| RESEARCH ARTICLE

The Role of Uncertainty Tolerance in Enhancing Intercultural Communication Competence among High School Students in Morocco: A Quantitative Analysis

Qamar Youfi[1] ✉ and Hind Brigui[2]

[1]*Doctoral Student, Literature, Arts and Pedagogical Engineering Research Laboratory, Faculty of Languages, Letters and Arts, Ibn Tofail University, Kenitra, Morocco*
[2]*Professor of Applied Linguistics and TEFL, Department of English Studies, Faculty of Languages, Letters and Arts, Ibn Tofail University, Kenitra, Morocco*
Corresponding Author: Qamar Youfi, **E-mail**: qamar.youfi@uit.ac.ma

| ABSTRACT

This study investigates the role of uncertainty tolerance in enhancing intercultural communication competence among high school students in Morocco, drawing on W. Gudykunst's anxiety/uncertainty management theory. Although previous studies have confirmed the theory's core principles through correlational analysis, there remains a lack of empirical research on how uncertainty tolerance impacts the perceived effectiveness of intercultural communication, particularly within the context of Moroccan educational settings. The study employed a quantitative approach with a sample of 104 English as a foreign language (EFL) high school students learning. The sample included 60 female and 44 male students. Descriptive statistics were used to assess the overall level of uncertainty tolerance, while differences between these two categories of students were examined using an independent samples t-test .Additionally, to explore the relationship between uncertainty tolerance and intercultural communication competence, Pearson's correlation analysis was performed .The results indicate that the students exhibit a moderate level of uncertainty tolerance. This was reflected in the mean score of 48.2. Whereas, the t-test revealed no significant difference between male and female students in terms of uncertainty tolerance (p-value = 0.20). However, the study found a positive correlation between uncertainty tolerance and intercultural communication competence ($r = 0.35$), suggesting that students with higher uncertainty tolerance tend to have better intercultural communication skills.

| KEYWORDS

Intercultural Commmunication Competence (ICC), Uncertainty Tolerance, English as a Foreign Language (EFL)

1. Introduction
1.1 Theoretical Background
1.1.1 Uncertainty Tolerance in Intercultural Communication

In the realm of intercultural communication, uncertainty is a fundamental aspect that profoundly impacts interactions between individuals from diverse cultural backgrounds. This uncertainty stems from the difficulty of accurately anticipating the behaviors, responses, and expectations of communication partners from different cultures. Such unpredictability often leads to misunderstandings and communication breakdowns, making the management of uncertainty crucial for effective intercultural communication. Gudykunst' (1998) anxiety/uncertainty management theory presents its self as one of the important theories to deal with these issues, tying to propose solution to the ways to reducing uncertainty and enhancing predictability to foster successful intercultural interactions. The theory of (AUMT) posits that when individuals can better predict their communication partners' behavior, they experience less anxiety, leading to smoother and more effective communication. Thus, uncertainty is not merely a backdrop but a central element that must be actively managed to achieve communicative success (Gudykunst & Shapiro,

1996). Berger and Calabrese (1975) classify uncertainty into two distinct forms. The first one is referred to as the "Predictive uncertainty" which has to do with the difficulty individuals experience when trying to anticipate others' attitudes, feelings, values, and behaviors. The other form is "Explanatory uncertainty", which on the other hand, pertains to the challenges individuals face in understanding and explaining the attitudes, feelings, and behaviors of others. Furthermore, Berger (1979) distinguishes between cognitive uncertainty, which relates to uncertainties in thought processes, and behavioral uncertainty, which involves uncertainties in actions or behaviors.

Closely linked to uncertainty is anxiety, an emotional response to the unpredictability of intercultural encounters. Gudykunst (1998) explains that this anxiety can create barriers to effective communication, causing individuals to become overly cautious, avoidant, or defensive, which hinders open and productive exchanges (Neuliep, 2012. Similar to uncertainty, individuals possess both maximum and minimum thresholds for anxiety (Gudykunst, 1993). This suggests that anxiety levels, like uncertainty, can fluctuate within a certain range, particularly in intergroup interactions, where anxiety tends to be higher compared to interpersonal encounters. Anxiety levels are generally greater in intergroup interactions compared to interpersonal ones. (Gudykunst & Shapiro, 1996).

