

Exploring how the use of a simulation technique can affect EFL students' willingness to communicate

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Abstract: This study is intended to explore an applicable and effective model of simulated situation for English as a Foreign Language (EFL) learners and also investigate the effects of the simulated environment on Willingness to Communicate (WTC) of the learners. To carry out this study, 300 elementary level EFL learners were chosen. A Key English Test (KET) was administered to ensure homogeneity on the learners. They were divided into two groups of experimental and control. A WTC questionnaire developed by Macintyre, Baker, Clement, and Conrod (2001) was used, after validation through Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA) and Modeling, as an instrument to obtain primary data. The results of Mann-Whitney U test revealed that simulated environment had positive effects on the participants' WTC. The findings of this study suggest that understanding how a simulated environment affects EFL learners' success in speaking proficiency can help institutes to provide such environments for EFL learners and instructors. This method can be presented at different levels of English proficiency. The focus of this study was mainly on speaking skill; therefore, similar studies can be conducted regarding other language skills, e.g., writing, listening and reading.

1. INTRODUCTION

Nowadays, it is undeniable that learning a foreign language has become a significant part of people's lives. In this increasingly globalized world, learning a foreign language can help people progress in their career, become aware of other cultures and help them to increase understanding and knowledge of their own language. The global significance of English education has affected the society of Iran. Therefore, Iranians try to learn English and improve their English proficiency to get a good job, achieve better employment prospect, enhance social status, immigrate to other countries, etc. In Iran English is particularly a means of having access to new information and technology, though there is emphasis on reading comprehension. (Kiany et al., 2011). In the past, the emphasis of teaching English was on teaching grammar rules and vocabularies. But nowadays the emphasis is on teaching oral aspects of the target language. According to Dörnyei (2005), the goal of teaching is "the learners' communicative competence in the target language" (p.207). Speaking is an important skill in learning foreign language, since EFL learners should use that skill to convey messages and express ideas.

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According to Lazarton (2001), when a learner is able to communicate orally, it means that s/he knows the given language because speaking is the primary tool for communication. Aleksandrak (2011) states that the main problem in EFL learning process is the insufficient speaking varieties and lack of appropriate chances of speaking in the classrooms compared to opportunities in the real-life situations. Teaching English in learning contexts is so helpful for learners. Most Iranian EFL learners are taught grammar rules, vocabularies and pragmatic features without immersion in contexts. According to Witmer and Singer (1998) immersion is the psychological response to the technology. Based on several recent studies, immersion is like a product of technology in which the user is provided by the production of multimodal sensory “input” (Bystrom et al., 1999; Draper et al., 1998; Slater & Wilbur, 1997).

One way to create such a situation for learners in EFL classrooms is through simulation which simulate EFL classes to real world life. Since classroom is a small symbol of the real world, simulation will help EFL learners to have many opportunities to engage in communication as if they were in a real situation.

Few studies have suggested an appropriate and cheap simulated design. Wang, Petrina and Feng (2015) have suggested 3D virtual environment in their study for immersion in a real life. However, providing computers for learners in the classroom is a costly way for most institutes. This computer-assisted environment cannot be a real and tangible environment for learners and they do not have real interactions with other peers. To fill these gaps, one purpose of this study is to suggest an applicable and effective model of simulated situation for EFL learners. In this model teachers can change the environment of the class according to the context of the lesson and the learner would use their background language knowledge in that simulated area.

This study investigates the provision of a simulated environment for learners to make them feel that they are in the target country and encourage them to express themselves to other peers and make communication with them. The important point is that the learners do not need to go to the target country physically to be in such situation. The simulation may provide simulated situations or scenes for EFL learners.

This study aimed at describing the process of learning a foreign language in a simulated environment in the classroom among 14-17-year-old female children. This study attempted to investigate the effects of simulation of real-life situations on EFL learners considering different influential factors, such as autonomy of learners, willingness to communicate and their speaking proficiency.

1.1. Review of Literature

1.1.1. Willingness to communicate

One of the factors which has recently been presented in Second Language Acquisition (SLA) studies is willingness to communicate (WTC). MacIntyre, Baker, Clement and Donovan (2002) characterize WTC as “...the inclination toward or absent from communicating, given the choice” (p.538).

WTC is one of the emotional variables which is expected to impact success in language learning. According to Richmond and Roach (1992), in case a speaker has high WTC, s/he is more likely to be successful in learning a second language. That demonstrates the noteworthy part of WTC in learning foreign languages. Hashimoto (2002) examined the impacts of WTC and motivation on second language in a Japanese setting. The results appeared that, in the event that the learners’ competence information expanded and his/her anxiety decreased, WTC and using the second language expanded within the classroom. Instructors can increment WTC of learners by creating less threatening environment within the classroom and propelled learners to extend their perceived competence.

As the emphasis in L2 teaching and learning has been moving to communication, both as an essential process and as an objective of learning a L2, a way to account for individual contrasts in L2 communication is required. Zarei et al., (2019) illustrated the plausibility by combining insights from two disciplines, L2 acquisition and communication.

In Japan, as the Ministry of Education, Culture, Sports, Science, and Technology's rules for foreign language (generally English) educating inside the school instruction curriculum (Monbusho, 1989; 1999a; 1999b) have put expanding emphasis on communication, a more noteworthy portion of reading material and classroom exercises has centered on face-to-face interaction in theoretical intercultural contact circumstances. There is expansion to inspiration and states of mind toward the individuals with whom students will communicate. In this respect, WTC, psychology of communication, and intercultural stances have to be inspected as factors that influence communication results. Amirian, Karamifar and Youhanaee (2020) stated that second language learners' WTC can be expanded by giving opportunities to form an environment for learners that they would feel comfortable to communicate with each other since the learners with high WTC use second language in authentic communications. They expressed that WTC in language settings exists as personal physiological variables and situational factors. Assuming that numerous variables impact a person's readiness to communicate, such as fear of talking, need of self-esteem and the issue of introversion and extroversion (McCroskey, 1992), the significance of assessing the degree of the impact of WTC in success in SLA becomes clear.

