

On the relationship between EFL learners' multiple intelligences and their willingness to communicate

MomenYaseen M.Amin

University of Human Development, Iraq
Eastern Mediterranean University, Famagusta, Cyprus

Saeid Saadatmanesh

Eastern Mediterranean University, Famagusta, Cyprus

Abstract

The study aims at understanding whether there is a relationship between EFL learners' multiple intelligences and their willingness to communicate or not. To conduct this research at first there is a general introduction of the statement of the problem, significance of the study, research questions, research hypothesis, definition of key terms, limitations and delimitations of the study are the items covered in the first chapter. In the second chapter, the researcher provides a theoretical background about each variable separately, and also the studies that have been conducted about the relationship of these two variables. In chapter three methodology which contains participants, materials, design & procedure, and data Analysis is discussed. And finally some results are drawn.

Keywords: Multiple Intelligences, Multiple Intelligence Developmental Assessment scales, Willingness to Communicate, Preliminary English Test.

1. Introduction

1.1. Introduction

1.1.1. Multiple intelligences

Since the introduction of multiple intelligences theory (MIT) in Gardner's book entitled *Frames of Mind* (1983), interest has been growing internationally in assessment of multiple intelligences (MI) with regard to learning, achievement, and knowledge acquisition. Based on the avoidance gained from research in biology, genetics, and psychology, Gardner (1983) suggests the existence of eight relatively autonomous, but interdependent, intelligences, rather than just a single construct of intelligence. He redefines the concept of intelligence as "the ability to solve problems or fashion products that are of sequence in a particular cultural setting or community" (Gardner 1993, p.15).

As it is proposed by Gardner there is both biological and cultural basis for the multiple intelligences. Emphasizing on the cultural context in which the intelligence operates is one of the most important aspects of the theory of multiple intelligences. Since some cultures focus on some types of intelligences, the other cultures may put emphasis on other types of intelligences. Gardner (1993) believes that it is so important to consider each individual as "collection of aptitudes" (p.27) rather than being identified by a single IQ test. Gardner introduces eight native "intelligences," which are described as follow:

1.1.1.2. Linguistics

This intelligence is said to be the ability to use language in special and creative ways, which is something orally (e.g, as a story teller, orator, or politician) or in writing (e.g., as a poet, playwright, editor, or journalist). This intelligence includes the ability to manipulate the syntax or structure of language, the phonology or sounds of language, the semantics or meanings of language, and the pragmatics dimensions or practical uses of language. Some of these uses include rhetoric (using language to convince others to take a specific course of action), mnemonics (using language to remember information), explanation (using language to inform), and meta-language (using language to talk about itself) (Armstrong, T. 1994). *Multiple Intelligences in the Classroom*). (The roots of spoken language can be found in the child's babbling during the opening months of life. indeed, even deaf youngsters begin to babble early in life; and during the first months, all infants will issue those sounds found in linguistic stocks remote from their home tongue. but by the beginning of the second year, linguistic activity is different: it involves (in English-speaking lands) the unactuate utterance of single words: "Mommy," "doggy," "cookie," and, before long, the concatenation of pairs of words into meaningful phrases: "at cookie," "byebye Mommy," "baby cry." Let another year pass, and the three-year-old is uttering strings of considerably greater complexity, including questions, "when I get up?"; negotiations, "I no want to go to sleep"; and sentences with clauses, "Have milk before lunch, please?" and by the age of four or five, the child has corrected the minor syntactic infelicities in these sentences and can speak with considerable fluency in ways that closely approximate adult syntax (Gardner, H. 1985. *Frames of Mind: The Theory of Multiple*

Intelligences)).

1.1.1.3. Logical/mathematical

This intelligence is said to be the ability to think rationally, often found with doctors, engineers, programmers, and scientists (Jack C. Richards and Theodore S. Rodgers 2001). It is also the capacity to use numbers effectively (e.g., as a mathematician, tax accountant, or statistician) and to reason well (e.g., as a scientist, computer program, or logician). This intelligence includes sensitivity to logical patterns and relationships, statements and propositions (if-then, cause-effect), functions, and other related abstractions. The kinds of processes used in the service of logical-mathematical intelligence include categorization, classification, inference, generalization, calculation, and hypothesis testing (Armstrong, T. 1994. *Multiple Intelligences in the Classroom*).

1.1.1.4. Spatial

The ability to form mental models of the world, It's something that architects, decorators, sculptors, and painters are good at (Jack C. Richards and Theodore S. Rodgers 2001). Other sources define it as "the ability to perceive the visual-spatial world accurately (e.g., as a hunter, scout, or guide), and to perform transformations upon those perceptions (e.g., as an interior decorator, architect, artist, or inventor). This intelligence involves sensitivity to color, line, shape, form, space, and the relationships that exist between these elements. It includes the capacity to virtualize, to graphically represent visual or spatial ideas, and to orient oneself appropriately in a spatial matrix" (Armstrong, T. 1994. *Multiple Intelligences in the Classroom*).

1.1.1.5. Musical

To have a good ear for music, as is strong for singers and composers. Of all the gifts with which individuals maybe endowed, none emerges earlier than musical talent. Though speculation on this matter has been rife, it remains uncertain just why musical talent emerges so early, and what the nature of this gift might be. A study of musical intelligence may help us understand the special flavor of music and at the same time illuminate its relation to other forms of human intellect. Some feeling for the range and sources of early musical gifts can be gleaned by attending a hypothetical musical audition in which the performers are three preschool children. The first child plays a Bach suit for solo violin with technical accuracy as well as considerable feeling. The second child performs a complete aria from a Mozart opera after hearing it sung but a single time. The third child sits down at the piano and plays a simple minuet which he himself has composed,three performances by three musical prodigies. But have they all arrived at these heights of youthful talent by the same routes? Not necessarily. The first child could be Japanese youngster who has participated since age two in the Suzuki Talent Education program and has, like thousands of her peers, mastered the essentials of a string instrument by the time she inters school (Gardner, H. 1985. *Frames of Mind: The Theory of Multiple Intelligences*).

1.1.1.6. Bodily/kinesthetic

It is defined as “having a well-coordinated body, something found in athletes and craftpersons” in the book “Approaches and Methods in Language” (Jack C. Richards and Theodore S. Rodgers 2001). Expertise in using one's whole body to express ideas and feelings (e.g., as an actor, a mime, an athlete, or a dancer) and facility in using one's hands to produce or transform things (e.g., as a craftperson, sculptor, mechanic, or surgeon). It is believed that this intelligence includes specific physical skills such as coordination, balance, dexterity, strength, flexibility, and speed, as well as proprioceptive, tactile, and haptic capacities (Armstrong, T, 1994. Multiple Intelligences in the Classroom).