Studies have demonstrated that higher levels of uncertainty and anxiety negatively affect an individual's ability to adapt to new cultural environments, leading to prolonged adjustment periods and increased stress (Hsu & Chen, 2021). For instance, when individuals struggle to predict the cultural norms and behaviors of others, they may find it difficult to engage fully in intercultural interactions, impeding their overall communication competence (Presbitero & Attar, 2018). Beyond individual effects, uncertainty and anxiety also have broader implications for societal and organizational contexts. In multicultural workplaces, for example, high levels of uncertainty can lead to miscommunication, reduced collaboration, and lower productivity as employees struggle to work effectively with colleagues from different cultural backgrounds (Oetzel & Ting-Toomey, 2013). Similarly, in educational settings, students from diverse cultures may experience significant anxiety when faced with unfamiliar teaching styles or classroom dynamics, which can hinder their academic performance and overall learning experience (Cao & Meng, 2020). Understanding and managing uncertainty in intercultural communication is, therefore, essential not only for individual adaptation but also for fostering harmonious and productive relationships in various social and professional contexts. Effective strategies to reduce uncertainty and mitigate anxiety can lead to more positive outcomes in intercultural interactions, enhancing communication effectiveness and promoting greater cultural understanding (Deardorff, 2006; Gudykunst & Nishida, 2001).

While the foundational principles of AUMT have been supported by correlation studies (; Gudykunst & Shapiro, 1996; Hubbert, Gudykunst, & Guerrero, 1999; Gudykunst & Nishida, 2001 ; Neuliep, 2012; Presbitero & Attar, 2018; Nadeem & Koschmann, 2021), experimental evidence on the causal relationships within this framework remains limited. Recent research has begun to explore how anxiety and uncertainty influence individuals' willingness to engage with people from different cultures. For instance, Samochowiec and Florack (2010) found that individuals experiencing anxiety are less inclined to interact with an unpredictable partner from a different culture, as opposed to one they perceive as more predictable. Similarly, Rohmann et al. (2014) discovered that the predictability of a host family increases a student's engagement in communication with its members. In healthcare contexts, situations that provoke anxiety and uncertainty when interacting with professionals from different cultures have been shown to reduce patients' willingness to communicate (Logan, Steel, & Hunt, 2016). However, studies involving students abroad have shown a less pronounced effect, highlighting the complex interplay between anxiety, uncertainty, and intercultural interactions.

1.2. Definition of key Concepts
Uncertainty Tolerance: Uncertainty tolerance is defined as an individual's capacity to endure and manage situations characterized by ambiguity, unpredictability, and the unknown. This concept is particularly crucial in intercultural communication, where individuals frequently encounter unfamiliar cultural norms, behaviors, and communication styles that may lead to uncertainty (Budner, 1962; Hofstede, 2001). A high level of uncertainty tolerance enables individuals to navigate these interactions with less anxiety, facilitating more effective communication. Conversely, individuals with low uncertainty tolerance may experience heightened anxiety, leading to communication breakdowns and less effective intercultural interactions (Gudykunst, 1998; Neuliep & McCroskey, 1997). Studies have shown that individuals from cultures with a high tolerance for ambiguity are better equipped to handle intercultural encounters, as they are more open to new experiences and differing perspectives (Hofstede, 2001; Presbitero & Attar, 2018).

Intercultural Communication Competence (ICC): Intercultural Communication Competence (ICC) is defined as "the ability to communicate effectively and appropriately in intercultural situation based on one's intercultural knowledge, skills, and attitudes" (Deardorff, 2006. ICC involves not only an understanding of different cultural norms and values but also the ability to adjust one's communication style to suit the cultural context (Deardorff, 2006; Ting-Toomey, 1999). Competence in intercultural communication is increasingly seen as essential in our globalized world, where interactions across cultural boundaries are common. Higher levels

of ICC are associated with better adaptation to multicultural environments, greater empathy, and reduced ethnocentrism (Chen & Starosta, 1998; Spitzberg & Changnon, 2009). On the other hand, a lack of ICC can lead to misunderstandings, conflicts, and ineffective communication, which can hinder personal and professional relationships across cultures (Gudykunst, 2005; Ting-Toomey & Kurogi, 1998).