Yashima (2002) demonstrates a direct connection between students' WTC and their attitude toward worldwide community within the EFL (English as a Foreign Language) context. In the ESL (English as a Second Language) context, Clement et al., (2003) appear an indirect connection through linguistic self-confidence between WTC and attitude toward the other language group.

MacIntyre et al., (1998) characterized WTC as "the likelihood of engaging in communication when free to select to do so" (p.546). However, Sheybani (2019) did not treat WTC in L2 as an identity characteristic but as a situational variable that has both temporal and enduring impacts. In addition, they theorized that WTC impact not only talking mode but also listening, writing and reading modes.

Wen and Clement (2003) examined Chinese social context impacts on learners' WTC. Further analysis shows that features including interpersonal relations such as other-directed self and submissive way of learning are the components which shape the Chinese students' learning behaviors within the course. In another study, Mallahi and Hosseini (2020) explored Iranian EFL learners' unwillingness to communicate. The results appeared that unwillingness to communicate is related to language anxiety, language proficiency and access to English.

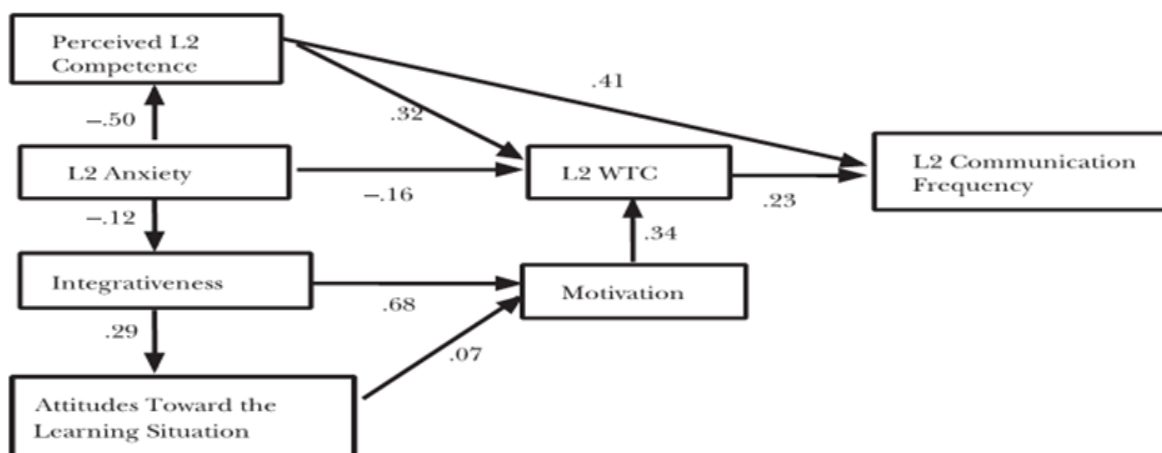
1.1.2. WTC in a L2

One of the factors which has recently been presented in SLA investigate is WTC. Communication apprehension in a L1 and its negative impact on communication have been a matter of insightful attention by communication analysts (Daly & McCroskey, 1984; McCroskey, 1977).

McCroskey and associates (e.g., McCroskey, 1992; McCroskey & Richmond, 1990) proposed the construct, WTC, that captures the major suggestion that communication apprehension, introversion, hesitance, and modesty have for communicative behavior. MacIntyre (1994) created a path model that hypothesizes that WTC is based on a combination of more prominent seen communicative competence and a lower level of communication anxiety (Figure 1).

Figure 1. Portion of MacIntyre's (1994) WTC model.

Studies conducted in different Canadian contexts combined the WTC show with Gardner's socio-educational model to look at the relations among factors underlying WTC in a L2. In these studies, WTC was a predictor of frequency of communication in a L2, though motivation was a predictor of WTC, frequency of communication in a L2, or both (MacIntyre & Charos, 1996; MacIntyre & Clément, 1996; see Figure 2 as an example). MacIntyre did not regard WTC in a L2 as a simple manifestation of WTC in a L1; a much greater range of communicative competence is obvious in a L2 than in a L1. In addition, according to MacIntyre et al. (1998) "L2 use carries a number of intergroup issues, with social and political implications, that are usually irrelevant to L1 use" (p. 546).

Figure 2. MacIntyre and Charos' (1996) model of L2 WTC applied to monolingual university students.

MacIntyre et al. (1998) conceptualized WTC in a L2 in a hypothetical model. In this model, learner identity, inter-group climate, intergroup attitudes, inter-group motivation, L2 self-confidence, and communicative competence, among other components, are interrelated in affecting WTC in L2.

1.1.3. Simulation

Simulations as a language learning approach/tactic have been interpreted in different resources and/or by diverse authors in different ways. The terms utilized within the role playing/simulation literature are regularly utilized interchangeably as well, such as: "simulation", "game", "simulation game", "role-playing game", "role-play simulation".

In spite of the fact that the word "simulation" and its definition in a dictionary may suggest that in simulations the participants simulate (act, play, and pretend), the simulations in language educating and learning displayed are not the same as a role-play or game. They are based on Jones's (1986) definition of a simulation "as reality of function in a simulated and structured environment" (p. 173). In other words, rather than a role to play, students have a real-life task to achieve.

