Adaptation of Multiple Intelligences to Turkish Cypriot Culture

İpek Meneviş

Submitted to the
Institute of Graduate Studies and Research
in partial fulfillment of the requirements for the Degree of

Master of Education
in
Educational Sciences

Eastern Mediterranean University
August 2011
Gazimağusa, North Cyprus

Approval of the Institute of Graduate Studies and Research

Prof. Dr. Elvan Yılmaz
Director

I certify that this thesis satisfies the requirements as a thesis for the degree of Master of Education in Educational Sciences.

Asst. Prof. Dr. Hüseyin Yaratan
Chair, Department of Educational Sciences

We certify that we have read this thesis and that in our opinion it is fully adequate in scope and quality as a thesis for the degree of Master of Education in Educational Sciences.

Asst. Prof. Dr. Bahire Efe Özad
Supervisor

Examining Committee

1. Asst. Prof. Dr. Naciye Kunt
2. Asst. Prof. Dr. Bahire Efe Özad
3. Asst. Prof. Dr. Hüseyin Yaratan

ABSTRACT

There are numerous applications of the Theory of Multiple Intelligences, coined by Howard Gardner, in various aspects and stages of education. It is suggested that students need to raise awareness in their strengths and weaknesses. Therefore, this study seeks to develop an inventory suitable for students in the TRNC context.

The high school students studying at grades 10, 11 and 12 in the TRNC constitute the population of the study. In the research, 517 high school students from Famagusta and Iskele Districts were chosen as the sample. An MI inventory was constructed to represent 9 intelligences (verbal/linguistic, logical/mathematical, musical/rhythmic, visual/spatial, bodily-kinesthetic, interpersonal, intrapersonal, naturalist and existentialist). The inventory consists of 135 items and 6 different experts have agreed on the appropriateness of the items in the inventory. Also, factor analysis was conducted for construct validity so the inventory is valid.

After factor loadings were examined, reliability calculations for each intelligence and the inventory overall were conducted and the inventory was given its latest form with 93 items. Although factor loadings seem low for the items related to some intelligences, the reliability values for intelligences and the Cronbach's Alpha value of the inventory are very high. Thus, the inventory is reliable.

As a suggestion for further research, the inventory can be applied to private schools in

addition to state high schools. Also, it may be applied to the whole population of high schools. Furthermore, it is suggested to be administered at different levels in education from primary school to university and results can be compared with the present study.

Keywords: multiple intelligences, inventory, validity, reliability, factor analysis

ÖZ

Howard Gardner tarafından ortaya atılan Çoklu Zeka Kuramı'nın eğitimin değişik alanlarında ve seviyelerinde uygulaması bulunmaktadır. Öğrencilere kendi güçlü ve zayıf yanları ile ilgili farkındalıklarını artırmaları önerilmektedir. Bu nedenle bu çalışma Kuzey Kıbrıs Türk Cumhuriyeti bağlamındaki öğrencilere uygun bir envanter geliştirmeyi amaçlamaktadır.

Bu çalışmanın evrenini KKTC liselerinde eğitim gören 10., 11., ve 12. sınıf öğrencileri oluşturmaktadır. Bu araştırmada, örneklem olarak Gazimağusa ve İskele bölgelerindeki liselerde bulunan 517 lise öğrencisi seçilmiştir. Dokuz farklı zeka türünü (sözel/dilsel, mantıksal/matematiksel, görsel, içsel, kişilerarası, müziksel/ritmik, doğa, kinestetik/bedensel ve varoluşçu) temsil eden bir çoklu zeka envanteri hazırlanmıştır. Envanter 135 maddeden oluşmaktadır. Kapsam geçerliliği için 6 farklı uzman envanterdeki maddelerin uygunluğu konusunda hemfikir olmuşlardır. Ayrıca, yapı geçerliliği için faktör analizi de yapılmıştır. Bu nedenle envanter geçerlidir.

Faktör yükleri incelendikten sonra, her zeka türü için ve envanterin geneli için güvenirlilik hesaplamaları yapılmış ve 93 madde ile envantere son şekli verilmiştir. Bazı zeka türleri ile ilgili maddelerin faktör yükleri düşük görünmesine rağmen, zeka türleri ve envanterin geneli ile ilgili Cronbach's Alpha güvenirlilik katsayıları oldukça yüksek değerde çıkmıştır. Bu nedenle envanter güvenilirdir.

İleriki araştırmalara öneri olarak, envanter devlet okullarının yanı sıra, özel okullarda da uygulanabilir. Bunun yanı sıra, tüm evrene uygulanması da önerilir. Dahası eğitimin ilköğretim basamağından yüksek öğretim basamağına kadar başka kademelerinde de envanterin uygulanması ve sonuçların bu araştırma sonuçları ile karşılaştırılması olabilir.

Anahtar kelimeler: çoklu zeka, envanter, geçerlilik, güvenirlilik, faktör analizi

To all students who deserve more...

ACKNOWLEDGMENT

I would, first of all, thank to my dearest supervisor, Asst. Prof. Dr. Bahire Efe Özad for her invaluable support, motivation and help. I would not be able to come to this point without her. I would also like to express my sincere regards to the jury members, Asst. Prof. Dr. Naciye Kunt and Asst. Prof. Dr. Hüseyin S. Yaratan for their invaluable time and feedback. I would also like to thank Asst. Prof. Dr. Sıtkiye Kuter for her efforts and invaluable help. I am grateful to Prof. Dr. Adnan İnce and Mrs. Songül Özbilek for the help and expertise they provided in relation to inventory construction.

Many thanks to the participants in the study, who made this study possible. I would also like to thank to the Ministry of National Education, School Administrations of Polatpaşa High School, Bekirpaşa High School, Namık Kemal High School, Gazimağusa Türk Maarif Koleji and the teachers who allowed me to conduct the study in their classrooms. They gave their valuable time and I am grateful.

I would also like to thank my dearest family, especially my mother and my father for their invaluable support and comfort. Last but never least, my special thanks to dearest friends and colleagues Ms. Nazan Doğruer and Mr. Ramadan Eyyam. Words are never enough to express my feelings. Thank you for being with me all the time. Without you, I would never finish my work.

TABLE OF CONTENTS

LIST OF TABLES

Chapter 1

INTRODUCTION

The Theory of Multiple Intelligences (MI Theory), which is coined by a Harvard University psychologist, Howard Gardner, has been one of the popular buzzwords in education since the end of the twentieth century. It is sought to be measured by a number of various inventories. However, in the Turkish Republic of Northern Cyprus (TRNC), there has been no study on developing an inventory suitable for the students studying in this context. Therefore, the present study seeks to develop an MI Inventory for the TRNC students and to test its suitability for this context as well as its validity and reliability.

1.1 Background of the Study

As Baum, Viens and Slatin (2005) and Kornhaber, Fierros and Veenema (2004) state, intelligence has been studied by psychologists such as Binet and Simon, Terman, Wechsler, Ceci and Sternberg throughout the twentieth century. In the past, it was believed that intelligence was inherited and it was impossible to develop after birth. The common belief was that people were born with a fixed IQ and this could be measured by a simple IQ test. Therefore, the theories related to intelligence were based on factors and test scores and lack the explanation of its operation in the real world (Baum, Viens and Slatin, 2005; Kornhaber, Fierros and Veenema, 2004).

Before Howard Gardner mentioned the Theory of Multiple Intelligences in 1983 (Baum, Viens and Slatin, 2005; Gardner, 1983), many studies were conducted on intelligence by the above mentioned psychologists, but the groundbreaking one has become Gardner's (1983) MI Theory (DeAmicis, 1999; Silver, Strong and Perini, 2000; Griswold, 2006; Bellanca, Chapman and Swartz, 1997; Lazear, 1999a). He proposed his theory against the widely held traditional view of intelligence which is unitary (Baum, Viens and Slatin, 2005). Gardner points out that there isn't a single intelligence and intelligence can be developed or weakened throughout life. In a similar vein, Lazear states "not only can intelligence change, it can also be taught to others" (2000, p.1). This notion might be the reason why his theory has drawn too much attention and gained an important place in the field of education.

When Gardner worked on a number of individuals with some deficiencies in Project Zero (1983), he realized that intelligence is not only limited to the verbal and mathematical abilities but people have a combination of various abilities. Although these abilities are interrelated, when a part of brain which is related to one type of intelligence is damaged, others are not affected and the individual still possesses other intelligences because they work separately. He has found out that a mentally-retarded person who is called an 'idiot savant' shows a performance below average in many areas whereas he has an outstanding performance in another area such as remembering things or classifying objects (Gardner, 1983). The famous movie 'Rain Man' can be given as a good example for the idiot savant type of individuals. The character acted by Dustin Hoffman is accepted as a mentally-retarded person whereas he was very good at numbers so that he was wickedly be used to make money from card games (1988).

In the MI Theory, where Gardner has studied the brain and how it acquires knowledge (Griswold, 2006), in 1983 he started with seven different intelligences which are linguistic, mathematical, spatial, bodily-kinesthetic, interpersonal and intrapersonal intelligences. Then he added naturalistic intelligence in 1999. As he stated that there are many more intelligence types human beings possess, and he continued his studies after the naturalist intelligence. During his research, he had always stated that existential intelligence deserved a special place as it met the criteria somehow, therefore, he "jokingly referred to it as intelligence 8 ½" before its official acceptance (Silver, Strong and Perini, 2000, p. 9). Later in 2009, when he attended a conference – 1st International Conference of Living Theorists: Howard Gardner – held in Burdur, Turkey, he officially announced in his speech that existential intelligence can be considered as the ninth type.

Gardner (1999) stated that he is not a practitioner, instead he sees himself as a psychologist and a scholar who develops ideas. However, the practitioners in education have become very interested in his theory and its applications in instruction since it is considered as a "gift to education" (Kagan and Kagan, 1998). Each and every student is different from the others so educators should be aware of the fact that their job is not as easy as it is seen.

It has always been seen that some students suffer at school although they have a great potential because their different intelligences could not match with the curriculum which is only based on linguistic and mathematical intelligences. Silver, Strong and Perini (2000) postulated that the MI Theory gives students the opportunity to work with their highly developed intelligences and this chance helps them build confidence in themselves (Armstrong, 2000a). Therefore, the application

of the MI Theory in education creates a more individualized instruction for students (Baum, Viens and Slatin, 2005; Armstrong, 2000a).

Although Gardner did not say much about the application of the MI Theory in education, and his theory was intended ultimately for psychologists, the educators have brought the notion of having different smarts into their classes and been enthusiastic about applying this notion (Viens and Callenbach, 2004). Furthermore, as the main aim of education is to prepare students for their future lives and to equip them with necessary information to survive, even to be successful in the future, the MI Theory is required to be applied in the field of education (Silver, Strong and Perini, 2000; Kagan and Kagan, 1998; Teacher Created Resources, 2006).

Gardner stated that the traditional view of intelligence and traditional education were not able to prepare students for their future (Armstrong, 1999; Lazear, 2000; Kagan and Kagan, 1998; Teacher Created Resources, 2006) so the MI Theory provides students a chance to have a "more comprehensive picture of what they know and do, a more insightful picture of what they can do in the future, and better tools to take responsibility for their own learning" (Bellanca, Chapman and Swartz, 1997, p. vii). As Lazear (2000) mentions the education based on the MI Theory "meets the challenges of daily living or helps with problem solving on the job, in one's family, or in one's personal life" (5-6). Shortly, it could be said that the Theory of Multiple Intelligences deserves its place in the field of education.

Having students with high motivation and high self-esteem, which can be achieved with the MI Theory, makes education more fruitful and having these kinds of students in class makes education meaningful (Lazear, 2000; Teacher Created

Resources, 2006; Arnold, 2007; Kagan and Kagan, 1998). The instruction based on the MI Theory also brings the creativity and unlimited energy of both teachers and students into the classroom (Hoerr, 2000; Bellanca, Chapman and Swartz, 1997; Kagan and Kagan, 1998). The reason is that teachers expand their imagination while planning their lessons according to various types of intelligence and students learn more easily while having fun (Arnold, 2007; Bellanca, Chapman and Swartz, 1997) as one way is never the best way for all students.

