A Survey of the Level of Willingness to Communicate and Critical Thinking Among PhD Students

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Abstract

Background: Language teachers in the classroom face a common challenge: students' lack of engagement in oral communication and limited problem-solving abilities. This study aimed to determine whether students who displayed a greater willingness to communicate also possessed critical thinking abilities.

Methods: This cross-sectional descriptive study was conducted in 2023 at the School of Health Management and Information. A total of 22 PhD students specializing in health services management were recruited. Data collection tools included McCroskey and Baer's and Baghaei's questionnaires measuring willingness to communicate, Honey's questionnaire assessing critical thinking, and an interview. Data were analyzed using SPSS Version 23. Pearson's Correlation Coefficient and t-statistic were employed to calculate the correlation between the 2 variables and the associated P values. For the interview, content analysis was utilized to identify factors influencing students' willingness to communicate in English.

Results: The students achieved high scores on 3 questionnaires independently. However, the correlation analysis revealed no statistically significant relationship between the students' willingness to communicate and their critical thinking abilities. Specifically, the correlation between McCroskey and Honey's questionnaires was $r = 0.307$, while the correlation between Baghaei and Honey's questionnaires was $r = 0.003$.

Conclusion: Given the importance of health tourism, it is crucial for PhD students, as future healthcare managers, to effectively communicate with medical tourists and make informed decisions in challenging situations. Therefore, it is recommended to create a conducive classroom environment that encourages students to participate in discussions, raise critical issues, and develop problem-solving skills.

Keywords: Willingness to Communicate, Critical Thinking, Medical Tourism, Higher Education, PhD Students

Introduction

The significance of acquiring English as a second/foreign language (L2/EFL) and its influence on individual enhancement have been emphasized in various studies (1, 2). Learners of another language tend to prefer communicating in that language (3).The role of willingness to communicate (WTC) in learning English has been well-recognized (4); it refers to a learner's willingness to participate in conversational settings (5). In the context of L2/EFL, the underlying

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↑*What is "already known" in this topic:*
Willingness to communicate denotes an individual's willingness to initiate conversation. Critical thinking, on the other hand, encompasses the capacity to identify and define a problem, collect relevant information, and formulate solutions.

→*What this article adds:*
Given the significance of health tourism, it is imperative for PhD students, as prospective healthcare managers, to effectively engage in communication with medical tourists and make informed decisions in challenging circumstances. Therefore, an encouraging classroom environment is needed to persuade students to participate in discussions, think critically, and develop problem-solving skills.

idea of WTC is that students with higher levels of WTC demonstrate a greater tendency to engage in communication (6). The number of postgraduate students studying English for several years has increased in recent years; however, many of them still exhibit reluctance to communicate in English (7), and we have to fully understand the factors shaping students' experiences, beliefs, and practices related to their WTC.

Critical thinking (CT) refers to the ability to make judgments based on sound reasoning and evidence (8); it encompasses the processes of scientific thinking—such as recognizing and defining a problem, gathering relevant information to better understand it, generating possible solutions, and evaluating them (9, 10). Examples of CT include taking responsibility for one's actions and making logical decisions (11). It empowers learners to confront and overcome challenges in their learning process (10). Therefore, the development and enhancement of CT skills are the primary goals of educational systems (9).

Willingness to Communicate

WTC was initially conceptualized in relation to first-language communication as the intention to initiate communication when given the choice (12) and was later extended to L2 communication. MacIntyre et al defined L2 WTC as an individual's readiness to engage in conversation at a specific time with specific people, noting that it can vary with different interlocutors and in different situations. They highlighted its importance for personal development, as it enhances an individual's ability to communicate as a global citizen (4).

According to MacIntyre, WTC is an emergent, psychological state of communicative readiness that dynamically changes within and between communication events (13). In a multilingual context, communicative readiness involves decisions about whether to speak or not and the language to be used for communication. WTC was initially regarded as individual differences in talking tendencies; however, recent attention has focused on its rapidly fluctuating patterns, conceptualizing WTC as a state of readiness before actual communication (13). It is an individual factor that significantly influences L2 learning and the amount of communication in the classroom (4). Students with high WTC are more likely to actively seek opportunities to use their L2 inside and outside the classroom (14).

