Research Article

The Link between Iranian EFL Learners' Willingness to Communicate and Ambiguity Tolerance: A Focus on the Predictive Power of Ambiguity Tolerance

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ABSTRACT

Willingness to communicate (WTC) and ambiguity tolerance (AT) are two crucial concepts discussed as factors affecting second language learning. Due to the importance of these two factors, the present study explored levels of WTC and AT in Iranian high school students, the relationship between these two variables among the students, and whether AT can be a significant predictor of their WTC. In so doing, 60 female students from a high school in Khorramabad were selected through convenience sampling. The students' WTC was measured through MacIntyre et al.'s (2001) WTC questionnaire and their AT level was examined using the Second Language Tolerance of Ambiguity Scale (SLTAS) developed by Ely (1995). The results of descriptive statistics for WTC scores and two one sample t-tests revealed that the students had an average level of WTC both inside and outside the classroom. Moreover, the results of a paired samples t-test to compare the Inside/Outside WTC of the students showed no significant difference between their inside and outside WTC levels. The analyses for AT scores and a one sample t-test indicated a significantly lower than average AT level for the participating students. Finally, the Pearson product moment correlation coefficient indicated a significant negative relationship between the students' WTC and AT and the linear regression results showed that AT could significantly predict EFL learners' Inside/Outside WTC. The implications of the study for language teachers are discussed in light of the significance of individual differences in language education.

Introduction

Willingness to communicate (WTC), which was first introduced by McCroskey and Baer (1985) in relation to speakers' use of their first language (L1), was later applied to the use of learners' second language (L2) by MacIntyre et al. (1998). MacIntyre et al. (1998) defined L2 WTC as "a readiness to enter into discourse, at a particular time with a specific person or persons, using L2" (p. 547). According to MacIntyre et al. (1998), using L2 is the final result of the interaction of various variables the higher level of which is WTC. In other words, L2 learners use the L2 when they have some intention or

willingness to do that and many studies (e.g., Zarrinabadi & Pawlak, 2021) have stressed the paramount significance of L2 use in L2 learning. WTC in L2 has been studied in relation to several factors, including foreign language anxiety (e.g., MacIntyre et al., 2002), perceived competence (e.g., MacIntyre et al., 2002), age (e.g., Alemi et al., 2013), gender (e.g., MacIntyre et al., 2002), major (e.g., Alemi et al., 2013), proficiency level (e.g., Darasawang, & Reinders, 2021), length of studying (e.g., Alemi et al., 2013), and communication with foreigners (e.g., Alemi et al., 2013).

According to MacIntyre (2007), WTC is a dynamic property which changes along the situational changes. Ambiguity tolerance (AT) is one of the factors related to change in the communication situation (Chu et al., 2015), which can influence the individual's WTC as some studies (e.g., Ahmadi Safa and Jamshidi, 2017; Vahedi and Fatemi, 2015) have shown. AT is a psychological factor which is defined as one's ability in confronting ambiguous situations without getting frustrated (Xue & Yu, 2023). It is thus a significant factor to be considered in educational success or failure. The results of the bibliometric analysis by Xue and Yu (2023) showed strong correlations between AT and language learning. In language education research, AT has been studied in relation to numerous factors, including personality types (e.g., Ahmadi Safa & Jamshidi, 2017), language learning strategies (e.g., Chu et al., 2015), multilingualism (Xue & Yu, 2023), and language learning (e.g., Chu et al., 2015; Xue & Yu, 2023). Moreover, Kirkpatrick et al. (2024), in their bibliometric study of WTC, found that a large bulk of WTC research has studied other factors as determinants of WTC. However, few studies (e.g., Amirian et al., 2020; Hosseini Fatemi et al., 2016; Vahedi & Fatemi, 2015) have sought the relationship between AT and WTC. The point is that none of the mentioned studies have focused specifically on AT in relation to WTC, but have studied the extent to which WTC correlates with a number of other factors, including AT. Therefore, to narrow the gap, this study aimed at examining levels of WTC and AT in Iranian EFL learners, the relationship between these two factors, and the extent to which AT could predict WTC.