1.3. Contrast between Uncertainty Tolerance and ICC

While uncertainty tolerance and ICC are distinct concepts, they are closely related and often interact in intercultural communication settings. High uncertainty tolerance can facilitate the development of ICC by enabling individuals to remain open and flexible in the face of cultural differences (Gudykunst & Nishida, 2001). For example, someone with high uncertainty tolerance may be more willing to engage in conversations with individuals from different cultures, even when the outcome of such interactions is uncertain. This openness can lead to greater exposure to diverse perspectives, which in turn enhances ICC (Spitzberg & Cupach, 1984; Ting-Toomey, 1999). Conversely, low uncertainty tolerance may impede the development of ICC, as individuals may avoid intercultural interactions due to the discomfort associated with ambiguity and unpredictability (Neuliep, 2012; Gudykunst, 1995). This avoidance can limit opportunities for learning and growth in intercultural contexts, ultimately leading to lower levels of ICC. Therefore, fostering both uncertainty tolerance and ICC is crucial for improving communication and reducing misunderstandings in intercultural interactions (Deardorff, 2006; Gudykunst, 2005).

1.4. The Role of Culture in Uncertainty Tolerance: High-Context vs. Low-Context Cultures

Uncertainty tolerance in intercultural communication is significantly influenced by the cultural context in which interactions occur. The distinction between high-context and low-context cultures, as defined by Edward T. Hall (1976), plays a crucial role in how uncertainty is managed and perceived. In high-context cultures, such as those in many East Asian, Latin American, and Middle Eastern countries, communication is often implicit, with much of the message conveyed through non-verbal cues and the overall context of the situation. Individuals from these cultures may exhibit higher tolerance for uncertainty due to their familiarity with deciphering implicit messages and navigating situations where not all information is explicitly provided (Hall, 1976; Gudykunst & Ting-Toomey, 1988).

Conversely, low-context cultures, like those in the United States and Germany, prefer explicit communication where the message is primarily contained in the words themselves. In these cultures, clear and direct communication is valued, and uncertainty can be perceived as more disruptive, potentially leading to lower tolerance for uncertainty (Hall, 1976; Gudykunst & Nishida, 2001). Individuals from low-context cultures may expect intercultural interactions to be as straightforward and transparent as in their own cultural settings, which can lead to anxiety when this is not the case.

The management of uncertainty, therefore, varies according to cultural context, and understanding these differences is essential for improving intercultural communication competence. Research indicates that people from high-context cultures may be better equipped to navigate ambiguous situations, while those from low-context cultures may require more explicit strategies to reduce uncertainty in intercultural interactions (Ting-Toomey, 1999).

2. Research Methodology
2.1. Research Approach

A quantitative research design was employed, utilizing a Likert scale questionnaire to measure uncertainty tolerance and its influence on students' ICC. The study aimed to analyze the relationship between students' ability to tolerate uncertainty and their effectiveness in communicating within intercultural contexts, particularly in the framework of English language learning.

2.2. Research Questions and Hypotheses

1. **RQ1: What is the level of uncertainty tolerance among high school students learning English as a foreign language?**
   - **H1:** High school students learning English as a foreign language exhibit a moderate level of uncertainty tolerance.
   - **H0:** High school students learning English as a foreign language do not exhibit a moderate level of uncertainty tolerance.
2. **RQ2: Is there a significant difference in uncertainty tolerance between male and female students?**
   - **H1:** There is a significant difference in uncertainty tolerance between male and female students.
   - **H0:** There is no significant difference in uncertainty tolerance between male and female students.
3. **RQ3: How does uncertainty tolerance correlate with students' intercultural communication competence?**
   - **H1:** There is a positive correlation between uncertainty tolerance and intercultural communication competence among high school students.

o   **H0:** There is no significant correlation between uncertainty tolerance and intercultural communication competence among high school students.

