

Structural Equation Modeling of EFL Learners' Willingness to Communicate and Their Cognitive and Personality Traits

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Received: 2019/03/31

Accepted: 2019/06/14

Abstract: This study aimed at investigating the relationship between Willingness to Communicate and EFL learners' Communication Apprehension, Self-perceived Communicative Competence, Self-regulation, Need for Closure, Tolerance of Ambiguity as well as Aggression. The participants of this study were 300 (197 female and 103 male) Iranian EFL learners of English language institutes in Isfahan. To fulfill the purpose of the study, participants were asked to answer seven questionnaires on Willingness to Communicate (WTC), Communication Apprehension (CA), Self-perceived Communicative Competence (SPCC), Self-regulation (SR), Need for Closure (NFC), Tolerance of Ambiguity (TA) and Aggression (Agg). The results of Structural Equation Modeling confirmed previous studies on the relationship between EFL learners' WTC and SPCC as well as CA asserting that WTC was positively correlated with SPCC and negatively with CA. It was also found that WTC positively correlated with TA. However, the findings revealed no relationship between WTC and SR, NFC and Agg. This study had implications for EFL learners and teachers regarding the factors influencing WTC in language classrooms.

Keywords: Willingness to Communicate, Communication Apprehension, Self-perceived Communicative Competence, Self-regulation, Need for Closure, Tolerance of Ambiguity, Aggression.

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Introduction

In the area of language learning, being able to use the target language for communicative purposes has been considered as a prominent factor for successful second language acquisition and it has been a matter of concern for second language learners (Hashimoto, 2002). The assumption has been that the active and meaningful participation of language learners in classroom activities is the prerequisite for achieving communicative competence (Cao, 2014). The tendency to participate and interact in classroom activities and discussions has been supposed to be a major key to success in L2 communication. This tendency has been called Willingness to Communicate. MacCroskey and Richmond (1987) first defined the concept of willingness to communicate (WTC) in the first language acquisition context. Later, many scholars endeavored to clarify the extent to which the individuals are ready to take part in communication in a L2 (MacIntyre, Clement, Dornyei, & Noels, 1998). As stated by MacIntyre et al. (1998), WTC is explained as “readiness to enter into discourse at a particular time with a specific person or persons using a L2” (p. 547). In the context of second language, MacIntyre et al. (2001, p. 369) described WTC as “the intention to initiate communication, given a choice”. Saint Léger and Storch (2009) stated that the primary models of WTC consisted of the following two major variables: Perceived Communication and Communicative Anxiety. Considering this model, it is predicted that higher levels of WTC and the likelihood of higher interactions in communication situations can be caused by higher degrees of perceived competence along with lower degrees of anxiety. However, more recent research has indicated that a variety of linguistic, contextual, cognitive and affective factors may directly or indirectly influence L2 learners’ WTC in L2 Classrooms (Cao, 2014; Zarrinabadi & Haidary, 2014; Zarrinabadi & Tanbakooei, 2016).

A number of research have been carried out to find out different individual and contextual variables which affect WTC of L2 language learners both in the classroom context and outside (Cao, 2011; Cao & Philp, 2006; Kang, 2005; MacIntyre, Burns, & Jessome, 2011). Investigations in the area of second language acquisition have shown that many factors directly and indirectly affect second language learners’ WTC such as introversion, self-esteem, communication competence (skills), communication apprehension, and cultural diversity.

Considering trait-like view of WTC, many researchers have reported the effect of some individual variables on WTC. Among them, self-perceived communicative competence and communication apprehension have been recognized as the main factors which predict WTC

(Baker & MacIntyre, 2000; MacIntyre, 1994; MacIntyre et al., 2001; McCroskey & Richmond, 1991).

In second language learning, it is proposed that WTC like other individual variables for example motivation, language anxiety and personality shows dual characteristics. The first one is trait-like WTC that is a stable disposition and the other one is situational WTC, which holds a situated nature (Dörnyei, 2005). According to earlier studies, it is believed that the trait WTC and situational WTC are complementary. Trait WTC makes language learners ready for communication. On the other hand, situational WTC affects the decision as whether to start a communication in special situations or not (Cao & Philip, 2006; MacIntyre, Babin & Clément, 1999). In the classroom context, different factors influencing ELF learners' WTC have been the focus of much research. For instance, Cao and Philip (2006) found out that L2 WTC was positively influenced by such factors as small group size, topic familiarity, and self-confidence. In a similar study, Freiermuth and Jarrell (2006) indicated that online communication, compared to face-to-face conversation, provided a more comfortable environment facilitating L2 WTC. Also, Pawlak and Mystkowska-Wiertelak (2015) found out that Polish learners' WTC was influenced by a variety of factors including the topic, the planning time, cooperation and familiarity with the interlocutor, the opportunity to state one's ideas, and the mastery of requisite lexis.

In the conversational contexts, WTC was considered as a multilayered construct which changes from time to time under the mutual influence of psychological conditions and situational variables (Kang, 2005). In the classroom interactional context, contextual variables like interlocutor familiarity and participation, task type, and topic affect WTC (Cao, 2014; Cao & Philip, 2006). MacIntyre (1994) noted that for measuring WTC, studies should combine personality variables with situational variables. To achieve this purpose, one of the main models of L2 WTC (MacIntyre et al. 1998) that remarkably affected second language research, regarded WTC as both the combination of "transient and enduring influences" (p. 546). In another study, Burroughs, Marie, and McCroskey (2003) examined the relations of self-perceived communication competence, communication apprehension, and WTC in both L1 and L2 at community college of Micronesia. One hundred and thirty one undergraduate students participated in their investigation and filled out the questionnaires of CA, SPCC and WTC. Non-native students showed lower SPCC and WTC compared to US students. Furthermore, their results revealed that native speaking students of Micronesia were more willing to talk in comparison to non-native ones.

Need for Closure and Tolerance of Ambiguity in L2 Learning Contexts

Need for closure refers to “the motivated tendency to seek structure, simplify complex information, and avoid ambiguity” (DeBacker & Crowson, 2009, p. 304). This cognitive construct has been mostly the focus of research in the field of educational psychology. The findings of previous studies all confirm that this tendency to avoid ambiguity is related to a variety of variables including achievement goals, cognitive strategy use, and classroom grades (DeBacker & Crowson, 2008; Ravindran, Greene & DeBacker, 2005). Previous studies claimed that need for closure plays a unique role in explaining students’ motivation to learn (DeBacker & Crowson, 2009). Also, correlations have been reported between classroom need for closure and achievement-related variables such as achievement goals and cognitive engagement (e.g., DeBacker & Crowson, 2008; Harlow, DeBacker & Crowson, 2011). However, this cognitive construct has received little attention (if any) in second language learning contexts where syntactic or lexical ambiguities may bring about barriers to understanding. Therefore, this study was motivated to touch upon this neglected cognitive construct to find out its probable relationships with L2 learners’ WTC in classroom contexts. On the other hand, tolerance of ambiguity, as another cognitive construct, has been claimed to affect language learning as well. Previous studies reveal that ambiguity in language learning can lead to anxiety (Ehrman, 1999; Oxford, 1999), which in turn may yield communication apprehension.