1.1.3.1. Difference Between Simulations and Role Plays. As simulations are most frequently mixed up with Role plays, the main differences between these two language learning activities are shown in the table below (Table 1).

Table 1. *Difference between simulations and role plays.*

Simulations	Role Plays
The (simulated) environment is provided, using text, audio or video input.	Participants have to create (imagine) aspects of the environment.
Key facts are provided for the background (sex, age, job etc.)	Participants invent key facts or have to act descriptions according to a specific script or no script provided “You are angry because your friend broke your watch.”
Participants take on a role (accept duties/responsibilities and perform task according to their own personalities)	Participants play/act out a pre-defined role. (Pretend to be someone else according to the provided role-card)
Imagination may be involved. Invention is not allowed.	Participants are encouraged to invent/create whatever is necessary to play the role.
Real communication in a controlled realistic situation.	Dialogues in a fixed context of speech in an improvisational and imaginary one.

In a Role Play, one student might be told that she is a supermarket checkout assistant whilst another is a customer. Students might also be given fairly tight guidelines outlining the nature of their exchange or the language points they are expected to cover. Role Play involves participants to ‘act’ in a given role which is clearly defined on a role-card. It is very much akin to acting in a play. Simulations, however, allow students to express themselves to their peers in a group setting (3 or 4 students in a group) where they retain their own personalities and are not required to pretend to be someone else. Or, as Wang (2005) says:

“... simulations, where simple or complex, do not specify the role a person has to play. On the contrary, a task is given which requires participants to resolve a problem of some kind using their own life experience and character. Simulation mimics real life situation as closely as possible. For example, if you have a group of doctors learning English as a second language and they need to practice in a “real life” context, you would set up a simulated situation in a hospital or health center in which doctors have to meet ‘patients’ and diagnose their problem, and give treatment or prescriptions. The ‘patients’ may be given (or create themselves) their symptoms, and the doctors have to find out the cause of the illness (using their own experience) by interacting with the patients. The problem is resolved when the doctor diagnoses the problem and prescribes therapy (p. 20).”

1.1.3.2. Simulation in Teaching English. These days, English learning is more coordinated at the communications function. Learning English is aiming that students are able to utilize English to communicate not only learn the science of language itself. This is in line with the communicative approach which emphasizes that learning a language is learning to communicate (Richards, 1985) however, in practice, learning models are still not able to supply many opportunities for learners to utilize language that has been examined. This is proved from the number of students who are still afraid to talk English even in spite of the fact that they have sufficient lexicon. This is not a portion of the methods and strategies utilized by instructors. Numerous instructors are split between teaching materials and the ultimate objective of learning, for example, teachers might give their own lexicon without entering the lexicon of a context for communication.

Another problem that is found in learning process is that the students are in classroom environments that provide few opportunities to engage in communication in realistic situations, whereas practice plays an important role in improving communication skills, but learners have

a lack of opportunities to do so language teaching is ideally suited to language practice. Language teaching can be an interesting process when teachers make the effort to explore a variety of approaches. However, unfortunately, only a few teachers can do it. It can be caused by the lack of experience and knowledge about the varieties of teaching methods and techniques. There are many techniques can be applied in teaching English for elementary school students, one of them is simulation. Simulation is a language learning model which allows students to express themselves to their peers in a group setting, groups comprising usually three or four. Some benefits of simulation allow students to experiment with new vocabulary and structures and gives students the chance to carry out a task or solve a problem together Simulation technique follows from the interactional view. This view sees language as a vehicle for the realization of interpersonal relations and for the performance of social transactions between individuals. Language teaching content, according to this view, may be specified and organized by “patterns of exchange and interaction or may be left unspecified, to be shaped by the inclinations of learners as interactors.” (Richards & Rodgers, 2001, p.17)

Simulation clearly promotes effective interpersonal relations and social transactions among participants. "In order for a simulation to occur the participants must accept the duties and responsibilities of their roles and functions and do the best they can in the situation in which they find themselves" (Jones, 1982, p.113).

The problem with English classes in Iran is that there are not many opportunities for learners to utilize what they have already learned, practically in the class. In some cases, the learners have the knowledge of English grammar or vocabulary but due to the lack of opportunities they cannot use them to speak fluently and accurately. One way to solve this problem is that learners should experience living in an English-spoken country to learn English effectively since they would immerse in that situation. According to Kemp (2003), people who have mastered a foreign language believed that the most beneficial way of learning a foreign language occurred while the person is immersed in the target-language spoken environment. However, it is quite difficult for EFL learners to travel or immigrate to target countries in order to learn English and enhance speaking proficiency and it is almost impossible for most English language institutes in Iran to send EFL learners to target language countries due to financial challenges. Therefore, creating a simulated environment of the target country situations in the classrooms can be an alternative approach instead of costly and time-consuming way of sending learners to target countries. In simulated environment, EFL learners would feel that they are in a real and tangible situation, so they will inevitably communicate in English with each other and even create conversations according to the environment in which they are.

Although many role-playing researchers support the effects of digital games on EFL learners' performances (Liang, 2012; Peterson, 2011; Thorne et al., 2009), few studies focused on the virtual contexts for elementary students using language effectively in real situations. Using digital games would not be possible to use in every class and there should be special facilities to be used by students.

Few studies have suggested an appropriate and cheap simulated design. Wang, Petrina and Feng (2017) have suggested 3D virtual environment in their study for immersion in a real life. However, providing computers for learners in the classroom is a costly way for most institutes. This computer-assisted environment cannot be a real and tangible environment for learners and they do not have real interactions with other peers.

