of each item and their loadings and confirms that all items loaded higher than the minimum value of CFA ( $>0.50$ ).

The values of C.R. ( $>0.70$ ), AVE ( $>0.50$ ), discriminant validity ( $>0.70$ ), and correlation values are presented in Table 6. The results revealed that the values of each variable were higher than the minimum criteria of the abovementioned indicators for assessing the reliability and validity of the variables. In addition, the hetero-trait mono-trait (HTMT) ratio of the correlations was examined to ensure variable validity. Table 7 reveals that none of the values for the variables crossed the thresholds of 0.85 and 0.90 (Henseler et al., 2015), confirming the attainment of strict and liberal discriminant validity. Therefore, the findings confirmed that the collected data could be considered for further analysis. The fitness indices of construct validity ( $\chi^2 = 541.463$ ,  $\chi^2/df = 1.15$ , CFI = 0.98, SRMR = 0.06, and RMSEA = 0.03) reconfirmed that the data were well-fitted with the measurement model.

### 4.4 Model testing

Three different sub-models were created to completely address the functionality of CMIC. In the first sub-model, the direct relationships between the variables were addressed. However, an indirect influence of exogenous variables on the other endogenous variables were examined in the second and third sub-models.

Path analysis was performed in AMOS to determine the direct impact of exogenous variables on endogenous variables of concern to the current research. Figure 2 represents the first sub-model of CMIC. The findings of path analysis revealed that ICE had a direct impact on ICC ( $\beta = 0.279$ ,  $t = 4.31$ ,  $p < 0.05$ ) and ICA ( $\beta = 0.225$ ,  $t = 3.41$ ,  $p < 0.05$ ). Similarly, ICC ( $\beta = 0.324$ ,  $t = 3.89$ ,  $p < 0.05$ ) and ICA ( $\beta = 0.176$ ,  $t = 2.21$ ,  $p < 0.05$ ) directly contributed to ICN. On the other side, the direct influence of ICC on ICA ( $\beta = 0.402$ ,  $t = 5.40$ ,  $p < 0.05$ ) and ICE on ICN ( $\beta = 0.244$ ,  $t = 3.46$ ,  $p < 0.05$ ) were also observed. The supporting details of the direct effects are presented in Table 8.

In this study, the indirect effect of the independent variable on the dependent variable was calculated to establish the mediating variable (Preacher and Hayes, 2004, 2008) through bootstrapping the sample through 5,000 iterations with a bias-corrected confidence interval of 95%. Second sub-model is presented in Figure 3. The findings of second sub-model revealed a significant indirect effect ( $\beta = 0.118$ ,  $p < 0.05$ ) of ICE on ICA in the presence of ICC as intervening variable, with zero straddling between the lower (0.046) and upper (0.219) bounds. ICA appeared to be the mediating variable through the indirect effect ( $\beta = 0.063$ ,  $p < 0.05$ ) of ICC on ICN, and none lay among the lower (0.005) and upper (0.148) bounds.

The third sub-model is presented in Figure 4. A significant indirect effect ( $\beta = 0.110$ ,  $p < 0.05$ ) of ICE on ICN was also found with not observations straddling the range between the lower (0.039) and upper (0.208) bounds, confirming ICC as a mediating variable. It was also noted that ICA appeared to be the intervening variable through a significant indirect effect ( $\beta = 0.099$ ,  $p < 0.05$ ) of ICE on ICN—zero did not lie among the lower (0.036) and upper (0.200) bounds. Lastly, a dual mediation of ICC and ICA was also established when indirect effect ( $\beta = 0.150$ ,  $p < 0.05$ ) of ICE on ICN was found significant—zero did not lie among lower (0.059) and upper (0.262) bounds.

Therefore, all proposed mediating variables were proven to be statistically significant based on the findings of this study. Table 9 presents the standardized total, direct, and indirect effect values for each path, as well as its status.



TABLE 5 Items and loadings.