Literature Review
Willingness to Communicate

WTC indicates the extent to which a learner is willing to use the L2 in communicating with others in a specific context (MacIntyre et al., 1998). There are two conceptualizations of WTC (i.e., trait-like WTC and dynamic situational WTC) in the literature. Based on the trait-like conceptualization of WTC, individuals have constant patterns of behavior which result in similar communication behavior in different situations (MacIntyre & Legatto, 2011). However, the dynamic situational conceptualization of WTC, discussed by MacIntyre et al. (1998), considers WTC as a dynamic characteristic which alters with changes in time and contexts. Figure 1 presents the pyramidal heuristic model of L2 WTC based on the dynamic situational conceptualization. This six-layer model divides the factors influencing L2 WTC into two categories; the first three layers present the situation-specific factors influencing WTC while the last three ones show more stable factors affecting WTC (MacIntyre et al., 1998). The model, therefore, explains why some people are willing to communicate in some situations, but they might not show WTC in other contexts (due to the variability of some factors influencing WTC) and why some people are constantly willing or unwilling to communicate (under the influence of the more enduring factors as shown in layers IV, V, and VI in Figure 1).
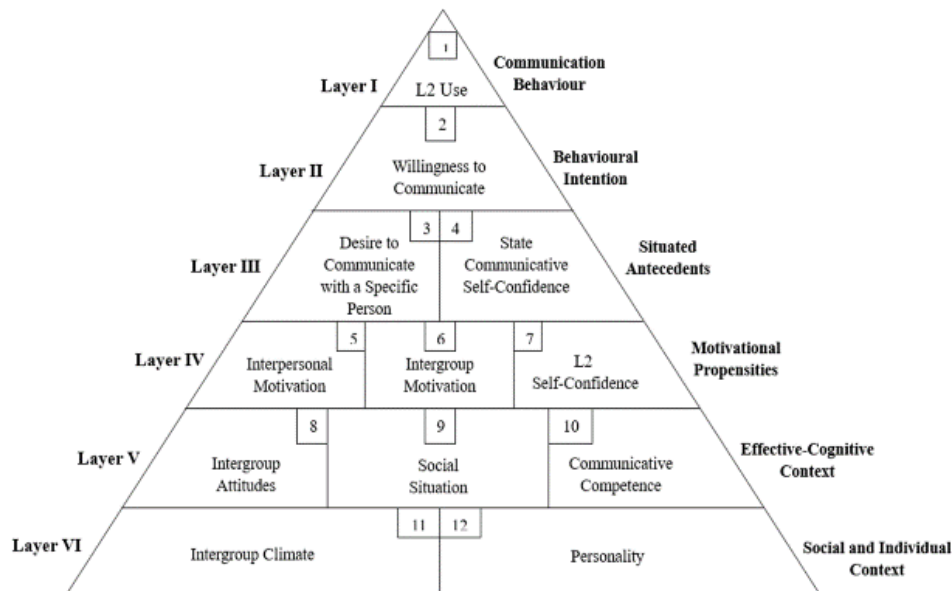
Figure 1. *Heuristic Model of Variables Influencing WTC (MacIntyre et al., 1998, p. 547)*

WTC provides L2 researchers with the opportunity to combine various approaches (i.e., psychological, linguistic, educational, & communicative) to study variables which have been typically studied independent of each other (MacIntyre, 2007). Ghonsooly et al. (2012), for instance, studied WTC in relation to L2 self-confidence and attitudes toward international community and found these two variables as predictors of WTC. Alrabai (2022) examined the extent to which WTC can be predicted by one affective factor (motivation), two positive emotions (grit and enjoyment), and two negative emotions (anxiety and boredom). The results indicated that except boredom, all the other factors were either directly or indirectly, positively or negatively, correlated with WTC. Based on the findings, anxiety had a direct negative relationship with WTC while enjoyment, grit, and motivation were positively correlated with it. Fathi et al. (2023) studied the predictability of intermediate EFL learners' WTC by three factors, that is, foreign language enjoyment, intercultural communicative competence, and ideal L2 self. Based on the results of structural equation modelling, all the three variables were significant predictors of WTC in the 601 participating learners. In addition, foreign language enjoyment and intercultural communicative competence appeared to mediate the relationship between ideal L2 self and WTC.

Ambiguity Tolerance

AT refers to one's way of processing information when faced with ambiguous situations (Furnham & Ribchester, 1995); it shows the extent to which an individual can be tolerant of ambiguities. Ambiguous situations might be novel, complex, or contradictory when the situation does not provide any clues, or provides lots of clues, or gives conflicting clues (Piechurska-Kuciel, 2018). According to Furnham and Ribchester (1995), individuals with high levels of AT have the capacity to consider the ambiguous context as desirable and challenging without feeling stressed while those with low AT may feel anxious. Although AT has been widely considered as a rather stable personality trait, some (e.g., Chu et al., 2015) have emphasized that it changes across domains and contexts. Kamran (2011), for example, observed that Iranian learners' AT varied across learning activities with its highest levels for writing and lowest for reading tasks. According to Ehrman (1999), AT functions at three levels. The first level is intake in which the individual notices the information that might be new, complex, or incongruous. The next level is called tolerance of ambiguity proper. At this level the individual with high AT can properly select some parts of the new information to be taken as intake. The last level is accommodation in which the individual with higher level of AT can relate the new intake with already existing knowledge.