Although many researchers (Lan, 2017; Li & Topolewski, 2002; Wang et al., 2015) have focused on the benefits of using simulation in EFL classrooms by using real objects or visual games by providing these objects and facilities through changing the environment for different contexts, it is costly and difficult for teachers. For instance, Lyu (2006) believed that using simulation for basic level classes by creating simple simulations with less complicated

processes is a good idea. He suggested that teachers can provide real objects for learners to simulate the environment. For example, learners can use some maps in order to learn the directions. Using map can be a useful technique for simulation, however it cannot simulate the whole context for them to immerse in it.

Many studies investigated the effects of the environment or simulated situation on learning a foreign language (e.g., Lan, 2017; Wang, Petrina & Feng, 2017); however, a few studies have considered the effects of simulated environment on WTC of the EFL learners.

Response to the aforementioned gaps will definitely have important implications for second language learning research in general, and EFL teachers in particular. Thus, the following research question guided the present study:

RQ: What effects does language-learning simulation have on willingness to communicate of Iranian elementary EFL learners?

2. METHOD

2.1. Design

This research is a survey study to find the effect of a simulated environment on WTC of Iranian elementary EFL learners. To this end, quantitative data was gathered based on related questionnaires. The study design was quasi-experimental. Regarding the grouping procedures, the participants were assigned to two groups of experimental groups using the treatment (simulated environment) and control group (traditional method). The experimental group included 150 participants and the control group had 150 participants, too. There were pre-tests and post-tests for both groups. Elementary EFL learners were selected as the population of this study. A simple random sampling technique was used in this study. The dependent variables included WTC of the learners. The independent variable was simulated environment. There were some control variables like age, social class, background of language knowledge and bilingualism.

2.2. Participants

To carry out the present study, two elementary classes were selected from a private language institute in Zanjan, Iran. Their level was elementary i.e. A2 on the Common European Framework of Reference (CEFR). They were specified to this level based on institute's criteria and the placement test. In order to homogenize the participants, they all participated in a sample of Cambridge KET (2007). The ones who took the test and their scores fell between one standard deviation above or below the mean were chosen to participate in the study.

The participants were 300 elementary EFL learners that were divided into two equal groups, i.e., experimental (n=150) and control (n=150). Each group was assigned to five classes each containing 30 students; in other words, there were altogether 10 classes for both the experimental and control group participants. All the students were selected from various state high schools in Zanjan, Iran; however, as indicated before, they were all homogenized through Cambridge KET (2007) Placement Test. All the students were non-native speakers of English who had learned English as a foreign language in a non-English learning context. They were bilingual speakers of Persian and Turkish. The learners in the experimental group were exposed to the treatment (simulated environment), whereas the learners in the control group were involved in traditional method. They were all female and the age range of the learners was 14-17. All the learners studied Pearson's Top Notch fundamentals (Saslow & Ascher, 2005) during the term. The population of this study was monolingual and bilingual (Persian & Turkish). Their first language was Persian. The social class of participants was middle-class.

2.3. Instruments

The course book which was used in this study was Pearson's Top Notch. This series are co-authored by Saslow and Ascher and came out in 2005. The whole series are divided into three classes of volumes according to the proficiency of the learners (two Fundamentals, six Top Notches and four Summits) and include different units and subsections like warm-ups, starting conversation (dialogue), grammar spot, structural drills and lexical exercises, reading and checkpoints. The participants studied Top Notch fundamentals during the term. This book was used as the main course book in the institute.

To show different pictures or video clips on the walls, two video projectors were used. Some professional 3D computer graphics program such as 3D Max, Revit and Maya were used for making 3D images and animations related to the contents. A detailed explanation of the application of the treatment is given in the procedure section.

The instruments used in this study included: A) Key English Test (KET), and B) WTC questionnaire, which will be discussed in more details below:

2.3.1. Key English test

The first instrument which was used in this study was the Cambridge KET also known as 'Key'. Cambridge tests include all four skills – listening, speaking, reading and writing. They are arranged around four necessary qualities: “validity, reliability, impact and practicality” (university of Cambridge ESOL Examinations, 2008, p.2). KET is an English language test which is in sync with A2 level on the Common European Framework of Reference (CEFR) which is used to demonstrate the communication ability in simple situations. The only purpose of running KET test was to ascertain the homogeneity of the students before applying the treatment in order to assign the participants to experimental and control groups. Besides, since the focus of this was on oral communication (to be published in forthcoming papers), only the speaking section of KET was administered to the participants.

2.3.2. WTC questionnaire

To measure the students' WTC, a modified version of the Likert-type WTC questionnaire was used. This questionnaire includes 27 items and was developed by Macintyre, Baker, Clement, and Conrod (2001) to measure the learners' WTC both inside and outside the classroom. The questionnaire which is used in this study includes 23 items which range from 1 to 4 (1= almost never willing, 2= sometimes willing, 3 = willing half of the time, 4 = almost always willing). The reason for the elimination of four items in the questionnaire and reducing item numbers from 27 to 23 was due the fact that those four items contained western cultural issues and concepts which did not comply with the students' background who were raised in the context of Iran. Thus, in order not to cause confusion for the participants of this study, those items were crossed out to ensure the suitability and understanding of the questionnaire in the context of administration. The learners were asked to demonstrate that how much willing they were to communicate both during the class time and outside of the classroom. The questionnaire was translated to Persian, their first language, since their proficiency level was elementary and understanding the questions might be difficult to them. Having translated the questionnaire into Persian language, it was pilot-run and the reliability of the questionnaire was measured through Cronbach Alpha $r = 0.696$ (see Table 3 for a detailed analysis). According to Cohen's Table of Effect Size, the reliability measure was found much larger than typical. Therefore, it can be concluded that the questionnaire possessed an acceptable internal reliability. The validity of the questionnaire was confirmed through CFA, EFA and modeling. For measuring EFA and CFA, the researcher had to obtain the scree plot figure of the questionnaire in order to determine how many factors could be identified as the significant factors under which the items of the

questionnaire could be loaded. This will pave the way to specify the number of influential significant factors of the WTC questionnaire.