The development of students' speaking proficiency is a major concern in foreign language teaching. One of the primary motivations for studying a foreign language is the ability to communicate with others (15). However, many students struggle to develop confidence in their speaking skills. An individual's WTC in a given situation is influenced by various situational factors—such as their emotional state, communication experiences, the identity of the communication partner, and others (16).

Baghaei referred to WTC as one of the personality factors that affect success in L2/EFL (17), and MacIntyre et al defined it as "…*the predisposition toward or away from communicating, given the choice*," (p. 538) which refers to learners' readiness to communicate in L2 when the opportunity arises (18). The lack of WTC is commonly associated with shyness that leads learners to avoid communication (19).

Critical Thinking

Critical thinking is a higher-level thinking skill that involves complex thinking to address and solve problems. Learners with higher-order thinking skills become more aware of their thinking process and can improve their cognition and learning performance (20). It is a reflective approach to rational thinking based on common sense, focused on determining what to believe and do (21). These skills are crucial for students to identify sources of problems and find appropriate solutions (22).

According to Zubaidah et al, CT is a mental activity that enables individuals to understand certain things, think critically about problems, and make informed decisions (23). Zarei and Haghgoo defined CT as using cognitive skills for logical thinking and evaluating decision-making factors (24). In education, CT is one of the most important competencies for students to develop (25). Through CT, individuals utilize a wide range of information to skillfully synthesize and evaluate information to reach conclusions. Students must reflect, explore all aspects of an issue, analyze complex information, and draw logical conclusions (23).

Critical thinking is a core competency across professional fields and academic disciplines, and graduate students are expected to possess CT skills to meet the changing nature and increasing demands of available jobs (26).

Willingness to Communicate

Zarrinabadi et al examined the effects of praise for intelligence and praise for effort on language mindsets, speaking anxiety, and WTC on 62 Iranian EFL learners. They found that praise for effort facilitated learners' WTC by increasing their growth mindsets and reducing their speaking anxiety (27).

Fernández-García and Fonseca-Mora emphasized the importance of the communicative aspect in foreign language studies. They recruited 124 EFL students and collected data through interviews and questionnaires to measure their emotional understanding of verbal texts and their WTC. They concluded that the development of learners' emotional understanding can improve their WTC in the classroom and enhance their speaking proficiency (28).

Ma et al investigated the reason for low levels of WTC in content classrooms where English is the medium of instruction. Data were gathered through interviews and class observation field notes. The results showed that various individual, environmental, and educational factors influenced the students' WTC. They concluded that a situational perspective should be considered and attention should be paid to differences between WTC in general communication and WTC in academic classrooms (29).

Zarrinabadi et al recruited 392 university students in Iran to examine whether teachers' autonomy support influenced students' language mindsets and whether language mindsets predicted learners' perceptions of communicative competence and WTC. The results demonstrated a positive correlation between autonomy support and growth mindset,

communicative competence, and WTC (30).

Critical Thinking

In their study, Germi et al compared the CT skills among PhD students in different fields in Iran. The California Critical Thinking Skills Test was used for collecting data that were then analyzed by using the t-mean comparison and analysis of variance tests. The findings highlighted variations in CT mean scores across different faculties. While no significant difference was observed in CT, inference, and induction among students, there were significant differences in CT, analysis, evaluation, and deduction skills between men and women (31).

Moghadam et al investigated the impact of a CT program on EFL learners (32). They used Honey's CT questionnaire (33) to collect data and found positive changes in students' CT and recommended that EFL practitioners and curriculum designers revise and enhance curricula to incorporate CT skills.

Nugraheni et al conducted a content analysis of 16 research articles to examine the effect of flipped classrooms on developing students' CT skills. Data were collected from four databases: Google Scholar, Research Gate, EBSCO, and Emerald. The synthesis of the articles revealed that various activities can be employed in flipped classrooms to engage students in learning and enhance their CT skills (34).

Warsah et al utilized a mixed-method approach to investigate the impact of collaborative learning (CL) on CT skills among 40 students in Indonesia. The results showed that CL significantly improved learners' CT skills, awareness, learning motivation, cognitive development, and broadmindedness (10).