Variable/Item	Loading
<b>Intercultural effectiveness (ICE)</b>	
I communicate effectively when I engage in intercultural communication.	0.787
My intercultural communication has always been successful.	0.756
I feel competent when I engage in intercultural communication.	0.869
I communicate appropriately when I engage in intercultural communication.	0.888
<b>Intercultural competence (ICC)</b>	
I often find it difficult to differentiate between similar cultures.	0.676
I feel that people from other cultures have many valuable things to teach me.	0.809
Most of my friends are from my own culture.	0.773
I feel more comfortable with people from my own culture than with people from other cultures.	0.807
I find it easier to categorize people based on their cultural identity than their personality.	0.783
I often notice similarities in personality between people who belong to completely different cultures.	0.753
I usually feel closer to people who are from my own culture because I can relate to them better.	0.729
Most of my close friends are from other cultures.	0.809
I usually look for opportunities to interact with people from other cultures.	0.843
I feel more comfortable with people who are open to people from other cultures than people who are not.	0.839
<b>Intercultural adjustment (ICA)</b>	
How adjusted are you to general living conditions in China?	0.778
How adjusted are you to housing conditions in China?	0.792
How adjusted are you to food in China?	0.752
How adjusted are you to shopping in China?	0.646
How adjusted are you to cost of living in China?	0.653
How adjusted are you to entertainment available in China?	0.794
How adjusted are you to health care facilities in China?	0.603
How adjusted are you to socialize with people of China?	0.681
How adjusted are you to interact with people of China on a daily basis?	0.845
How adjusted are you to interact with people of China outside of work?	0.790
How adjusted are you to speak with people of China?	0.792
<b>Intercultural adaptation (ICN)</b>	
How comfortable do you feel living in China?	0.845
How satisfied are you with your study performance in China?	0.921
How comfortable do you feel in interacting with people of China?	0.789
How satisfied are you with your Chinese language ability in your daily communication?	0.776
How satisfied are you with living in the Chinese culture?	0.879
How much have you adapted to the Chinese culture?	0.787
How much is life in China an enjoyable experience?	0.706
How anxious are you to stay longer in China?	0.735

TABLE 6 Validity parameters.

Variable	CR	AVE	1	2	3	4
Intercultural effectiveness (ICE)	0.896	0.683	<b>0.827</b>			
Intercultural competence (ICC)	0.941	0.614	0.357***	<b>0.784</b>		
Intercultural adjustment (ICA)	0.930	0.551	0.374***	0.468***	<b>0.743</b>	
Intercultural adaptation (ICN)	0.937	0.652	0.423***	0.444***	0.371***	<b>0.808</b>

Bold values are the evidence of discriminant validity \*\*\* $p < 0.05$ .

TABLE 7 Hetero-trait mono-trait (HTMT).

Variable	1	2	3	4
Intercultural effectiveness (ICE)				
Intercultural competence (ICC)	0.311			
Intercultural adjustment (ICA)	0.354	0.453		
Intercultural adaptation (ICN)	0.395	0.441	0.385	

## 5 Discussion

The primary objectives of this study were as follows: First, IC researchers have made substantial contributions to a better understanding of this previously-neglected research area. Nonetheless, certain ambiguities exist regarding the use and interpretation of the terms ICE, ICC, ICA, and ICN. Despite the existence of established perspectives, theories, and models, there is still a need for greater clarity regarding these concepts within IC research. Second, most research endeavors have yielded positive results in examining factors that either directly or indirectly contribute to the concepts in question. However, it has been difficult to locate literature that sheds light on what happens once an individual becomes competent or well-adjusted to a new culture. Third, a clear and more comprehensive model is necessary to provide more precise insights into the idea that the discussed concepts are merely transitional stages that individuals must navigate, progressing from effective to eventual adaptiveness within diverse cultures. Fourth, as this area predominantly focuses on international students, a specific model for such students would provide valuable assistance to students, as well as their host country or culture. Finally, the culture-specific approach has been heavily criticized in the existing literature; therefore, this study integrates the culture-general approach to test CMIC in China.

In this study, six hypotheses concerning the direct relationship between variables were proposed. Each proposed hypothesis is supported by the findings of the current study. The findings reveal that students' effectiveness can directly influence their competence, adjustment, and adaptation phases. Similarly, students' competencies can directly contribute to their adjustment and adaptation to a new culture. Finally, students' adjustment

can lead them directly to adaptation within the host country. Competence and adjustment were also found to be intervening factors in the relationship between effectiveness and adaptation among international students. The results of the mediating effects found that the effectiveness of students can lead them to be competent, which further facilitates their journey toward adjustment within a new culture. Moreover, effectiveness can indicate competence which, in turn, reflects student adaptation. Students' effectiveness can also help them adjust and adapt to a new culture. Such competence enables students to adjust and adapt to new contexts. Most importantly, students' competence and adjustment work as a bridge to their effectiveness in adapting to different cultures.

Based on these findings, it is clear that ICE, ICC, ICA, and ICN are completely different concepts, and that these are the transition phases for individuals who are exposed to a new cultural context. In simple words, as a student becomes effective (ICE) first, they will become competent (ICC), later become adjusted (ICA), and eventually adapt (ICN) to a new environment. Prominent studies conducted in the past have largely explored and documented personality and cultural dimensions in intercultural studies, and less attention has been given to models which can identify intercultural outcomes as phases. The CMIC offers the outcomes of every intercultural situation in its phases, rather than highlighting the significance of a cultural situation in which these phases have evolved. The CMIC was validated by individuals from 18 different cultures, while earlier attempts mostly focused on the standpoints of two cultures. This reconfirms the claims of CMIC, as it is culture-general in nature and has the potential to be applied to various situations, conditions, cultures, and individuals.