2.4. Data Collection Procedures

Data were collected by two teachers in order to determine the impact of simulation of WTC of the participants. In the beginning, to homogenize the participants, KET was applied. They were homogenized according to institute criteria. However, to make sure they are at the same level, they were tested by KET once more. Ultimately, 300 participants were classified as experimental and control groups (see [Table 2](#) for data analysis).

Before running the treatment, Macintyre et al.'s (2001) WTC questionnaire was given to the participants of both groups and they were asked to fill them in after 20 sessions of treatment, the WTC questionnaire was given again to both groups to complete. The outcomes of the questionnaire were compared to those of the same questionnaire distributed to participants before the treatment.

In the next phase, the treatment began. The two classes were taught by the same instructor. Both groups were taught Top-Notch fundamentals. The number of sessions for each group was 20 sessions. Treatment was conducted in June 2019 and continued for two months. It is noteworthy to mention that the instructor used the same course book, materials and activities for both classes, but in the experimental group, the dialogues and related contents, tasks and conversation-related activities were exposed in the simulated designed environment. During the treatment, appropriate images and animations that were related to their course book's contents were displayed through video projectors every session. The video projection was designed in a form of a four-sided OHP (Overhead Projector) that was used to project the environmental screens to which the content of the course was related on the wall. For example, if the content of the course was related to the hospital setting, a four-sided projection representing the hospital environment would be displayed on the walls of the class making the students feel like they are in the real context. This would simulate the real situation using virtual reality technique to better help the students visualize themselves in the real context to better comprehend the related materials.

Learners were taught the input and became aware of the content of the lesson, then they saw the related images or videos on the screens around them. It was like that they were in the real environment. Gradually they started to speak and make communication with each other by using what they have learned.

After 20 sessions of treatment, WTC questionnaire was given to both groups again to fill it in. The results of the questionnaire were compared to the results of the same questionnaire, which was distributed to participants before the treatment. The learner autonomy questionnaire was given to the learners after the treatment.

2.5. Data Analysis

Several analyses were done by SPSS software, such as Mann-Whitney U test, exploratory factor analysis (EFA) and Pearson Correlation. Confirmatory factor analysis (CFA) was done by Amos (version 22.0).

To examine whether the difference found between two groups regarding WTC was statistically meaningful or not, a Mann-Whitney U test was employed as the data were non-parametric and the data distribution was not normal. In the first phase of validating process, EFA was conducted to construct the validity of WTC questionnaire and also to identify factor structures. The correlation between the extracted factors was determined by Pearson correlation. In the next phase, CFA was run to neutralize the loading effects of the items on the factors and to keep the significant loadings of the significant items on the factors.

3. FINDINGS

As one of the most important assumptions for running parametric statistical analyses, is the assumption of the normal distributions of the scores, the researcher ran Kolmogorov-Smirnov and Shapiro-Wilk tests on the obtained scores to ensure the normality of the distributions based on the participants' performance on the speaking section of KET test. Table 2 presents the results.

Table 2. Tests of normality for participants' fluency and accuracy across control and experimental groups obtained from KET.

		Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Fluency	Control	.119	15	.200*	.967	15	.804
	Experimental	.114	15	.200*	.937	15	.346
Accuracy	Control	.207	15	.084	.908	15	.126
	Experimental	.218	15	.053	.893	15	.074

As is illustrated in Table 2, the significant for each set of scores is higher than 0.05; therefore, all sets of scores have normal distributions which indicated that the participants were homogeneous prior to running the treatment. Based on this homogeneity, the participants were assigned randomly to experimental and control groups afterwards.

Cronbach alpha reliability coefficient, Kaiser-Meyer-Olkin (KMO) test, Bartlett's test, Varimax Rotation and Maximum likelihood method were used to determine the reliability and validity of this questionnaire. To examine the reliability of the WTC questionnaire, the Cronbach alpha was used.

Table 3. Reliability statistics of WTC questionnaire.

Cronbach's Alpha	N of Items
.696	23

According to Table 3, the Cronbach's Alpha reliability for the WTC questionnaire is 0.696. According to Cohen's Table of Effect Size, the reliability measure was found much larger than typical. Therefore, it can be concluded that the questionnaire possessed an acceptable internal reliability.

Having made sure about the reliability of the instruments in use, we can deal with the analysis of the research question.

RQ: What effects does language-learning simulation have on willingness to communicate of Iranian elementary EFL learners?