Early in literature, Budner (1962) defined tolerance of ambiguity as the individual’s tendency to perceive ambiguous situations as desirable. Later, McLain (1993) defined it as “a range, from rejection to attraction, of reactions to stimuli perceived as unfamiliar, complex, dynamically uncertain or subject to multiple conflicting interpretations” (p. 184). Some researchers believe that TA is a context-specific construct depending on the contextual measures (Herman, et al., 2010). Researchers believe that ambiguous situations are highly common in language learning situations mostly due to learners’ unfamiliarity with L2 linguistic or cultural knowledge.

Literature revealed those who can tolerate moderate levels of ambiguity are able to achieve higher levels of success in language learning (Brown, 2000; Ehrman, 1993; Ely, 1995). Studies mostly deal with the relationship between L2 learners’ TA and linguistic achievements like vocabulary knowledge and grammar (Furnham & Marks, 2013). However little attention has been paid to the relationship between TA and communicate aspects of language learning like WTC.

Studies on WTC and Language Learning

From the advent of the WTC concept, second language scholars and many other educated people have been endeavoring to understand about WTC. Most of the researchers agreed on the multidimensionality nature of WTC. As a matter of fact, WTC is a complicated term which can be affected by a wide range of cognitive, instructional, situational, cultural, and affective factors (Khatib & Nourzadeh, 2015). Investigating the effects of classroom variables on WTC, Robson (2015) tested a structural model using classroom constructs. The model used a teacher scoring to measure the relationship between self-report WTC and actual classroom communication. The number of participants for this study was 67. They studied at a pre-university academic course in English. Different classroom conditions like the actions of the teacher, the task, and the use of group work were examined. It was found that classroom variables directly predicted WTC. In another study, Öz, Demirezen, and Pourfeiz (2015) reported on individuals' perception of willingness to communicate in the Turkish context. The researchers found that out of 134 language learners (34 males and 100 females), 21.6% had high WTC, 13.4 % had high communicative competence and 18.7% did well on communication apprehension questionnaire. Their findings revealed that communication competence and communication apprehension were the major factors which strongly predicted WTC.

Studies on WTC in the Context of Iran

Examining WTC both in the classroom and out of classroom context, Zarrinabadi and Abdi (2011) conducted a study to find the relationship between Iranian EFL students' willingness to communicate both inside and outside of the classroom and their language learning orientations. For this purpose, the researchers used a modified version of likert-type questionnaires developed by MacIntyre, et al. (2001). Sixty-seven students (36 males and 31 females) at the intermediate level whose majors were English literature and translation took part in this study. The findings indicated that language learning orientations were more connected to willingness to communicate outside the classroom.

In a similar study, Zarrinabadi and Haidary (2014) attempted to find the relationship between Iranian language learners' WTC and their identity styles. The findings revealed that WTC and Self-Perceived Communicative Competence (SPCC) are positively correlated with students' formative and normative identity styles, while negatively correlated with diffuse-avoidance style. Additionally, it was asserted that Communication Apprehension (CA) is

positively correlated with diffuse-avoidance identity style. Along the same lines, Alemi, Tajeddin, and Mesbah (2013) examined the impact of individual differences on Iranian EFL students' willingness to communicate. To measure participants' willingness to communicate, the questionnaire developed by McCroskey (1977) was utilized. They found no significant difference between the individuals regarding their major, age, personality type, and gender. Nonetheless, the researchers found other factors including the time being abroad, length of study, proficiency level and communicating with foreigners as affecting WTC. In a similar study on the relationship between WTC, Emotional Quotient (EQ), and foreign language anxiety, Birjandi and Tabatabaian (2012) found a significant relationship between the above mentioned variables. Moreover, in their findings, they specified EQ, foreign language anxiety and some of its subscales as the predictors of WTC.

In another study, Tavakoli and Zarrinabadi (2016) in a sequential explanatory mixed methods study investigated the effect of explicit and implicit corrective feedback on Iranian English language learners' (EFL) L2 willingness to communicate (WTC) in English. The results of their study indicated that implicit corrective feedback did not affect L2 WTC while explicit corrective feedback increased it. They added that explicit corrective feedback enhanced language learners' L2 WTC by promoting their L2 self-confidence.

Karimi and Abaszadeh (2017) examined the potential relationships among learners' willingness to communicate (WTC) in English, their perceptions of autonomy-supportive teaching, their motivation and English speaking self-efficacy. The results of Structural Equation Modeling revealed significant positive paths from autonomy-supportive teaching to motivation, WTC in English, and English speaking self-efficacy. They also found indirect paths from autonomy-supportive teaching style and English speaking self-efficacy to WTC through the mediation of motivation.

Regarding the role of teachers in promoting students' WTC, Zarei, Saeidi, and Ahangari (2019) examined teachers' socio-affective and pedagogic strategies. Their findings revealed some facilitating factors such as developing positive relationships, choice of the topic, teaching style, and teachers' enthusiasm and some inhibiting factors including teachers' role, teaching style, and institutional expectations.

However, there is still a need for investigating other variables predicting WTC inside the classroom. To the best of the researchers' knowledge, cognitive variables have not been considered extensively in previous studies on WTC. Therefore, this study attempted to focus on a number of cognitive variables including 'self-regulation', 'tolerance of ambiguity', and

'need for closure'. In this study, the researchers considered the participants' 'self-perceived communication competence' (SPCC), 'communication apprehension' and 'aggression' as personality variables and 'need for closure', 'tolerance of ambiguity', and 'self-regulation' as cognitive variables and examined the relationship of the mentioned variables with willingness to communicate (WTC).

In order to investigate the relationship between WTC and the afore-mentioned variables, this study addressed two general questions:

1. To what extent are 'need for closure', 'tolerance of ambiguity', 'self-regulation', 'communication apprehension', 'self-perceived communication competence', and 'aggression' related to willingness to communicate?
2. How can these relationships be modeled?

Design of the Study

Demographic Information of the Participants

Three hundred participants, both male (34.33 percent) and female (65.66 percent) were randomly selected from among the language learners of some English language institutes in Isfahan, Iran. The average age of the statistical sample was 20.9 and its standard deviation was 5.49. They were at the intermediate and advanced levels of proficiency based on the criteria of the institutes; however, their level of proficiency was not the concern of this study.

Instruments

For the purpose of this research, a number of questionnaires were employed. One questionnaire was used to measure language learners' willingness to communicate and 6 others were employed in order to investigate the students' cognitive and personality traits. Most of the questionnaires used a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The questionnaires are described one by one in the following sections.

Willingness to Communicate Questionnaire (Inside the Classroom)

This study employed the Willingness to Communicate inside the classroom questionnaire from Zarrinabadi and Abdi (2011, adapted from MacIntyre et al., 2001) (see Appendix G). This 27-item questionnaire is divided into 4 categories: 1. Speaking in an English class, 2. Reading in an English class, 3. Writing in an English class, and 4. Comprehension in an English class. The items range from 1 to 5 (1=almost never willing, and 5= almost always

willing). MacIntyre, et al. (2001) described this scale as a reliable and valid one, according to their alpha levels which represent reliability estimates: speaking (8 items, $\alpha=0.81$), comprehension (5 items, $\alpha=0.83$), reading (6 items, $\alpha=0.83$), and writing (8 items, $\alpha=0.88$). To validate this scale for the present study, the researchers made use of Cronbach's alpha. The alpha reliability estimates for this scale in the present study were as follows: speaking (8 items, $\alpha=0.7$), comprehension (5 items, $\alpha=0.7$), reading (6 items, $\alpha=0.741$), and writing (8 items, $\alpha=0.855$).