1.1.1.7. Interpersonal

The ability to be able to work well with people, which is strong in salespeople, politicians, and teachers (Jack C. Richards and Theodore S. Rodgers 2001).

1.1.1.8. Intrapersonal

The ability to understand oneself and apply one's talent successfully, which leads to happy and well-adjusted people in all areas of life (Jack C. Richards and Theodore S. Rodgers 2001).

1.1.1.9. Naturalist

The ability to understand and organize the patterns of nature (Gardner, H. 1985. Frames of Mind: The Theory of Multiple Intelligences).

1.1.2. Willingness to communicate

According to MacIntyre and Doucette (2010, p. 162), the willingness to communicate (WTC) can be conceptualized as a readiness to speak in the L2 at a particular time with a specific person, and as such, is the final psychological step to the initiation of L2 communication’.

A number of factors have been investigated over the last two decades as to their influence on WTC, but more recently MacIntyre and Doucette (2010) have suggested Kuhl’s (1994) theory of action control, which has as its basis hesitation, preoccupation, and volatility, as a precursor for WTC. These Action Control factors are considered by MacIntyre and Doucette (2010) to be more the result of stable individual differences (traits) rather than dynamic situational reactions to events inside or outside the classroom.

1.2. Statement of the problem

As our experience, according to some teachers’ opinions about their EFL classes, it is assumed that there are differences among the students in terms of achieving the required goals and objectives of that semester. Students’ tendency to communicate is one of the differences that students have. Some students are more motivated to communicate and speak in the second language classes than the others. What will be the result? The former group progress a lot in that

special semester and the latter group students are just listeners. When the students do not have any tendency to communicate in the classroom, they will be bored after one or two semesters, or sometimes they quit learning second language. It will also be problematic for the teachers too. When the learners are not that motivated, the teachers will think that they don't like his/her classes and this can also demotivate the teachers which lead to decrease in efficiency of the total outcome of the class. In these situations the professional development will not happen for the teachers. This research aims at determining the reasons why these problems happen.

1.3. Significance of the study

Willingness to communicate is the most basic orientation toward communication. Almost anyone is likely to respond to a direct question, but many will not continue or initiate interaction. This instrument measures a person's willingness to initiate communication. This research tends to show the reason why some students are eager to attend in communication tasks of classes and some not and suggest idea of solving these problems. This can increase the amount of EFL learners' willingness to communicate. When presented with an opportunity to use their second language (L2), some people choose to speak up and others choose to remain silent. Even after studying a language for many years, many L2 learners will not become L2 speakers. The reasons for choosing to avoid using a second language are not straightforward or simple if one takes into consideration the various individual, social, linguistic, situational, and other factors that are relevant to the decision to speak in the L2. The study helps the teachers and students understand individual differences that cause different variety of willingness to communicate.

1.4. Research assumptions

Willingness to communicate is one of the most important factors in improving speaking skills of EFL learners. When students are not interested in undertaking a task, they will not be able to progress in the related domain, therefore demotivation will happen. Willingness to communicate is related to individual characteristics of the students. Individuals have different intelligences that make them be special in some behaviours and be weak in some other behaviours. One of the characteristics of the individuals who possess inter-lingual intelligence is that they are socialized more than others and are interested in communicating with others, vice versa, the individuals who possess mathematical intelligences tend to be introvert. The individuals who possess linguistic intelligences tend to speak in the classroom more than others. Both multiple intelligences and willingness to communicate is an individual issue, therefore, the researcher assumed that there is a relationship between individual differences and willingness to communicate.

1.5. Research questions

1. To what extent is EFL learners' linguistics and mathematics intelligences related to their willingness to communicate?
2. Is there any difference between the individuals who possess linguistics intelligence and the ones who possess mathematical intelligence in terms of willingness to communicate?

1.6. Research hypothesis

1. It seems as if by increasing mathematical intelligence the willingness to communicate decreases and by increasing linguistics intelligence willingness to communicate also increases.
2. It seems as if there is a difference between individuals possessing linguistic and mathematics intelligences in terms of willingness to communicate.

1.7. Definitions of key terms

Willingness to communicate (WTC): readiness to speak in the L2 at a particular time with a specific person.

Linguistics intelligence: To be the ability to use language in special and creative ways, which is something orally (e.g., as a story teller, orator, or politician) or in writing (e.g., as a poet, play writer, editor, or journalist).

Mathematical intelligence: the ability to think rationally, often found with doctors, engineers, programmers, and scientists (Jack C. Richards and Theodore S. Rodgers 2001).

Multiple intelligence: A theory of intelligence that characterizes human intelligence as having multiple dimensions that must be acknowledged and developed in education (Jack C. Richards and Theodore S. Rodgers 2001).

1.8. Limitations and delimitations of the study

Every research has its own limitations and delimitations. The first limitation of the research is the sample size. Because collecting data has been done through email, therefore, shortage of time has not let the researcher have a high amount of subjects in the research. Other limitation of the study is the questionnaires. For instance, multiple intelligences questionnaire contains 119 items which is boring for the students to answer all of them. The research has also delimitations. Because the data has been collected in Iran, the researcher did not need to attend to the classes and share the questionnaires. The questionnaires were given by the administrator of Iran institute in Arak city, and the results were sent to the researcher through email (see appendix 3). Also, because the research is correlational, the researcher did not need to devote time on applying any treatment, because in correlational researches there is no treatment.

Theoretical background

2.1. Multiple intelligences

Emotional Intelligence is a part of Gardner's (1993) interpersonal intelligence. Brudaldi in 1996 has said that emotional intelligence (EQ) is an intelligence by its own right (cited in Brown, 2007). He explains “emotional mind is pretty quicker than rational mind, without the hesitation thinking what to do”. Therefore, he added emotional intelligence and also placed it at the highest level of Gardner's eight multiple intelligences. Intelligences interact in complex ways. None of these intelligences is said to be superior to the others and each individual has his/her own strengths and weaknesses. Gardner asserts that these intelligences rarely operate independently and they complement each other to solve a problem and overlap while an individual develops language skills (Brualdi, 1996).

It has been claimed by Gardner that the list of intelligences may include more intelligences. It has been suggested by Armstrong that a list of proposed intelligences which includes spirituality, moral sensibility, sexuality, intuition, creativity, olfactory perception, etc; however, these intelligences must meet Gardner's eight criteria to be accepted as different types of intelligence. Gardner's MI has rapidly been incorporated into school curriculum since its emergence in 1983, in educational systems across the United States and other countries (Christine, 2003). I have talked with lots of teachers and many of them accept MI theory and are attempting to teach students in the manner that will enhance their dominant intelligence(s).