One of the premises of the MI Theory is "when students lose the belief in themselves, they cannot be successful" (Arnold, 2007, p. 1) and this was also agreed by Campbell, Campbell and Dickinson (2004); Teacher Created Resources (2006); Kagan and Kagan, 1998; and Lazear, (2000). Education can be succeeded through having successful students in class and when students believe in themselves, they can be successful. Because of this reason, the previously mentioned premise of the MI Theory is vitally important in education. There should not be the risk of losing any students just because of the teacher's preference of traditional teaching methods as this would benefit only a limited number of students.

As Gardner (1999) mentions in the Foreword of Lazear's (2000) book, *Eight Ways of Knowing*, both instructors and students themselves need to be aware of students' strengths, weaknesses and the best way for them to become successful; and this can be achieved by the Theory of Multiple Intelligences (Hoerr, 2000; Bellanca, Chapman and Swartz, 1997; Kagan and Kagan, 1998). In this way, "students not only feel valued but are valued by their peers" as well (Bowen, Hawkins and King, 1997, p. viii) and they are able to set more reachable goals for their future life.

Having students identify their competencies should be the primary aim of education and inventories used the MI Theory as the basis can be a useful tool for both instructors and students while determining the best way for teaching and learning (Silver, Strong and Perini, 2000; Campbell and Campbell, 1999).

1.2 Motivation for the Study

It is strongly believed by many researchers and educators that the Theory of Multiple Intelligences and its implication in education will probably increase the student success and motivation. That is the motivation for the researcher in this study to be involved in previously conducted studies related to the MI Theory in the TRNC context. These studies are as follows: Eyyam, Doğruer and Meneviş, 2010; Eyyam, Meneviş and Doğruer, 2010; and Meneviş, Doğruer and Eyyam, 2009. After reading many studies on the application of the MI Theory and the studies she was involved, her observations concluded that the MI inventories prepared and used so far are not very applicable in the TRNC context; therefore, there is a need for a study in order to have an applicable MI inventory for the TRNC context. Having this notion as the starting point, it was the intention of the researcher to develop an MI inventory which is suitable for the TRNC context throughout my graduate study.

1.3 Aims and Objectives of the Study

Even though the 'equal opportunity principle' in education is crucially important for students to be successful both in their academic and daily lives, this was not possible before the Theory of Multiple Intelligences as different types of intelligence were not valued except for the verbal and mathematical abilities. Only verbal and mathematical intelligences had always been accepted as important until the 1990s since schools supported this notion; thus, it can be stated that "it is the

schools that stand in the way of students' success" (Gardner, 1983). However, the connection between education and daily life can be provided by the Theory of Multiple Intelligences.

When the literature is examined, there are a very limited number of studies on developing an MI inventory and this number needs to be increased. When the MI Theory is applied in education, it is possible to have better education and to reach as many students as possible in class. On the other hand, before its application, it is necessary to develop an inventory for the evaluation of the MI profile of students.

In addition, there has never been an attempt to develop an MI inventory that is suitable for the context of TRNC and the inventories developed and used until today have some items that are not applicable for the students in this context, it is crucial to develop an inventory that is suitable for Turkish Cypriot students. While preparing this inventory, the cultural factors which include unique differences of students who belong to a specific culture are intended to be considered. Consequently, the aim of this study is to develop a Multiple Intelligences Inventory for Turkish Cypriot high school students who are about to choose a career which is a vital decision for themselves.

1.4 The Research Questions in the Study

In order to reach the aim of the study which has been specified in the previous section, the following research questions have been tried to be answered:

a. How do the constructed items in the inventory represent the 9 intelligences according to experts' opinions with respect to content validity?

b. How do the constructed items in the inventory have a determined factor structure with respect to construct validity?
c. How do the 9 intelligences in the inventory have reliability with respect to Cronbach's Alpha value?
d. How does the inventory have reliability with respect to Cronbach's Alpha value?

1.5 Significance of the Study

As Arnold states "MI provides a reframe for students, a positive paradigm, so they can have hope for success" (2007, p. 2). Therefore, identifying the dominant intelligences of students is crucial not only for educators but also for students. However, after the review of the literature, it was found out that there is not a Multiple Intelligences inventory specially designed for or applicable for the use of Turkish Cypriot students.

The MI inventories developed and used so far include some items that are not accurate for the context of Northern Cyprus. As a result, in this study what has been aimed is to develop a multiple intelligences inventory which is suitable for the high school students in Grades 10, 11 and 12 in Northern Cyprus in order to raise self-awareness in students who are about to decide on their future careers and contribute to the education system in North Cyprus.

1.6 Limitations of the Study

This study was conducted in the state high schools within the borders of Famagusta and Iskele Districts in the Turkish Republic of Northern Cyprus (TRNC) in the Spring Semester of the Academic Year 2010-2011. Therefore, this study is limited to:

- the students studying at grades 10, 11 and 12 in the state high schools in Famagusta and Iskele Districts in the Spring Semester of 2010-2011 Academic Year,
- four different secondary education schools in order to represent the social and cultural structure of Northern Cyprus.

1.7 Definition of Terms

- **Intelligence**: entails the ability to solve problems or fashion products that are of consequence in a particular cultural setting or community (Gardner, 1999:33).
- **Verbal-Linguistic Intelligence**: involves sensitivity to spoken and written language, the ability to learn languages, and the capacity to use language to accomplish certain goals (Gardner, 1999:41).
- **Logical-Mathematical Intelligence**: involves the capacity to analyze problems logically, carry out mathematical operations, and investigate issues scientifically (Gardner, 1999:42).
- **Musical-Rhythmic Intelligence**: entails skill in the performance, composition, and appreciation of musical patterns (Gardner, 1999:42).
- **Visual-Spatial Intelligence**: features the potential to recognize and manipulate the patterns of wide space as well as the patterns of more confined areas (Gardner, 1999:42).
- **Bodily-Kinesthetic Intelligence**: entails the potential of using one's whole body or parts of the body to solve problems or fashion products (Gardner, 1999:42).

- **Interpersonal Intelligence**: denotes a person's capacity to understand intentions, motivations, and desires of other people and, consequently, to work effectively with others (Gardner, 1999:43).
- **Intrapersonal Intelligence**: involves the capacity to understand oneself, to have an effective working model of oneself – including one's own desires, fears, and capacities – and to use such information effectively in regulating one's own life (Gardner, 1999:43).
- **Naturalist Intelligence**: entails expertise in the recognition and classification of the numerous species – the flora and the fauna – of his or her environment (Gardner, 1999:48).
- **Existential Intelligence:** is a concern with ultimate issues (Gardner, 1999:60).

Chapter 2

REVIEW OF THE LITERATURE

Since the Theory of Multiple Intelligences was proposed by Howard Gardner in 1983, the concept of intelligence has been redefined and its applications in education have opened new paths to learning. Therefore, this chapter deals with the definition of intelligence, the Theory of Multiple Intelligences, its implications in education and the related research.

2.1 Intelligence

Intelligence is a difficult concept to define and a very difficult issue to assess because it involves inferences about one's intellectual abilities based on preferences or actions. Psychologists have argued this concept for decades regarding an appropriate definition of intelligence and as Bee and Boyd (2004) postulate, it "includes the ability to reason abstractly, the ability to profit from experience, and the ability to adapt to varying environmental contexts" (p. 180). It has not been easy to conclude this definition since it had been defined by a number of scholars in many different times.

The first modern study on intelligence was put forward by Alfred Binet and Theodore Simon in 1905. They develop a modern intelligence test which is the first version of today's widely-used IQ test (Chapman, 1993). Although the real aim of this test was to identify children who might have difficulty at school, it has soon

become a tool to measure individuals' mental abilities (Viens and Kallenbach, 2004).

Later, Lewis Terman, who define intelligence as "the ability to carry on abstract thinking" (Colman, 2006, p. 381), and his associates at Stanford University developed Binet and Simon's original tasks and Stanford-Binet version of the IQ test. This is the first pen-and-paper test for groups (Viens and Kallenbach, 2004). Even though a German psychologist, Wilhelm Stern, came up with the notion of 'Intelligence Quotient' or 'IQ' in 1912, Terman popularized the way of measurement of a student's performance with a score called "intelligence quotient" (IQ) in the USA in 1920.

The IQ score was computed by dividing the child's mental age – the chronological age of a child divided by his correct responses in the test – to his chronological age and then this result was multiplied by 100. This score has also resulted in the birth and popularity of two beliefs about intelligence that intelligence was inherited and fixed (Viens and Kallenbach, 2004; Chapman, 1993) so that it could be accurately measured by this score.

In 1916, the Wechsler Intelligence Scales for Children was developed by David Wechsler who made the definition of intelligence as "the aggregate or global capacity of the individual to act purposefully, to think rationally, and to deal effectively with his environment" (Colman, 2006, p. 381).

Although these two tests are still in frequent use, some developmentalists state that these tests "do not provide a complete picture of mental abilities" (Bee and Boyd,

2004, p.204). Therefore, Robert Sternberg develops a test called "Sternberg Triarchic Abilities Test" to measure three types of intelligence which are analytical intelligence (includes planning, organizing and remembering facts, and applying them to new situations), creative intelligence (includes seeing new connections between things, being insightful about experiences, and questioning) and practical intelligence (includes seeing how information is applied to real life and finding practical solutions to real-life problems) (Bee and Boyd, 2004).

In the past, it was believed that people were born with a fixed intelligence and one single score is the indicator of their intelligence. After the 1970s, like Howard Gardner, many other pioneers of human brain, (Reuven Feuerstein and his associates in 1980, Roger Sperry, Paul MacLean, Robert Sternberg in 1985, Stephen Ceci in 1990 and David Feldman in 1986) studied the different types of intelligences and stated that intelligence could be taught and developed and this is dependent to how people are nurtured.

After the multidimensional view of intelligence has been initiated among psychologists, in 1983, Howard Gardner proposed the Theory of Multiple Intelligences which consisted of seven types of intelligence. He put forward the groundbreaking definition of intelligence as "the ability to solve problems or fashion products that are of consequence in a particular cultural setting or community" (1999, p. 33).

Gardner and his associates observed children with brain damage, mental retardation, and other severe handicaps as well as gifted children in his famous study called Project Zero (1983), as a result, he pointed out that brain damage causes partial

disruption rather than a general decline in intelligence (Bee and Boyd, 2004). This is an opposed notion to the traditional view of intelligence.

2.2 The Theory of Multiple Intelligences

Howard Gardner, a professor at Harvard University and the co-director of Project Zero (1983), has questioned the traditional IQ test and its use because the results of his studies contradicted with the traditional but limited definition of intelligence which is measured by the IQ test. Thus, he argued that the traditional view of intelligence should be reformed (Armstrong, 2003b).

Unfortunately, schools use these test scores in order to determine about students; even they give students advice while choosing careers based on these results. However, the traditional IQ tests measure only verbal and mathematical abilities, which are not enough to have a full profile of an individual's abilities. Therefore, it can be stated that the MI Theory provides a more holistic and natural profile of individuals rather than their verbal and mathematical abilities only (Fogarty and Stoehr, 2008).

After Gardner's empirical studies on intelligence, he identified other ways of being intelligent. With Armstrong's (2000a) words, "Gardner provided a means of mapping the broad range of abilities that humans possess by grouping their capabilities into comprehensive categories or intelligences (1). Gardner (1983) put forward 7 intelligences which are: Verbal/Linguistic Intelligence, Logical/Mathematical Intelligence, Bodily/Kinesthetic Intelligence, Visual/Spatial Intelligence, Musical/Rhythmic Intelligence, Interpersonal Intelligence, and Intrapersonal Intelligence.