Aggression Questionnaire

The aggression questionnaire developed by Orpinas and Frankowsk (2001) was used as the instrument in the present study. It assessed participants' self-reported aggressive behavior through 11 items. (Cronbach's alpha = 0.94). "The scale measures behaviors that might result in psychological or physical injury to other students" (Orpinas & Frankowsk, 2001, p. 53). The internal consistency of this questionnaire, estimated by Cronbach's alpha coefficient, was high (0.86). The scale has been presented in Appendix A.

Personal Report of Communication Apprehension Questionnaire (PRCA-24)

The origin of the notion of communication apprehension (CA) traces back to a study conducted by MacCroskey (1977) in which he defined CA as a kind of anxiety that is associated with the individuals' spoken conversation. Throughout the history of CA various researchers have defined it in various ways. Horwitz, Horwitz and Cope (1986) viewed CA as "a kind of shyness characterized by a fear of or anxiety about communication with people" (p. 127). In this study, this variable was assessed using Personal Report of Communication Apprehension (PRCA-24).

Personal Report of Communication Apprehension (PRCA-24) is a 24-item questionnaire designed in 5-point likert-scale format (1= strongly disagree, and 5= strongly agree) most widely used to measure communication apprehension. The researchers adapted the PRCA-24 questionnaire developed by McCroskey (1977). Alpha reliability estimate for PRCA-24 in this study was 0.73 (see Appendix B for the questionnaire).

Self-perceived Communication (Communicative) Competence Questionnaire (SPCC)

McCroskey and McCroskey (1988) argued that there are four ways to measure SPCC: 1) objective observation, 2) subjective observation, 3) self-reports, and 4) receiver reports. They

claimed that communication choices are related to the individuals' SPCC which decide about their communicative behavior; thus, self-report measure is widely utilized. Nevertheless, SPCC would be more beneficial if that individual is not afraid of telling the truth due to negative consequences. McCroskey and McCroskey (1988) formulated a scale for SPCC which directly asks individuals to estimate their communicative competence in different communication contexts.

This study employed self-perceived communicative competence scale (SPCC) (McCroskey & McCroskey, 1988) to measure the participants' perceived competence in the English classroom. Language learners determined the percentage of time (from 0 % to 100 %) they would feel competent to use English to speak in L2 settings. Higher SPCC scores indicated higher self-perceived communication competence with regard to three groups of receivers, namely friends, acquaintances, and strangers in four communication contexts/settings including public speaking, meeting, groups, and pairs (dyad). The internal consistency of the scale was $\alpha = 0.91$. This questionnaire has been presented in Appendix C.

Need for Closure Questionnaire

Kruglanski & Webster (1991) claimed that need for closure displays a desire towards certain, clear answers to questions and a dislike toward vagueness and uncertainty. As individuals prefer similar values and opinions, they prefer following powerful leaders because they feel those leaders could develop their desired uniformity and clarity (Pierro, Mannetti, De Grada, Livi, & Kruglanski, 2003).

The present study employed a short 15-item version of the revised "Need for Closure" scale developed and validated by Roets and Van Hiel (2011). This scale is a 6-point Likert scale ranging from 1 to 6 (See Appendix D). The internal consistency of the scale was $\alpha = 0.71$.

Self-Regulation Questionnaire (SRQ)

Miller and Brown developed a seven-step model of self-regulation (Brown, 2000; Miller & Brown, 1991). This questionnaire consists of 63 items, scored on a 5-point likert-scale ranging from 1 (strongly disagree) to 5 (strongly agree) (see Appendix E). The internal reliability of this questionnaire was assessed using the Cronbach's alpha, which was 0.74. Its construct validity was measured through chi-square X^2 tests and a range of goodness-of-fit measures. X^2/df with a value below 3 was considered as acceptable (Carmines & McIver,

1981). The other indexes such as Goodness-of-Fit Index (GFI), Normed Fit Index (NFI), Comparative Fit Index (CFI), Root Mean-Square Error Approximation (RMSEA), and Standardized Root Mean-Square Residual (SRMR) were used to assess Model-fit. Generally, for GFI, NFI, and CFI, a value higher than 0.90 is deemed acceptable, and greater than 0.95 is considered as good fit. RMSEA and SRMR lower than 0.08 are considered acceptable (Byrne, 2001).

Tolerance of Ambiguity Questionnaire

Tolerance of ambiguity questionnaire, developed by Budner (1962) consisting of 16 items ($\alpha = 0.7$) in 7-point Likert-scale was employed for measuring the degree of ambiguity tolerance. The questionnaire is presented in Appendix F.

Data Analysis

SPSS (statistical package for the social science) version 22 was utilized to conduct descriptive statistics (means, standard deviations, frequencies and percentages). Furthermore, structural equation modeling (SEM) was run using Analysis of Moment Structures (AMOS) software (version 22) to find the probable structural relations between the independent variables (NFC, SR, CA, SPCC, TA, and Agg) and the dependent variable (WTC). AMOS provides a number of model fit indices from which the following indices were taken into account in the present research: goodness-of-fit index (GFI), adjusted goodness-of-fit index (AGFI), comparative fit index (CFI), root mean square error of approximation (RMSEA) and X^2/df .

In the following sections, first the results of descriptive analysis of the questionnaires have been demonstrated in different tables. Then, the inferential analysis regarding the relations of the variables of the study with WTC and their structural model has been presented.

Results of Descriptive Analysis of the Questionnaires

This section presents the descriptive analysis of different scales measuring the variables of this study.

Willingness to Communicate

Based on the results, 34% of the participants had low and very low desire to communicate. Also, 33.7% and 32.4% of them had moderate and high and very high desire to communicate, respectively.

Tolerance of Ambiguity

The participants' level of Tolerance of Ambiguity was evaluated using sixteen 5-point Likert scale items. Hence, 27.7% of the participants stated that they had little and very little tolerance for uncertain and ambiguous cases. Also, 48% and 24.3% of them had moderate and high and very high levels of tolerance of ambiguity.

Self-Regulation

The participants' Self-regulation was evaluated using twenty 5-point Likert scale items. According to the results, 66.3% of the participants showed very little and little self-regulation. Also, 31% and 2.6% of them showed moderate and high and very high levels of self-regulation, respectively.

Self-perceived Communication Competence (SPCC)

The participants' Self-perceived Communication Competence (SPCC) was evaluated using twelve items based on percentage (0%-100%). Results represented that 12.7% of the participants stated that they had low and very low levels of SPCC (0%-40%). Also, 26% and 61.3% of them had moderate and high and very high levels of SPCC.

Communication Apprehension

The participants' Communication Apprehension was measured using ten 5-point Likert scale items. Accordingly, 37.7% of the participants stated that they had low and very low levels of Communication Apprehension. Also, 38.7% and 23.7% of them had moderate and high and very high levels of apprehension, respectively.

Need for Closure

The participants' need for closure was evaluated using fifteen 5-point Likert scale items. The results showed that 29.7% of the participants stated that they had low and very low levels of need for closure. Also, 40% and 38.3% of them reported moderate and high and very high levels of need for closure, respectively.