Critical Thinking and Willingness to Communicate

Numerous studies have independently examined the CT and WTC of health students in English-medium content classrooms (31,34). Healthcare professionals play a vital role in providing, maintaining, and promoting community health while preventing diseases (35). Health tourism, as a burgeoning industry, aims to cater to the needs and satisfaction of medical tourists (36). However, to the best of the researcher's knowledge, only 2 studies have explored both WTC and CT in Iran (37, 38). Therefore, this study aimed to assess WTC and CT levels among PhD students.

Methods
Design and Population

This cross-sectional descriptive study was conducted at the School of Health Management and Information Sciences at Iran University of Medical Sciences (IUMS) in 2023. The study employed a triangulation approach, utilizing multiple methods to collect data and verify the accuracy of the information provided by the students. Both qualitative and quantitative data were collected through questionnaires and interviews, making this a mixed-method study. The study population, selected through a convenience sampling method, consisted of 22 PhD students from the researcher's class. Because of the small number of students,

no further sampling was performed, and all students participated in the study.

Instruments

The study utilized 3 questionnaires to measure students' WTC (17, 39) and CT (33), along with an interview.

The questionnaire developed by McCroskey and Baer comprises 20 items assessing communication willingness on a percentage scale (0%-100%) across various contexts (public, meeting, group, or dyad) with different interlocutors (strangers, acquaintances, or friends). The reliability of the questionnaire was confirmed with a Cronbach's alpha of 0.917 (38, 39.)

The WTC questionnaire by Baghaei includes 20 statements measuring respondents' readiness to initiate communication in different circumstances, contexts, and with different people, native speakers (WTC-NS), foreigners (WTC-NN), and in the school context (WTC-SC). Respondents indicated their agreement with the statements on a dichotomous scale (agree/disagree), with its reliability established at 0.82 (40).

To assess the participants' CT levels, the researcher administered Honey's questionnaire—including 30 items evaluating comprehension, analysis, and evaluation skills. The translated version, adopted by Naeini, demonstrated a reliability of 0.86. The participants indicated the frequency of using each category on a 5-point Likert scale, ranging from never (1) to always (5) (33).

Additionally, interviews were conducted to obtain indepth information. The questions that were taken from the questionnaires enabled the researcher to evaluate students' WTC, their confidence in speaking inside and outside the classroom, their motivation, their attitude toward the international community, and their CT levels.

Procedure

To assess the reliability of McCroskey and Baer's (1985) questionnaire, a pilot test was conducted with a sample of 30 students who shared characteristics with the target population.

Subsequently, WTC questionnaires developed by McCroskey and Baer as well as Baghaei were administered to a group of 22 PhD students, 20 of whom completed and returned the questionnaires. Among the respondents, 8 students exhibited a low level of WTC, while 12 achieved high scores in this area. These students were then required to complete Honey's CT questionnaire, which assesses abilities in inference-making, discussion, comparison and contrast, synthesis, and both inductive and deductive reasoning. In the quantitative phase, Pearson's Correlation Coefficient and t-statistics formulas were used to calculate the correlation between the 2 variables and the associated P

$$r = \frac{n(\Sigma xy) - (\Sigma x)(\Sigma y)}{\sqrt{[n\Sigma x^2 - (\Sigma x)^2][n\Sigma y^2 - (\Sigma y)^2]}} \qquad t = r\sqrt{\frac{n-2}{1-r^2}}$$

values. The formulas are as follows:

Finally, these students were invited to participate in an interview to offer deeper insights into their WTC. Before the interview, they were informed about the study's objectives and the types of questions that would be asked. The questions were presented in both Persian and English, allowing the students to choose their preferred language for responding and elaborating on their questionnaire answers. The interviews were conducted in an open-ended format and were recorded to serve as an additional source of verification for the accuracy of the students' responses.

At this stage, content analysis was utilized to identify the factors influencing students' willingness to communicate in English.

Results

In this section, the results obtained from the quantitative and qualitative phases are presented.

Quantitative Findings

The participants included 10 women and 12 men. A pilot test of McCroskey and Baer's questionnaire, administered among 30 students with similar characteristics to the target population, demonstrated a reliability coefficient of 0.89, confirming its suitability for the study (Table 1).