Gardner (1983) has developed a set of criteria in order to determine whether a talent or a skill can be considered as an intelligence. These criteria are based on both biological foundations and psychological aspects of intelligence since they are focused on problem solving and creating products (Hoerr, 2000). Even though Gardner started with seven intelligences in 1983, he, then, added two more intelligences – naturalist (1999) and existentialist (2009) – which met these criteria. He still suggests that there might be some other intelligences so he "left room for more to be added" (Teacher Created Resources, 2006; Armstrong, 1999). This must be the reason why he called his theory 'Multiple Intelligences', rather than 'Seven Intelligences.' However, he points out that each candidate intelligence should meet most – if not all – of the 8 criteria:

1. Each intelligence can be isolated by brain damage.
2. Each intelligence exists in all people including idiot savants and geniuses.
3. Each intelligence starts developing in childhood and reaches a peak in adulthood and the individual becomes an expert in that area.
4. Each intelligence should be evidenced that it existed in early times, even before evolution in other species.
5. Each intelligence should be tested with experimental psychological tasks.
6. Each intelligence can be supported psychometrically by the results in an IQ test.
7. Each intelligence has a set of identifiable operations.
8. Each intelligence can be symbolized with a specific symbol system. (Hoerr, 2000; Armstrong, 2000a; Teacher Created Resources, 1999; Kornhaber, Fierros and Veenema, 2004; Chapman, 1993; Armstrong,

2003b; Kagan and Kagan, 1998; DeAmicis, 1999; Baum, Viens and Slatin, 2005).

A number of additional intelligences including humor, creativity, cooking, spirituality, morality, sexuality, intuition, memory, wisdom, common sense, mechanical ability, crafting, technological ability, and street smarts are suggested to Gardner, Armstrong and the others working in this field such as Lazear (Armstrong, 1999; Kagan and Kagan, 1998; Campbell, Campbell and Disckinson, 2004). However, as Gardner always stated in his books, interviews and papers, a candidate's intelligence has to meet the 8 criteria he has developed in order to be considered as an intelligence.

The Theory of Multiple Intelligences makes whole-brain learning possible. Using different parts of the brain supports the use of larger portions of the brain (Wilkens, 2006; Teacher Created Resources, 2006). According to the MI Theory, it is believed that every single human being possesses many independent capacities to solve problems and create products as it is mentioned in his definition: "An intelligence entails the ability to solve problems or fashion products that are of consequence in a particular cultural setting or community" (Gardner, 1999, p. 33). The intelligences everyone possesses makes people survive, communicate, think, develop skills, solve problems and make wise decisions in real life (Kagan and Kagan, 1998).

Gardner broadened his definition of intelligence, which takes the real world as the basis, and he explained intelligence as "biopsychological potential to process information that can be activated in a cultural setting to solve problems or create products that are of value in a culture (1999, pp. 33-34). Since then, as Kagan and

Kagan (1998) stated, Gardner mentioned the question “How smart are you?” instead of the question “How are you smart?” (p. 1.2).

The undeniable and most important characteristic of Gardner’s theory is the pluralistic nature of intelligence. Gardner’s theory does not focus on one single intelligence (Armstrong, 2003b). If an intelligence meets the requirements of the established criteria, it is accepted no matter what it indicates. Therefore, although the theory started with seven different types, one more – naturalist intelligence – added thirteen years later the original theory revealed; and the ninth intelligence – existential – was accepted in 2009.

Another important char-acteristic of MI Theory is that everyone has all intelligences in varying levels according to the MI Theory (Gardner, 1999; 2004; Armstrong, 2000a; Stefanakis, 2002; Viens and Kallenbach, 2004; Teacher Created Resources, 2006; Kagan and Kagan, 1998). They are born with all types, however, the combination of all intelligences varies from one to another. Each individual possesses developed and less developed intelligences and their combination varies from person to person (Kagan and Kagan, 1998; Armstrong, 2000a); that is why the world everyone lives is perceived differently. When entering into a room, different individuals pay attention of different things because of the unique combination of their intelligences. For example, while a naturalist can focus on flowers and plants, a person with musical intelligence concentrates on the music. Chapman and Freeman best described this as “A brain is as unique as a fingerprint” (1996, p. 4).

The combination of multiple intelligences in every person is unique and this is not a fixed combination that one has to live with it throughout his life (Gardner, 1999;

2004; Armstrong, 2000a; Kagan and Kagan, 1998; Stefanakis, 2002; Viens and Kallenbach, 2004; Teacher Created Resources, 2006). The levels of intelligences can vary – lower or develop – from time to time depending on what experiences the person lives, in other words, what intelligences he uses. As Kagan and Kagan (1998) mentioned, they can be developed through experiences, opportunities, influences, and schooling.

As it has been mentioned earlier, Gardner states that everyone has all types of intelligences but the ones used or developed are more dominant than the others (1999; 2004). This is the reason why Armstrong (2003b) refuses to state intelligences as 'strong' and 'weak'. Even though some intelligences develop in one part of an individual's life as they are used or developed, they might weaken later if not continued to be used.

Another important aspect about the MI Theory is the fact that intelligences work together in complex ways (Armstrong, 2000a). In case of a brain damage, the intelligences work in association with the injured part cannot be developed or used. However, the individual still continues to use or develop other intelligences he possesses, thus, it can be stated that different intelligences work separately (Gardner, 1999; 2004; Armstrong, 2000a; Kagan and Kagan, 1998; Stefanakis, 2002; Viens and Kallenbach, 2004; Teacher Created Resources, 2006).

On the other hand, Gardner (1983) proposes that every person has more than one intelligence that involves specific parts of the brain whereas they work cooperatively in the learning process. Furthermore, he states that the use of one type of intelligence has an impact of the development of the others as well; in other

words, they are interrelated Gardner, 1999; 2004; Armstrong, 2000a; Kagan and Kagan, 1998; Stefanakis, 2002; Viens and Kallenbach, 2004; Teacher Created Resources, 2006).

Having a developed or less developed intelligence can change throughout life due to the fact that intelligences can be taught, learned, developed and enhanced (Lazear, 1999b). Areas of weakness and strengths can be improved no matter how old or how educated a person is. The age or ability level is not a concern in terms of the development of intelligences (Kagan and Kagan, 1998). Intelligences are forever changing throughout life as the abilities and desires change strengths and weaknesses (Armstrong, 2000a).

Each individual can be smart in many ways and if one person is smart in one way, this does not mean that he is not smart in another (Gardner, 1999; 2004; Armstrong, 2000a; Kagan and Kagan, 1998). People can develop each intelligence to a competent degree of mastery (Gardner, 1999; 2004; Armstrong, 2000a; Stefanakis, 2002; Viens and Kallenbach, 2004; Teacher Created Resources, 2006). The reason of this is both the biological and cultural factors in a person's life (Gardner, 1983).

The biological heredity is necessary to be able to have a developed intelligence. Imagine a person is interested in music whereas she has no ear to play a musical instrument or no ability to sing, this musically inclined person might not develop her musical intelligence. On the other hand, the environmental stimulation is as important as biological factors. If the case is the opposite, the mentioned person has both ear and ability to sing but she has never had an opportunity for a music instructor or for a musical instrument, again she might not develop her musical

intelligence. Therefore, both biological and cultural factors shape the intelligences (Gardner, 1999; 2004; Armstrong, 2000a; Stefanakis, 2002; Viens and Kallenbach, 2004; Teacher Created Resources, 2006).

When Armstrong (2000a) summarizes the factors that affect the development of intelligences, he states three major factors which are biological endowment, cultural and historical background and personal life history. He points out that the experiences people live with other people around them "either awaken their intelligences or keep them from developing" (2000a, p. 17). In addition, the factors in an individual's cultural environment can speed or slow the development of an intelligence (Chapman, 1993).

2.2.1 Verbal/Linguistic Intelligence

This is one of the commonly accepted and educated intelligence types which is language related in the world. This type of intelligence is also called "word-think" (DeAmicis, 1999) or "word-smart" (Armstrong, 1999; 2000; 2003; Kagan and Kagan, 1998). The abilities to read, write, listen, speak and link and transfer information are all involved in verbal/linguistic intelligence (Gardner, 2004; Gardner, 2006; Teacher Created Resources, 2006; Jasmine, 2005; Wilkens, 2006; Griswold, 2006; Chapman and Freeman, 1996; Baum, Viens and Slatin, 2005; Chapman, 1993; Campbell, Campbell and Dickinson, 2004; McKenzie, 2005; Armstrong; 2003; Armstrong, 1999; Armstrong, 2000; Kagan and Kagan, 1998).

Besides the commonly defined abilities of the people with well-developed verbal/linguistic intelligence, there are some other exhibited characteristics that are mentioned by Campbell, Campbell and Dickinson (2004) and these can be stated as:

> imitating sounds, language, reading, and the writing of others; comprehending, paraphrasing, interpreting, remembering and analyzing what has been said; summarizing, enjoying one or more literary genres; speaking effectively to a variety of audiences for a variety of purposes, knowing how to speak simply, eloquently, persuasively, or passionately at appropriate times; expressing the ability to learn other languages; demonstrating interest in journalism as well as editing; and creating new linguistic forms of original works of writing or oral communication (p. 4).

The people with a highly developed verbal/linguistic intelligence are able to play with words written or spoken and they have "the capacity to follow rules of grammar, and on carefully selected occasions, to violate them" as in Gardner's expression (1983, p. 77). In other words, they are aware of various functions of the language and the meaning, formation, selection and manipulation of words (Chapman and Freeman, 1996). The areas these kinds of people enjoy are spelling, poetry, word games, writing, reading, speaking, jokes, tongue twisters, puns, riddles, grammar, humour, storytelling, journal/diary keeping, metaphors, similes, abstract reasoning, symbolic thinking, and conceptual patterning (Griswold, 2006; DeAmicis, 1999; Lazear, 2003).

Expressing themselves and participating in discussions and debates generally are not a problem for word-smart people as they are good at using and selecting the words and the appropriate function of language. Baum, Viens and Slatin (2005) have briefly identified the key concepts of this intelligence type as it "involves perceiving or generating spoken or written language, allows communication and

sense making through language, and includes sensitivity to subtle meanings in language" (p. 14).

The verbal/linguistic intelligence has been highly valued in the field of education since it is related to speaking, listening and writing and another reason of this might be the strong ability of teachers in using the verbal/linguistic intelligence incline them to focus on this intelligence type in classes more (DeAmicis, 1999). In addition, this intelligence type matches with the traditional teaching methods which are lecturing, reciting, reading textbooks and using the board. This tradition can be another cause of this high emphasis on it (McKenzie, 2005).

2.2.2 Logical/Mathematical Intelligence

Another popular and highly focused intelligence in education is logical/mathematical intelligence which is related with mathematical and scientific abilities (Jasmine, 2005; Teacher Created Resources, 2006; Chapman and Freeman, 1996; Lazear 2003; Chapman, 1993; Armstrong, 1999; and 2000). The real use of this intelligence type is when recognizing logical and abstract patterns as well as relationships (Wilkens, 2006; Armstrong 2003). This deals with inductive and deductive thinking and reasoning (Lazear, 2003; Armstrong 1999).

The people with a highly developed mathematical/logical intelligence are able to be critical thinkers (Jasmine, 2005; Teacher Created Resources, 2006; Armstrong 2003). As this intelligence is all about logic and reasoning besides mathematics (McKenzie, 2005, Campbell, Campbell and Dickinson, 2004; Armstrong, 1999; Armstrong 2000; Armstrong 2003; Kagan and Kagan, 1998); that is why they are sometimes called 'number-think' (DeAmicis, 1999) or 'logic-smart' (Armstrong, 1999; Armstrong, 2000; Armstrong 2003).

Baum, Viens and Slatin (2005) have briefly identified the key concepts of this intelligence type as it "enables individuals to use and appreciate abstract relations and includes facility in the use of numbers and logical thinking" (p. 15). The activities that these kinds of people are likely to enjoy are patterns, abstract symbols, solving mathematical problems, mysteries, playing strategy games, puzzles, making lists, setting priorities, making long-term plans, analyzing objects and situations, discovering, quantifying outcomes, ordering things and reasoning. (Jasmine, 2005; Teacher Created Resources, 2006; Wilkens, 2006; Griswold, 2006; Chapman and Freeman, 1996; DeAmicis, 1999; Baum, Viens and Slatin, 2005; Lazear, 2003, Chapman, 1993; McKenzie, 2005; Campbell, Campbell and Dickinson, 2004; Armstrong, 1999; 2000; and 2003; Kagan and Kagan, 1998).