In terms of theoretical contributions, the present study has not only contributed to the empirical validation of CMIC in the context of China, but has also clarified the embedded confusion regarding ICE, ICC, ICA, and ICN. It is evident from this research that these terms represent the transition phase-path which international students evolve along when exposed to a new culture. Undoubtedly, the model is purely based on the outcomes of renowned models and theoretical approaches to ICC. However, it offers a new way of understanding the dynamics of the IC. CMIC is an ongoing process similar to AUM (Gudykunst, 1991, 1993, 1995, 2005), the process model (Deardorff, 2006), DMIS (Bennett, 1986, 1993), and other reputed models of IC research (Spitzberg and Changnon, 2009). Through the CMIC, it can be observed that one cannot be effective, competent,

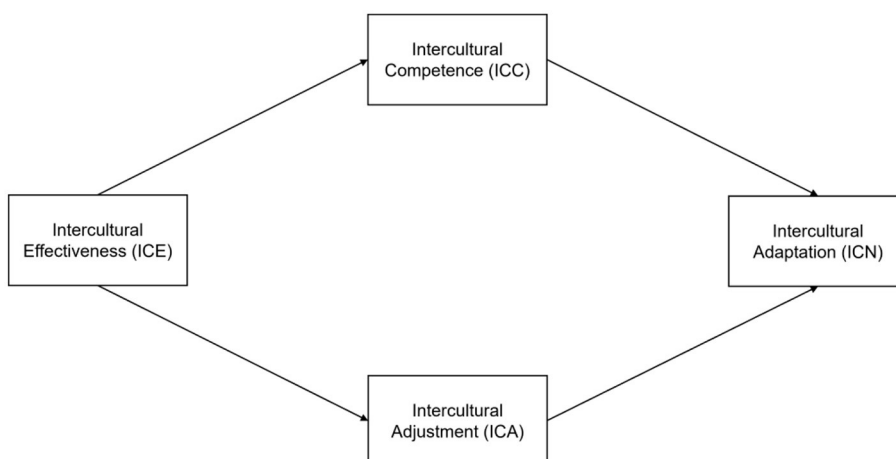


FIGURE 2  
Sub-model one.

TABLE 8 Direct effects.

	$\beta$	S.E.	$t$	$\rho$	Status
ICE → ICC	0.279	0.065	4.315	***	Significant
ICE → ICA	0.225	0.066	3.419	***	Significant
ICE → ICN	0.244	0.070	3.465	***	Significant
ICC → ICA	0.402	0.074	5.408	***	Significant
ICC → ICN	0.324	0.083	3.891	***	Significant
ICA → ICN	0.176	0.079	2.210	***	Significant

\*\*\*  $\rho < 0.05$ .

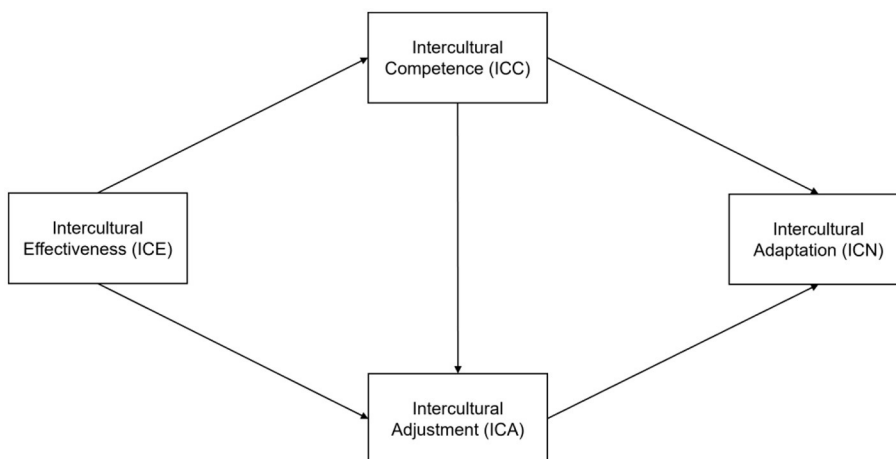


FIGURE 3  
Sub-model two.

adjust, or adapt to a new context within such a short time as claimed in the literature; rather, it requires commitment and time, which varies from person to person. The cultural context of China is presented in this model without its cultural elements or standings, because the model considered the culture-general approach in its construction and did not consider any contextual or situational factors. It is open for the upcoming researchers to

add or remove phases from CMIC and to apply it to culturally diverse societies.