Also lots of writing in the area of second language learning and teaching focuses on differences between learners and the need to develop more student-centered learning programs. This emphasis is repeated by learning style researchers, who have made a significant contribution to language teaching by increasing our awareness of the need to take individual learner variations into consideration and to diversify classroom activities in order to research a wider variety of learners, but it takes time. The idea of incorporating alternative teaching methods into a course curriculum is a key point in Howard Gardner's theory of multiple intelligences. Gardner (1983) encourages the use of alternative teaching strategies that are student-centered rather teacher-centered. MI offers an enriched way of seeing the world that can expand your thinking about human success. It gives you the chance to discover, value and enhance the talents of all learners, not just those who are suited to 'traditional' schooling. And it provides a means to improve self-esteem, self-motivation and independence, which can then lead to raise academic standards and life success (Baum, S., and Viens. J., and Slatin, B. , 2005). MI theory is used as a lens through which educators reflect on their practices in order to extend what they currently do well and to better met the diverse needs of their students. MI theory provides a useful vocabulary for collegial discussion and for conversations with parents, and helps teachers and parents understand, celebrate, and use their students' and children's unique ways of knowing.

According to some studies in 1904, the minister of public instruction in Paris asked the French psychologist Alfred Binet and a group of colleagues to develop a means of determining

which primary grade students were "at risk" for failure so these students could receive remedial attention. Out of their efforts came the first intelligence tests. Imported to the United States several years later, intelligence testing became widespread, as did the notion that there was something called "intelligence" that could be objectively measured and reduced to a single number or "IQ" score. Almost 80 years after the first intelligence tests were developed, a Harvard psychologist named Howard Gardner challenged this commonly held belief. Saying that our culture had defined intelligence too narrowly, he proposed in the book *Frames of Mind* (Gardner 1993) the existence of at least seven basic intelligences. More recently, he has added an eighth and discussed the possibility of a ninth (Gardner, 1999). In his theory of multiple intelligences (MI theory), Gardner sought to broaden the scope of human potential beyond the confines of the IQ score. He seriously questioned the validity of determining intelligence through the practice of taking individuals out of their natural learning environment and asking them to do isolated tasks they'd never done before-and probably would never choose to do again. Instead, Gardner suggested that intelligence has more to do with the capacity for (1) solving problems and (2) fashioning products in a context rich and naturalistic setting (Armstrong, T. 1994)

Some stories about MI have been mentioned as follow:

Most of us are familiar with the story of the Blind Men and the Elephant, a tale that comes to us from ancient India. In this story, a king presented an elephant to a number of blind men in his community and asked each to say what he thought it was. The first man touched the side of the beast and answered, "A Wall." The second walked up and felt a leg, and replied, "no, this is a pillar." A third man encountered the tail and cried out, "This is certainly not a wall nor a pillar! It's a rope!" A fourth man latched on to an ear and exclaimed: "You are all wrong! It's a piece of cloth!" And the men began arguing and fighting among themselves about who was really right. Recently, there is another related story that isn't nearly as well known. It's entitled "The Blind Educators and the Literacy Lion." In this story (which has rather fuzzier origins), a king asks several blind educators in his village to examine a new beast that has come into his possession and to tell him all about it. The first educator goes up to touch the Literacy Lion, and then runs back to the king shouting: "This beast is made up of whole words! Yes, all sorts of words, like *the* and *captain* and *sure* and *poultry* and *wizard* and tens of thousands more!" Then the king signaled for the second educator to go up to the Literacy Lion, which she did, and after some time she returned to the king saying: "This animal isn't made of whole words! It's made up of sounds! All kinds of sounds! Sounds like 'thhhh' and 'buh' and 'ahhhhh' and 'ayyyyyy' and 'juh' and many more. In fact, I counted all the sounds, and there are exactly 44! A third educator was sent to examine the beast, and he returned and acclaimed: "This creature isn't made up of sounds or whole words, it is constructed out of stories, and fables, and songs, and chants, and poems, and storybooks, and Big Books, and board books, and novels, and plays, and whole libraries full of living, exciting tales, and lots more besides!" Finally, a fourth educator was sent, and she came back saying: "They're all wrong! This beast is made up of whole cultures, people crying out for out for freedom and power, and it's about understanding who we are and what we're capable of, and how each of us can speak, and read, and write with our own voices, and in this

way contribute to the good of all." And with this final assessment, the educators proceeded to dispute heatedly among themselves.

By now, you will have probably recognized that this story is a thinly disguised attempt to describe the history of literacy acquisition and the teaching of reading and writing over the past several decades in the United States and elsewhere. Corno et al. (2002) noted that the construct of a single overarching general ability is widely accepted. They report that today there are approximately 120 different measures of general ability. Yet they also acknowledge that not all scholars are in agreement, and they cite in particular the work of Harvard Gardner and Robert Sternberg. The Multiple Intelligences Theory and its applications in the educational settings are growing so rapidly. Many educators such as Armstrong (2002) began to use MI-Based Instruction as a way to overcome the difficulties which they encounter with their students as a result of their individual differences and their learning styles. The Multiple Intelligences Theory can be applied to educational settings. The theory is very flexible and it can be adapted to the context in which it is applied. Using the MI theory in education involves using it as a content of instruction and as a means of conveying this content at the same time. This indicates that using the MI Theory can take many forms (Hosseini, S. 2011). In teaching English, Multiple Intelligences-Based Instruction can be effective in many ways: first of all, the students are given many options and opportunities to express themselves in the English language. To base the instruction of the English language on the MI Theory means that the teacher should use a variety of teaching strategies which should be used in a way that makes this instruction address the intelligences which the students possess. In this way, the English language is taught in a natural atmosphere (Armstrong, 1994).

As Gardner (1993) believes, intelligences can be improved, modified, trained and even changed. In fact, human ability and intelligences are flexible and can be guided. Gardner (2003) also mentions that MI should not be an educational goal in itself. Educational goals need to reflect one's own values and these can never come directly from a theory. From the very beginning, Gardner did not set on proposing new educational settings, and it can be considered as the by-product of his theory (Gardner, 1999).