Besides the commonly defined abilities of the people with well-developed verbal/linguistic intelligence, the other exhibited characteristics of this intelligence type that Campbell, Campbell and Dickinson (2004) list can be stated as:

> perceiving objects and their functions in the environment; being familiar with the concepts of quantity, time, and cause and effect; posing and testing hypotheses; using diverse mathematical skills – estimating, calculating, algorithms, interpreting statistics, and visually representing information in graphic form; enjoying complex operations like calculus, physics, computer programming, research methods; thinking mathematically; using technology; expressing interest in careers like accounting, computer technology, law, engineering, chemistry; and creating new models or perceiving new insights in science or mathematics (p. 4).

2.2.3 Visual/Spatial Intelligence

Another type of intelligence proposed by Gardner (1983) is visual/spatial intelligence which is related to thinking in pictures and learning from visual images and demonstrations (Jasmine, 2005; Griswold, 2006; Teacher Created Resources, 2006; Chapman, 1993; McKenzie, 2005; Campbell, Campbell and Dickinson, 2004; Armstrong, 1999; Armstrong, 2000; Armstrong, 2003; Kagan and Kagan, 1998). In other words, they "accurately comprehend the visual world" (Chapman and Freeman, 1996, p.8; Chapman, 1993). This intelligence is generally "experienced and expressed through daydreaming, imagining and pretending" (Teacher Created Resources, 2006, p. 5), thus, they are likely to be moody (Jasmine, 2005).

The people with a highly developed visual/spatial intelligence are sometimes called 'picture-think' or 'space-think' (DeAmicis, 1999) or 'picture-smart' (Armstrong, 1999; 2000; and 2003). They are good at finding their way around new places and they have the ability to create internal mental images and pictures as their intelligence deals with the sense of sight (Lazear, 2003; Chapman, 1993; Campbell, Campbell and Dickinson, 2004; Armstrong, 1999; Kagan and Kagan, 1998). The key abilities mentioned by Baum, Viens and Slatin (2005) are that it "involves perceiving and transforming visual or three-dimensional information in one's mind; and allows for re-creation of images from memory" (p. 16).

These people tend to enjoy art activities, drawing, painting, sculpting, solving mazes, model making, recreating, exploring new places, putting jigsaw puzzles together, reading maps and diagrams, decorating places, designing, visualizing, doodling, representing their feelings through art, combining colours, arranging objects, rotating objects in mind, building, and inventing (Jasmine, 2005; Teacher

Created Resources, 2006; Griswold, 2006; Chapman and Freeman, 1996; DeAmicis, 1999; Lazear, 2003; Chapman, 1993; McKenzie, 2005; Campbell, Campbell and Dickinson, 2004; Armstrong, 1999; Armstrong, 2000; Armstrong, 2003; Kagan and Kagan, 1998).

In addition to the characteristics mentioned above, Campbell, Campbell and Dickinson (2004) state that the people with a highly developed visual/spatial intelligence are likely to:

> learn by seeing and observing; be capable of mentally changing the form of an object; see things in different ways or from new perspectives; perceive both obvious and subtle patterns; express interest or skill in being an artist, photographer, engineer, videographer, architect, designer, art critic, pilot, or in other visually oriented careers (p. 95).

2.2.4 Bodily/Kinesthetic Intelligence

The intelligence related to processing knowledge and communication through body movements, is the bodily/kinesthetic intelligence (Wilkens, 2006; Jasmine, 2005; Teacher Created Resources, 2006; Griswold, 2006; Chapman and Freeman, 1996; DeAmicis, 1999; Lazear, 2003; Baum, Viens and Slatin, 1999; Chapman, 1993; McKenzie, 2005; Campbell, Campbell and Dickinson, 2004; Armstrong, 1999; 2000; and 2003; Kagan and Kagan, 1998). This type of people interacts by demonstration and modeling, thus, they can express their emotions and mood best through dancing (Jasmine, 2005; Teacher Created Resources, 2006; DeAmicis, 1999; Lazear, 2003; Campbell, Campbell and Dickinson, 2004; Armstrong, 1999).

They like to learn by doing (Griswold, 2006; Lazear, 2003; McKenzie, 2005; Chapman, 1993; Armstrong, 1999; 2000; and 2003; Kagan and Kagan, 1998) and

they are sometimes called ‘body-think’ (DeAmicis, 1999) or ‘body-smart’ (Armstrong, 1999; 2000; and 2003). Reflex actions and other unconscious behaviours are considered as the products of this intelligence type.

The important aspects of this can be stated as coordination, dexterity, flexibility, and strength (Armstrong, 1999; and 2003; DeAmicis, 1999; Wilkens, 2006; Campbell, Campbell and Dickinson, 2004; Kagan and Kagan, 1998) and the key abilities are that it “allows use of one’s body to create products or solve problems; and refers to the ability to control all or isolated parts of one’s body” (Baum, Viens and Slatin, 1999, p. 17).

The people with a highly developed bodily/kinesthetic intelligence like to act things out, touch others or objects while talking, running, moving, building, gesturing, mimicking, miming, roleplaying, tactile experiences, hands-on learning, crafting, playing in a drama or acting, typing, manipulating things, drawing, fixing things, sewing, knitting, curving (Jasmine, 2005; Teacher Created Resources, 2006; Wilkens, 2006; Chapman and Freeman, 1996; DeAmicis, 1999; Baum, Viens and Slatin, 1999; Lazear, 2003; McKenzie, 2005; Chapman, 1993; Campbell, Campbell and Dickinson, 2004; Armstrong, 1999; and 2000; Kagan and Kagan, 1998).

As well as the above mentioned characteristics, Campbell, Campbell and Dickinson (2004) point out that the people with a highly developed bodily/kinesthetic intelligence:

> develop coordination and a sense of timing; are sensitive and responsive to physical environments and physical systems; demonstrates balance, grace, dexterity, and precision in physical tasks; have the ability to fine-tune and

perfect physical performances through mind and body integration; understand and live by healthy physical standards; and invent new approaches to physical skills or create new forms in dance, sports, or other physical endeavors (p. 66).

2.2.5 Musical/Rhythmic Intelligence

Musical/rhythmic intelligence is related with the sensitivity to both musical and environmental sounds in terms of pitch, intonation, melody, rhythm, and tone (Wilkens, 2006; Teacher Created Resources, 2006; Jasmine, 2005; Griswold, 2006; Chapman and Freeman, 1996; DeAmicis, 1999; Baum, Viens and Slatin, 2005; Lazear, 2003; McKenzie, 2005; Chapman, 1993; Campbell, Campbell and Dickinson, 2004; Armstrong, 1999; 2000; and 2003; Kagan and Kagan, 1998).

The most obvious characteristics of these kinds of people are humming, singing, or whistling while engaging in an activity so they also best learn by making up rhythms or music (Wilkens, 2006; Griswold, 2006; Chapman and Freeman, 1996; DeAmicis, 1999; Baum, Viens and Slatin, 2005; Chapman, 1993; Campbell, Campbell and Dickinson, 2004; Armstrong, 1999; 2000; and 2003; Kagan and Kagan, 1998), which leads this intelligence to be accepted as a behaviour problem instead of a talent (Teacher Created Resources, 2006; Jasmine, 2005; Armstrong, 2000; Kagan and Kagan, 1998).

These people often called ‘sound-think’ (DeAmicis, 1999) ‘music-smart’ (Armstrong, 1999; 2000; and 2003) who enjoy, understand and appreciate music (Chapman and Freeman, 1996; DeAmicis, 1999; Campbell, Campbell and Dickinson, 2004; Kagan and Kagan, 1998). In addition, the key abilities of this intelligence are stated as it “involves perceiving and understanding patterns of

sound; and includes creating and communicating meaning from sound" (Baum, Viens and Slatin, 2005, p. 15).

The people with a highly developed musical/rhythmic intelligence are likely to enjoy speech patterns, accents, listening to music, singing, whistling, humming, having a collection of CDs or tapes, singing in tune, keeping time to music, playing or listening to a musical instrument, tapping feet or hands, reading music, responding to different kinds of music and sometimes writing music and lyrics (Wilkens, 2006; Teacher Created Resources, 2006; Jasmine, 2005; Griswold, 2006; Chapman and Freeman, 1996; DeAmicis, 1999; Baum, Viens and Slatin, 2005; Lazear, 2003; McKenzie, 2005; Chapman, 1993; Campbell, Campbell and Dickinson, 2004; Armstrong, 1999; 2000; and 2003; Kagan and Kagan, 1998).

Campbell, Campbell and Dickinson (2004) identify some other characteristics of the people with a highly developed musical/rhythmic intelligence and these can be listed as:

> being eager to be around and learn from music and musicians; enjoying improvising and playing with sounds, and when given a phrase of music, being able to complete a musical statement in a way that makes sense; offering interpretations of what a composer is communicating through music, analyzing and critiquing musical selections; and expressing interest in careers involving music such as being a singer, instrumentalist, sound engineer, producer, critic, instrument maker, teacher or conductor (pp. 130-131).

2.2.6 Interpersonal Intelligence

The interpersonal intelligence – being outward towards other people and the environment – is basically related with understanding others (Chapman and Freeman, 1996; Wilkens, 2006; McKenzie, 2005; Griswold, 2006; Teacher Created Resources, 2006; Jasmine, 2005; DeAmicis, 1999; Baum, Viens and Slatin, 2005; Chapman, 1993; Lazear, 2003; Campbell, Campbell and Dickinson, 2004; Kagan and Kagan, 1998; Armstrong, 1999; 2000; and 2003).

They tend to notice and make distinctions among other people, effectively communicate with others both verbally and nonverbally and be sensitive to the moods of the people around (Wilkens, 2006; Chapman and Freeman, 1996; DeAmicis, 1999; Baum, Viens and Slatin, 2005; Campbell, Campbell and Dickinson, 2004; Lazear, 2003; McKenzie, 2005; Chapman, 1993; Kagan and Kagan, 1998; Armstrong, 1999; 2000; and 2003); in other words, they are able to have an empathy for other people's feelings, worries, beliefs, thoughts, intentions, fears and so on. They are also called 'group-think' (DeAmicis, 1999) or 'people-smart' (Armstrong, 1999; 2000; and 2003).

The people with a highly developed interpersonal intelligence are considered as 'too talkative' or 'troublemaker' in traditional classes whereas this is how some students learn best (McKenzie, 2005; Chapman, 1993; Campbell, Campbell and Dickinson, 2004; Armstrong, 1999). The key abilities of these kinds of people were listed by Baum, Viens and Slatin (2005) as being sensitive to the feelings, beliefs, moods, and intentions of other people, involving the use of that understanding to work effectively with others, and including capitalizing on interpersonal skills in pursuit of one's own ends (p. 17).

These people also enjoy being with friends, involved in social activities (socializing), working in groups, leading, organizing, resolving conflicts, volunteering to help others, learning while interacting and cooperating, and they avoid being alone (Wilkens, 2006; Chapman and Freeman, 1996; Griswold, 2006; Jasmine, 2005; Teacher Created Resources, 2006; DeAmicis, 1999; Baum, Viens and Slatin, 2005; Lazear, 2003; McKenzie, 2005; Chapman, 1993; Campbell, Campbell and Dickinson, 2004; Armstrong, 1999; 2000; and 2003; Kagan and Kagan, 1998).

Besides the major characteristics of these kinds of people, Campbell, Campbell and Dickinson (2004) state that they tend to:

> recognize and use a variety of ways to relate to others; influence the opinions or actions of others; consider diverse perspectives in any kinds of issues; express interest in careers like teaching, social work, counseling, management, or politics; and develop new social processes or models (p. 155).