AT is an important factor in language learning since interactions in an L2 mostly involve novelties, complexities, and ambiguities and,

therefore, as some studies (Chu et al., 2015; Xue & Yu, 2023) have confirmed, the extent to which the learners are tolerant of such complexities and ambiguities can influence their success in language practice and language learning. Erten and Topkaya (2009) found a significantly positive relationship between learners' AT and their proficiency and reading abilities. Chu et al. (2015) studied the relationship between AT and language proficiency in learners of Chinese as a second language and showed that learners with higher AT outperformed those with middle and low AT. Xue and Yu (2023) found that AT was positively correlated with self-efficacy, engagement, motivation, and multilingualism and that these factors had collective positive correlation with language learning. However, some other research (e.g., El-Koumy, 2000) has provided evidence that moderate AT is more helpful than low and high levels of AT for L2 learning. El-Koumy (2000) found learners with average AT performing better on reading comprehension tests than learners with high and low AT scores.

Xue and Yu (2023) in their bibliometric analysis of 306 articles on AT from Web of Science (WOS) database sought the reason for the rise in interest in AT. They reported that AT was examined in many multidisciplinary studies since it is correlated with various psychological factors and has crucial significance in language instruction. They found that because as a positive psychology factor, AT helps overcoming new circumstances involving ambiguities and complexities, it has found great significance during and after COVID-19 pandemic. AT has been studied as a possible predictor of many psychological factors which might be correlated with language learning outcomes. Asmalı (2019), for example, examined the predictive power of Self-Perceived Communication Competence (SPCC) and AT on 156 Turkish EFL learners' classroom anxiety. The analyses of data showed that the learners had low AT, low SPCC and moderate classroom anxiety. In addition, both AT and SPCC were identified as significant predictors of classroom anxiety which were negatively correlated with anxiety.

Willingness to Communicate and Ambiguity Tolerance

The findings of the exploratory bibliometric analysis by Ma et al. (2023) indicate that by the year 2020 there has been increased attention to WTC in research studies. In addition, Xue and Yu (2023) in their bibliometric analysis noticed increasing interest in AT. Various studies have examined WTC and AT, each in relation to one or more other variables. There is also some research (e.g., Hosseini Fatemi et al., 2016; Piechurska-Kuciel, 2018; Sadoughi & Hejazi, 2024) on the relationship between WTC and AT. Vahedi and Fatemi (2015) investigated the relationship among emotional intelligence, WTC, and AT in 64 EFL learners. They found that while emotional intelligence and AT didn't have any significant relationship with each other, both of these variables had strong positive relationships with WTC. Hosseini Fatemi et al. (2016) studied the interrelationship among AT, intercultural WTC, and ethnocentrism in 245 Iranian undergraduate English and non-English major students. The results of structural equation modelling showed no direct relationship between AT and WTC. However, ethnocentrism was found to be negatively correlated with both AT and WTC and to mediate the relationship between AT and intercultural WTC. In addition, English majors were shown to be less ethnocentric than non-English majors. Ahmadi Safa and Jamshidi (2017) examined the relationship between WTC and AT in 150 introvert and extrovert EFL learners. The results indicated positive relationship between WTC and AT in both introvert and extrovert learners. It was also found that the two groups were different with regard to levels of WTC and AT; while the extrovert learners had more WTC, the introvert learners had higher levels of AT. Piechurska-Kuciel (2018) studied the effect of AT on Polish EFL learners' level of WTC and showed that AT can be a weak predictor of learners' WTC in the L2. Sadoughi and Hejazi (2024) examined L2 motivational self-system, L2 anxiety, and foreign language learning enjoyment as predictors of Iranian EFL learners' WTC through structural equation modelling. They found the three components of L2 motivational self-system (i.e., ideal self, ought-to self, and learning experience) as positive predictors of WTC. In addition, they reported that L2 anxiety mediated the

relationships between ideal self and WTC, learning experience and WTC, and ought-to self and WTC and that foreign language learning enjoyment had a mediating role in the associations between ideal self and WTC and learning experience and WTC.