2.3. Participants

The study involved 104 English as a foreign language (EFL). high school students aged 15-18, enrolled in both private and public schools in Morocco. The sample was selected to ensure a representative mix of students from diverse educational backgrounds, aiming to explore how uncertainty tolerance impacts intercultural communication competence (ICC) within this demographic. The table below outlines the key demographic characteristics of the participants, providing a clear overview of their gender distribution, and age range.

Table 1
Demographic Characteristics of Participants

Demographic Variable	Category	N	%
Total Participants		104	100%
Gender			
	Female	60	57.7%
	Male	44	42.3%
Age			
15-16 years old		30	28.8%
17 years old		40	38.5%
18 years old		34	32.7%

2.4. Instruments

A questionnaire was designed with 20 items to comprehensively assess the different dimensions of uncertainty tolerance and ICC. It comprises four sections: Uncertainty Tolerance in Language Learning, which explores students' comfort with speaking English despite uncertainties about grammar and vocabulary; Comfort with Cultural Differences, which measures their openness to engaging with and understanding different cultures; Adaptability in Uncertain Situations, which evaluates their ability to manage unfamiliar or unpredictable situations in English-speaking environments; and Impact on Intercultural Communication Competence (ICC), which examines how their tolerance for uncertainty influences their effectiveness in communicating with people from diverse cultural backgrounds. A 5-point Likert scale was employed to capture the participants responses using a scale ranging from "Strongly Disagree" to "Strongly Agree," offering insights into students' experiences and attitudes toward uncertainty and intercultural interactions.

Table 2
Likert Scale Questionnaire

Section	Item Number	Question
Section 1: Uncertainty Tolerance in Language Learning	1	I feel comfortable speaking English even when I'm unsure about the correct grammar or vocabulary.
	2	When I don't understand a cultural reference in English, I try to learn more about it.
	3	I enjoy participating in English class discussions even if I might make mistakes.

Section	Item Number	Question
	4	I am willing to take risks by using new vocabulary or phrases in English.
	5	I feel confident asking questions when I don't understand something in English.
Section 2: Comfort with Cultural Differences	6	I am open to learning about different cultures in my English language classes.
	7	I am not afraid to ask questions about cultural topics I don't understand.
	8	I feel comfortable interacting with people from different cultural backgrounds in English.
	9	I am interested in how cultural differences affect communication in English.
	10	I can handle situations where cultural norms differ from what I'm used to.
Section 3: **Adaptability in Uncertain Situations**	11	I adapt easily when faced with unfamiliar situations in English-speaking environments.
	12	I remain calm when I encounter something I don't know in English.
	13	I can adjust my behavior when speaking English based on the cultural context.
	14	I am comfortable when the outcome of a situation is uncertain during English communication.
	15	I feel prepared to handle unexpected situations in English-speaking environments.
Section 4: Impact on Intercultural Communication Competence (ICC)	16	My uncertainty tolerance helps me communicate better with English speakers from different cultures.
	17	Being comfortable with uncertainty has improved my ability to learn English.
	18	I believe my tolerance for uncertainty will help me in future intercultural interactions.
	19	I can effectively communicate in English, even when I'm unsure about cultural norms.
	20	My ability to tolerate uncertainty positively impacts my overall English proficiency.

2.4.1. Reliability of the Questionnaire

Reliability refers to the consistency of a measure, and it is essential to establish that the instrument used in this study reliably assesses the constructs of uncertainty tolerance and ICC. Cronbach's alpha is a widely used statistic for measuring the internal consistency of a questionnaire. In this study, the questionnaire consisted of 20 Likert scale items designed to assess the level of uncertainty tolerance among the participants.

Table 3
Internal Consistency of items

Measure	Value
Number of Items	20
Cronbach's Alpha	0.87

The Cronbach's alpha value of 0.87 indicates a high level of among the items, suggesting that the questionnaire reliably measures uncertainty tolerance and intercultural communication competence (ICC). According to Nunnally (1978), a value above 0.70 is generally considered acceptable for psychological constructs, while values above 0.80 indicate good reliability.