2.2.7 Intrapersonal Intelligence

Intrapersonal intelligence is the ability to understand oneself, one's feelings, thoughts, ambitions, worries, abilities and options (Chapman and Freeman, 1996; Griswold, 2006; Jasmine, 2005; Teacher Created Resources, 2006; DeAmicis, 1999; Chapman, 1993; Baum, Viens and Slatin, 2005; Lazear, 2003; McKenzie, 2005; Campbell, Campbell and Dickinson, 2004; Armstrong, 1999; 2000; and 2003; Kagan and Kagan, 1998); in other words, it is related with "a deep awareness of inner feelings" (Chapman and Freeman, 1996; Jasmine, 2005; Teacher Created Resources, 2006; Wilkens, 2006).

These people are also called ‘self-think’ (DeAmicis, 1999) or ‘self-smart’ (Armstrong, 1999; 2000; and 2003). They have high self-confidence, strong opinions on subjects, a clear way of expressing their ideas and thoughts, and they are unwilling to participate in group work (Griswold, 2006; Chapman, 1993; Wilkens, 2006; Chapman and Freeman, 1996; Baum, Viens and Slatin, 2005; DeAmicis, 1999; Lazear, 2003; Campbell, Campbell and Dickinson, 2004; Armstrong, 1999; 2000; and 2003; Kagan and Kagan, 1998).

The key abilities of this intelligence type are that it “enables individuals to form a mental model of themselves, involves drawing on the model to make decisions, and includes the ability to distinguish one’s feelings, moods, and intentions and to anticipate one’s reactions to future courses of action” (Baum, Viens and Slatin, 2005, p. 18).

The people with a highly developed intrapersonal intelligence tend to enjoy being alone, being independent, setting goals, planning the future, dreaming, being quiet, thinking about themselves, having a high level of consciousness, taking responsibility for their actions, self-reflection, making lists, keeping journals, watching themselves from outside, knowing themselves and other inner aspects of the self (Wilkens, 2006; Griswold, 2006; Jasmine, 2005; Teacher Created Resources, 2006; Chapman and Freeman, 1996; Baum, Viens and Slatin, 2005; McKenzie, 2005; Chapman, 1993; DeAmicis, 1999; Lazear, 2003; Campbell, Campbell and Dickinson, 2004; Armstrong, 1999; 2000; and 2003; Kagan and Kagan, 1998).

Besides the main characteristics of this type of intelligence, Campbell, Campbell and Dickinson (2004) point out that the people with this intelligence:

> establish and live by an ethical value system; are curious about the 'big questions' in life: meaning, relevance, and purpose; manage ongoing learning and personal growth; attempt to seek out and understand inner experiences; gain insights into the complexities of self and the human condition; strive for self-actualization; and empower others (p. 188).

2.2.8 Naturalist Intelligence

Naturalist intelligence is the one that was added to the original list of intelligences in the Theory of Multiple Intelligences in 1993. This intelligence is related to the recognition and discrimination among flora, fauna and other things in the world, in short, it is about the understanding the nature and the environment (McKenzie, 2005; Griswold, 2006; Baum, Viens and Slatin, 2005; Teacher Created Resources, 2006; Chapman and Freeman, 1996; Chapman, 1993; DeAmicis, 1999; Kagan and Kagan, 1998; Armstrong, 1999; 2000; and 2003; Lazear, 2003; Campbell, Campbell and Dickinson, 2004).

The people with this intelligence are sometimes called 'outdoors-think' (DeAmicis, 1999) or 'nature-smart' (Armstrong, 1999; 2000; and 2003). This type of people are sensitive to the changes in the nature like weather changes and patterns (Armstrong, 1999; Kagan and Kagan, 1998; Lazear, 2003; McKenzie, 2005; Griswold, 2006; Campbell, Campbell and Dickinson, 2004) and they are able to adapt themselves and survive in any environment (Chapman and Freeman, 1996; Chapman, 1993; Armstrong, 2000; and 2003; Baum, Viens and Slatin, 2005; Lazear, 2003).

The key abilities of this intelligence are that it "includes the ability to understand the natural world well and to work in it effectively, allows people to distinguish among and use features of the environment, and is also applied to patterning abilities" (Baum, Viens and Slatin, 2005, p. 19).

The people with a highly developed naturalist intelligence tend to like identifying, taking care of, enjoying, and being curious about the land, the sea and the sky. They also like collecting, analyzing, labeling, identifying and categorizing and memorizing various species of animals, plants and natural phenomena, having 'a green thumb' (being good at growing plants), interacting with natural habitat, hierarchies and physical history (Chapman and Freeman, 1996; Chapman, 1993; DeAmicis, 1999; Armstrong, 1999; 2000; and 2003; Baum, Viens and Slatin, 2005; Lazear, 2003; Campbell, Campbell and Dickinson, 2004; McKenzie, 2005; Kagan and Kagan, 1998).

In addition, the main characteristics of these people are that they:

> recognize patterns among members of a species or classes of objects; want to understand 'how things work'; are interested in how systems change and evolve; show interest in the relationship among species and/or the interdependence of natural and human-made systems; use tools such as microscopes, binoculars, telescopes, observation notebooks, and computers to study organisms or systems; and may express interest in careers in biology, ecology, chemistry, zoology, forestry, or botany (Campbell, Campbell and Dickinson, 2004, p. 222).

2.2.9 Existential Intelligence

When the Theory of Multiple Intelligences was first proposed in 1983, the Harvard psychologist Howard Gardner stated that seven intelligences have met his 8 criteria whereas there are many more intelligences considered as potential intelligence types. The first potential intelligence which was naturalist intelligence was accepted in 1993 (Gardner, 1999) and he then mentioned that existential intelligence needed more work before its acceptance. Even though he rejected to accept the existential intelligence in 1999, he named it as 8 ½ intelligence (Armstrong; 2000a; Silver, Strong and Perini, 2000; Campbell and Campbell, 1999).

Before he accepted existential as the ninth, he claimed that the 8 intelligences were not enough to explain the full potential of individuals (Armstrong, 2000a). Later, in 2009, during his visit to Burdur, Turkey for a conference – 1st International Conference of Living Theorists: Howard Gardner, he officially announced that existential intelligence would have been able to be considered as one of the multiple intelligences as it met the 8 criteria.

Existential intelligence was defined as "the concern with ultimate issues" by Howard Gardner (1999:60). He (1999) also points out the characteristics of a person with highly developed existential intelligences as "the capacity to locate oneself with respect to the furthest reaches of the cosmos – the infinite and the infinitesimal – and the related capacity to locate oneself with respect to such existential features of the human condition as the significance of life, the meaning of death, the ultimate fate of the physical and the psychological worlds, and such profound experiences as love of another person or total immersion in a work of art" (p. 60).

In other words, this type of intelligence involves the ability to contemplate the meaning of life and death, however, it took a long time since he was unable to locate its origin in the brain (Campbell, Campbell and Dickinson, 2004; Armstrong, 1999; Armstrong, 2000). In addition, searching for meaning, questioning or defining values, and viewing everyday experiences from an unlimited perspective can be considered as the forms of this intelligence (Kagan and Kagan, 1998; McKenzie, 2005).

2.3 Implications of the MI Theory for Education

Gardner's theory of multiple intelligences have immediately taken its place in education which is surprising for Howard Gardner as he thought his theory would be interested in by psychologists and intelligence scholars (Campbell & Campbell, 1999; Viens and Kallenbach, 2004). The reason of this is that it "offered a theoretical foundation of the mind and bolstered beliefs about student competence" (Campbell & Campbell, 1999: 2). As the Principal of Russell Elementary School, Edwina Smith, stated "As educators we say 'All students can learn.' MI gives us something to back up that belief" (Campbell & Campbell, 1999:4).

Since the publication of Howard Gardner's book, *Frames of Mind: The Theory of Multiple Intelligences*, in 1983, many people including educators, syllabus designers, teachers, students and even parents have become aware that everyone has more than one type of intelligence so they have gained a new perspective. It opens a door to new and exciting challenges where learning occurs so that each intelligence gets equal value (Stefanakis, 2002; Campbell and Campbell, 1999; Viens and Kallenbach, 2004; Bowen, Hawkins and King, 1997); therefore, it can be considered as a 'gift to education' as Kagan and Kagan (1998) state.

The main problem in education is and has been that the real aim of education cannot be achieved and all of the needed information cannot be taught in classes and the MI Theory attempts to correct the negative implicit beliefs and inappropriate external factors that hinder student achievement in schools (Campbell and Campbell, 1999). In the Theory of Multiple Intelligences, the intelligences enhance individuals ability to understand, cope with, master, and appreciate the real world and this should be the main aim of education as well (Kagan and Kagan, 1998). Like intelligences, schools are needed to help individuals survive in their daily lives; thus, they should focus on real-life learning and aim to avoid a curriculum that lead students to memorize the artificial and irrelevant information (Teacher Created Resources, 2006).

Moreover, the diversity of students, their differences, in other words, uniqueness is not considered all the time, which results in unmet needs of students (Griswold, 2002; Stefanakis, 2002; Campbell and Campbell, 1999; Kagan and Kagan, 1998; Bowen, Hawkins and King, 1997). The mind of each student is very different, what they are attracted to, what they are comfortable with, and what stimulates them varies from one to another as their pattern of intelligences is different (Baum, Viens and Slatin, 2005; Kagan and Kagan, 1998). This might be the most important reason why the theory of multiple intelligences has had reactions since the day it revealed; and also why its implications in education have increased rapidly.

Although education and assessment in education have always focused on two intelligence types (Zwiers, 2006), the emphasis of many schools have changed all over the world and they have attempted to provide students an opportunity to explore and develop different types of intelligences they all have (Kagan and

Kagan, 1998; Bowen, Hawkins and King, 1997; Stefanakis, 2002; Baum, Viens and Slatin, 2005). This important notion is best described by Chapman and Freeman (1996) as "MI Theory permits students to develop and strengthen all of their intelligences" (p. 3).

Although verbal and logical intelligences are highly valued all over the world, teachers and educators need to be aware of the importance of other intelligences in the teaching-learning process. Since the traditional way of teaching has some drawbacks in reaching its aim, the application of MI Theory might be considered as exciting, challenging and enriching for students while learning so that it might become the best teaching strategy for each student (Arnold, 2007; Baum, Viens and Slatin, 2005).

With the application of MI Theory in education, students will be able to "have a more comprehensive picture of what they know and what they are able to do, a more understanding picture of what they will be able to do, and better tools to take the responsibility of their learning" (Bellanca, Chapman and Swartz, 1997, p. vii). The integration of MI Theory "transforms learning from lower-level recall event to a higher-level challenge for all students" (Bellanca, Chapman and Swartz, 1997, p. x).

As a first step, it is necessary to be aware of the strengths and weaknesses of students in a class so that an educational planning can be developed in parallel with the students' needs. Gardner (2006) mentions this clearly in his book, *Multiple Intelligences: New Horizons* as: "To begin with, it is important to identify strengths and weaknesses at an early point so that they can be incorporated into educational

planning" (p. 175). In addition, teaching students about their intelligences helps them to become aware of themselves and take responsibilities of their own (Teacher Created Resources, 2006). After the intelligences in a class are determined, the dominant intelligences can be enriched and cultivated, and the less developed ones can be remediated and strengthened (Jasmine, 2006).

On the other hand, the failure of unsuccessful students at school is assumed that it is the result of low intelligence or lack of intelligence (Bowen, Hawkins & King, 1997; Baum, Viens and Slatin, 2005). However, understanding and accepting the diversity in students and giving credit to their unique combination of intelligences makes their differences valuable so that they can feel more secure at school and this results in more self-esteem, more motivated students and more open students to learning (Bowen, Hawkins and King, 1997; Stefanakis, 2002; Armstrong, 2000a). Looking at the concept of intelligence in this way, "students not only feel valued, but are valued by their peers" (Bowen, Hawkins & King, 1997:viii).

In addition to numerous advantages of MI Theory, another benefit is that students learn to use the strategies that match with their strengths so that they become motivated and success comes easily and quickly (Armstrong, 2000a). It is also important to determine the strengths of students so that they might be provided with ideas and their thinking might be stimulated by many alternatives in order to achieve mastery (Kagan and Kagan, 1998). Additionally, teachers who aim to reach every child in class can expand their view on what to teach and how to teach with the help of the MI Theory (Stefanikis, 2002; Baum, Viens and Slatin, 2005) because "all kids are smart, but they are smart in different ways" (Hoerr, 2000, p. x).