Generally, it seems reasonable that learners with higher levels of AT are more willing to communicate with others which might lead language learners to more L2 use and more practice for L2 learning. Therefore, the present study aimed to examine the level of WTC and AT in high school students and to explore the relationship between these two variables. In accordance with the stated purpose, the study attempted to answer the following questions:

1. What is the level of WTC in Iranian female EFL students?
2. What is the level of AT in Iranian female EFL students?
3. Is there any significant relationship between Iranian female EFL students' WTC and their AT?
4. To what extent can the variability in the EFL students' WTC be predicted by their level of AT?

Methodology

Participants

Sixty female students from a state high school in Khorramabad took part in this study. The students were selected through convenience sampling. They were 15 and 16 years old and their native language was Persian.

Instruments

A WTC questionnaire and an AT questionnaire, which are explained in details in this section, were the two instruments used to gather the data needed for answering the questions of the study.

WTC questionnaire

The Inside/ Outside WTC questionnaire developed by MacIntyre et al. (2001) was the instrument used to measure the students' level of WTC in this study. In order to make sure that the participants do not face comprehension problems, the items of the questionnaire were translated into Persian by the researchers. The translated version was revised based on feedback from two English professors in Islamic Azad University. It was then administered to two high school students in the presence of the second researcher so that the researcher could get feedback about probable ambiguities in the instrument. Based on the feedback from the two students slight modifications were made to the questionnaire. This questionnaire consists of two sections: WTC inside the classroom and WTC outside the classroom. Both sections of the questionnaire were used to gather data about the participants' WTC both inside and outside the classroom. Although English is a foreign language in Iran and is not, therefore, used by many learners outside the classroom, a lot of learners are willing to use it for certain activities outside the classroom. Example of such activities which are used in the questionnaire include willingness to ask for instructions or clarification about a task you must complete, playing a game in English, reading a novel, reading reviews for popular movies, filling out an application form, writing a letter to a friend, listening to instructions and completing a task, and understanding an English movie. Details about any of the sections of the questionnaire are presented below.

a. WTC inside the classroom

WTC in an L2 classroom concerns a student's intention to communicate with interlocutors when free to do so rather than when the student has no choice because the teacher has called upon him. In this study, the Likert-type questionnaire developed by MacIntyre et al. (2001) was used for measuring students' WTC inside the classroom. This questionnaire has 27 Likert-scale items with the scale ranging from 1 (almost never willing) to 5 (almost always willing). The questionnaire examines the respondents' WTC in all four language skills (speaking: 8 items; reading: 6 items; writing: 8 items; & comprehension: 5 items). The scores on this section range from 27 to 135. The reliability of each section of the questionnaire was calculated through Cronbach alpha which indicated high reliability for all these sections (speaking: $\alpha = .81$; reading: $\alpha = .83$; writing: $\alpha = .88$; & comprehension: $\alpha = .83$).

b. WTC outside the classroom

This part was a parallel form of the previous part of the questionnaire which focused on respondents' willingness to communicate outside the classroom. It was quite similar to the previous section in terms of the content, the number, and the form of the items, but it was concerned with

the participants' willingness to communicate out of the classroom context. The alpha levels calculated for the four sections of the scale indicated that it was a reliable measure of students' willingness to communicate outside the classroom in all the four skills: speaking (8 items, α = .89), reading (6 items, α = .93), writing (8 items, α = .96), and comprehension (5 items, α = .90).

AT questionnaire

The Second Language Tolerance of Ambiguity Scale (SLTAS) developed by Ely (1995) was the instrument used to evaluate the level of the participants' AT. The Likert-type questionnaire comprises of 12 items based on a 5-point scale which ranges from 1 (strongly disagree) to 5 (strongly agree). The scores on this test range from 0 to 48 since in each item the score ranges from 0 to 4 (strongly disagree = 1, disagree = 2, undecided = 0, agree = 3, strongly agree = 4). In order to ensure that the participants understand the items and answer more reliably, the Persian translation of this instrument by Atef-Vahid et al. (2011) was employed in this study. The reliability of the translated questionnaire was checked through internal consistency which was 0.89.

Design of the Study

The design of the study is both descriptive and correlational. Descriptive design was followed to answer the first two questions about the current levels of WTC and AT in high school students. Then, to answer the last two questions on the relationship between WTC and AT and the predictability of AT by WTC, the study used a correlational design.

Data Collection Procedure

To achieve the purposes of the study, first 60 high school students from a high school in Khorramabad were chosen through convenience sampling. Then, the two questionnaires needed for the data collection were selected and, in two successive sessions, were given to the students. The students were asked to choose the option that suited them the most for each item. It was explained to the students that there was no single correct answer for any of the items. It was also clarified that the scores would not be reported to their school and their responses would be kept confidential. After the administration sessions, the questionnaires were scored carefully and the scores were then fed into the SPSS software.