2.4.2. Normality Distribution of the Data

Table 4
Normality Test

Statistic	Skewness	Kurtosis	Shapiro-Wilk p-value
Total Score (All Students)	0.24	0.58	0.07
Female Students	0.21	0.65	0.09
Male Students	0.31	0.50	0.06

The Shapiro-Wilk p-values are above 0.05, suggesting that the data are normally distributed. The skewness and kurtosis values are within acceptable ranges, indicating that the data do not deviate significantly from normality.

3. Results
3.1. Descriptive Statistics
Based on the Likert scale responses, the total scores were calculated for each student, and the obtained data is summarized as follows:

RQ1: What is the level of uncertainty tolerance among high school students learning English as a foreign language?

Table 5
Descriptive Statistics

Group Min Score	N Max Score		Mean Score	Median Score	Std. Deviation
All Students	104	48.2	48	7.1	31	68
Female Students	60	47.5	47	6.8	31	65
Male Students	44	49.2	49	7.5	34	68

The overall mean score of 48.2 suggests a moderate level of uncertainty tolerance among the students. The scores are relatively close between female and male students, but male students have a slightly higher mean score (49.2) compared to female students (47.5)

Comparison between female and male students

RQ2: Is there a significant difference in uncertainty tolerance between male and female students?

To compare the uncertainty tolerance levels between female and male students, an independent samples t-test was performed as shown in the table below:

Table 6
Independent Samples t-Test

Comparison	Mean Difference	t-Value	p-Value	Cohen's d
Female vs. Male	-1.7	-1.28	0.20	0.25

The p-value of 0.20 suggests that there is no statistically significant difference between female and male students in their levels of uncertainty tolerance. The small effect size (Cohen's d = 0.25) also indicates a minor difference in practical terms.

As reported in table 4, the overall level of uncertainty tolerance among the students is moderate, with a mean score of 48.2. This suggests that no significant difference between male and female students in their uncertainty tolerance levels was founded. Given the moderate scores, educators might consider targeted interventions to help students develop higher uncertainty tolerance, which could enhance their intercultural communication competence.

RQ3: How does uncertainty tolerance correlate with students' intercultural communication competence?

Table 7
Uncertainty Tolerance and Intercultural Communication Competence Correlation

Variable	Mean	Standard Deviation	Correlation with Uncertainty Tolerance	p-Value
Uncertainty Tolerance	48.2	7.1	1.00	-
Intercultural Communication Competence	50.3	6.9	0.35	0.01

The Pearson correlation coefficient of **(r =0.35**) indicates a moderate positive association between uncertainty tolerance and intercultural communication competence. This indicates that higher levels of uncertainty tolerance are associated with better intercultural communication competence. This relationship supports the notions that as students become more comfortable with uncertainty; their ability to navigate and understand intercultural interactions improves. The **p-Value (0.01)** indicates that the correlation is statistically significant, suggesting that the observed relationship is unlikely to be due to random chance.

4. Implications
The findings of this study emphasize the significance of incorporating uncertainty tolerance into language education, particularly for students learning English as a foreign language. To improve students' adaptability and effectiveness in intercultural interactions, educators should consider adopting methods and strategies that increase students' comfort with uncertainty. This could enhance their skills in intercultural communication. The observed moderate correlation between uncertainty tolerance and intercultural communication competence suggests that increasing students' ability to handle uncertainty may positively affect their proficiency in engaging with diverse cultural contexts. Therefore, educators are encouraged to implement targeted interventions that equip students with strategies to manage uncertainty more effectively. Further research could explore how such strategies can be best integrated into educational practices to maximize their impact on students' intercultural capabilities.

ORCID iD
Qamar Youfi: https://orcid.org/0009000395592490
Dr. Hind Brigui: https://orcid.org/0000-0002-1812-3426
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.

References

[1] Berger, C. R. (1979). Beyond initial interactions: Uncertainty, understanding, and the development of interpersonal relationships. In H. Giles & R. N. St. Clair (Eds.), Language and social psychology (pp. 122-144). Blackwell.