Aggression

The participants' aggression level was assessed using eleven items in terms of frequency of aggressive behavior. Based on the results, 12% of the participants reported that they did not

have any aggressive behavior during the week reviewed. Most of the language learners reported to have aggressive behavior once a week and just a few declared that they displayed aggressive behavior six times in the week (0.3%).

Inferential Statistics

Spearman Test was used to study the relationship between need for closure and Willingness to Communicate. The results demonstrated that there was no significant relationship between these two variables. However, the results of the same test revealed a positive and significant correlation between tolerance of ambiguity and Willingness to Communicate (at 99% confidence level) ($p=0.009$, $r_s=0.151$). The Spearman Test was also used to study the relation between self-regulation and Willingness to Communicate. According to the results, there was no significant relationship between these two variables. This test was also used to study the relation between communication apprehension and Willingness to Communicate. The results revealed a negative and significant correlation between communication apprehension and Willingness to Communicate (at 95% confidence level) ($p=0.018$, $r_s=-0.137$). Likewise, the results of this test regarding the relation between self-perceived communication competence and Willingness to Communicate indicated a positive and significant correlation between SPCC and Willingness to Communicate (at 99% confidence level) ($p=0.000$, $r_s=0.261$). Finally, the results of Spearman test revealed no significant relationship between aggression and Willingness to Communicate.

Structural Equation Modeling

In this study, 'Structural Equation Modeling' was employed in order to model the relationships among different variables and predict possible relationships.

Confirmatory Factor Analysis and Validation of Scales

In order to validate the six sub-scales, Need for Closure, Tolerance of Ambiguity, Self-regulation (SR), Communication Apprehension (CA), Self-perceived Communicative Competence and Aggression as the components influencing willingness of language learners to communicate in English classroom, first, six confirmatory one-factor analysis (CFA) models were designed and analyzed by Amos Graphics (See Figure 1 to Figure 3 below).

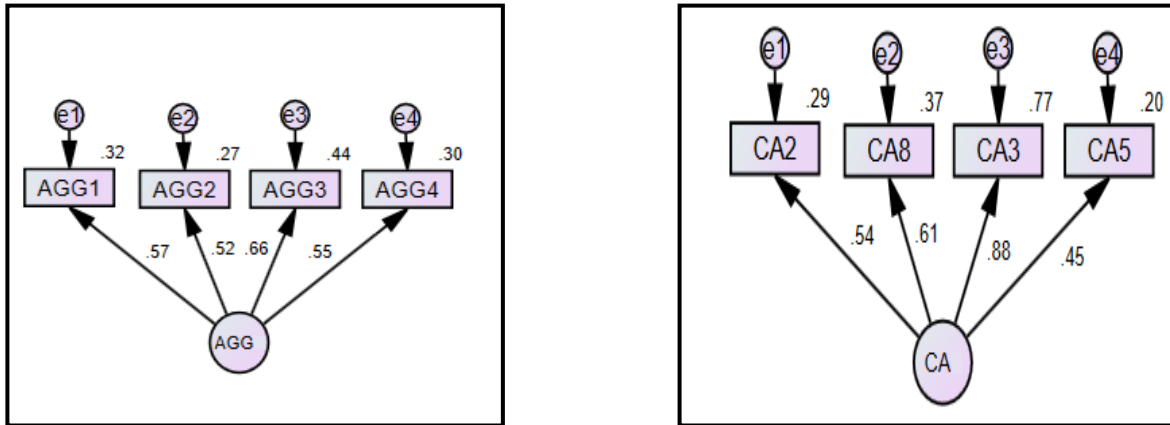


Figure 1. Standard Estimation of Confirmatory Model for Validating AGG and CA Measurement Scales

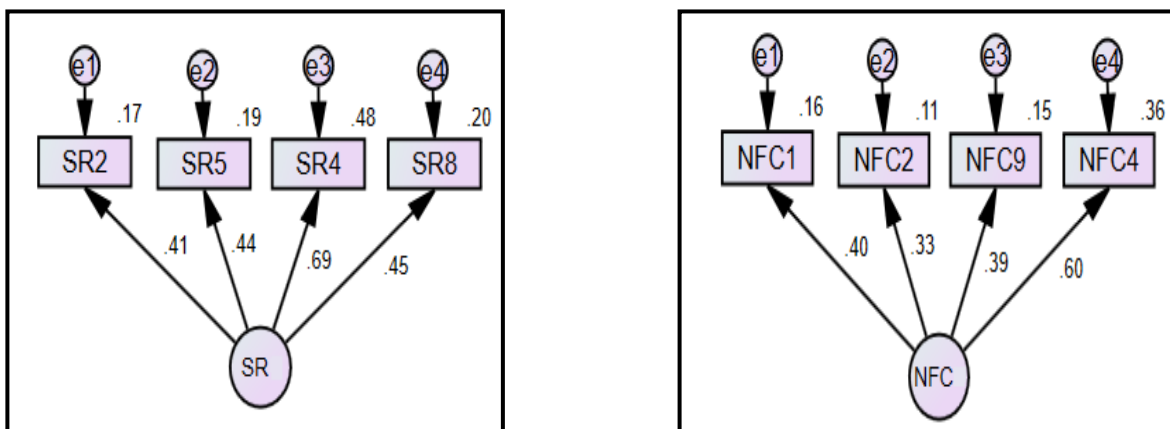


Figure 2. Standard Estimation of Confirmatory Model for Validating NFC and SR Measurement Scales

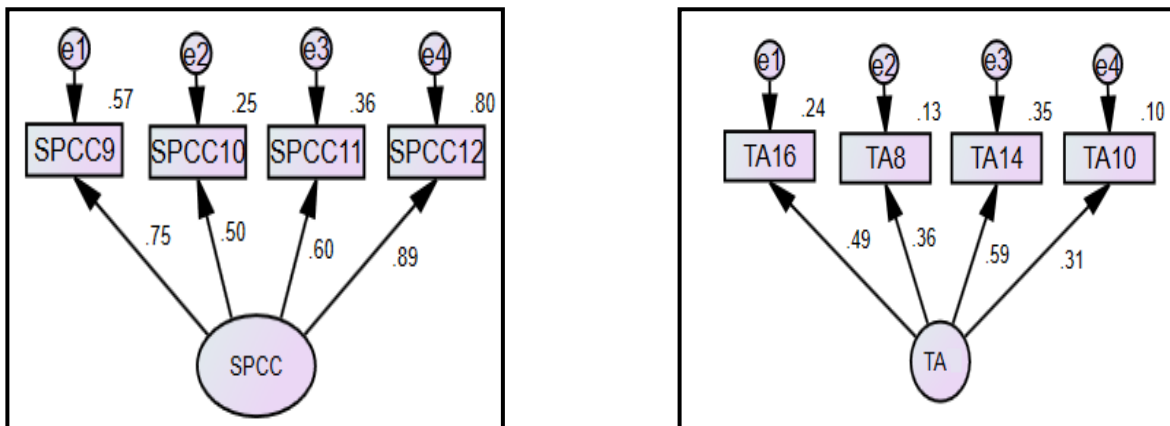


Figure 3. Standard Estimation of Confirmatory Model for Validating SPCC and TA Measurement Scales

It should be noted that in the first stage of using structural equations, based on calculated standard coefficients, some items of independent hidden variables were put aside due to their weak factor load (less than 0.3) and were excluded from the measurement model. Other variables, shown in Table 1, had a factor load greater than 0.3. Generally, regarding the

obtained results and also, based on the results of Cronbach's alpha, shown in Table 1, it is possible to confirm that the research tool is reliable.