Armstrong (1994) explains the application of MI in the classroom. He accepts the mentioned theory as the theory of education and learning trend that can be support curriculum designers and educators with opportunity to apply it in educational settings. He provides several teaching for the application of each of the eight intelligences in the classroom. He also assumes that applying such strategies can improve the performance of learners in that domain. In the classes that are governed by the MI theory, students are to be treated as individuals who bear different combinations of abilities which are of value and are in need of being recognized and natured (Hosseini, S. 2011). Multiple Intelligences' approaches to literary expression in classrooms are to be invited as well. In these classes, the variety of forms of mental representation should be honored and students should have the opportunity to show what they have understood and what they have not, in ways that are comfortable to them (Hosseini, S. 2011). Multiple Intelligence is said to be a learner-based philosophy that characterizes human intelligences as having multiple

dimensions that must be acknowledged and developed in education. Traditional IQ or intelligence tests are based on a test called the Stanford-Binet, founded on the idea that intelligence is a single, unchanged, inborn capacity. However traditional IQ tests, while still given to most schoolchildren, are increasingly being challenged by the MI movement. MI is based on the work of Harvard Gardner of the Harvard Graduate School of Education (Gardner 1993). Gardner notes that traditional IQ tests measure just logic and language, but the brain has other equally important types of intelligence. Gardner argues that all humans have these intelligences, but people are different in the strengths and combinations of intelligences. It is believed by him that all of them can be enhanced through training and practice. So MI belongs to a group of instructional perspectives that focus on differences in teaching. Learners are viewed as possessing individual learning styles, different preferences, or different intelligences. Gardner (1993) proposed a view of natural human talents that is labeled the "Multiple Intelligences Model". This model is one of a variety of learning style models that have been proposed in general education and have subsequently been applied to language education. Gardner claims that his view of intelligence(s) is culture-free and avoids the conceptual narrowness usually associated with traditional models of intelligence (e.g., the Intelligence Quotient testing model)(Jack C. Richards and Theodore S. Rodgers 2001).

2.2. Willingness to communicate

A number of factors have been investigated over the last two decades as to their influence on WTC, but more recently MacIntyre and Doucette (2010) have suggested Kuhl's (1994) theory of action control, which has as its basis hesitation, preoccupation, and volatility, as a precursor for WTC. These Action Control factors are considered by MacIntyre and Doucette (2010) to be more the result of stable individual differences (traits) rather than dynamic situational reactions to events inside or outside the classroom. Willingness to communicate (WTC) is an individual's volitional inclination toward actively engaging in the act of communication in a specific situation, which can vary according to interlocutor(s), topic, and conversational context, among other potential situational variables. Previously published research studies have investigated the trait or situational/contextual nature of WTC, but most have been limited geographically to countries such as Canada, Japan, Korea and China and their participants were either EFL (English as a Foreign Language) students studying English in their own countries or Study Abroad students who were not intending to stay permanently in an English speaking country.

3. Methodology

3.1. Participants

The participants in the research are twenty students who study in Iran English institute in Arak city, Iran. The students are all male and their ages are 22 years old and their levels are intermediate.

3.2. Instrumentation

The instrument used is the Multiple Intelligence Developmental Assessment Scales (MIDAS), a commercially designed instrument which was designed by Shearer in 1996. To understand the students' willingness to communicate, Collecting the data occurred over a period of two months, the duration of this particular English course, and consisted of (a) a WTC questionnaire, administered on Day 1 of the study; (b) eight classroom observations, carried out once-weekly in two hourly sessions; (c) six audio recordings of group and pair work, carried out once-weekly over three weeks, and (d) a 40–60 min interview with each participant in the last week.

Three stages of data collection

Stage 1 Week 1	Stage 2 Week 1-8	Stage 3 Week 8
Self-report questionnaires	Classroom observation (8·2 h/four weeks) Pair/group work (six sessions/three weeks)	interviews with participants

Table 4.1 *Stages of Data Collection*

About the first stage The self-assessment questionnaire measures a person's willingness to initiate communication. It contained 20 situations in which a person might choose to communicate or not to communicate. The learners had completely free choice. They were supposed to indicate the percentage of times they would choose to communicate in each type of situation. In other words, the students indicated in the space at the left of the item what percent of the time they would choose to communicate (0=Never to 100=Always). The face validity of the instrument is strong, and the results of extensive research indicate the predictive validity of the instrument. Alpha reliability estimates for this instrument have ranged from .85 to well above .90. Of the 20 items on the instrument, 8 are used to distract attention from the scored items. The twelve remain items generate a total score, 4 context-type scores, and 3 receiver-type scores. The sub-scores generate lower reliability estimates, but generally high enough to be used in research studies (See Appendix 2).

3.3. Procedure and design

To conduct the research, researcher at first makes sure of the level and ages. Then the students are given MIDAS questionnaire and the results are documented. Second, the students are given test of WTC. As mentioned previously, Collecting the data occurred over a period of two months, the duration of this particular English course, and consisted of (a) a WTC questionnaire, administered on Day 1 of the study; (b) eight classroom observations, carried out once-weekly in two hourly sessions; (c) six audio recordings of group and pair work, carried out once-weekly over three weeks, and (d) a 40–60 min interview with each participant in the last week. Then the results are correlated using t-test. The design of the research is correlational.

4. Results

Statistical analysis is an important part of this study. Statistics is a branch of methodology dealing with the collection, classification, description and interpretation of data in a research and it aims at describing deductions about the numerical features of a community. Descriptive analysis is the most important part of analysis in this research. The first step in analyzing data and description of features of subjects is to know about differences between variables in the model. The technique used in this chapter is distribution charts and columns and also descriptive statistics such as variance, mean, etc.

Variance	Std. Deviation	Mean	Maximum	Minimum	Range	N	
109.93	10.4847	48.3	67	32	35	20	Linguistic intelligence
210.685	14.51	58.05	86	39	47	20	WTC

Table 4.1. Descriptive Analysis of Linguistics Intelligence and Willingness to communicate