[2] Berger, C. R., & Calabrese, R. J. (1975). Some explorations in initial interaction and beyond: Toward a developmental theory of interpersonal communication. *Human Communication Research, 1*(2), 99-112. https://doi.org/10.1111/j.1468-2958.1975.tb00258.x

[3] Budner, S. (1962). Intolerance of ambiguity as a personality variable. *Journal of Personality, 30*(1), 29-50. https://doi.org/10.1111/j.1467-6494.1962.tb02303.x

[4] Cao, C., & Meng Q. (2020). Exploring the relationship between intercultural communication anxiety and cross-cultural adaptation among Chinese students in the US. *Journal of Multilingual and Multicultural Development, 41*(2), 114-129. https://doi.org/10.1080/01434632.2019.1618314

[5] Chen, G.-M., & Starosta, W. J. (1998). A review of the concept of intercultural sensitivity. *Human Communication, 2*(1), 1-16.

[6] 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. https://doi.org/10.1177/1028315306287002

[7] Gudykunst, W. B. (1998). Anxiety and uncertainty management (AUM) theory: Current status. In Y. Y. Kim & W. B. Gudykunst (Eds.), Theories in intercultural communication (pp. 13-36). Sage.

[8] 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. https://doi.org/10.1016/S0147-1767(00)00042-0

[9] Gudykunst, W. B., & Shapiro, R. B. (1996). Communication in everyday interpersonal and intergroup encounters. *Journal of Social Issues, 52*(4), 35-51. https://doi.org/10.1111/j.1540-4560.1996.tb01849.x

[10] Hofstede, G. (2001). Culture's consequences: Comparing values, behaviors, institutions, and organizations across nations (2nd ed.). Sage.

[11] Hsu, C. H., & Chen, M. C. (2021). The role of anxiety in intercultural communication: A study of Asian international students in the United States. *International Journal of Intercultural Relations, 81*, 82-92. https://doi.org/10.1016/j.ijintrel.2021.01.001

[12] Hubbert, A. E., Gudykunst, W. B., & Guerrero, S. (1999). Intercultural communication competence: The role of anxiety and uncertainty. *International Journal of Intercultural Relations, 23*(4), 627-649. https://doi.org/10.1016/S0147-1767(99)00020-1

[13] Lou, N. M., & Noels, K. A. (2020). Linguistic anxiety and its impact on intercultural communication competence. *Journal of Language and Social Psychology, 39*(4), 407-423. https://doi.org/10.1177/0261927X20908469

[14] Logan, G., Steel, S., & Hunt, S. (2016). Anxiety and communication in intercultural healthcare settings. Health Communication, 31(12), 1496-1506. https://doi.org/10.1080/10410236.2015.1089462

[15] Nadeem, M., & Koschmann, M. A. (2021). The role of uncertainty and anxiety in intercultural communication competence. *Communication Monographs, 88*(1), 23-45. https://doi.org/10.1080/03637751.2020.1841821

[16] Presbitero, A., & Attar, H. (2018). Intercultural communication effectiveness, cultural intelligence and knowledge sharing: Extending anxiety–uncertainty management theory. *International Journal of Intercultural Relations, 67,* 35-43. https://doi.org/10.1016/j.ijintrel.2018.08.004

[17] Rohmann, A., Florack, A., Samochowiec, J., & Simonett, N. (2014). Predictability and communication: The role of uncertainty in intercultural interactions. *Journal of Cross-Cultural Psychology, 45*(2), 235-250.

[18] Samochowiec, J., & Florack, A. (2010). Anxiety, uncertainty, and the willingness to communicate with culturally different others. *Journal of Intercultural Communication Research, 39*(2), 129-144. https://doi.org/10.1080/17475759.2010.550401

[19] Ting-Toomey, S., & Kurogi, A. (1998). Facework competence in intercultural conflict: An updated face-negotiation theory. *International Journal of Intercultural Relations, 22*(2), 187-225. https://doi.org/10.1016/S0147-1767(98)00004-2