The reliability of Baghaei's questionnaire, willingness to communicate in a foreign language scale (WTC-FLS), with 20 items for the sample used in the present study was 0.82. Table 2 shows the reliabilities for the subscales.

The scores calculated for 12 students on both questionnaires were indicative of their high level of WTC and high degree of CT (Table 3).

The next step involved using Pearson's Correlation Coefficient formula to calculate the correlation between students' scores on WTC and CT questionnaires separately.

The correlations obtained were as follows: between the scores on McCroskey's WTC and Honey's CT questionnaires ($r = 0.307$, $P = 0.330$) and between Baghaei's WTC and Honey's CT questionnaires ($r = 0.003$, $P = 0.993$). The results were indicative of weak or no significant correlation between the 2 variables in this group. The P value of 0.33

Table 1. The Reliability of the WTC Questionnaire

Reliability Statistics	
Cronbach's Alpha	Number of Items
0.89	20

Table 2. The Reliability of the Entire Foreign Language Scale (WTC-FLS)

Reliability for the WTC-FLS and its subscales		
Scale	Number of Items	Reliability
WTC-NS	6	.73
WTC-NN	6	.80
WTC-SC	8	.70
WTC-FLS	20	.82

for the correlation between McCroskey and Honey's questionnaire suggests that this correlation is not statistically significant, implying that the observed relationship could likely be due to chance. Likewise, the P value of 0.993 for the correlation between Baghaei and Honey's questionnaire reinforces the conclusion of no significant correlation, further indicating that there is no meaningful relationship between these scores in this group. These findings may be attributed to the small number of participants.

Qualitative Findings

During the interviews, the students were encouraged to relax and freely express their thoughts on initiating conversations in English, participating in group discussions, the situations in which they would feel comfortable talking to foreigners, and their personal experiences. Content analysis was used to identify factors influencing students' WTC in English. Students' statements were carefully coded and categorized, and recurring themes related to personal attributes, motivations, emotions, social support, and situational contexts were identified. These themes were then grouped into 2 broader categories—individual and contextual factors.

Individual Factors

The students mentioned various issues that motivated or hindered their engagement in communication—including self-confidence, eagerness to speak in English, and lack of

Table 3. Scores for 12 Students on Both Questionnaires

Students	Scores on McCroskey and Baer's (1985) WTC Questionnaire	Scores on Baghaei's (2011) WTC Questionnaire				Scores on Honey's (2004) CT Questionnaire
		WTC-NS	WTC-NN	WTC-SC	total	
1	83.5	6	6	8	20	129
2	81.75	6	6	6	18	114
3	83.45	6	6	8	20	97
4	79.35	5	5	8	18	120
5	80	6	6	8	20	84
6	73.75	6	6	5	17	98
7	83.56	6	6	8	20	97
8	68.3	5	3	8	16	130
9	69.2	5	6	7	18	87
10	78.9	6	5	7	18	91
11	82	6	6	8	20	99
12	87	6	6	8	20	140

confidence. Some students actively participated in class activities because of their enthusiasm for the subject matter. The significance of intervention in enhancing learners' confidence should not be overlooked. Some students possessed enough self-confidence to initiate speaking, while others lacked confidence and felt frustrated or anxious when speaking in a language other than their native tongue. Therefore, instructors can create opportunities to help students boost their confidence, such as organizing group activities and encouraging students to first engage in discussion with their peers before speaking to the entire class.

Some students were willing to start or participate in conversations but felt shy about speaking in front of their classmates or were afraid of making grammatical errors. They expressed fear of being judged by their peers and instructors regarding their knowledge of the English language. Fear of ridicule or judgment, discomfort, and shyness were additional categories of individual factors mentioned by the students. Therefore, fostering a supportive learning environment addressing cultural differences, language challenges, and knowledge gaps is crucial for helping students feel at ease when speaking English.

Contextual Factors

The students also mentioned some contextual factors—such as classroom environment, teachers' roles, and interactions with foreigners. They believed that engaging in teaching methods could inspire them to actively participate in class activities and discussions. Indeed, the classroom context and the teacher's role are crucial in fostering a conducive environment for speaking. Therefore, teachers should employ strategies that develop meaningful and trusting relationships with students and enhance their self-confidence to initiate communication in English. They should also provide opportunities that positively influence students' WTC, such as posing thought-provoking questions on the topic at hand and connecting them to their everyday lives. Moreover, students expressed high motivation to engage in speaking activities when interacting with individuals from diverse countries and cultures. This highlights the significance of context both inside and outside the classroom. Consequently, encouraging participation in international workshops and webinars, as well as video-conferencing with people from different countries can enhance students' communication skills.