Table 1. Description of the Items and Observed Variables of the Sub-scales Effective in WTC

Sub-scales	Item	Regression weights			Cronbach's Alpha
		Estimate	S.E.	C.R.	
AGG	AGG1	1			0.864
	AGG2	1.4	0.24	5.835***	
	AGG3	1.54	0.246	6.282***	
	AGG4	1.36	0.227	5.993***	
CA	CA2	1			0.861
	CA8	1.38	0.185	7.51***	
	CA3	2.01	0.271	7.43***	
	CA5	1.001	0.164	6.1***	
NFC	NFC1	1			0.71
	NFC2	0.835	0.276	3.03**	
	NFC9	0.995	0.303	3.28**	
	NFC4	1.34	0.424	3.16**	
SR	SR2	1			0.74
	SR5	1.034	0.247	4.182***	
	SR4	1.76	0.416	4.239***	
	SR8	1.14	0.27	4.225***	
TA	TA16	1			0.7
	TA8	0.747	0.212	3.51***	
	TA14	1.525	0.43	3.54***	
	TA10	0.629	0.196	3.21**	
SPCC	SPCC9	1			0.911
	SPCC10	0.756	0.092	8.19***	
	SPCC11	0.742	0.072	9.73***	
	SPCC12	1.159	0.097	11.93***	

*: confidence level of 95%, **: confidence level of 99%, ***: error

The fitness indicators used in Table 2, are, in fact, the criteria to confirm the developed theoretical models using the information collected from the field researches of this study. These criteria are divided into three groups of Absolute Fit Indices (X²K Score, Root Mean Residual (RMR) and Goodness of Fit Indices (GFI)), Adaptive Fit Indices (Normed Fit Index (NFI) and Comparative Fit Index (CFI)) and frugal fit indices (Root Mean Square Error of Approximation (RMSEA) and Parsimony Ratio (PRATIO)). As shown in Table 2, the fitness of the model is acceptable and there are rational relations among the variables of the study. Among various fitting indicators, if 3 to 4 indicators out of the total number of the indicators mentioned are appropriate, the model would be appropriate in terms of fitness. As indicated in Table 2, all of the seven indices used above confirmed the fitness and validity of the six measurement models based on the collected data. Therefore, it was possible to develop and evaluate the main model of the research.

Table 2. Results of Conformity of Measuring Models with Fitness Indicators

Index	X ² /df	IFI	RMR	CFI	NFI	GFI	RMSEA	PRATIO
Suggested criterion*	3≤	≤ 0.9	0.08≤	≤0.9	≤0.9	≤0.9	0.08≤	0-1
Reported value for AGG measurement model	1.23	0.997	0.028	0.997	0.987	0.98	0.02	0.33
Reported value for CA measurement model	2.21	0.99	0.06	0.989	0.981	0.945	0.064	0.2
Reported value for NFC measurement model	2.44	0.979	0.023	0.979	0.965	0.942	0.08	0.667
Reported value for SR measurement model	0.568	0.999	0.064	0.999	0.988	0.961	0.079	0.463
Reported value for TA measurement model	1.61	0.98	0.048	0.979	0.981	0.984	0.045	0.33
Reported value for SPCC measurement model	2.27	0.993	0.065	0.993	0.948	0.99	0.065	0.48

Structural Equation Modeling for Analyzing the Hidden Variables

After performing first-order confirmation factor analysis, the structural equation modeling was used in order to take consideration of the causal effects in the conceptual model of the research, and in order to examine the significance of the effects of the main hidden variables and rank them based on their effect on the formation and explanation of the structure of the Willingness to Communicate. Structural equation modeling is a combination of route models (structural relations) and confirmatory factor models (measurement relations).

Table 3. Results of Conformance of the Structural Model with Fitness Indicators

Index	X ² /df	IFI	RMR	CFI	GFI	PRATIO	RMSEA
Recommended criteria	3≤	≤ 0.9	0.08≤	≤0.9	≤0.9	0-1	0.08≤
Reported value	2.15	0.922	0.08	0.921	0.9	0.647	0.062

The correlation coefficients between WTC and each of the six variables (aggression (AGG) (0.12), communication apprehension (CA) (-0.18), need for closure (NFC) (-0.03), self-regulation (SR) (0.12), tolerance of ambiguity (TA) (0.31) and self-perceived communication competence (SPCC) (0.28)) were obtained. In addition, Standard Error Estimates, Critical Ratios, and Significant Levels revealed that the standard estimates of the variables communication apprehension (CA), tolerance of ambiguity (TA), and self-perceived communication competence (SPCC) were 95% significant. The fitness indices of the final model, along with the suggested values for their evaluation, are presented in Table 4.

Table 4. *General Effects (Non-standard) of the Observed Variables and Subscales on the Assessment of Willingness to Communicate*

	SPCC	CA	SR	TA	NFC	AGG	WTC
WTC	.008	-.145	.158	.344	-.028	.073	.000
comprehension	.009	-.161	.175	.382	-.031	.081	1.110
Writing	.013	-.234	.254	.553	-.045	.118	1.609
Reading	.009	-.157	.170	.371	-.030	.079	1.078
Speaking	.008	-.145	.158	.344	-.028	.073	1.000
AGG1	.000	.000	.000	.000	.000	.713	.000
AGG2	.000	.000	.000	.000	.000	1.004	.000
AGG3	.000	.000	.000	.000	.000	1.096	.000
AGG4	.000	.000	.000	.000	.000	1.000	.000
SPCC12	1.157	.000	.000	.000	.000	.000	.000
SPCC11	.749	.000	.000	.000	.000	.000	.000
SPCC10	.755	.000	.000	.000	.000	.000	.000
SPCC9	1.000	.000	.000	.000	.000	.000	.000
CA2	.000	.724	.000	.000	.000	.000	.000
CA3	.000	1.414	.000	.000	.000	.000	.000
CA5	.000	.713	.000	.000	.000	.000	.000
CA8	.000	1.000	.000	.000	.000	.000	.000
SR8	.000	.000	1.146	.000	.000	.000	.000
SR5	.000	.000	1.047	.000	.000	.000	.000
SR4	.000	.000	1.851	.000	.000	.000	.000
SR2	.000	.000	1.000	.000	.000	.000	.000
TA16	.000	.000	.000	1.314	.000	.000	.000
TA14	.000	.000	.000	1.793	.000	.000	.000
TA10	.000	.000	.000	.717	.000	.000	.000
TA8	.000	.000	.000	1.000	.000	.000	.000
NFC9	.000	.000	.000	.000	1.014	.000	.000
NFC4	.000	.000	.000	.000	1.314	.000	.000
NFC2	.000	.000	.000	.000	.859	.000	.000
NFC1	.000	.000	.000	.000	1.000	.000	.000

Table 5 shows the standard regression coefficients (direct and indirect effects) of the observed final variables and the sub-scales of the main hidden dependent variables.