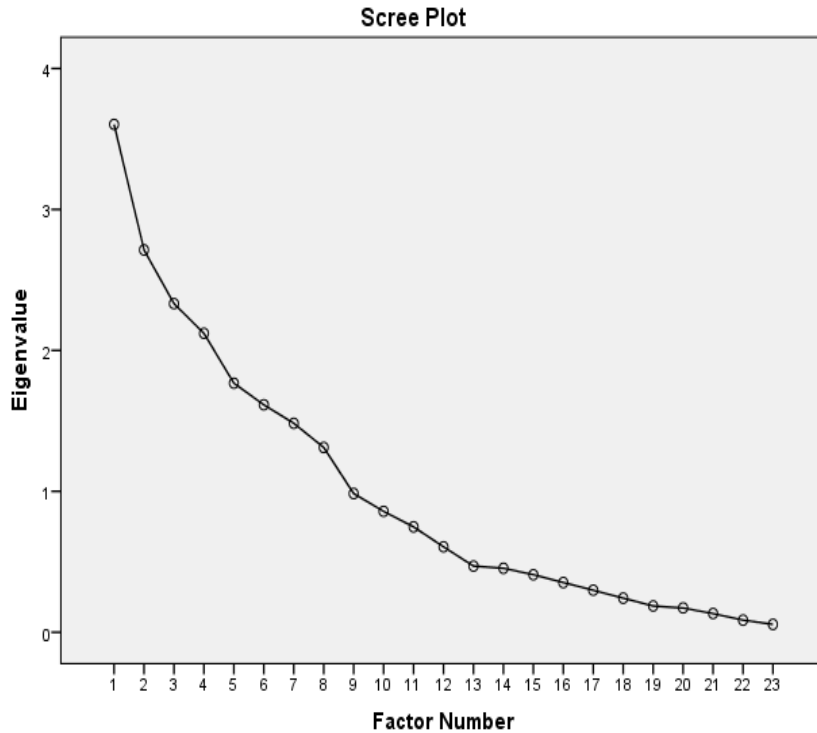
Kaiser Meyer Olkin (KMO) and Bartlett Test (see Table 4) were carried out to check the appropriateness of the data for factor analysis. The significant valid for the validity must be lower than 0.05 degree of probability and in the current questionnaire, the validity measure was found to be 0.000. It shows that the validity could be measured.

Table 4. The results of the KMO and Bartlett's test for WTC questionnaire.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.397
	Approx. Chi-Square	619.740
Bartlett's Test of Sphericity	df	253
	Sig.	.000

Exploratory factor analysis (EFA) was conducted to extract the new factor structure and to examine the construct validity. Since confirmatory factor analysis (CFA) was carried out after EFA, maximum likelihood method was conducted. A scree plot was used to confirm that current scale includes eight factors. The scree plot graph in Figure 3 indicates that there are eight components at the elbow. It means that the questionnaire items were loaded in eight significant factors.

Figure 3. Scree plot of WTC questionnaire.



Pearson's correlation coefficient is used to measure of the strength of the association between the eight factors which were extracted.

Table 5. The results of the KMO and Bartlett's test for WTC questionnaire.

Factor	1	2	3	4	5	6	7	8
1	1.00	-.003	.068	.014	.054	.108	.219	-.022
2	-.003	1.00	.120	-.083	-.061	-.033	.025	.051
3	.068	.120	1.00	-.079	-.017	.069	.164	-.082
4	.014	-.083	-.079	1.00	.049	.072	.002	.134
5	.054	-.061	-.017	.049	1.00	-.057	.145	.007
6	.108	-.033	.069	.072	-.057	1.00	.088	-.081
7	.219	.025	.164	.002	.145	.088	1.00	-.104
8	-.022	.051	-.082	.134	.007	-.081	-.104	1.00

Extraction method: Maximum likelihood, rotation method: Oblimin with Kaiser Normalization.

Table 5 presents that all the correlation between factors is below 0.300. It means that there is a weak correlation between factors. The correlations between factors was weak and rotated solution was obtained through Varimax rotation in order to clarify the factor structure. According to the results of EFA, confirmatory factor analysis (CFA) was conducted to determine whether the current model is confirmed or not. The model obtained from the analysis can be seen in Figure 4.

Figure 4. Confirmatory factor analysis model of WTC questionnaire.