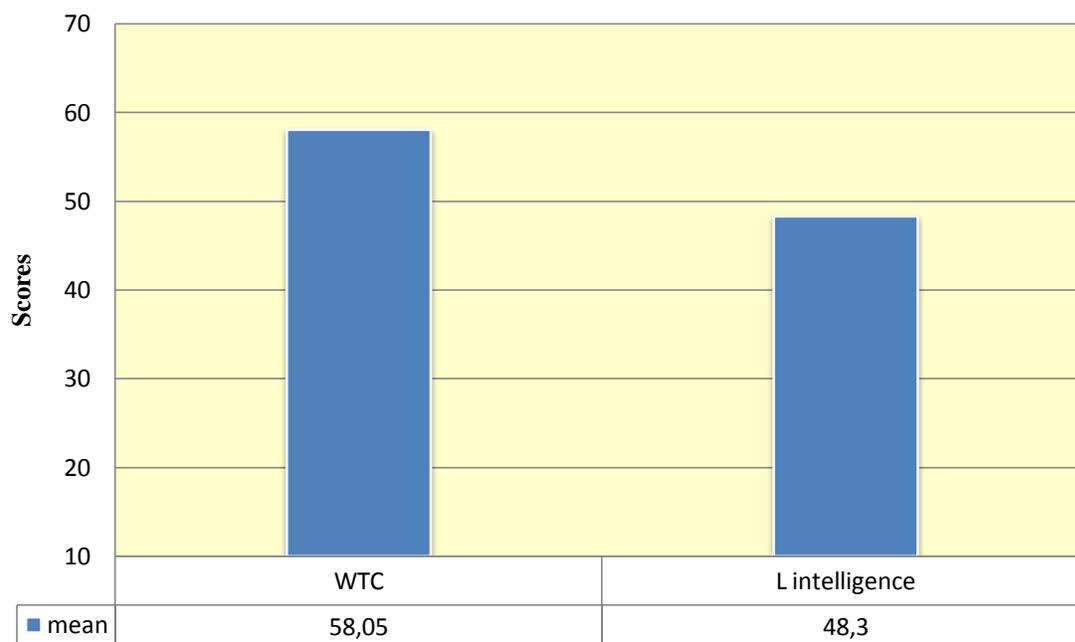


Figure 4.1. Analysis of Mean Scores in WTC and LI

Std. Error Mean	Std. Deviation	N	Mean	
3.24	14.51	20	58.05	WTC
2.34	10.4847	20	48.3	

Table 4.2. Statistical Analysis of Scores in WTC and LI

Sig. (2-tailed)	df	t	Paired Differences				Mean	WTC & L. I.
			95% Confidence Interval of the Difference		Std. Error Mean	Std. Deviation		
			Upper	Lower				
.000	19	1.734	10.65	8.85	.9	4.02	9.75	

Table 4.3. Statistical Analysis of WTC and LI

According to the table 4.3., the mean scores' difference is significant, because the sig. is less than 0.05, so the null hypothesis is rejected which can be concluded as: there is a significant difference between the mean score of linguistic intelligence and willingness to communicate.

Variance	Std. Deviation	Mean	Maximum	Minimum	Range	N	
109.93	10.4847	31.25	57	0	57	20	WTC
210.685	14.51	58.05	86	39	47	20	

4.4. Descriptive Analysis of Mathematical Intelligence and Willingness to Communicate

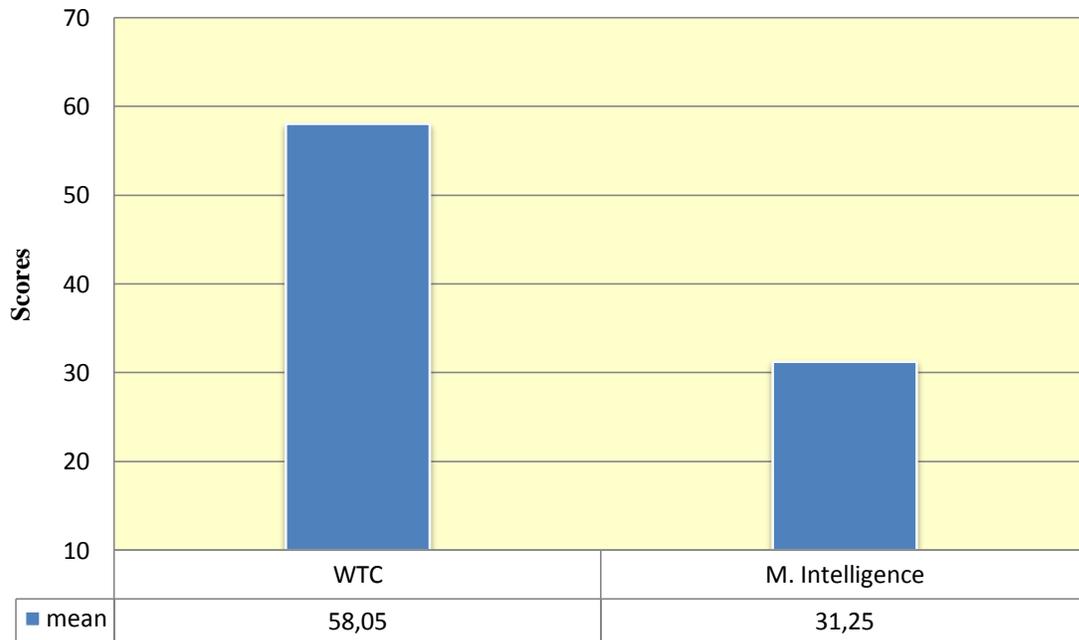


Figure 4.2. Analysis of Mean Scores in WTC and MI

Std. Error Mean	Std. Deviation	N	Mean	
3.24	14.51	20	58.05	WTC
3.87	17.31	20	31.25	M. intelligence

Table 4.5. Statistical Analysis of WTC and MI

Sig. (2-tailed)	df	t	Paired Differences					WTC & L. I.
			95% Confidence Interval of the Difference		Std. Error Mean	Std. Deviation	Mean	
			Upper	Lower				
.153	19	2.675	27.43	26.18	.63	2.8	26.8	

Table 4.6. Statistical Analysis of WTC and MI

According to the table 4.3., the mean scores' difference is not significant, because the sig. is more than 0.05. Therefore, the null hypothesis is rejected which can be concluded as: there is not any significant difference between the mean score of Mathematical intelligence and willingness to communicate.

4.1. Implications for further studies

The study is beneficial for the teachers, and the students, and curriculum designers. It is beneficial for the teachers because they can understand the reason why some students are not that motivated to attend in class discussions and also help them solve the problems. It helps the students discover their strength and be motivated to attend class discussions and progress more in their education. Curriculum designers can benefit from this study in a way that they can implement the results of the research on the education lesson plans.

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Appendix I

MIDAS test

Musical

1_ As a child, did you have a strong liking for music or music classes?

A little	Sometimes	Usually
Often	All the time	I don't know

2_ Did you ever learn to play an instrument?

No	A little	Fair
Good	Excellent	I don't know

3_ Can you sing in tune?

A little bit	Fair	Well
Very well	Excellent	I don't know

4_ Do you have a good voice for singing with other people?

A little bit	Fair	Good
Very good	Excellent	I don't know

5_ Did you ever play an instrument, play with a band or sing with a group?

Never	Every once a while	Sometimes
Often	Almost all the time	I don't know. Does not apply

6_ Do you spend a lot of time listening to music?

Every once in a while	Sometimes	Often
Almost all the time	All the time	I don't know

7_ Do you ever make up songs or write music?

Never	Once or twice	Every once in a while
Sometimes	Often	I don't know

8_ Do you ever drum your fingers, whistle or sing to yourself?

Every once in a while	Sometimes	Often
Almost all the time	All the time	I don't know

9_ Do you often have favorite tunes on your mind?

Every once in a while	Sometimes	Often
Almost all the time	All the time	I don't know

10_ Do you often like to talk about music?

Never	Every once in a while	Sometimes
Often	Nearly all the time	I don't know

11_ Do you have a good sense of rhythm?