Table 5. *General Effects (Standard) of the Observed Variables and Subscales on the Assessment of Willingness to Communicate*

	SPCC	CA0	SR0	TA0	NFC0	AGG0	WTC0
WTC0	.281	-.179	.115	.311	-.028	.118	.000
comprehension	.181	-.115	.074	.200	-.018	.076	.643
Writing	.228	-.145	.094	.252	-.023	.096	.811
Reading	.165	-.105	.068	.183	-.017	.070	.588
Speaking	.171	-.109	.070	.188	-.017	.072	.607
AGG1	.000	.000	.000	.000	.000	.564	.000
AGG2	.000	.000	.000	.000	.000	.520	.000

	SPCC	CA0	SR0	TA0	NFC0	AGG0	WTC0
AGG3	.000	.000	.000	.000	.000	.653	.000
AGG4	.000	.000	.000	.000	.000	.559	.000
SPCC12	.892	.000	.000	.000	.000	.000	.000
SPCC11	.603	.000	.000	.000	.000	.000	.000
SPCC10	.504	.000	.000	.000	.000	.000	.000
SPCC9	.753	.000	.000	.000	.000	.000	.000
CA2	.000	.546	.000	.000	.000	.000	.000
CA3	.000	.869	.000	.000	.000	.000	.000
CA5	.000	.452	.000	.000	.000	.000	.000
CA8	.000	.616	.000	.000	.000	.000	.000
SR8	.000	.000	.441	.000	.000	.000	.000
SR5	.000	.000	.435	.000	.000	.000	.000
SR4	.000	.000	.709	.000	.000	.000	.000
SR2	.000	.000	.401	.000	.000	.000	.000
TA16	.000	.000	.000	.519	.000	.000	.000
TA14	.000	.000	.000	.561	.000	.000	.000
TA10	.000	.000	.000	.286	.000	.000	.000
TA8	.000	.000	.000	.390	.000	.000	.000
NFC9	.000	.000	.000	.000	.394	.000	.000
NFC4	.000	.000	.000	.000	.583	.000	.000
NFC2	.000	.000	.000	.000	.337	.000	.000
NFC1	.000	.000	.000	.000	.396	.000	.000

It should be noted that a significant level for all direct final effects was reported based on standard error and critical ratios. As shown in Table 6, the significant levels for the final direct effects of the variables communication apprehension (CA), tolerance of ambiguity (TA) and self-perceived communication competence (SPCC) were less than 0.05.

Table 6. Summary of the Results Obtained from Structural Equation Modelling

Relation	Non-standard coefficients	Standard error	Standard coefficients	Critical Ratio (CR)	Significant level
AGG <--- WTC	0.073	0.047	0.118	1.55	0.12
CA <--- WTC	-0.145	0.057	-0.179	-2.53	<u>0.011</u>
NFC <--- WTC	-0.028	0.086	-0.028	-0.328	0.743
SR <--- WTC	0.158	0.11	0.115	1.43	0.15
TA <--- WTC	0.344	0.12	0.311	2.86	<u>0.004</u>
SPCC <--- WTC	0.008	0.002	0.281	3.94	<u>0.000</u>

Thus, it could be concluded that the direct effects of these variables were significant at 95% confidence level (see Figure 4).

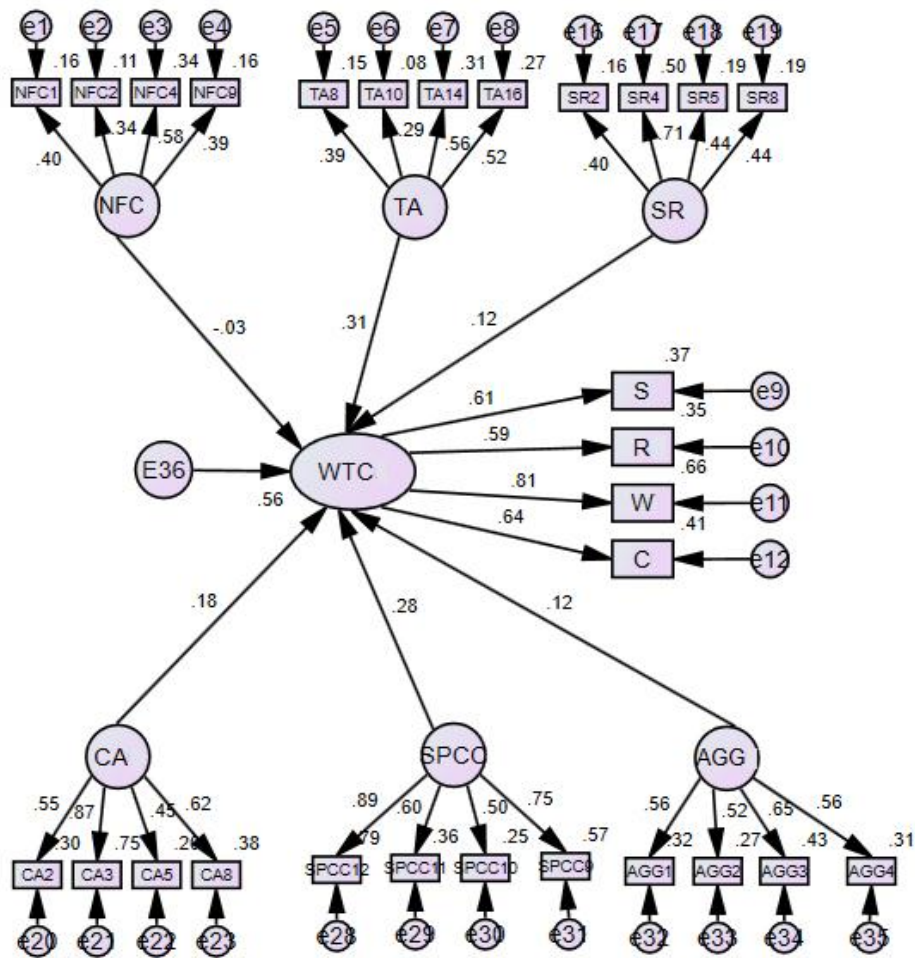


Figure 4. Standard Estimates of Route Coefficients in the Final Structural Model

Discussion

This study was an attempt to investigate the relationship between students' WTC and their need for closure, tolerance of ambiguity, self-regulation, self-perceived communication competence, communication apprehension and aggression in the Iranian EFL context. The findings of this research revealed that WTC was associated with TA, SPCC and CA. Results confirmed previous findings with respect to the effects of SPCC and CA. It was found that TA and SPCC were positively correlated with WTC. The findings of this study are in line with those reported by Fallah and Mashhady (2014) who claimed that SPCC and motivation were considered as significant predictors of L2 WTC. Oz, Demirezen, and Pourfeiz (2015) also found a positive direct path from SPCC to WTC and a significant negative path from PRCA to WTC. These are also in line with McCroskey and Richmond's (1987) claim that a language learner's perception of his/her communication competence has significant effect on WTC. The present research gives the impression to confirm the idea that SPCC is likely to predict L2 WTC (Ghonsooly, Khajavi, & Asadpour, 2012; Hashimoto, 2002).

Self-Perceived Communicative Competence (SPCC) and Communication Apprehension (CA) were considered as two communicative factors analyzed in many studies related to WTC. In addition, several other studies (MacIntyre, 1994; MacIntyre & Charos, 1996; MacIntyre, et al, 1999; McCroskey & Richmond, 1990; Yashima, 2002) specified SPCC as the strongest predictor of L2 WTC. Also, MacIntyre, Doucette (2010) observed that WTC was correlated positively with SPCC and negatively with CA among students speaking French as their L2. Our findings support past results linking perceived competence and WTC (Yashima Zenuk-Nishide, & Shimizu 2004).