The CMIC can also have practical implications. The phases and transitions of the CMIC are presented in Figure 5 to better understand the implications. It is expected that individuals who already have prior experience abroad can easily pass through the phases of CMIC when compared to those who do not have

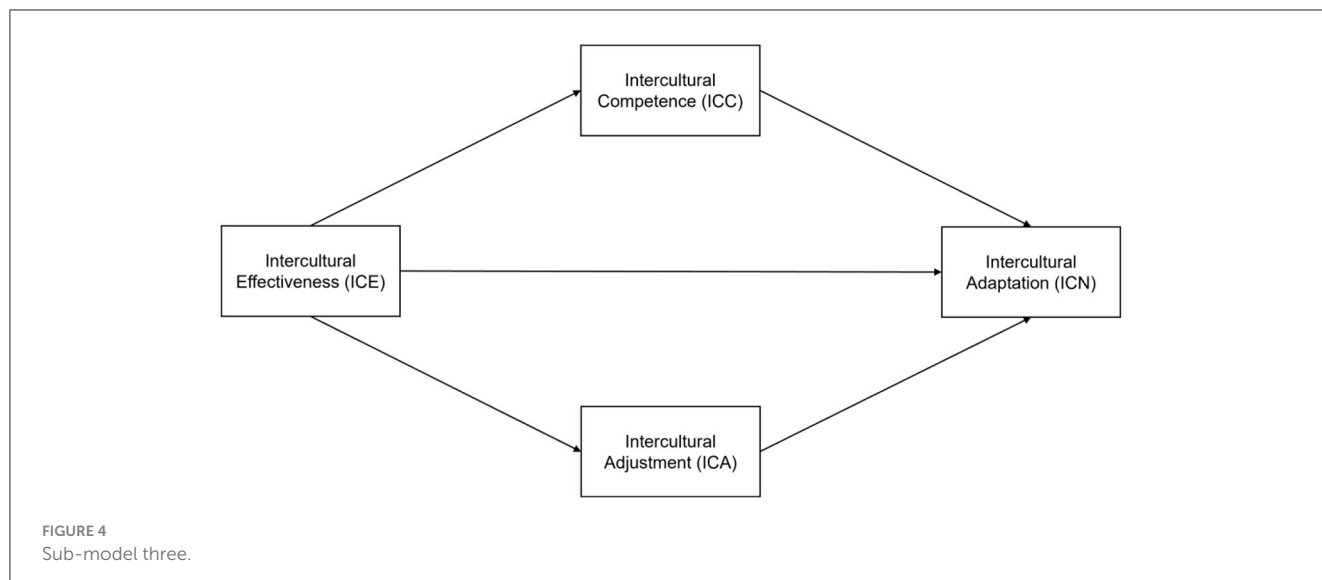


FIGURE 4  
Sub-model three.

TABLE 9 Mediating effects.

Path	Total effects	Direct effects	Indirect effects	Status
ICE → ICC → ICA	0.357**	0.238**	0.118**	Mediation
ICC → ICA → ICN	0.350**	0.288**	0.063**	Mediation
ICE → ICC → ICN	0.394**	0.284**	0.110**	Mediation
ICE → ICA → ICN	0.394**	0.295**	0.099**	Mediation
ICE → ICC → ICA → ICN	0.394**	0.245**	0.150**	Mediation

\*\*  $p < 0.05$ .

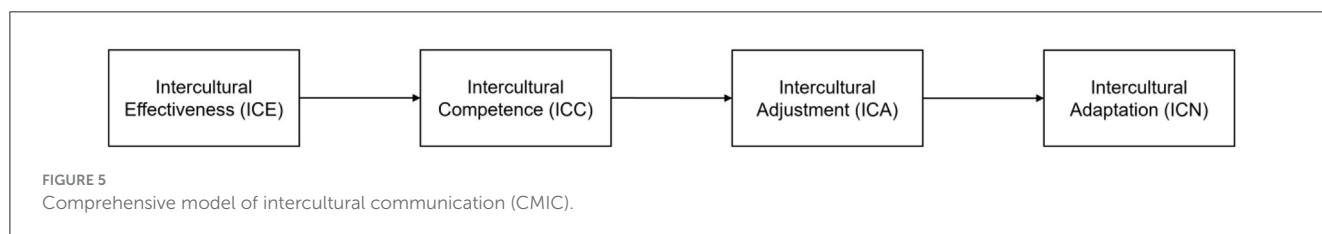


FIGURE 5  
Comprehensive model of intercultural communication (CMIC).

such experiences. However, the findings of this study suggest that people with and without previous intercultural exposure can be effective, be competent, adjust, and adapt to intercultural situations. Such findings have an impact on the practical implications of CMIC and inform policymakers and host country institutes in considering the CMIC phases for developing interculturally efficient individuals. Policymakers of the host country, along with their associated institutes, can take advantage of the CMIC in multiple ways.