Fair	Pretty good	Good
Very good	Excellent	I don't know

12_ Do you have a strong liking for the SOUND of certain instrument or musical groups?

Every once in a while	Sometimes	Often
Almost all the time	All the time	I don't know

13_ Do you think you have a lot of musical talent or skill that was never fully brought out?

No	Some	A fair amount
A good amount	A great deal	I don't know

14_ Do you often have music on while you work, study or relax?

Every once in a while	Sometimes	Usually
Almost always	Always	I don't know

Kinesthetic

15_ In school, did you generally enjoy sports or gym class more than other school classes?

Not at all	A little	About the same
Enjoy sports more	Enjoy sports much more	I don't know

16_ As a teenager, how often did you play sports or other physical activities?

Every once in a while	Sometimes	Often
Almost always	All the time	I don't know

17_ Did you ever perform in a school play or take lessons in acting or dancing?

Never	Maybe once	A couple of times
Often	Almost all the time	I don't know

18_ Do you or other people (like a coach) think that you are coordinated, graceful or a good athlete?

No	Maybe a little	About average
Better than average	Superior	I don't know

19_ Did you ever take lessons or have someone teach you a sport such as bowling, karate, golf, etc.?

No	Rarely	Sometimes
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Often Nearly all the time I don't know

20_ Have you ever joined teams to play a sport?

Never Rarely Sometimes
Often Almost all the time I don't know

21_ As an adult, do you of the do physical work or exercise?

Rarely Sometimes Often
Almost all the time All the time I don't know. Does not apply

22_ Are you good with your hands at things like card shuffling, magic tricks or juggling?

Not very good Fair Good
Very good Excellent I don't know

23_ Are you good at doing precise work with your hands such as sewing, making models, typing flies, typing or have good handwriting?

Not at all Fairly good Good
Very good Excellent I don't know

24_ Do you enjoy working with your hands on projects such as mechanics, building things? Preparing fancy food or sculpture?

Never or rarely Sometimes Often
Almost all the time All the time I don't know. No opportunity

25_ Are you god at using your body or face to imitate teachers such as teachers, friends, or family?

Not at all A little bit Fair
Good Very good I don't know

26_ Are you a good dancer, cheerleader or gymnast?

Not at all Fairly good Good
Very good Excellent I don't know

27- Do you learn better b having something explained to you or by doing it yourself?

Always better by explanation Sometimes better by explanation No difference
Usually better by doing it Always better by doing it I don't know

Logic-Math

28_ As a child, did you easily learn math such as addition, multiplication and fractions?

Not at all It was fairly hard Pretty easy
Very easy Learned much quicker than all the kids I don't know

29_ In school, did you ever have extra interest or skill in math?

Very little or none	Maybe a little	Some
More than average	A lot	I don't know

30_ How did you do in advances math classes such as algebra or calculus?

Didn't take any	Not very well	Fair
Well	Excellent	I don't know or does not apply yet

31_ Have you ever had interest in studying science or solving scientific problems?

No	A little	Average
More than average	A great deal	I don't know

32_ Are you good at playing chess or checkers?

No	Fairly good	Good
Very good	A great deal	I don't know

33_ Are you good at playing cards or solving strategy or puzzle like game?

Not at all	A little	About average
Better than average	Excellent	I don't know

34_ Do you often play games such as scrabble or crossword puzzles?

Very rarely or never	Every once in a while	Sometimes
Often	All the time	I don't know. No opportunity

35_ Do you have a good system for balancing a checkbook or figuring a budget?

Not at all	Fairly good	Good
Very good	An excellent system	I don't know or does not apply

36_ Do you have a good memory for numbers such as telephone numbers or addresses?

Not very good	Fair	Good
Very good	Superior	I don't know

37_ How are you at figuring numbers in your head?

Cannot do it	Not very good	Fair
Good	Excellent	I don't know

38_ Are you a curious person who likes to figure out WHY or HOW things work?

Every once in a while	Sometimes	Often
Almost all the time	All the time	I don't know

39_ Are good at inventing 'systems' for solving long or complicated problems? For example, betting at the race track or organizing your home or life?

Not very good	Fair	Good
Better than average	Excellent	I don't know

40_ Are you curious about nature like fish, animals, plants or stars and planets?

Rarely	Sometimes	Often
Almost all the time	All the time	I don't know

41_ Have you ever liked to collect things and learn all there is to know about a certain subject such as antiques, horses, baseball, etc.?

Not at all	A little	Sometimes
Often	Almost all the time	I don't know

42_ Are you good at jobs or projects where you have to use math a lot or get things organized?

Not good at all	Fairly good	Good
Very good	Excellent	I don't know, No opportunity

43_ Outside of school, have you ever enjoyed working with numbers like figuring baseball averages, gas mileage, budgets, etc?

Not at all	Every once in a while	Sometimes
Often	Almost all the time	I don't know

44_ Do you use good common senses for planning social activities, making home repairs, or solving mechanical problems?

Sometimes	Usually	Often
Almost all the time	All the time	I don't know

Spatial

45_ As a child, did you often build things out of blocks or boxes; play with jacks, marbles or jump rope?

Never or rarely	Sometimes	Often
Almost all the time	All the time	I don't know

46_ As a teenager or adult, how well could you do any of these; mechanical drawing, hair styling, woodworking, art projects, auto body, or mechanics?

Didn't take any	Fair	Good
Very good	Excellent	I don't know

47_ How well can you design things such as arranging or decorating rooms, craft projects, building furniture or mechanics?

Never do	Fair	Pretty good
Good	Excellent	I don't know

48_ Can you parallel park a car on your first try?

Rarely or do not drive	Sometimes	Often
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Almost all the time	All the time	I don't know. No opportunity
49_ Are you good at finding your way around new buildings or city streets?		
Not at all	Fairly good	Good
Very good	Excellent	I don't know
50_ Are you good at using a road map to find your way around?		
Not at all	Fairly good	Good
Very good	Excellent at map reading	I don't know
51_ Are you good at fixing things like cars, lamps, furniture, or machines?		
Not at all	Not very good	Fair
Good	Excellent	I don't know
52_ How easily you can put things together like toys, puzzles, or electronic equipment?		
Not at all	It is hard	It is fairly easy
It is easy	It is very easy	I don't know
53_ Have you ever made your own plans or patterns for projects such as sewing, carpentry, crafts, woodworking, etc.?		
Never	Maybe once	Every once in a while
Sometimes	Often	I don't know
54_ Have you ever drawn a painted picture?		
Rarely or never	Every once in a while	Sometimes
Often	Almost all the time	I don't know. No opportunity
55_ Do you have a good sense of design for decorating, landscaping or working with flowers?		
Not very good	Fair	Good
Very good	Excellent	I don't know
56_ Do you have a good sense of direction when in a strange place?		
Not at all	Fairly good	Good
Very good	Superior	I don't know
57_ Are you at playing pool, darts, riflery, archery, bowling, etc.?		
Not at all	A little	Fair
Better than average	Excellent	I don't know
58_ Do you often draw a picture or sketch to give directons or explain an idea?		
Never	Rarely	Sometimes
Often	All the time	I don't know

59_ Are you creative and like to invent or experiment with unique designs, clothes or projects?