Discussion

The present study explored the relationship between WTC and CT among PhD students specializing in Health Services Management. Two questionnaires were distributed to assess students' ability and willingness to initiate conversations, their motivations for learning English, and their readiness to communicate in various circumstances, contexts, and with different individuals. Moreover, the participants completed a CT questionnaire. Based on descriptive statistics, 8 students out of 20 had a low level of WTC, while it plays a crucial role in achieving language mastery, proficiency, and effective communication (41-43).

Twelve students demonstrated a high level of WTC along with a significant degree of CT, which is a fundamental objective of education and academic experience and is considered a key standard in medical education (44). However, the comparison between the scores on the CT and WTC questionnaires revealed no substantial correlation between these 2 variables, which may be attributed to the limited number of participants. Nevertheless, Yaghoubi discovered a significant correlation between all psychological levels of CT and WTC in his study involving 360 BA English students (38). Similarly, Heidari and Rashidi found a positive and significant relationship between these 2 variables in the domain of receptive/productive lexical knowledge among gifted and nongifted students aged between 15 and 18 years in Iran (37). These findings suggest that the association between WTC and CT can vary depending on the specific context and population being studied.

The interview results highlighted 2 factors influencing students' WTC. In terms of individual factors, self-confidence and eagerness were found to have a substantial impact on initiating speech. Therefore, classroom strategies should be implemented to foster a supportive and encouraging environment that motivates students to actively participate in class activities without fear of making mistakes or producing grammatically incorrect sentences. These findings are consistent with Saeedakhtar et al's study on WTC and intrinsic/extrinsic motivation among Iranian intermediate English learners, which revealed that students were hesitant to speak due to concerns about producing flawed sentences or mispronouncing words (45).

Likewise, Boonkit (as cited in Fernández-García) argued that communication opportunities and activities have a positive impact on students' confidence and contribute to the improvement of their speaking skills (28, 45). Additionally, Gonulal proposes that incorporating humor into English classes can create a relaxed atmosphere and enhance student confidence (46). Several students have expressed their enthusiasm to participate in classroom discussions, but they are often hindered by the fear of being judged by their peers and teachers or by their shyness. Therefore, it is crucial to foster a supportive learning environment that promotes trust and mutual respect among students and their teachers. Students' fear of losing face in front of their peers prevents them from effectively communicating in English classes, and it reveals a lack of confidence and proficiency (45).

Another influential factor is the classroom context, that is, the teaching methods. It falls upon the teachers to create an environment that encourages students to actively engage in communication. These findings align with the conclusions drawn by Zarrinabadi et al (27), highlighting the significant role of language teachers in alleviating students' anxiety and promoting their WTC through various strategies—such as praising their efforts and motivating students to share their opinions with their teachers and peers (29).

Limitation

The generalizability of these results is subject to certain limitations. The relatively small number of participants necessitates caution, as the findings may not apply to all PhD students. The students were admitted from various univer-

sities and cities across the country, suggesting that the sample may be somewhat representative of the broader population of PhD students. However, it is recommended that future researchers evaluate the relationship between these variables by recruiting a larger number of students.

Conclusion

PhD students as future hospital managers and individuals in key leadership positions within the Ministry of Health and other healthcare centers, should possess effective communication skills and be capable of making sound decisions in challenging situations. Therefore, it is recommended that curriculum developers and instructors establish strategies to create an attractive environment in the classroom to facilitate students' participation in class activities and provide opportunities for developing CT skills.

Authors' Contributions

Rafat Bagherzadeh conceived and designed the study. She analyzed and interpreted the data, drafted the manuscript, and also revised and reviewed the manuscript.

Ethical Considerations

This study was approved by the ethics committee of IUMS (IR.IUMS.REC.1402.621).

Acknowledgment

Conflict of Interests

The author declares that there are no conflicts of interest regarding the publication of this manuscript.

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