Data Analysis

Descriptive statistics and two one sample t-tests for WTC and AT scores were run to answer the first two questions of the study which were concerned with the students' levels of WTC and AT. Moreover, a paired samples t-test was run to compare the Inside and Outside WTC of the students. To answer the third question which was related to the relationship between WTC and AT, the Pearson product moment correlation coefficient for the students' WTC (both Inside/Outside WTC) and AT was computed and then statistical significance of the differences between the correlations were checked through a web-based calculator. Finally, to answer the last question, a linear regression was carried out to see whether AT could be a predictor of Inside/Outside WTC in EFL students.

Results
EFL Learners' Level of WTC

To answer the first question, descriptive statistics and two one sample t-tests were carried out to examine the students' WTC level in relation to the average level of WTC in the population. Then, to compare the inside and outside WTC of the students, a paired samples t-test was run. The results of descriptive statistics for the Inside/Outside WTC scores are presented in Table 1.

Table 1
Descriptive Statistics for Inside/Outside WTC Scores

	N	Mean	Std. Deviation	Skew ness		Kurtosis	
					Std. Error		Std. Error
Inside WTC	60	84.0161	26.90389	-.165	.304	-.600	.599
Outside WTC	60	82.5323	27.95941	-.058	.304	-.519	.599

Based on Table 1, descriptive statistics of the EFL learners' Inside/Outside WTC scores indicated a mean of 82.53 for outside WTC with a standard deviation of 27.96 and a mean of 84.01

for inside WTC with a standard deviation of 26.90. In order to see whether the observed level of Inside/Outside WTC was significantly different from the average WTC scores, first the theoretical mean (i.e., average WTC score of the population) for the Inside/Outside WTC questionnaires was computed. The computation was done by multiplying the number of items (i.e., 27 in each questionnaire) by the midpoint score of each item (i.e., 3 for neutral answer); thus, the theoretical mean turned out to be 81. Based on descriptive statistics in Table 1, the students had higher mean Inside/Outside WTC scores than the theoretical mean; however, as the results of the two one-sample t-tests for Inside and Outside WTC in Table 2 indicate, neither inside nor outside WTC of the students were significantly higher than average Inside/Outside WTC (p > .05). The results, therefore, showed that the EFL female students had average Inside/Outside WTC levels.

Table 2.
One-Sample Test for Inside/Outside WTC Scores

	Test Value = 81					
	T	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Inside WTC	.883	61	.381	3.01613	-3.8162	9.8484
Outside WTC	.432	61	.668	1.53226	-5.5681	8.6326

Next, a paired samples t-test was also run to see whether there was any significant difference between the students' Inside and Outside WTC mean scores. Table 3 presents the results of this analysis.

Table 3.
Paired Samples Test for Inside/Outside WTC Scores

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Outside WTC – Inside WTC	-1.48387	6.71856	.85326	-3.19007	.22232	-1.739	61	.087

As shown in Table 3, no significant difference was found between the inside and outside WTC mean scores of the students in this study (p > .05); in other words, the participants appeared to have almost equal levels of inside and outside WTC.

EFL Learners' Level of AT

To see what the students' level of AT was, descriptive statistics of the AT scores was run. The results are depicted in Table 4.

Table 4.
Descriptive Statistics for AT Scores

	N	Mean	Std. Deviation	Skewness		Kurtosis	
					Std. Error		Std. Error
AT	60	28.6129	8.46082	.272	.304	-1.195	.599

As Table 4 shows, the mean for AT scores is 28.61 and the standard deviation is 8.46. In order to see whether the observed level of AT was significantly higher or lower than the average mean, the theoretical mean for the AT questionnaire was computed by multiplying the number of items by the midpoint score of each item (it turned out to be 36). According to Table 4, the students have a lower mean AT score (28.61) than the theoretical mean (i.e., 36). As the next step, this difference was checked for statistical significance through running a one sample t-test. The results of the one sample t-test presented in Table 5 showed that the students' AT level was significantly lower than the average AT level of the population (p< .05).