Very little or not at all	A little	Somewhat
Often	Almost all the time	I don't know

Linguistic

60_ You enjoy telling stories or talking about favorite movies or books?

Not at all	Rarely	Sometimes
Often	Almost all the time	I'm not sure

61_ Do you ever play with the sounds of words like making up jingles, or rhymes? For example, do you give things or people funny sounding nicknames?

Never	Rarely	Sometimes
Often	All the time	I don't know

62_ Do you use colorful words or phrases when talking?

No	Rarely	Sometimes
Often	All the time	I don't know

63_ Have you ever written a story, poetry or words to songs?

Never	Maybe once in while	Occasionally
Often	Almost all the time	I don't know

64_ Are you a convincing speaker?

Not at all	Every once in a while	Sometimes
Often	Almost all the time	I'm not sure

65_ How are you at bargaining or making a deal with people?

Not very good	Fair	Pretty good
Good	Excellent	I don't know

66_ Can you talk people into doing things your way when you want to?

Not at all	Every once in a while	Sometimes
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67_ Do you ever do public speaking or give talks to groups?

Very rarely or never	Every once in a while	Sometimes
Often	Almost all the time	I don't know

68_ How are you at managing or supervising people?

Never do or not good at all	Fair	Good
Very good	Excellent	I don't know

69_ Do you have interest for talking about things like the news, family matters, religion or

sports, etc.?

A little	Some interest	Average interest
More than average	A great deal	I don't know

70_ When others disagree, are you able to say easily say what you think or feel?

Rarely	Every once in a while	Sometimes
Often	All the time	I don't know

71_ Do you enjoy looking up words in dictionaries, or arguing with others about "the right word" to use?

Never or rarely	Every once in a while	Sometimes
Often	Very often	I don't know

72_ Are you often he one asked to "do the talking" by family or friends because you are good at it?

Very rarely to never	Rarely	Sometimes
Often	Almost all the time	I don't know

73_ Have you ever been good at imitating the way other people talk?

Not really	Fairly good	Pretty good
Good	Very good	I don't know

74_ Have you ever been good at writing reports for school or work?

Not really. Never do any	Pretty good	Good
Very good	Superior	I don't know

75_ Can you write a good letter?

No or fair	Pretty good	Good
Very good	Excellent	I don't know

76_ Do you like to read or do well in English classes?

A little	Sometimes	Usually
Often	All the time	I don't know

77_ Do ever write notes or make lists as reminders of things to do?

Rarely or never	Every once in a while	Sometimes
Often	Almost all the time	I don't know

78_ Do you have a large vocabulary?

Not really	Less than average	About average
Above average	Superior	I don't know

79_ Do you have skill for choosing the right words and speaking clearly?

Not at all or rarely	Sometimes	Usually
Most of the time	Almost always	I don't know

Interpersonal

80_ Have you had friendships that have lasted for a long time?

One or two	More than a couple	Quite a few
A lot	A great many long lasting friendships	I don't know

81_ Are you good at making peace at home, at work or among friends?

Fair	Pretty good	Good
Very good	Excellent	I don't know

82_ Are you ever a 'leader' for doing things at school, among friends or at work?

Rarely	Every once in a while	Sometimes
Often	Almost all the time	I don't know

83_ In school, were you usually part of a particular group or crowd?

Rarely	Every once in a while	Sometimes
Most of the time	Almost all the time	I don't know

84_ Do you easily understand the feelings, wishes, or needs of other people?

Sometimes	Usually	Often
Almost always	Always	I don't know

85_ Do you ever offer to 'help' other people such as the sick, the elderly or friends?

Sometimes	Usually	Often
Very often	Always	I don't know

86_ Do friends or family members ever come to you to talk over personal troubles or to ask for advice?

Every once in a while	Sometimes	Often
Almost all the time	All the time	I don't know

87_ Are you good at judge or 'character'?

Every once in a while	Sometimes	Usually
Almost always	Always	I don't know

88_ Do you usually know how to make people feel comfortable and at ease?

Every once in a while	Sometimes	Usually
Almost always	Always	I don't know

89_ Do you generally take the good advice of friends?

Every once in a while	Sometimes	Usually
Often	Almost always	I don't know

90_ Are you generally at ease around (men or women) your own age?

Rarely	Sometimes	Usually
Almost all the time	Always	I don't know

91_ Are you good at understanding your (girlfriend's or wife's) (boyfriend's or husband's) ideas and feelings?

Every once in a while	Sometimes	Usually
Almost all the time	All the time	I don't know. Does not apply

92_ Are you an easy person for people to get to know?

Not at all	Pretty hard	Fairly easy
Easy	Very easy	I don't know

93_ Do you usually have a hard time copying with children?

Usually have a hard a time	Sometimes it is hard	Usually easy
Almost always easy	Always very easy	I don't know

94_ Have you ever had interest in teaching, coaching or counseling?

Very little or none	A little interest	Some interest
A lot of interest	A great deal of interest	I don't know or doesn't apply

95_ Can you do well when working with the public in jobs such as sales, receptionist, promoter, police, or waiter?

Fair	Fairly well	Well
Very well	Excellent	I don't know, does not apply

96_ Do you prefer working alone or with a group of people?

Always alone	Usually alone	No preference
Usually with a group	Always with a group	I don't know

97_ Are you able to come up with unique or imaginative ways to solve problems between people or settle arguments?

Maybe once or twice	Every once in a while	Sometimes
Often	All the time	I don't know

Intrapersonal

98_ Do you have a clear sense of who you are and what you want out of life?

Very little	A little	Usually
Most of the time	Almost all the time	I don't know

99_ Are you aware of your feelings and able to control your moods?

Every once in a while	Sometimes	Most of the time
Almost all the time	Always	I don't know

100_ Do you plan and work hard toward personal goals like at school, at work or at home?

Rarely	Sometimes	Usually
Almost all the time	All the time	I don't know

101_ Do you 'know your mind' and do well at making important personal decisions such as choosing classes, changing jobs or moving?

No or every once in a while	Sometimes	Usually
Almost all the time	All the time	I don't know

102_ Are you happy with the work you choose because it matches your skills, interests and personality?

No or rarely	Sometimes	Usually
Almost all the time	All the time	I don't know or does not apply yet

103_ Do you generally know what you are good at (or not good at) doing and try to improve your skills?