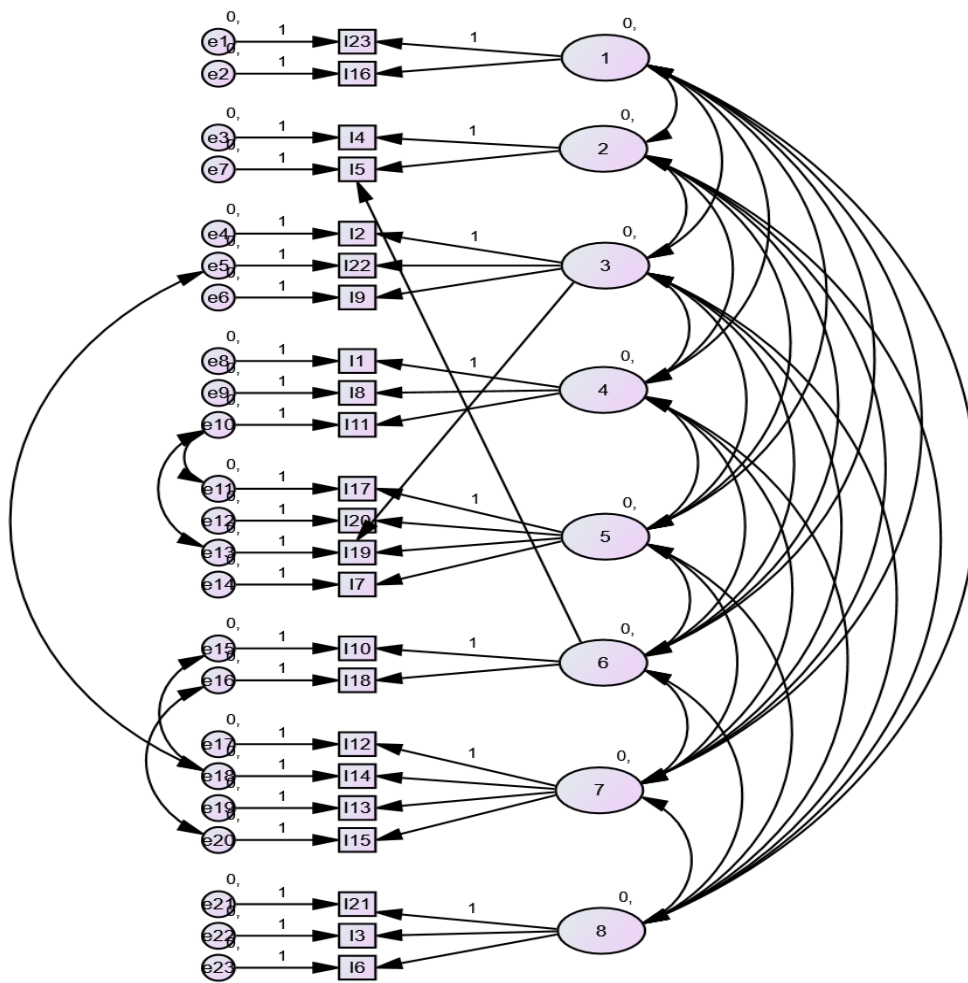


Figure 4 shows the items have loadings higher than 0.3. it means all the items of questionnaire were significant. As illustrated, items (16) and (23) loaded onto Factor 1. Items (4) and (5) loaded onto Factor 2. Items (19), (2), (22) and (9) loaded onto Factor 3. Items (1), (8) and (11) loaded onto Factor 4. Items (17), (20), (19) and (7) loaded onto Factor 5. Items (5), (10) and (18) loaded onto Factor 6. Items (12), (14), (13) and (15) loaded onto Factor 7. Items (21), (3) and (6) loaded onto Factor 8.

Table 6. The results of chi-square analysis of goodness of fit index.

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	104	370.605	195	.000	1.901
Saturated model	299	.000	0		
Independence model	46	724.052	253	.000	2.862

Table 6 shows the chi-square fit statistics. As it can be seen, the chi-square statistics of $\chi^2=370.605$, $df=195$, $p=0.000$ and relative chi-square (CMIN/df) = 1.901 which is smaller than 5.0 indicating an acceptable fit. P-value is 0.000 which is less than 0.5. It means that it is significant. Significant value shows that this model is different than the default one.

A good model fit has some criteria for goodness-of-fit indices. The TLI, CFI and NFI should be 1. However, according to Ho (2006), a cut-off value close to 0.90 is commonly used for

these incremental fit indices. For current model, CFI is 0.827, TLI is 0.816 and NFI is 0.812. The results indicate an acceptable fit. All the results were summarized in [Table 7](#).

Table 7. *Baseline comparisons for goodness of fit index.*

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.812	.336	.768	.816	.827
Saturated model	1.00		1.00		1.00
Independence model	.000	.000	.000	.000	.000

It can be said that one of the most commonly used goodness of fit indexes in CFA is RMSEA. The RMSEA value of this model is 0.074 which is below 0.07 and it indicates an acceptable model (see [Table 8](#)).

Table 8. *Goodness of fit values obtained from CFA.*

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.074	.104	.143	.000
Independence model	.178	.163	.193	.000

If the Standardized RMR value is lower than 0.08, it can be considered as an acceptable value that indicates the model-data fit (Byrne, 2001). In this current model standardized RMR is 0.078 which is an acceptable value for a good model. According to these results, it can be confirmed that model-data fit is acceptable.

Table 9. *Descriptive statistics of the results of WTC questionnaire.*

	Group	N	Mean Rank	Sum of Ranks
WTC_Pre	Control	150	18.27	2740.00
	Experimental	150	12.73	1910.00
	Total	300	31.00	
WTC_Post	Control	150	11.17	1670.50
	Experimental	150	19.83	2970.50
	Total	300	31.00	

[Table 9](#) represents the mean rank of the control and experimental groups in pre-test and post-test, for their WTC. To see whether there is significant difference between control and experimental groups in pre-test and post-test, regarding their WTC, Mann-Whitney U test was run. [Table 10](#) displays the Mann-Whitney U test examining the difference between control and experimental groups in pre-test and post-test.

As it can be seen in [Table 10](#), the significant (0.085) of control and experimental groups in pre-test is higher than 0.05. It is concluded that there is no significant difference between the groups in pre-test. In other words, they were homogenous regarding WTC before the study. Based on the results ([Table 10](#)), the significant (0.007) in post-test is less than 0.05 meaning that there is a significant difference between experimental and control groups regarding WTC. It can be concluded that the treatment had significant effects on the level of WTC of the participants.

Table 10. *The Mann-Whitney U test exploring the effect of simulation on WTC.*

	WTC_Pre	WTC_Post
Mann-Whitney U	71.000	47.500
Wilcoxon W	191.000	167.500
Z	-1.724	-2.707
Asymp. Sig. (2-tailed)	.085	.007
Exact Sig. [2*(1-tailed Sig.)]	.089	.006

Table 9 presents mean ranks of the groups in pre-test and post-test, regarding their level of WTC. The mean rank of post-test shows that the mean of control group is 11.17 and the mean of experimental is 19.83. The difference is 8.66. The results indicated that the students in the experimental group has a significant higher mean rank compared to the students in the control group. In other words, after the treatment the learners in experimental group became more willing to communicate in English learners in control group. It means that the treatment positively influenced learners' WTC.