Through this model, they will learn that students who have arrived recently can adjust or adapt to their culture directly; in fact, this development requires time and effort. Therefore, they must focus on developing skillsets which can enable them to be effective and competent through training and workshops (Nadeem et al., 2020a). The factors associated with ICE and ICC are already available in the literature on IC research, and a strategic plan is needed to cultivate and improve these skills in IS. After a specific

period, they expect students to adjust and adapt to their culture (Nadeem et al., 2020b). Conversely, students could also develop these skills by themselves, taking into consideration the phases of CMIC to better connect with their host culture or country. This depends on the effort and energy they apply in cultivating these concepts for greater benefit (Nadeem et al., 2023). Finally, this model is not solely for international students, as it can be useful for the working class and for others living in culturally different places.

### 5.1 Limitations

Methodological constraints may limit the generalisability of the findings of this study. As this was a preliminary study to test the proposed model, it was evaluated based on this rationale. A small sample size could not be an issue for the current research because a similar study collected data from hundred and seven

individuals and argued that the findings are significant and that sample size is not a problem (Neuliep, 2012). The same argument is consistent with the current research. The participants were from one prominent city in China, and there was a chance that the stances of other international students in different cities were diverse. So far, the findings of this research are worth noting and are not biased, since the results did not indicate any significant differences between students with and without previous intercultural experience before coming to China. CMIC represents the stance of international students from China only; therefore, extensive testing of this model is essential in future studies to reconfirm its theoretical soundness. Future researchers can also modify this model with the addition of new phases or transitions and apply it to culturally-different societies, especially regarding international students.

## 6 Conclusion

The current study successfully demonstrated the distinction between the popular concepts of IC research—namely ICE, ICC, ICA, and ICN—in addition to establishing a comprehensive IC model specifically for international students. In CMIC, it is argued that effectiveness in communication until adaptation to a new culture is not the same; instead, these are the developmental stages for individuals. According to the CMIC, international students become effective (ICE) and competent (ICC) in intercultural interactions; then, they are likely to adjust (ICA) and later adapt (ICN) to the new culture. Theoretical reasoning was adopted from established models, theories, and perspectives of IC research by connecting their outputs and further linking them as stages and phases of intercultural exposure. A culture-general approach that considers the stance of more than two distinct cultures was included in the CMIC and further applied to international students in Shanghai, China. The findings of the CMIC are beyond expectations and surprising, even though this is a preliminary study. More careful and critical evaluation, as well as the application of CMIC, is required across different contexts to validate its reasoning and predictions. Researchers from other domains could also participate in the further expansion of CMIC in multicultural societies among other populations. In addition to theory, CMIC can be considered by host cultures to formulate policies in terms of hosting strangers in their cultural contexts.

## Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

## References

Arasaratnam, L. A. (2007). Research in intercultural communication competence: past perspectives and future directions. *J. Int. Commun.* 13, 66–73. doi: 10.1080/13216597.2007.9674715

## Ethics statement

The studies involving humans were approved by Institutional Ethics Review Committee of the SISU Intercultural Institute (SII), Shanghai International Studies University (SISU), China (2023-SII/IRB-0126). The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study.

## Author contributions

MN: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Resources, Writing—original draft. AZ: Funding acquisition, Project administration, Resources, Software, Supervision, Validation, Writing—review & editing.

## Funding

The author(s) declare that no financial support was received for the research, authorship, and/or publication of this article.

## Acknowledgments

The authors acknowledge the never-ending contributions of William B. Gudykunst and Lily Arasaratnam-Smith toward the literature of intercultural communication.

## Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

The author(s) declared that they were an editorial board member of *Frontiers*, at the time of submission. This had no impact on the peer review process and the final decision.

## Publisher's note

All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers. Any product that may be evaluated in this article, or claim that may be made by its manufacturer, is not guaranteed or endorsed by the publisher.