Table 5
One-Sample Test for AT Scores

	Test Value = 36					
	T	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
AT	-6.875	61	.000	-7.38710	-9.5357	-5.2385

The Relationship between EFL Learners' WTC and AT

In order to examine the relationship between the students' WTC and AT, a Pearson Product Moment correlation was run between these two variables. The first assumption of Pearson correlation is normality of the data which was checked through skewness and kurtosis indices presented in Table 1 and Table 4. According to Pallant (2013), a skewness index close to zero indicates normality of the distribution of scores. Based on Table 1, skewness and kurtosis were -.165 and -.600 for inside WTC and -.058 and -.519 for outside WTC scores and based on Table 4, skewness and kurtosis for AT scores were .272 and -1.195, respectively. The next assumption is the linearity of the relationship between the two variables which was checked by drawing the relevant scatterplots (see Figure 2).
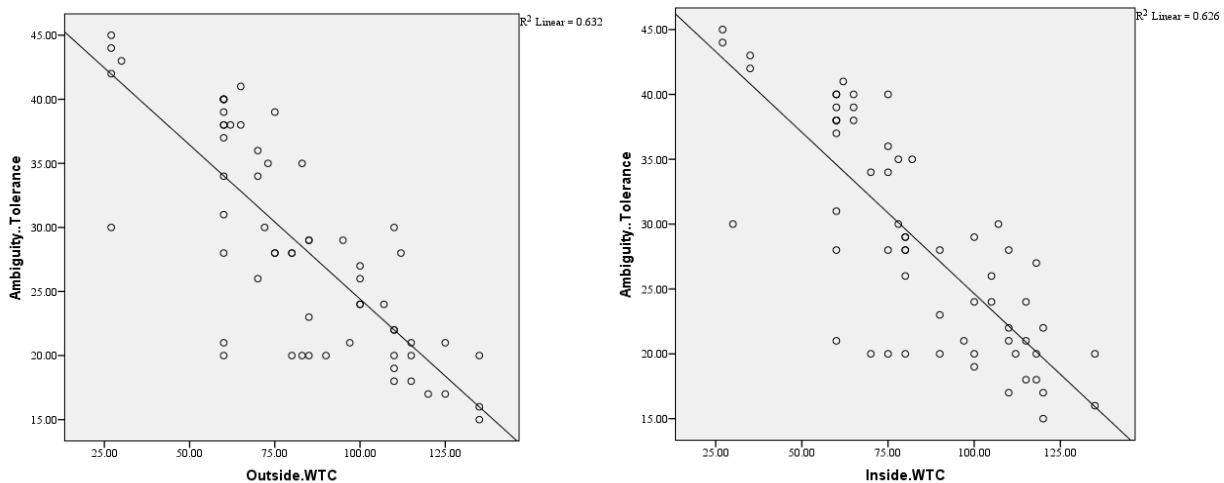

Figure 2. *Scatterplots of the Relationship between AT and Inside/Outside WTC*

As Figure 2 shows, negative linear relationships were observed in the graphs between Inside WTC and AT and Outside WTC and AT. Therefore, the Pearson correlation coefficients were calculated to examine the significance of these relationships. The results are given in Table 6.

Table 6
Correlations among Inside WTC, Outside WTC, and AT

		Outside WTC	Inside WTC
AT	Pearson Correlation	-.795**	-.791**
	Sig. (2-tailed)	.000	.000
	N	60	60

As indicated in Table 6, there were significantly negative relationships between Inside/Outside WTC and AT among the participating students (Outside WTC & AT, r = -.795; Inside WTC & AT, r = -.791 p < .01). In the follow-up analysis of the third question, it was decided to check whether there was a significant difference between inside and outside WTC concerning their correlation with AT. Therefore, a web-based calculator for testing the statistical significance of the difference between dependent correlations based on an updated version of Steiger's (1980) Z was employed (Table 7).

Table 7.
Statistical Significance of the Difference between Dependent Correlations (Inside/Outside WTC & AT)

	R	N	Z score	Sig. 1-tailed	Sig. 2-tailed
Outside WTC & AT	.795				
Inside WTC & AT	.791	60	.212	.416	.832
Inside WTC & Outside WTC	.971				

The 2-tailed p value in Table 7 indicated that the difference between Inside WTC and Outside WTC in correlating with AT was not significant (p > .05). In other words, both Inside WTC and Outside WTC had almost same levels of significant negative correlations with AT.

Predictability of EFL Students' WTC by their AT

The correlations between Inside/Outside WTC and AT were significant with large effect sizes. The next concern was, thus, the amount of the predictability of Inside/Outside WTC from AT scores. For this purpose, two simple linear regressions were run with Inside/Outside WTC as predicted or dependent variables and AT as the predictor or independent variable.