4. DISCUSSION and CONCLUSION

The results of the current study illustrate that simulated environment affected learners' WTC. To evaluate the WTC measure of learners, a WTC questioner was used. This questionnaire was developed by Macintyre, et al. (2001). The findings of pre-test indicated that the learners WTC level was almost equal. However, the post-test results illustrated that the difference between both groups is meaningful. In other words, learners become more willing to communicate in simulation environment classes. Simulation has significant effect on WTC of the learners. In the simulated environments, EFL learners get more willing to communicate with others. Simulation provides more chances for them to speak in target language. Through simulation, learners are encouraged to participate and be involved in class interactions and it is an opportunity to practice a full range of communication skills (Jones, 1982; Jones, 1983).

This finding is in line with a paper by Lyu (2006) which was entitled as "Simulation and Second/ Foreign Language learning: Improving communication skills through simulations" has witnessed the practical effects of language simulations in improving communication skills. In this research, many useful suggestions were shown on how simulations can be used in EFL class of basic level, intermediate level and advanced level, which was also implicitly indicated as the significance of the current study. Moreover, the results of this study showed that through learning in the light of the simulation technique, learners perceived their classroom activities joyfully. It inherently tends to promote real-life and authentic communication (Crookall et al., 1987; Crookall & Oxford, 1990; Nemitcheva, 1995), "enhances instrumental motivation by making the coursework more engaging" (Jones, 1986, p. 10), lowers affective barriers to acquisition by reducing the fear of making mistakes (Nemitcheva, 1995), and presents real time scenarios and instantaneous feedback (Jones, 1986).

The outcomes of this study also match up with the findings of researchers (Shankar et al., 2012), which reveal that this technique can expose students to different situations they are likely to face in their future career. From this approach, the students have a chance to explore different situations of real life that enable them to speak confidently and fluently in their second language.

In fact, this study states that learners were highly willing to communicate in simulated environment inside the classroom. They feel that they are in real-life situations, so they are eager to make communications. The reason is that Iranian EFL learners don't always have the chance to talk to some native speakers or travel to target-language countries. They can

communicate in English only in English classes. Therefore, it can be said that Iranian EFL learners get more willing to communicate in situations in which they experience communicating in their daily life. Creating such familiar environments for them inside the classrooms affect their willingness to express their ideas, thoughts and feeling in target language.

In simulated environment the learners become more comfortable and safer to speak in a foreign language. In fact, they psychologically make connections with the environment around them, which make it simple and accessible for them to make communication in target language. In formal and strict environment of some English classes, they feel unsecure and uncomfortable to speak in foreign language, however, by presenting such situations to them, they gradually feel they are in target language-speaking countries. Thus, they communicate with others and don't be afraid of speaking in a foreign language.

The main purpose of using simulation for EFL learners is to provide an environment where learners have ample opportunity for creating communication. Moreover, it provides a simulated of real-life situations in which learners experience real communications of real world. Since simulations focus on communication rather than language itself, they are real communicative activities. It can be concluded that simulation has significant effect on WTC of the learners. In the simulated environments, EFL learners get more willing to communicate with others. Simulation provides more chances for them to speak in target language. Through simulation, learners are encouraged to participate and be involved in class interactions.

The findings of the present study have important implications for second language learning research in general, and EFL teachers in particular. Considering the positive outcomes of this study, it is recommended that there is no denying the fact that this modern teaching methodology is quite instrumental and helpful in teaching English language as second or foreign language. The findings of this study suggest that understanding how a simulated environment affects EFL learners' success in speaking and communicating in foreign language can help institutes to provide such environments for EFL learners and instructors. The results of this study may be useful to the organizations of language testing and assessment. The organizations and institutes which administer testing exams for EFL learners can use the results of this study to use in speaking tests.

As pointed out earlier, simulation environment class is completely modern design. EFL learners, who are sick of traditional methods or dull atmosphere in classes, get motivated to learn English through this novel treatment. It promotes learners' engagement and enjoyment in learning. Results of this study, in accordance with previous studies, illustrate that using simulation help EFL learners shape their perceptions and conceptions toward learning English. Furthermore, the students experience being in simulated environment of the target country situations and they are provided many opportunities to engage in different communications. Some EFL learners always complain about the lack of opportunities or situations whereby they could use input that they have already learned. These classes are the best choice for these students.

This study has focused on only female students. The same study can be performed for male and female students. Moreover, the elementary participants were chosen to conduct this study. This method can be presented in different levels of English proficiency. The focus of this study was mainly on speaking skill. The same study can be conducted regarding other language skills (writing, listening and reading). This research was confined to the adjustment during the institute's semester. Research may be extended to a longer period to see the effects of simulated environment on the students in variety of contexts. Research may be conducted on the native students' WTC to see how the simulated environment could affect shy students. This study can be performed at high schools in order to evaluate the effects of simulated environment on their

English-speaking proficiency. Furthermore, this study could be done in a facilitated institute, in a room with blank walls and four video projectors. If future research compensates these items, they will access to more valid data. In this study one variable was considered, i.e., WTC; however, the effect of simulated environment could be investigated on different variables like non-verbal behaviors of learner, which demands specialized psychological investigations.

Declaration of Conflicting Interests and Ethics

The authors declare no conflict of interest. This research study complies with research publishing ethics. The scientific and legal responsibility for manuscripts published in IJATE belongs to the authors. **Ethics Committee Number:** University of Technology and Applied Sciences-Ibra, 22S41OIC

Authorship Contribution Statement

Houman Bijani analyzed the data and wrote the discussion and the conclusion of the study. **Masoumeh Abbasi** wrote the literature review and collected the data. Both authors finally reviewed and edited the final manuscript.

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