Arasaratnam, L. A. (2009). The development of a new instrument of intercultural communication competence. *J. Intercult. Commun.* 20, 5–16. doi: 10.36923/jicc.v9i2.478

- Arasaratnam, L. A. (2016). *Intercultural Competence*. Oxford Research Encyclopedia of Communication. Oxford University Press, 1–23.
- Arasaratnam, L. A., and Banerjee, S. C. (2011). Sensation seeking and intercultural communication competence: a model test. *Int. J. Intercult. Relat.* 35, 226–233. doi: 10.1016/j.ijintrel.2010.07.003
- Arasaratnam, L. A., Banerjee, S. C., and Dembek, K. (2010). Sensation seeking and the integrated model of intercultural communication competence. *J. Intercult. Commun. Res.* 39, 69–79. doi: 10.1080/17475759.2010.526312
- Arasaratnam, L. A., and Doerfel, M. L. (2005). Intercultural communication competence: identifying key components from multicultural perspectives. *Int. J. Intercult. Relat.* 29, 137–163. doi: 10.1016/j.ijintrel.2004.04.001
- Bennett, J. M. (1993). “Toward ethnorelativism: a developmental model of intercultural sensitivity,” in *Education for the Intercultural Experience*, ed R. M. Paige (Yarmouth, ME: Intercultural), 21–71.
- Bennett, M. J. (1986). A developmental approach to training for intercultural sensitivity. *Int. J. Intercult. Relat.* 10, 179–196. doi: 10.1016/0147-1767(86)90005-2
- Black, J. S. (1988). Work role transitions: a study of American expatriate managers in Japan. *J. Int. Bus. Stud.* 19, 277–294. doi: 10.1057/palgrave.jibs.8490383
- Black, J. S., and Stephens, G. K. (1989). The influence of the spouse on American expatriate adjustment and intent to stay in Pacific Rim overseas assignments. *J. Manage.* 15, 529–544. doi: 10.1177/014920638901500403
- Byram, M. (1997). *Teaching and Assessing Intercultural Communicative Competence*. Philadelphia, PA: Multilingual Matters.
- Chen, G. M., and Starosta, W. J. (1996). “Intercultural communication competence: a synthesis,” in *Communication Yearbook 19*, ed B. Burleson (Thousand Oaks, CA: Sage), 353–383.
- Chen, G. M., and Starosta, W. J. (2000). The development and validation of the intercultural communication sensitivity scale. *Hum. Commun.* 3, 1–15. Retrieved from: <http://eric.ed.gov/PDFS/ED447525.pdf>
- de Wit, H. (2019). Internationalization in higher education, a critical review. *SFU Educ. Rev.* 12, 9–17. doi: 10.21810/sfuer.v12i3.1036
- Deardorff, D. K. (2006). Identification and assessment of intercultural competence as a student outcome of internationalization. *J. Stud. Int. Educ.* 10, 241–266. doi: 10.1177/1028315306287002
- Deardorff, D. K., Arasaratnam, L. A., and Calloway-Thomas, C. (2017). “The role of empathy in fostering intercultural competence,” in *Intercultural Competence in Higher Education: International Approaches, Assessment and Application*, eds D. K. Deardorff, and L. A. Arasaratnam (London: Routledge), 32–42.
- Fritz, W., Graf, A., Hentze, J., Möllenberg, A., and Chen, G. M. (2005). An examination of Chen and Starosta’s model of intercultural sensitivity in Germany and United States. *Commun. Stud.* 14, 53–64. Retrieved from [https://digitalcommons.uri.edu/cgi/viewcontent.cgi?article=1024&context=com\\_facpubs](https://digitalcommons.uri.edu/cgi/viewcontent.cgi?article=1024&context=com_facpubs)
- Froese, F. J., Peltokorpi, V., and Ko, K. A. (2012). The influence of intercultural communication on cross-cultural adjustment and work attitudes: foreign workers in South Korea. *Int. J. Intercult. Relat.* 36, 331–342. doi: 10.1016/j.ijintrel.2011.09.005
- Gao, G., and Gudykunst, W. B. (1990). Uncertainty, anxiety, and adaptation. *Int. J. Intercult. Relat.* 14, 301–317. doi: 10.1016/0147-1767(90)90017-Q
- Gibson, D., and Zhong, M. (2005). Intercultural communication competence in the healthcare context. *Int. J. Intercult. Relat.* 29, 621–634. doi: 10.1016/j.ijintrel.2005.07.008
- Gudykunst, W. B. (1991). *Bridging Differences: Effective Intergroup Communication*. Newbury Park, CA: Sage.
- Gudykunst, W. B. (1993). “Toward a theory of effective interpersonal and intergroup communication: an anxiety/uncertainty management perspective,” in *Intercultural Communication Competence*, eds R. L. Wiseman, and J. Koester (Newbury Park, CA: Sage), 33–71.
- Gudykunst, W. B. (1995). “Anxiety/uncertainty management (AUM) theory: current status,” in *Intercultural Communication Theory*, ed R. L. Wiseman (Thousand Oaks, CA: Sage), 8–58.
- Gudykunst, W. B. (2005). *Theorizing About Intercultural Communication*. Thousand Oaks, CA: Sage.
- Gudykunst, W. B., and Nishida, T. (2001). Anxiety, uncertainty, and perceived effectiveness of communication across relationships and cultures. *Int. J. Intercult. Relat.* 25, 55–71. doi: 10.1016/S0147-1767(00)00042-0
- Gudykunst, W. B., Wiseman, R. L., and Hammer, M. (1977). Determinants of the sojourner’s attitudinal satisfaction: a path model. *Ann. Int. Commun. Assoc.* 1, 415–425. doi: 10.1080/23808985.1977.11923696
- Gullahorn, J. T., and Gullahorn, J. E. (1963). An extension of the U-Curve Hypothesis I. *J. Soc. Issues* 19, 33–47. doi: 10.1111/j.1540-4560.1963.tb00447.x