When a teacher goes into a class, she needs to consider the fact that the students in the class are not empty bottles made of the same material and typical to each other. Each and every student is unique in their way and teachers need to pay attention to the differences of their learners in order to help them build on their cognitive abilities in their own way. If teachers do not understand how to reach their students effectively, it is not possible to talk about meaningful learning. Therefore, they are required to use a range of activities to unhide the abilities of the students who are struggling with traditional way of learning (Armstrong, 2000a; Baum, Viens and Slatin, 2005).

"Most unsuccessful students are stuck trying to use methods that work for other people but that do not work for them" (Arnold, 2007, p. ix). As a result, when they try but fail, they lose their confidence, motivation and belief in their abilities. This can be overcome by integrating as much intelligences as possible into instruction as DeAmicis (1999) mentions "Integration of more intelligences into the curriculum can greatly enhance student understanding and learning" (p. 2).

One of the most tempting characteristics of the MI Theory is that it emphasizes the process as much as the product of learning. As Gardner's definition of intelligence supports this notion, the 'problem solving' and 'contribution to others' concepts put the process forward as well (Baum, Viens and Slatin, 2005). The concept of multiple intelligences continuously nurtures students' self-esteem and within the borders of the process, students' learning increases as well as becomes meaningful (Hoerr, 2000). The traditional education only focuses on the product of learning which is the exam results. However, the period that learning occurs is as vital as the product for students.

Gardner's theory emphasizes both curriculum development and human development and it is stated that this is a continuing process (Campbell and Campbell, 1999). The goal is accepted as important and no one denies that, however, the source, how people reach the goal is also important and MI Theory provides awareness of this and gives an opportunity to improve better ways to reach the goal.

Furthermore, the metacognitive and affective processes that students belong to are also important and this is supported by the theory of multiple intelligences theory by creating a suitable environment with the best conditions for all of the students in class (Hoerr, 2000). "Education is not only accountable for improving academic achievement but also for developing the multifaceted potential within each of us" (Campbell & Campbell, 1999).

Regarding the implementation of the MI Theory, it cannot be claimed that there is only correct way that everyone has to follow (Baum, Viens and Slatin, 2005; Hoerr, 2000). There are different applications of the theory all over the world and as long as they are cautious about the fundamental principles of being successful, they can include a different expression of the MI Theory and these fundamental principles of successful MI programs.

2.4 Related Research

Within the literature on MI Theory, there are various studies on the MI Theory and many different researchers all over the world have studied Gardner's theory in a number of different ways. However, there are a very limited number of studies on developing an MI inventory. The majority of the research is its applications in any

phase of education or its effect on academic achievement. This is the common interest of many researchers from different parts of the world.

2.4.1 Related Research in Countries Other Than TRNC

Some studies have focused on the implementation of the MI Theory and its impact on academic achievement. Cooper (2008) aims to apply the theory of multiple intelligences and metacognitive strategies and examine their effect on student learning in mathematics. In his quasi-experimental study with 64 students in Minnesota, USA, he found out that there was no difference between the comparison group and the treatment group in terms of metacognitive strategies whereas the treatment group's performance was slightly higher on 5 out of 8 dimensions. Another study that examined the impact of the MI Theory on student learning is a case study where quasi-experimental method was used by Bellflower (2008) from the UK. Her questionnaire results given after the treatment indicated that students had positive attitudes toward the MI based lessons, they became motivated and this stimulated their learning.

The MI Theory was also connected with self-efficacy by some researchers. For instance, Reginald (2007) conducted a research on the effects of career decision self-efficacy among adolescents in Minnesota, USA. Her study with 71 adolescents in quasi-experimental method concluded that there was no difference between the experimental and control groups so she suggested more research on the applicability of MI Theory to enhance adolescents' career development.

2.4.2 Related Research in the TRNC Context

An interesting study in TRNC on multiple intelligences was recently conducted by Sözüdoğru and Yaratan (2011). They investigated the application of the theory in

career choice so they approached 400 English Preparatory School students at the Eastern Mediterranean University to examine the MI profiles of students, their areas of study and the relationship between these variables. In conclusion, they found out that the highly developed intelligence of their participants was intrapersonal intelligence and the most popular area of study was Law. However, they stated that their study did not reveal any significant relationship between the variables.

The English Preparatory School at the Eastern Mediterranean University, in TRNC, was the context of another research conducted by Ibragimova (2011). She aimed to investigate the application of the MI Theory, thus she interviewed teachers, surveyed students and evaluated textbooks and classroom activities. At the end of the study, the textbooks were based on verbal/linguistic intelligence whereas students' highly developed intelligence was intrapersonal intelligence. She also found out that teachers agreed on the importance of MI application but the classroom observations she made showed that all intelligences were not supplied in balance in classes.

In the basic education, Meneviş, Doğruer and Eyyam (2009) conducted a study and presented it in a national education symposium – 18. Ulusal Eğitim Bilimleri Kurultayı. Their study focused on the relationship between students' verbal/linguistic intelligence and their academic achievement in the language courses (Turkish as the native language, English as a second language and French or German as a foreign language. This study was administered at Eastern Mediterranean College with 163 students at grades 6 and 8 in 2008-2009 Academic Year. In the end of their study, they could not find a significant relationship between the variables.

Another study conducted by the same researchers (Eyyam, Meneviş and Doğruer) in 2010 was done in the Faculty of Education with university students from Turkish Language Teaching Department. They aimed to find a correlation between participants' MI profile and their academic achievement. Although they stated that these students were expected to have highly developed verbal/linguistic intelligence, their conclusion did not reveal such a relationship. A similar study was conducted by the same researchers (Eyyam, Doğruer and Meneviş, 2010) in order to find similar relationship between preparatory school students' MI profile and their academic achievement. However, no significant correlation was again found.

2.5 Conclusion

When the literature was reviewed, it can be realized that developing an MI inventory is not as popular as its application in education. The reason is that Gardner never approved labeling students with some pen-and-paper tests (Kagan and Kagan, 1998; Armstrong, 1999). However, many inventories have been developed and these inventories are commonly available in almost all means of resources, i.e. books, newspapers, magazines, websites, articles, journals and so on. On the other hand, there have been many studies on the application of MI Theory on different subjects in various stages of education.

Despite the fact that the MI Theory is a very popular term in the field of education, no comprehensive attempts have been traced in relation to develop an inventory in the TRNC context. As a result, this study seeks to develop an MI inventory to meet this need.

Chapter 3

RESEARCH METHODOLOGY

The present chapter seeks to lay down the research methodology employed for the study. The information included in this chapter covers the research methodology and design, context of the research, population and sample in the study, data collection and analysis procedures.

3.1 Research Methodology and Design

Regarding the research methodology, this study is considered as quantitative research as it "relies on the collection of quantitative data" (Johnson and Christensen, 2004, p. 30). Additionally, the research design of the study is survey research which can be defined as "the use of questionnaires or interviews to collect data about the characteristics, experiences, knowledge, or opinions of a sample or a population" (Gall, Gall and Borg, 2007, p. 655).

3.2 Research Context

The present research was conducted in the Academic Year 2010-2011 and the inventory was applied in the Spring Semester of the mentioned year. After the necessary permission was received from the Ministry of National Education, Youth and Sports in Northern Cyprus (see Appendix A), all of the secondary education schools in Famagusta and Iskele Districts – Eastern Mediterranean College (EMC), Gazimağusa Türk Maarif College (GMTMK), Namık Kemal High School (NKL), Polatpaşa High School and Bekirpaşa High School – were approached. However,

one school administration, EMC Administration, stated that they would not be available for the study to be conducted as their education for the mentioned year was completed and students were not obliged to come to school at that time of the year. All of the other schools participated in the study.

The general structure of the Cyprus Turkish Education System was reconstructed in 2005 and the details which are provided by the TRNC Ministry of National Education and Culture (MONEC) Brochure (2005) are as follows: The compulsory basic education starts at the age of 5 with play-class and lasts at the age of 15 with graduating from secondary school. Then, secondary education where this study has been conducted starts with one year of preparation as of grade 9.

Secondary education offers an education of 3 to 4 years depending on the field and these schools work in association with the Office of Secondary Education under the TRNC Ministry of National Education and Culture. The education in high schools starts at 8 a.m. and finishes at 1 p.m. on working days and the medium of instruction is Turkish except GMTMK. GMTMK is a college and the medium of instruction in colleges is English. Additionally, there is an entrance exam for colleges. However, for a certain period of time (2004-2009), entrance exams for the colleges were removed. These exams were based on only mathematics and Turkish language until 2010. This year, in 2011, it has been reconstructed to include all school subjects including science, social science, arts, sports, English language, religion, music and PE in addition to Turkish language and Mathematics. The reason is that the traditional teaching methods have started to change and holistic approach has been applied to the TRNC Education System.

The high schools in Famagusta and Iskele Districts, which are 4 in total, were chosen as the context of this study in order to represent the population. One of them which is a state college, Gazimağusa Türk Maarif College, is located in the city and was founded in 1982. Another school in the study is Namık Kemal High School which is in the city centre and the oldest school in Famagusta as it was founded in 1944.

The third school included in this study is Bekirpaşa High School which represents the rural part of the region as it is located in Iskele District and this school is also considered as old since it was founded in 1950. The last but not least is the other school outside Famagusta, Polatpaşa High School, which was founded in 1975 in Akdoğan Village. The number of students in this type of schools is not very high, so in order to get a valid data, both of these schools representing the suburbs of Famagusta were included in the study.

3.3 Population and Sample

The present research has been conducted in the high schools in Famagusta and Iskele. As the population of this study is the secondary education students in the TRNC, the sample was selected from two of the six major regions within the context, which are Famagusta District and Iskele District to represent the population. The reason for this is that the students in these regions were more accessible to the researcher as she lives and works in Famagusta. It is also assumed that the students in Famagusta and Iskele represent the population of TRNC high school students since TRNC is a small country and there would be no regional differences within this context.

As the students studying in grades 10, 11 and 12 at high schools in TRNC are determined as the population in the study, the students in grades 10, 11 and 12 at high schools in Famagusta and Iskele Districts are chosen to be the sample of this study. Cluster sampling method has been used as this method is useful "in situations where the population members are naturally grouped in units that can be used conveniently as clusters" (Wiersma and Jurs, 2005, p. 305).

The students in Famagusta and Iskele have been chosen considering 'the size' and 'the representativeness of the sample' factors because it is stated that these are the main factors to be considered in the process of sample selection (Vogt, 2007). Furthermore, various types of schools in Famagusta and Iskele have been involved in this study so that the representativeness of the sample is expected to become accurate in the TRNC context.

Regarding the sample size, Sudman (1976) stated that for survey research, it is suggested to have "a minimum of 100 participants in each major subgroup and 20 to 50 in each minor subgroup" as quoted by Gall, Gall and Borg (2007, p. 177). Therefore, 5 schools were chosen in both Famagusta and Iskele Districts to be involved in the study.

A state school from rural area (Polatpaşa High School), one state college from the city (Gazimağusa Türk Maarif College), and one state school from the city centre (Namık Kemal High School) and the only high school in Iskele (Bekirpaşa High School) were chosen and available in the period that the study was conducted. However, one private college in Famagusta Region that was chosen, Eastern Mediterranean College, was not available since the students were studying on either

GCSE exams or various activities in the spring semester of the Academic Year 2010-2011, thus, this school was not included in the study.

Since this study aims to help students identify their strengths, weaknesses and become more aware of themselves, the population is determined as high school students who need this kind of care more. The reason is that after graduating from high school, they take a vitally important exam (Öğrenci Yerleştirme Sınavı – University Entrance Exam) in order to study on a certain topic at a university and shape their future lives. It can be said that this part of their lives is a corner stone for them. Therefore, this period is the most important for them to decide on what they would like to do in their future careers and they need to know themselves in order to make a better decision. This is the reason why students studying in grades 10, 11 and 12 are chosen as participants of the study.