Every once in a while	Sometimes	Usually
Almost all the time	All the time	I don't know

104_ Do you get very angrily when you fail or are frustrated?

Almost all the time	Sometimes	Every once in a while
Rarely	Almost never	I don't know

105_ Have ever had interest in 'self improvement'? For instance, do you attend classes to learn new skills or read 'self-help' books and magazine?

No	A little	Sometimes
Often	Almost always	I don't know

106_ Have you ever been able to find unique or unusual ways to solve personal problems or achieve your goals?

Once or twice	Every once in a while	Sometimes
Often	All the time	I don't know

Naturalist

107_ Have you ever raised pets or other animals?

Never or rarely	Every once in a while	Sometimes
Often	All the time	I don't know. No opportunity

108_ Is it easy for you to understand and care for an animal?

Not at all	Maybe a little	Fairly easy
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Quite easy

Very easy

I don't know

109_ Have you ever done any pet training, hunting or studied wildlife?

No

A little

Sometimes

Quite a bit

A great deal

I don't know. No opportunity

110_ Are you good at working with farm animals or thought about being a vegetarian or naturalist?

Not at all

A little

Sometimes

Quite a bit

Very much so

I don't know

111_ Do you easily understand differences between animals such as personalities, traits or habits?

Not at all

A little

Fairly easily

Quite easy

Very easy

I don't know

112_ Are you at recognizing breeds of pets or kinds of animals?

Not at all

A little

Somewhat

Quite good

Very good

I don't know

113_ Are you good at observing and learning about nature, for example, types of clouds, weather patterns, animal or plant life?

Never

A little

Some

Quite a bit

A great deal

I don't know

114_ Are you good at growing plants or raising a garden?

Not at all

A little

Somewhat

Quite a bit

Very good

I don't know

115_ Can you identify or understand the differences between types of plants?

Not at all

A little

Somewhat

Most of the time, yes

All the time

I don't know

116_ Are you fascinated by natural energy systems such as chemistry, electricity, engines, physics or geology?

No

A little

Somewhat

Quite a bit

A great deal

I don't know

117_ Do you have a concern for nature and do things like recycling, camping, hiking or bird watching?

No

A little

Some

A lot

A great deal

I don't know

118_ Have you taken photographs of nature or written stories or done artwork?

No A little Some
A lot A great deal I don't know

119_ Is spending time in nature an important part of your life?

Not really A little Somewhat
Quite a bit Very much so I don't know

Appendix II

Num.	WTC questionnaire	1-100
1	Talk with an acquaintance in an elevator.	
2	Talk with a stranger on the bus.	
3	Speak in public to a group (about 30 people) of strangers.	
4	Talk with an acquaintance while standing in line.	
5	Talk with a salesperson in a store.	
6	Volunteer an answer when the teacher asks a question in class.	
7	Talk in a large meeting (about 10 people) of friends.	
8	Talk to your teacher after class.	
9	Ask a question in class.	
10	Talk in a small group (about five people) of strangers.	
11	Talk with a friend while standing in line.	
12	Talk with a waiter/waitress in a restaurant.	
13	Talk in a large meeting (about 10 people) of acquaintances.	
14	Talk with a stranger while standing in line.	
15	Present your own opinions in class.	
16	Talk with a shop clerk.	
17	Speak in public to a group (about 30 people) of friends.	
18	Talk in a small group (about five people) of acquaintances.	
19	Participate in group discussion in class.	
20	Talk with a garbage collector.	
21	Talk in a large meeting (about 10 people) of strangers.	
22	Talk with a librarian.	
23	Help others answer a question.	
24	Talk in a small group (about five people) of friends.	
25	Speak in public to a group (about 30 people) of acquaintances.	

Appendix 2

WTC behavior categories (basis of tally chart for observation of individual students)

In the presence of the teacher

1. Volunteer an answer (including raising a hand).
2. Give an answer to the teacher's question.

- (a) Provide information – general solicit.
- (b) Learner-responding.
- (c) Non-public response.
3. Ask the teacher a question.
4. Guess the meaning of an unknown word.
5. Try out a difficult form in the target language (lexical/morphosyntactic).
6. Present own opinions in class.
7. Volunteer to participate in class activities.

Additional categories for pair and group work in the absence of the teacher

1. Guess the meaning of an unknown word.
2. Ask group member/partner a question.
3. Give an answer to the question.
4. Try out a difficult form in the target language (lexical/grammatical/syntactical).
5. Present own opinions in pair/group.

Appendix 3. Participant interview questions

Part I: general questions

1. How important is it for you to learn English?
2. How good are you at learning English?
3. What do you think your English level is like? What about your speaking skill in particular?
4. How motivated were you during this language course?
5. How much did you like learning together with your classmates in this course?
6. How would you describe your personality (quiet or talkative, relaxed or tense)?
7. How competent do you think you were to communicate in English during this course?
8. Did you feel very sure and relaxed in this class?
9. Did you feel confident when you were speaking English in class?
10. Did it embarrass you to volunteer answers in class?
11. Did you feel that the other students speak English better than you did?
12. Were you afraid that other students would laugh at you when you were speaking English?
13. Did you get nervous when your English teacher asked you a question?
14. Were you afraid that your English teacher was ready to correct every mistake you made?
15. In what situation did you feel most comfortable (most willing) to communicate: in pairs, in small groups, with the teacher in a whole class? Why?

Part II: stimulated recall questions

16. Did you like this task? Why? Why not?
17. How useful for your learning do you think this task was? Why? Why not?
18. Did you think you did this task well? Why? Why not?
19. Did you enjoy doing this task? Why? Why not?

20. Did you feel happy to work in this group/pair? What did you feel happy/not happy with?

21. Comparing the two tasks you did, which task did you prefer? Why? Which group did you prefer? Why?

Part III: individual questions

Ask individual learner to comment on their self-report WTC, behavior in group/pair and whole class situations.

Appendix III

Students' scores

EFL learners	Linguistic intelligence scores	Willingness to communicate scores
1	34	40
2	44	56
3	35	39
4	46	52
5	62	79
6	32	39
7	45	49
8	58	63
9	38	41
10	54	69
11	51	62
12	39	46
13	60	80
14	67	76
15	64	86
16	46	58
17	35	41
18	46	53
19	56	64
20	54	68

EFL learners	Mathematics intelligence scores	Willingness to communicate scores
1	39	40
2	35	56
3	57	39
4	39	52
5	00	79
6	53	39

7	45	49
8	33	63
9	38	41
10	31	69
11	34	62
12	39	46
13	00	80
14	00	76
15	00	86
16	35	58
17	35	41
18	44	53
19	32	64
20	36	68