- Hair, J. F., Black, B., Babin, B., Anderson, R. E., and Tatham, R. L. (2010). *Multivariate Data Analysis: A Global Perspective*. London: Pearson Education Inc.
- Hair, J. F., Black, W. C., Babin, B. J., and Anderson, R. E. (2018). *Multivariate Data Analysis, 8th Edn*. Cengage Learning.
- Hammer, M. R., Bennett, M. J., and Wiseman, R. (2003). Measuring intercultural sensitivity: the intercultural development inventory. *Int. J. Intercult. Relat.* 27, 421–443. doi: 10.1016/S0147-1767(03)00032-4
- Hammer, M. R., Gudykunst, W. B., and Wiseman, R. L. (1978). Dimensions of intercultural effectiveness: an exploratory study. *Int. J. Intercult. Relat.* 2, 382–393. doi: 10.1016/0147-1767(78)90036-6
- Hammer, M. R., Wiseman, R. L., Rasmussen, J. L., and Brusckie, J. C. (1998). A test of anxiety/uncertainty management theory: the intercultural adaptation context. *Commun. Q.* 46, 309–326. doi: 10.1080/01463379809370104
- Henseler, J., Ringle, C. M., and Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *J. Acad. Market. Sci.* 43, 115–135. doi: 10.1007/s11747-014-0403-8
- Kim, Y. Y. (1986). “Understanding the social structure of intergroup communication,” in *Intergroup Communication*, ed W. B. Gudykunst (London: Edward Arnold), 86–95.
- Kim, Y. Y. (1989). “Intercultural adaptation,” in *Handbook of International and Intercultural Communication*, eds M. Asante, and W. Gudykunst (Newbury Park, CA: Sage), 275–294.
- Kim, Y. Y. (1991). “Intercultural communication competence: a systems-theoretical view,” in *Cross-Cultural Interpersonal Communication*, eds S. Ting-Toomey, and F. Korzeny (Newbury Park, CA: Sage), 259–275.
- Kim, Y. Y. (1995). “Cross-cultural adaptation: an integrative theory,” in *Intercultural Communication Theory* (Thousand Oaks, CA: Sage), 170–193.
- Kim, Y. Y. (2001). *Becoming Intercultural: An Integrative Theory of Communication and Cross-Cultural Adaptation*. Thousand Oaks, CA: Sage.
- Kim, Y. Y. (2002). “Adapting to an unfamiliar culture,” in *Handbook of International and Intercultural Communication*, eds W. B. Gudykunst, and B. Mody (Thousand Oaks, CA: Sage), 259–273.
- Lewthwaite, M. (1996). A study of international students’ perspectives on cross-cultural adaptation. *Int. J. Adv. Counsel.* 19, 167–185. doi: 10.1007/BF00114787
- Lou, N. M., and Noels, K. A. (2019). Sensitivity to language-based rejection in intercultural communication: The role of language mindsets and implications for migrants’ cross-cultural adaptation. *Appl. Linguist.* 40, 478–505. doi: 10.1093/applin/amx047
- Martin, J. N., and Nakayama, T. K. (2013). *Intercultural Communication in Contexts, 6th Edn*. New York, NY: McGraw-Hill.
- Nadeem, M. U. (2022). An extension of the integrated model of intercultural communication competence (IMICC) with religiosity: an international students’ perspective. *SAGE Open* 12, 1–10. doi: 10.1177/21582440221082139
- Nadeem, M. U., and Koschmann, M. A. (2023). Does mindfulness moderate the relationship between anxiety, uncertainty, and intercultural communication effectiveness of the students in Pakistan? *Curr. Psychol.* 42, 432–444. doi: 10.1007/s12144-021-01429-9
- Nadeem, M. U., Kulich, S. J., Zabrodskaia, A., and Bokhari, I. H. (2023). The impact of empathy, sensation seeking, anxiety, uncertainty, and mindfulness on the intercultural communication in China during the COVID-19. *Front. Public Health* 11, 1223215. doi: 10.3389/fpubh.2023.1223215
- Nadeem, M. U., Mohammed, R., and Dalib, S. (2018). An overview of dominant research approaches to measure intercultural communication competence (ICC). *Int. J. Educ. Res. Rev.* 3, 141–149. doi: 10.24331/ijere.455333
- Nadeem, M. U., Mohammed, R., and Dalib, S. (2020a). Influence of sensation seeking on intercultural communication competence of international students in a Malaysian university: attitude as a mediator. *Int. J. Intercult. Relat.* 74, 30–41. doi: 10.1016/j.ijintrel.2019.10.006
- Nadeem, M. U., Mohammed, R., and Dalib, S. (2020b). Retesting integrated model of intercultural communication competence (IMICC) on international students from the Asian context of Malaysia. *Int. J. Intercult. Relat.* 74, 17–29. doi: 10.1016/j.ijintrel.2019.10.005
- Nadeem, M. U., Mohammed, R., Dalib, S., and Mumtaz, S. (2022). An investigation of factors influencing intercultural communication competence of the international students from a higher education institute in Malaysia. *J. Appl. Res. High. Educ.* 14, 933–945. doi: 10.1108/JARHE-03-2021-0111
- 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. *J. Intercult. Commun. Res.* 41, 1–16. doi: 10.1080/17475759.2011.623239
- Nishida, T. (2015). “Anxiety/uncertainty management (AUM) theory,” in *The International Encyclopedia of Interpersonal Communication*, ed J. W. Neuliep (John Wiley & Sons), 1–11.
- Peng, R. Z., and Wu, W. P. (2019). Measuring communication patterns and intercultural transformation of international students in cross-cultural adaptation. *Int. J. Intercult. Relat.* 70, 78–88. doi: 10.1016/j.ijintrel.2019.03.004