3.4 Data Collection and Analysis Procedures

The data is gathered by a newly constructed MI inventory which is the aim of this study. It is carefully developed in regard to content validity, construct validity and reliability purposes. Then the collected data has been analyzed by using SPSS program regarding these analyses.

3.4.1 Data Collection Procedures

The present study sets out to develop an MI inventory and survey is used as the data collection technique. Group administration technique is also used as all students in the target classes at schools were included in this study. Therefore, within the process of the inventory construction, the research objective has been defined as the first step. In the sample selection process, the ‘sample size’ and ‘the representativeness of the sample’ factors have been considered and a minimum

number of 450 participants has been determined to be involved in both Famagusta and Iskele Regions.

In order to design the inventory, several Multiple Intelligence Inventories both in Turkish and in English were examined (McKenzie, 2005; Christys, 1998; Hoerr, 2000; Armstrong, 1999; 2000; Ibragimova, 2011; Sözüdoğru and Yaratan, 2011; Teacher Created Resources, 2006; Silver, Strong and Perini, 2000; Demirel, Basbay and Erdem, 2006; Berman, 2005; and Saban, 2004). These tests are used in North Cyprus, Turkey and different parts of the world.

Moreover, the characteristics of each intelligence from various resources (Campbell, Campbell and Dickinson, 2004; Kagan and Kagan, 1998; Armstrong, 1999; 2000; and 2003; Gardner, 2004; and 2006; Chapman, 1993; Wilkens, 2006; Teacher Created Resources, 2006; Jasmine, 2005; DeAmicis, 1999; Griswold, 2006; Chapman and Freeman, 1996; and Lazear, 2003) were carefully studied in detail in order to determine the possible items for the inventory which would be suitable for the context of Northern Cyprus. The reason for this is that the real aim in this study was to develop an inventory for the students in Northern Cyprus as the other developed and used inventories include some items that are not valid for Turkish Cypriots.

After the pool with many items has been prepared, the least appropriate items for the TRNC context were eliminated by the researcher and her supervisor. Then, for content validity, four different field experts were asked to choose the most appropriate items that could be involved in the inventory. One of the experts has worked on curriculum development, teacher training and ELT in various

universities in Turkey. Another expert from EMU, North Cyprus has worked on communication, research and education. The third expert has worked in various universities both in Turkey and North Cyprus and focused on ELT, education and curriculum development. Another expert from Turkey has worked on German language teaching, education and educational management. Since many of the items selected by the experts were common, 15 items for each intelligence type were determined as the final step of the item formation process.

Since the study focuses on developing an inventory that measures Howard Gardner's Multiple Intelligences Theory in the context of Northern Cyprus, there were 9 different intelligences included and it was aimed to find out the most effective items that assess different intelligence types. Therefore, 15 items for each type of intelligence and a total of 135 statements have been determined to be included in order to measure different intelligence types of the participants.

When 15 items were chosen for each intelligence type, they were checked by a language expert from the Department of Turkish Language Teaching at the Eastern Mediterranean University since the inventory was prepared in Turkish language. After the suggested corrections were made, a Turkish language teacher teaching high school students at GMTMK was approached in order to revise the items whether the language used in the items are appropriate for the students at the specified ages.

For the next step in the research, 8 items were added as the first section of the instrument in order to get demographic information about the participants such as age, gender, grade, school name, type of school, place of home which helps the

researcher learn whether each group is represented or not. Later, a straightforward and explanatory cover letter has been included to introduce the aim of the inventory and to motivate participants to respond. Later, the format of the inventory was prepared with a 5-point Likert scale as (a) *a lot like me,* (b) *like me,* (c) *not sure,* (d) *a little like me,* and (e) *not like me at all* (see Appendix B). The Turkish version is available in Appendix C.

The format construction process was completed considering some important criteria such as being attractive, straightforward, and easy to respond to; and following a logical sequence as Wiersma and Jurs (2007) mentioned "Questionnaire format should be attractive and straightforward, with the items ordered in a logical sequence. Responding to the items should be convenient and without confusion" (p. 175). This has been considered important because of the face validity of the inventory. Furthermore, the statements for the intelligences were all prepared as positive statements due to the reason mentioned above. One example item for each type of intelligence is given in Table 3.1 as follows:

Table 3.1 Sample Items for Each Type of Intelligence in English

No	Intelligence Type	Sample Item
1.	**Verbal Intelligence**	*I can express myself well in writing.*
2.	**Logical Intelligence**	*I like solving mathematical problems.*
3.	**Visual Intelligence**	*When I read, I learn more from pictures than words.*
4.	**Kinesthetic Intelligence**	*I learn more comfortably touching and feeling.*
5.	**Musical Intelligence**	*I feel at rest by listening to the voices in nature.*

Table 3.1 Sample Items for Each Type of Intelligence in English (cont.)

6.	**Interpersonal Intelligence**	*I feel comfortable when I spend time with my friends.*
7.	**Intrapersonal Intelligence**	*I like to be on my own in my free time.*
8.	**Naturalist Intelligence**	*I usually like to spend time out of house in the native.*
9.	**Existential Intelligence**	*I try to enlarge my information about the existence of the universe.*

The following table includes the sample items in the targeted language which is Turkish:

Table 3.2 Sample Items for Each Type of Intelligence in Turkish

No	Intelligence Type	Sample Item
1.	**Verbal Intelligence**	*Yazılı olarak kendimi iyi ifade edebilirim.*
2.	**Logical Intelligence**	*Matematik problemlerini çözmeyi severim.*
3.	**Visual Intelligence**	*Okurken kelimelerden daha çok resimlerden öğrenirim.*
4.	**Kinesthetic Intelligence**	*Dokunarak, hissederek daha rahat öğrenirim.*
5.	**Musical Intelligence**	*Doğadaki sesleri dinlemek çok dinlendiricidir.*
6.	**Interpersonal Intelligence**	*Arkadaşlarımla zaman geçirmek beni rahatlatır.*
7.	**Intrapersonal Intelligence**	*Boş zamanlarımda tek başıma olmayı severim.*
8.	**Naturalist Intelligence**	*Genelde ev dışında, doğada zaman geçirmeyi severim.*
9.	**Existential Intelligence**	*Evrenin varoluşu hakkında bilgimi artırmaya çalışırım.*

In addition, the distribution of item numbers was made according to a logical sequence which is illustrated in Table 3.2. However, in order to avoid cheating and misleading responses, the sequence is aimed to be unpredictable.

Table 3.3 Item Numbers in the Inventory for 9 Intelligence Types

Intelligence Types	**Items**	**No. of items**
Verbal Intelligence	1, 16, 31, 46, 61, 76, 91, 106, 121, 10, 25, 40, 55, 70, 85	15
Logical Intelligence	2, 17, 32, 47, 62, 77, 92, 107, 122, 11, 26, 41, 56, 71, 86	15
Visual Intelligence	3, 18, 33, 48, 63, 78, 93, 108, 123, 12, 27, 42, 57, 72, 87	15
Kinesthetic Intelligence	4, 19, 34, 49, 64, 79, 94, 109, 124, 13, 28, 43, 58, 73, 88	15
Musical Intelligence	5, 20, 35, 50, 65, 80, 95, 110, 125, 14, 29, 44, 59, 74, 89	15
Interpersonal Intelligence	6, 21, 36, 51, 66, 81, 96, 111, 126, 15, 30, 45, 60, 75, 90	15
Intrapersonal Intelligence	7, 22, 37, 52, 67, 82, 97, 112, 127, 100, 115, 130, 105, 120, 135	15
Naturalist Intelligence	8, 23, 38, 53, 68, 83, 98, 113, 128, 102, 117, 132, 104, 119, 134	15
Existential Intelligence	9, 24, 39, 54, 69, 84, 99, 114, 129, 101, 116, 131, 103, 118, 133	15
TOTAL	**15 item for each type of intelligence**	**135**

Afterwards, the inventory was given its latest version. At this point, for piloting purposes, a very small number of students (11) who were studying in Grade 11 in Türk Maarif College in Nicosia were also approached and asked to read the inventory whether all of the items are understandable for them, in other words, whether there are any deficiencies of the items as "a pilot run of the items provides the opportunity to identify confusing and ambiguous language, and to obtain information about possible patterns of results" (Wiersma and Jurs, 2005, p. 171).

In order to carry out the research, necessary permission was taken from the Ministry of National Education, Youth and Sports in Northern Cyprus. The researcher applied to the Ministry of National Education, Youth and Sports with a sample inventory (see Appendix C) – in the native language of the participants which is Turkish language – with an application letter in order to get permission and when this procedure was completed, the researcher contacted with the administration of the specified schools and arranged dates to visit the schools. During the visits, the inventory was given to the participants by the researcher so that necessary explanation was provided.

Students were asked to choose the alternative that they believed was the most appropriate for them. They were also warned that there was no correct or wrong answer for the items in the inventory. Additionally, students were asked to mark their answers on optic answer sheets in order to save time and effort in the process of data entry to the computer. After finishing school visits, the optic answer sheets were checked whether there is correct coding of numbering and so on before starting the analysis process. In this process, 12 of the responses were eliminated as they were either incomplete or possibly dishonest responses.

3.4.2 Data Analysis Procedures

Statistical Package for Social Sciences (SPSS) was used in order to get the results of the analyses in this study. The data was entered onto the computer for factor analysis which is used "for reducing a large number of variables to a small number of factors, with each factor representing a set of variables that are moderately or highly correlated with each other" (Gall, Gall and Borg, 2007, p. 354). Exploratory factor analysis was used in this study. As the first step of the analyses, Kaiser-Meyer-Olkin (KMO) and Bartlett's Test of Sphericity were completed as "these tests give some information about the factorability of the data" (Brace, Kemp and Snelgar, 2009, p. 354). Therefore, KMO and Bartlett's Test results indicate that sample size is adequate for factor analysis.

'Component Matrix' has been examined to see whether the data is suitable to be considered as an intelligence test. 'Rotated Factor Matrix' has been initiated as the next step in order to recognize which factors represent which intelligence by checking the items in each category (factor). The rotation is used so that "the pattern becomes more useful" (Brace, Kemp and Snelgar, 2009, p. 348).

For internal reliability, 'Internal Consistency Estimates of Reliability' was conducted and the Cronbach's Alpha value for each factor was examined. Sometimes when some of the items are deleted, the Cronbach's Alpha value increases so for the factors (intelligences), this has also been examined. Finally, the Cronbach's Alpha value for the whole inventory - with only the remained items – was calculated.

3.4.3 Summary of Research Procedures and Conclusion

As it has been mentioned earlier in this chapter, the data in this study was collected by the inventory which was designed and developed by the researcher. In the inventory construction process, the research objectives were determined at first and then population, sample selection were completed.

For the item construction in the inventory, the previously prepared and used inventories both in Turkish and in English have been examined as well as the definitions of 9 intelligences from various resources. After the pool of items was prepared, the least related items regarding the TRNC context have been eliminated by the researcher and her supervisor.

Regarding the content validity, four field experts have been asked to examine the items considering the context and as they have focused on similar or the same items, 15 items for each type of intelligence have been selected in order to form the inventory. After that, a Turkish language expert and a Turkish language teacher teaching at a high school were approached in order to check the suitability and the level of understanding of the items considering the high students in grades 10, 11 and 12.

After some demographic information has been added to the inventory to ensure that all groups are included in the study, a brief cover letter has also been added. Before the pilot run of the items have been conducted with a very small number of students at the specified ages in a different high school in Nicosia District, the format of the inventory was prepared with a 5-point Likert scale format as: (a) *a lot like me*, (b) *like me*, (c) *not sure*, (d) *a little like me*, and (e) *not like me at all*.