However, communication apprehension was shown to be negatively correlated with WTC. The same results were reported in Oz, Demirezen and Pourfeiz (2015) in which CA was reported to be negatively correlated with WTC. They suggested that greater levels of motivation may help language learners to decrease their CA which indirectly results in their WTC in English. The findings of this study are also in line with those reported by Peng and Woodrow (2010) who claimed that among a variety of affective factors which influence language learners' WTC, anxiety or feeling nervous was the most recurrent one. Fallah and Mashhady (2014) also reported that CA indirectly influenced L2 WTC. McIntyre et al, (2003) asserted the same results too. They argued that an inverse relationship exists between WTC and anxiety. A number of studies such as (Cheng, Horwitz, & Schallert, 1999; MacIntyre, 2007; MacIntyre & Gardner, 1991; MacIntyre et al. 1997) manifested the connection of anxiety with foreign language learning and performance.

The innovative side of this research was examining NFC, TA, SR and Agg which were new concepts to be considered in WTC-related literature and have not been considered in previous studies. No relationship was found between need for closure, self-regulation, aggression and WTC. Regarding need for closure, to the best of the researchers' knowledge, no studies were conducted before to investigate the relationship between WTC and NFC. This lack of relationship may be due to the fact that based on definition, 'need for closure' demands avoiding participating in uncertain situations or talks. This feature may have led to the participants' unwillingness or avoidance to communicate. Also, findings of this research revealed no relationship between WTC and Self-regulation. Therefore, subscales such as evaluating, assessing and so forth which are believed to be the subcategories of SR were found to show no meaningful relation to WTC. Likewise, with regard to the relationship between Aggression and Willingness to Communicate among Iranian EFL learners, findings revealed no significant relationship between these two variables. Therefore, based on the

results of this study, seemingly, aggression does not lead to (un)willingness to communicate among Iranian EFL learners.

Tolerance of ambiguity of language learners showed positive and significant relationship with their WTC. This may be due to the idea that individuals who can tolerate uncertainty or perceive ambiguous situation as favorable would engage in communication more (Budner, 1962). In other words, the findings suggest that those participants who had an orientation to perceive ambiguous situations as favorable might be more willing to communicate and this led to a direct relation between WTC and tolerance of ambiguity.

Conclusions and Implications

As the results demonstrate, the relationships found between some of the variables investigated in this study and WTC are strong and meaningful. Structural modeling cannot ensure the necessary causal conditions; however, it may propose tentative causal inferences when used with specified and controlled designs (Heather, 2016). Regarding the results of this study, although we do not claim causality among WTC and any other variables investigated, some predictions can be made. For instance, high levels of self-perceived communicative competence can be a good predictor of WTC. On the other hand, low levels of communication apprehension may lead to higher levels of WTC. Besides, high levels of tolerance of ambiguity yield higher participation on the part of language learners, and consequently, lead to higher WTC.

The findings of this research may provide implications for designing teaching materials. Material designers can focus on developing contexts to increase students' Self-Perceived Communicative Competence, their willingness to read, write, and speak and decrease their fear or anxiety which is crucial in learning English much more effectively. This research has pedagogical implications for English teaching and learning as well. Being able to communicate is a desired goal for language learners. To achieve this goal, language teachers should upgrade their teaching methods by a better understanding of language learners' WTC. The findings also help teachers to develop their knowledge of the factors that influence language learners' WTC. With such knowledge, they can improve language learners' communicative behavior by developing their CA, SPCC, and Tolerance of Ambiguity. They should try to decrease factors such as Communication Apprehension, which impede language learners' willingness to initiate communication and develop those factors like SPCC and TA that encourage communication. Teachers can aware students of these

factors and teach them some techniques and make them able to have control over their feelings, thoughts and their behavior and also expand their point of view toward language learning and communication.

The second thing to consider is that as language learners do not have access to authentic language communication, “a better understanding of students’ WTC in English may help language teachers to realize and implement instructional strategies that could create more opportunities to promote communication and students’ engagements and consequently, facilitate students’ English learning and acquisition” (Yu, 2009, p.12). And in this study the researcher attempted to get a better understanding of language learners’ WTC in English and some factors were examined related to that. Besides, as it is asserted in communicative approaches, students’ active participation is necessary for learning a second language (Gass, 2003). Hence, facilitating learners’ communicative behavior becomes crucial.

Furthermore, this study revealed that cognitive and personality factors can significantly influence language learners’ WTC. It was found that WTC was correlated with SPCC, CA and TA. This research calls for the recognition of the importance of cognitive and personality factors’ role on learners’ achievements. Following these outcomes, it can be said that for improving students’ WTC in English in an EFL context, teachers, learners and administrators similarly should know about situational and personal factors influencing second and foreign language learning, specially speaking. In addition, the results of the present research can theoretically help to develop the literature on the idea of WTC in an EFL context.

Regarding the limitations, it can be said that the present study did not take age, gender, and level of proficiency into account; more investigations are called to generalize the results across different age, gender, and proficiency groups. Moreover, the analytic findings of structural equation modeling (SEM) may involve further empirical investigation and replication. In particular, the path from some variables like NFC, SR, Aggression and TA to WTC, which was tested for the first time in this study, needs further evidence for the stability of the suggested relationship to be supported. Finally, this research only examined WTC inside the classroom. Further research could explore the relationship between these variables and language learners’ WTC outside the classroom.

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Appendix A

Questionnaire on Aggression

Answer the following questions thinking of what you actually did during the last 7 days. For each question, mark with a circle how many times you did that behavior during the last 7 days.

0 1 2 3 4 5 6 or

During the last 7 days.

1. I teased students to make them angry. 0 1 2 3 4 5 6+
2. I got angry very easily with someone. 0 1 2 3 4 5 6+
3. I fought back when someone hit me first. 0 1 2 3 4 5 6+
4. I said things about other kids to make other students laugh. 0 1 2 3 4 5 6+
5. I encouraged other students to fight. 0 1 2 3 4 5 6+
6. I pushed or shoved other students. 0 1 2 3 4 5 6+
7. I was angry most of the day. 0 1 2 3 4 5 6+
8. I got into a physical fight because I was angry. 0 1 2 3 4 5 6+
9. I slapped or kicked someone. 0 1 2 3 4 5 6+
10. I called other students bad names. 0 1 2 3 4 5 6+
11. I threatened to hurt or to hit someone. 0 1 2 3 4 5 6+

Appendix B

Questionnaire on Personal Report of Communication Apprehension (PRCA-24)

This instrument is composed of twenty-four statements concerning feelings about communicating with others. Please indicate the degree to which each statement applies to you by marking whether you: **Strongly Disagree = 1; Disagree = 2; are Neutral = 3; Agree = 4; Strongly Agree = 5**

- _____ 1. I dislike participating in group discussions.
- _____ 2. Generally, I am comfortable while participating in group discussions.
- _____ 3. I am tense and nervous while participating in group discussions.
- _____ 4. I like to get involved in group discussions.
- _____ 5. Engaging in a group discussion with new people makes me tense and nervous.
- _____ 6. I am calm and relaxed while participating in group discussions.
- _____ 7. Generally, I am nervous when I have to participate in a meeting.
- _____ 8. Usually, I am comfortable when I have to participate in a meeting.