Employing regression requires checking several assumptions which have already been checked in this study. The first assumption is the existence of relatively significant correlations between each predictor variable and the predicted variable. The correlations between the variables in this study appeared to be statistically significant (see Table 7). Another assumption of regression is the normality of the regression standardized residuals, which was checked via checking the histograms and normal probability plots of the regression standardized residuals. The histograms indicated an almost normal curve and the plots indicated that the points have lain in a relatively straight diagonal line from bottom left to top right without too many deviations. Therefore, it was assumed that the assumption of normality of the regression standardized residuals was met for both regression analyses. The final assumption of regression is that of homoscedasticity. To see whether this assumption was met, the scatterplot of the standardized residuals was checked. The scatterplot showed only a few negligible outliers which had lain outside the rectangular cluster of the data in the center. It also showed that there was a clear or systematic pattern to the residuals with relatively few deviations from a centralized rectangle. Thus, it was assumed that there was no violation of homoscedasticity in both regression analyses. As the three assumptions of linear regression were met, linear regression was conducted to see whether EFL learners' level of AT could predict their levels of Inside and Outside WTC. Table 8 shows the results of the linear regression analysis.

Table 8.
Linear Regression for AT as predictor of Inside/ Outside WTC

	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
a. Predictors: (Constant), AT b. Dependent Variable: Outside WTC	1	.795[a]	.632	.625	17.11072
	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
a. Predictors: (Constant), AT b. Dependent Variable: Inside WTC	1	.791[a]	.626	.620	16.58599

In Table 8, the values given under the heading adjusted R Square indicated that .63 of the variance in both Inside WTC and Outside WTC was explained by the AT level. Also, the adjusted R square values expressed as percentage showed that the EFL learners' AT explained 62 percent of the variance in both Inside and Outside WTC which is of large effect size. The results of checking the statistical significance of the values found in Table 8 are presented in Table 9.

Table 9.
ANOVA for AT as predictor of Inside/ Outside WTC

	Model	Sum of Squares	df	Mean Square	F	Sig.
a. Dependent Variable: Outside WTC	Regression	30118.834	1	30118.834	102.873	.000
1	Residual	17566.602	60	292.777		
b. Predictors: (Constant), AT	Total	47685.435	61			
a. Dependent Variable: Inside WTC	Regression	27647.278	1	27647.278	100.501	.000
b. Predictors: (Constant), AT	Residual	16505.706	60	275.095		
		44152.984	61			

As the results in Table 9 indicate, the model reaches statistical significance for Inside and Outside WTC (p < .05). Therefore, the predictor variable (i.e., AT) makes significant predictive contribution to the models (i.e., predicts significantly both Inside WTC and Outside WTC). Table 10 presents all the unstandardized regression coefficients *b* (i.e., slope) and constant (i.e., intercept) which could be inserted in the linear regression formula (i.e., predicted variable = b multiplied by predictor variable + constant) for predicting the Inside/Outside WTCs values if AT data were available. These formula are as follows:

Outside WTC = (-2.63 * AT) + 157.68
Inside WTC = (-2.52* AT) + 156.01

Table 10.
Coefficients for Inside and Outside WTC

	Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		b	Std. Error	Beta		
a. Dependent Variable: Outside WTC	(Constant)	157.678	7.721		20.422	.000
1	AT	-2.626	.259	-.795	-10.143	.000
a. Dependent Variable: Inside WTC	(Constant)	156.013	7.484		20.846	.000
1	AT	-2.516	.251	-.791	-10.025	.000

In sum, the results of the analyses for the last two questions indicated that the students' AT was significantly negatively correlated with both Inside and Outside WTC and that there was no significant difference between Inside and Outside WTC in terms of the strength of their correlation with AT. Additionally, based on the findings, AT appeared to be a significant predictor of Inside/ Outside WTC in EFL students.

Discussion

The study examined students' levels of Inside/Outside WTC and AT and the predictability of students' WTC by their AT level. Regarding the level of WTC, the results showed that there was no significant difference between inside and outside WTC and that the participating students' WTC was not significantly different from the average WTC level. MacIntyre et al. (1998) stress that the social and political objective of language education is increasing communication among cultures and nations and that generating WTC in learners helps the fulfillment of this objective. Therefore, considering the crucial significance of WTC in language education, this finding of the study that learners' WTC is not lower than average suggests more attempts in language classrooms to increase learners' WTC. MacIntyre and Wang (2021) state that we can consider WTC from various interacting views explaining that high WTC can be taken as indicator of better language instruction, as an important component of the learning process, and as a psychological factor showing learner's state. Confirming the dynamic nature of WTC as stressed by MacIntyre et al. (1998) and MacIntyre (2007), the statement by MacIntyre and Wang (2021) suggests that the level of WTC in students might change as a result of change in their language learning outcome, the learning process they are engaged in, and/or their psychological status. It may also be dependent on other personality characteristics. For instance, Ahmadi Safa and Jamshidi (2017) found that WTC was higher in extrovert EFL learners than in introvert ones.