- Preacher, K. J., and Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behav. Res. Methods Instrum. Comp.* 36, 717–731. doi: 10.3758/BF03206553
- Preacher, K. J., and Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behav. Res. Methods* 40, 879–891. doi: 10.3758/BRM.40.3.879
- Ruben, B. D. (1976). Assessing communication competency for intercultural adaptation. *Group Org. Stud.* 1, 334–354. doi: 10.1177/105960117600100308
- Ruben, B. D., and Kealey, D. J. (1979). Behavioral assessment of communication competency and the prediction of cross-cultural adaptation. *Int. J. Intercult. Relat.* 3, 15–47. doi: 10.1016/0147-1767(79)90045-2
- Sekaran, U., and Bougie, R. (2010). *Research Method for Business, 5th Edn.* West Sussex: John Wiley and Sons Ltd.
- Sinicrope, C., Norris, J., and Watanabe, Y. (2007). *Understanding and Assessing Intercultural Competence: A Summary of Theory, Research, and Practice (Technical Report for the Foreign Language Program Evaluation Project)*. University of Hawaii Second Language Studies Paper 26, 1–58. Available online at: <http://hdl.handle.net/10125/40689> (accessed June 10, 2023).
- Spitzberg, B. H. (2000). “A model of intercultural communication competence,” in *Intercultural Communication: A Reader*, eds L. Samovar, and R. Porter (Belmont, CA: Wadsworth), 375–387.
- Spitzberg, B. H., and Changnon, G. (2009). “Conceptualizing intercultural competence,” in *The SAGE Handbook of Intercultural Competence*, ed D. K. Deardorff (Thousand Oaks, CA: Sage Publications), 2–52.
- Tabachnick, B. G., and Fidell, L. S. (2007). *Using Multivariate Statistics, 5th Edn.* Boston, MA: Allyn and Bacon.
- Ting-Toomey, S. (1993). “Communicative resourcefulness: an identity negotiation perspective,” in *Intercultural Communication Theory*, eds R. L. Wiseman, and J. Koester (Newbury Park, CA: Sage), 72–111.
- Winkelman, M. (1994). Cultural shock and adaptation. *J. Counsel. Dev.* 73, 121–126. doi: 10.1002/j.1556-6676.1994.tb01723.x
- Wiseman, R. L. (2002). “Intercultural communication competence,” in *Handbook of International and Intercultural Communication, 2nd Edn.*, eds W. B. Gudykunst, and B. Moody (Thousand Oaks, CA: Sage), 207–224.
- Wiseman, R. L., Hammer, M. R., and Nishida, H. (1989). Predictors of intercultural communication competence. *Int. J. Intercult. Relat.* 13, 349–370. doi: 10.1016/0147-1767(89)90017-5
- Yoo, S. H., Matsumoto, D., and LeRoux, J. A. (2006). The influence of emotion recognition and emotion regulation on intercultural adjustment. *Int. J. Intercult. Relat.* 30, 345–363. doi: 10.1016/j.ijintrel.2005.08.006