- ____ 9. I am very calm and relaxed when I am called upon to express an opinion at a meeting.
- ____ 10. I am afraid to express myself at meetings.
- ____ 11. Communicating at meetings usually makes me uncomfortable.
- ____ 12. I am very relaxed when answering questions at a meeting.
- ____ 13. While participating in a conversation with a new acquaintance, I feel very nervous.
- ____ 14. I have no fear of speaking up in conversations.
- ____ 15. Ordinarily I am very tense and nervous in conversations.
- ____ 16. Ordinarily I am very calm and relaxed in conversations.
- ____ 17. While conversing with a new acquaintance, I feel very relaxed.
- ____ 18. I'm afraid to speak up in conversations.
- ____ 19. I have no fear of giving a speech.
- ____ 20. Certain parts of my body feel very tense and rigid while giving a speech.
- ____ 21. I feel relaxed while giving a speech.
- ____ 22. My thoughts become confused and jumbled when I am giving a speech.
- ____ 23. I face the prospect of giving a speech with confidence.
- ____ 24. While giving a speech, I get so nervous I forget facts I really know.

Appendix C

Questionnaire on Self-Perceived Communication Competence Scale (SPCC)

Directions: Below are twelve situations in which you might need to communicate. People's abilities to communicate effectively vary a lot, and sometimes the same person is more competent to communicate in one situation than in another. Please indicate how competent you believe you are to communicate in each of the situations described below. Indicate in the space provided at the left of each item your estimate of your competence.

Presume 0 = completely incompetent and 100 = competent.

- ____ 1. Present a talk to a group of strangers.
- ____ 2. Talk with an acquaintance.
- ____ 3. Talk in a large meeting of friends.
- ____ 4. Talk in a small group of strangers.
- ____ 5. Talk with a friend.
- ____ 6. Talk in a large meeting of acquaintances.
- ____ 7. Talk with a stranger.

- _____ 8. Present a talk to a group of friends.
- _____ 9. Talk in a small group of acquaintances.
- _____ 10. Talk in a large meeting of strangers.
- _____ 11. Talk in a small group of friends.
- _____ 12. Present a talk to a group of acquaintances.

Appendix D

Questionnaire on Need for closure scale REVISED

Short version of the revised NFC scale:

Roets, A. & Van Hiel, A. (2011). Item selection and validation of a brief, 15-item version of the need for closure scale. *Personality and Individual Differences*, 50, 90-94.

1. I don't like situations that are uncertain.

- 2. I dislike questions which could be answered in many different ways.
- 3. I find that a well ordered life with regular hours suits my temperament.
- 4. I feel uncomfortable when I don't understand the reason why an event occurred in my life.
- 5. I feel irritated when one person disagrees with what everyone else in a group believes.
- 6. I don't like to go into a situation without knowing what I can expect from it.
- 7. When I have made a decision, I feel relieved
- 8. When I am confronted with a problem, I'm dying to reach a solution very quickly.
- 9. I would quickly become impatient and irritated if I would not find a solution to a problem immediately.
- 10. I don't like to be with people who are capable of unexpected actions.
- 11. I dislike it when a person's statement could mean many different things.
- 12. I find that establishing a consistent routine enables me to enjoy life more.
- 13. I enjoy having a clear and structured mode of life.
- 14. I do not usually consult many different opinions before forming my own view.
- 15. I dislike unpredictable situations.

Appendix E

Questionnaire on Self-Regulation Questionnaire

1. I usually keep track of my progress toward my goals.
2. My behavior is not that different from other people's.
3. Others tell me that I keep on with things too long.
4. I doubt I could change even if I wanted to.
5. I have trouble making up my mind about things.
6. I get easily distracted from my plans.
7. I reward myself for progress toward my goals.
8. I don't notice the effects of my actions until it's too late.
9. My behavior is similar to that of my friends.
10. It's hard for me to see anything helpful about changing my ways.
11. I am able to accomplish goals I set for myself.
12. I put off making decisions.
13. I have so many plans that it's hard for me to focus on any one of them.
14. I change the way I do things when I see a problem with how things are going.
15. It's hard for me to notice when I've had enough@ (alcohol, food, sweets).
16. I think a lot about what other people think of me.
17. I am willing to consider other ways of doing things.
18. If I wanted to change, I am confident that I could do it.
19. When it comes to deciding about a change, I feel overwhelmed by the choices.
20. I have trouble following through with things once I've made up my mind to do something.

Appendix F

Questionnaire on Tolerance of Ambiguity Scale

1. An expert who doesn't come up with a definite answer probably doesn't know too much.
2. I would like to live in a foreign country for a while.
3. There is really no such thing as a problem that can't be solved.
4. People who fit their lives to a schedule probably miss most of the joy of living.
5. A good job is one where what is to be done and how it is to be done are always clear.
6. It is more fun to tackle a complicated problem than to solve a simple one.

7. In the long run it is possible to get more done by tackling small, simple problems rather than large and complicated ones.
8. Often the most interesting and stimulating people are those who don't mind being different and original.
9. What we are used to is always preferable to what is unfamiliar.
10. People who insist upon a yes or no answer just don't know how complicated things really are.
11. A person who leads an even, regular life in which few surprises or unexpected happenings arise really has a lot to be grateful for.
12. Many of our most important decisions are based upon insufficient information.
13. I like parties where I know most of the people more than ones where all or most of the people are complete strangers.
14. Teachers or supervisors who hand out vague assignments give one a chance to show initiative and originality.
15. The sooner we all acquire similar values or ideas the better.
16. A good teacher is one who makes you wonder about your way of looking at things.

Appendix G

Questionnaire on WILLINGNESS TO COMMUNICATE *INSIDE* THE CLASSROOM (MacIntyre et al., 2001)

This questionnaire is composed of statements concerning your feelings about communication with other people, in English. Please indicate in the space provided the frequency of time you choose to speak in English in each classroom situation.

- 1 = Almost never willing
- 2 = Sometimes willing
- 3 = Willing half of the time
- 4 = Usually willing
- 5 = Almost always willing

Speaking in class, in English

1. Speaking in a group about your summer vacation.
2. Speaking to your teacher about your homework assignment.
3. A stranger enters the room you are in, how willing would you be to have a conversation if he talked to you first?

4. You are confused about a task you must complete, how willing are you to ask for instructions/clarification?
5. Talking to a friend while waiting in line.
6. How willing would you be to be an actor in a play?
7. Describe the rules of your favorite game.
8. Play a game in English.

Reading in class (to yourself, not out loud)

1. Read a novel.
2. Read an article in a paper.
3. Read letters from a pen pal written in native English.
4. Read personal letters or notes written to you in which the writer has deliberately used simple words and constructions.
5. Read an advertisement in the paper to find a good bicycle you can buy.
6. Read reviews for popular movies.

Writing in class, in English

1. Write an advertisement to sell an old bike.
2. Write down the instructions for your favorite hobby.
3. Write a report on your favorite animal and its habits.
4. Write a story.
5. Write a letter to a friend.
6. Write a newspaper article.
7. Write the answers to a "fun" quiz from a magazine.
8. Write down a list of things you must do tomorrow.

Comprehension in class

1. Listen to instructions and complete a task.
2. Bake a cake if instructions were not in Persian.
3. Fill out an application form.
4. Take directions from an English speaker.
5. Understand an English movie.