As with AT level, the findings indicated that the students' AT was significantly lower than the average AT level. Considering the positive role of high AT in language instruction success (Chu et

al., 2015; Erten & Topkaya, 2009; Xue & Yu, 2023) and the negative impact of low AT in learning (Furnham & Ribchester, 1995), this finding urges language teachers to work more on enhancing learners' AT. Furnham and Ribchester (1995) in reviewing studies on AT, concluded that low AT can lead to anxiety in learners. However, it should be kept in mind that AT has been regarded in some studies (e.g., Chu et al., 2015) as a dynamic attribute that might differ in different contexts and different domains. For example, Erten and Topkaya (2009) have shown that learners' AT level has positive correlation with their proficiency level; thus, this low AT level might be related to the participants' proficiency and may increase as the learners become more proficient. Moreover, Erten and Topkaya (2009) showed that AT is lower in female than male students. Since the participants of this study were only female students, the low AT might be attributed to the students' gender. In addition, AT level might be related to other personality factors. For instance, Ahmadi Safa and Jamshidi (2017) found that introvert learners have higher levels of AT than extrovert learners. The finding that students had lower than average AT is in line with those by Erten and Topkaya's (2009) and Asmalı (2019). Erten and Topkaya (2009) observed that EFL students had moderate to high intolerance of ambiguity in reading classes. In addition, Asmalı (2019) found low AT level in Turkish EFL learners.

Concerning the relation between WTC and AT, a statistically significant negative relationship was observed between Inside/Outside WTC and AT. In addition, the results, like the findings by Piechurska-Kuciel (2018), showed AT as a significant predictor of Inside/ Outside WTC in the students. Although higher levels of AT may lead to better problem-solving and to confronting challenges better (Keshavarz & Assar, 2011), this does not necessarily mean that learners who are tolerant of ambiguity show interest in initiating communication with others. According to MacIntyre (2007), while WTC can be considered an individual factor helping L2 development, it can also be regarded as an outcome of L2 learning. Thus, one justification for the negative relationship between AT and WTC might be the mediating role of the learners' linguistic proficiency. Considering that WTC is a volitional process (MacIntyre, 2007), the learners with

higher levels of AT who are not linguistically competent might choose not to attend communication in the L2 while those with less AT and higher linguistic competence might show more WTC. The results of this part are in contrast with some previous studies (e.g., Amirian et al., 2020; Hosseini Fatemi et al., 2016; Vahedi & Fatemi, 2015). Hosseini Fatemi et al. (2016) found AT and intercultural WTC indirectly positively correlated with ethnocentrism as the mediating variable. They observed a negative correlation between AT and ethnocentrism and a negative relation between ethnocentrism and intercultural WTC, reporting that learners more tolerant of ambiguity are less ethnocentric and the less ethnocentric learners are more willing to communicate with those from other cultures. Amirian et al (2020) found a positive correlation between WTC and AT. Vahedi and Fatemi (2015) concluded that EFL learners who are more tolerant of ambiguity, show higher levels of WTC. This contrast of findings might be attributable to the dynamic nature of WTC as stressed by MacIntyre et al. (1998) suggesting that individuals may be willing to communicate in the L2 at one time, but unwilling at another time.

Conclusion

The study aimed to investigate the predictive power of AT for WTC in addition to examining the students' levels of WTC and AT. The results showed a satisfying level of WTC, but a low level of AT among the students. Additionally, AT appeared to be a significant predictor of WTC, negatively correlating with this personality trait. In general, the findings of the study suggest the need for language teachers to work more on enhancing their students' AT and even WTC and confirm the dynamic nature of both WTC and AT.

Based on the limitations and the findings of this study, a number of recommendations are made for future research. First, the number of participants was limited and the study was done with only female students. Therefore, similar studies are recommended to be done with more participants involving both genders. Second, the study looked at the relationship between the two variables without considering any moderating factors although the literature suggests the probability of the relationship being moderated by other factors. Thus, more studies are suggested to examine the role of other affective variables in

the relationship between WTC and AT. This study was a correlational study showing the need for enhancement of AT and WTC. Further studies can focus on the possibility of enhancing learners' WTC as advised by Kirkpatrick et al. (2024) and their AT. The dynamic situational nature of WTC suggests that WTC behavior dynamically changes in various situations as a result of the interactions of different factors (MacIntyre & Wang, 2021). Despite the emphasis on the variability of WTC in this model, few studies (e.g., Ebadi & Ebadijalal, 2022; Zarrinabadi et al., 2023) have centered on this characteristic of WTC. Therefore, future studies can study the mediating effects of physiological, psychological, and environmental factors on the relationship between WTC and AT.

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