After getting the necessary permission from the Ministry of National Education, Youth and Sports in TRNC (see Appendix A), the arrangement of visits to schools has been made by contacting the administrations of the selected schools. Although 5 various schools have been planned to visit, one of the schools, EMC, stated that they would be unavailable to be involved in this study as their instruction was completed and students went to school just to take exams. Other 4 schools, one state college (GMTMK), one state school in the city centre (NKL) and one school outside Famagusta (Polatpasa High School) and one high school in Iskele ((Bekirpasa High School) accepted to be involved and participated in the study.

Before the gathered data was processed on the computer for analysis, the responses of participants have been reviewed and the incomplete and possibly dishonest responses were eliminated. SPSS was used in order to get the results of the analyses in this study. After the data was entered onto the computer, 'Kaiser-Meyer-Olkin (KMO) and Bartlett's Test' was completed to check whether the inventory is suitable for factor analysis. Then, 'Component Matrix' has been examined to see whether it is suitable to be considered as an intelligence test.

'Rotated Factor Matrix' has been initiated as the next step in order to recognize which factors represent which intelligence by checking the items in each category (factor). For the internal reliability, 'Internal Consistency Estimates of Reliability' was conducted and the Cronbach's Alpha value for each factor was examined. Then, the items were examined in detail to see if the Cronbach's Alpha increases in case any of the items are deleted. If there were some items to be deleted in order to increase the value, they were deleted. Finally, the Cronbach's Alpha value for the whole inventory with only the undeleted items was calculated.

In conclusion, factor analysis and Cronbach's Alpha value calculations were completed for the newly constructed MI inventory in regard to validity and reliability purposes. In the light of the procedures mentioned in this chapter, the next chapter deals with the analyses in detail and the findings reached at the end of these analyses.

Chapter 4

ANALYSES AND FINDINGS

The present chapter deals with the analyses of the data in a variety of ways. In other words, it also seeks to lay down the analyses of the collected data and the summary of findings from these analyses.

4.1 Analyses and Findings

This section of the chapter explains the analyses of the data regarding their gender distribution, grade, age, nationality, home places, school types and schools. It also presents detailed analyses of the inventory in terms of validity and reliability.

4.1.1 Analyses of the Demographic Information of the Sample

The population in this research is taken as the high school students in the T.R.N.C. context. The sample was chosen from the high schools in Famagusta and Iskele Districts as these would be more approachable for the researcher. Five hundred and seventeen students studying at high schools in the mentioned districts were present during the data collection process. The distribution of these participants was explained in detail in the first section of this chapter.

Table 4.1 Gender Distribution

Gender	Frequency	Percent
Female	284	54.9
Male	233	45.1
Total	517	100

Five hundred and seventeen participants in total took place in the study. Table 4.1 shows the gender distribution of the participants. The total number of female participants is 284, which is 54.9%, and the total number of male participants is 233, which is 45.1% of the whole sample.

Table 4.2 Grade Distribution

Grade	Frequency	Percent
10	217	42.0
11	194	37.5
12	106	20.5
Total	517	100

Table 4.2 illustrates grade distribution of the participants. Two hundred and seventeen (42%) of the participants were in Grade 10, 194 (37.5%) of them were in Grade 11 and 106 (20.5%) of them were in Grade 12.

Table 4.3 Age Distribution

Age	Frequency	Percent
15	39	7.5
16	177	34.2
17	201	38.9
18	100	19.4
Total	517	100

As it can be seen from Table 4.3, students' ages vary from 15 to 18. Thirty-nine of the secondary school students were at the age of 15, 177 of them were 16 years old, 201 of them were at the age of 17, and 100 of them were 18 years old.

Table 4.4 Nationality

Nationality	Frequency	Percent
TRNC	295	57.1
TR	64	12.4
TRNC & TR	145	28.0
OTHER	13	2.5
Total	517	100

Table 4.4 demonstrates nationalities of the participants. Two hundred and ninety-five (57.1%) of them were Turkish Cypriot, 64 (12.4%) of them were Turkish, 145 (28%) of them were both Turkish Cypriot and Turkish, and a small number of the participants, 13 (2.5%), stated that they belong to a different nationality than the specified ones.

Table 4.5 Places of Home

Places of Home	Frequency	Percent
Urban	195	37.7
Suburban	28	5.4
Rural	294	56.9
Total	517	100

The distribution of places of home of the participants is given in Table 4.5. When the figures in Table 4.5 are studied, it is possible to say that more than half of the participants (294) are living in rural area, nearly one third of the whole population (195) are living in the urban area and a small number of the students (28) state that they live in suburban area.

Table 4.6 Types of Schools

Type of School	Frequency	Percent
State school	353	68.3
State college	164	31.7
Total	517	100

Table 4.6 shows school types of the participants. When Table 4.6 is examined, it can be seen that 68.3% (353) of the participants are studying in state high schools and 31.7% (164) of them are the students of a state college.

Table 4.7 School Distribution

Schools	Frequency	Percent
GMTMK	165	31.9
NKL	147	28.4
POLATPASA H. S.	142	27.5
BEKIRPASA H. S.	63	12.2
Total	517	100

School distribution of the participants is given in Table 4.7. One hundred and sixty-five (31.9%) of the participants are studying in Gazimağusa Türk Maarif College, 147 (28.4%) of them are studying in Namık Kemal High School, 142 (27.5%) of them are Polatpaşa High School students, and 63 (12.2%) of them are the students from Bekirpaşa High School.

Table 4.8 Distribution of the Number of Inventory Copies

Distribution	Number of Copies of the Inventory	Incomplete & Possibly Dishonest Responses	Valid Responses
GMTMK	168	3	165
NKL	152	5	147
POLATPASA H. S.	145	3	142
BEKIRPASA H. S.	64	1	63
Total	529	12	517

The distribution of the number of inventory copies is illustrated in Table 4.8. In GMTMK, 168 copies of the inventory are distributed and handed back. However, 3 of the responses are possibly dishonest responses so they are taken out. In NKL, 152 copies are distributed and returned. However, 1 of them is incomplete and 4 responses are possible dishonest. In Polatpasa High School, 145 copies are distributed and handed back whereas 1 response is not completed at all and 2 are possibly dishonest responses. In Bekirpasa, there is only 1 possibly dishonest response out of 64 responses. Therefore, 12 response sheets are not included within the data and 517 responses are collected to be analyzed.

4.1.2 Analyses of the Inventory

For the analyses of the inventory, three steps have been initiated. First of all, content validity has been analyzed. Then, construct validity has been completed with factor analysis on the SPSS program. Finally, the reliability of both the intelligences and the inventory are analyzed.

4.1.2.1 Analyses of the inventory for construct validity

In this section of the chapter, the data is analyzed for construct validity purposes, thus, KMO and Bartlett's Test and factor analysis is applied to the data.

Table 4.9 KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.804
Bartlett's Test of Sphericity	Approx. Chi-Square	23236.641
	Df	9045
	Sig.	.000

Before the factor analysis for construct validity, KMO and Bartlett's Test values have been analyzed as it is seen in Table 4.9. The KMO is "a test of the amount of variance within the data that could be explained by factors. As a measure of factorability: a KMO value of .5 is poor; .6 is acceptable; a value closer to 1 is better" (Brace, Kemp and Snelgar, 2009, p. 354). As a result, the KMO value in this study is .80 and factor analysis is appropriate for the data. Bartlett's test indicates that "the data is probably factorable if $p < .05$" (Brace, Kemp and Snelgar, 2009, p. 354). When the table is examined, it can be seen that $p < .05$, therefore, the data can be considered as factorable.

For factor analysis, the Correlation Matrix was initiated in order to see the factor loadings of the items. When the items in 9 factors were examined in the Correlation Matrix Table (see Appendix D), the first factor seems to be existential intelligence, the second factor seems to be intrapersonal intelligence, the third seems to be verbal/linguistic intelligence, the fourth is likely to be naturalist intelligence, the fifth factor seems to be musical intelligence, the sixth factor seems to be interpersonal intelligence, the seventh factor seems to be logical/mathematical intelligence, the eighth seems to be bodily/kinesthetic intelligence, and the ninth factor seems to be visual intelligence.

Table 4.10 was prepared for a clearer view of the factors and the items. Although there were 15 items for each intelligence, it can be seen in Table 4.10 that there are different number of items in each factor because of the factor loadings of the items. The items in specific factors with less than .10 factor loadings have been eliminated; therefore, the total number of items for each intelligence is different from 15.

For existential intelligence (factor 1), there are 13 items, for intrapersonal intelligence (factor 2) there are 12 items, for verbal/linguistic intelligence (factor 3) there are 12 items, for naturalist intelligence (factor 4) all of the items are above .10 so none of them were eliminated (15 items), for musical intelligence (factor 5) there are 12 items, for interpersonal intelligence (factor 6) there are 13 items, for logical/mathematical intelligence (factor 7) there are 11 items, for bodily/kinesthetic intelligence (factor 8) there are 9 items, and for visual intelligence (factor 9) there are 8 items as they can be seen in Table 4.10. Additionally, the eliminated items after factor analysis are shown in Table 4.11.

Table 4.10 Factors and Loadings of the Remained Items

Factor 1 Existential		Factor 2 Intra		Factor 3 Verbal		Factor 4 Naturalist		Factor 5 Musical		Factor 6 Inter		Factor 7 Logical		Factor 8 Kinesthetic		Factor 9 Visual	
Items	**Loads**	**Items**	**Loads**	**Items**	**Loads**	**Items**	**Loads**	**Items**	**Loads**	**Items**	**Loads**	**Items**	**Loads**	**Items**	**Loads**	**Items**	**Loads**
84	(.674)	**105**	(.562)	**91**	(.495)	**98**	(.543)	**59**	(.618)	**15**	(.501)	**2**	(.739)	**58**	(.514)	**72**	(.159)
69	(.643)	**37**	(.458)	**61**	(.483)	**38**	(.504)	**44**	(.534)	**66**	(.494)	**17**	(.657)	**4**	(.426)	**33**	(.153)
116	(.635)	**120**	(.433)	**31**	(.434)	**68**	(.486)	**14**	(.504)	**51**	(.477)	**41**	(.585)	**13**	(.401)	**48**	(.141)
99	(.632)	**67**	(.408)	**1**	(.370)	**128**	(.478)	**74**	(.490)	**90**	(.418)	**86**	(.324)	**109**	(.329)	**57**	(.138)
24	(.578)	**97**	(.386)	**10**	(.291)	**8**	(.477)	**5**	(.471)	**126**	(.388)	**122**	(.300)	**94**	(.247)	**78**	(.132)
118	(.554)	**52**	(.368)	**40**	(.278)	**102**	(.456)	**89**	(.462)	**60**	(.368)	**11**	(.284)	**64**	(.157)	**27**	(.117)
9	(.537)	**100**	(.351)	**106**	(.207)	**53**	(.406)	**35**	(.395)	**6**	(.362)	**77**	(.265)	**73**	(.095)	**12**	(.101)
133	(.516)	**135**	(.267)	**70**	(.199)	**117**	(.373)	**110**	(.274)	**21**	(.351)	**92**	(.231)	**43**	(.088)	**42**	(.090)
103	(.409)	**130**	(.225)	**55**	(.192)	**113**	(.311)	**125**	(.271)	**45**	(.313)	**47**	(.229)	**88**	(.044)		
131	(.400)	**82**	(.142)	**16**	(.173)	**132**	(.284)	**20**	(.240)	**81**	(.285)	**62**	(.154)				
39	(.364)	**112**	(.102)	**46**	(.139)	**83**	(.256)	**65**	(.166)	**30**	(.272)	**56**	(.101)				
129	(.349)	**7**	(.101)	**85**	(.115)	**104**	(.237)	**50**	(.134)	**36**	(.197)						
101	(.246)					**134**	(.221)			**96**	(.112)						
						119	(.217)										
						23	(.202)										

Table 4.11 Factors and the Eliminated Items Because of Their Low Loadings

Factor 1 Existential		**Factor 2 Intra**		**Factor 3 Verbal**		**Factor 4 Naturalist**		**Factor 5 Musical**		**Factor 6 Inter**		**Factor 7 Logical**		**Factor 8 Kinesthetic**		**Factor 9 Visual**	
Items	**Loads**	**Items**	**Loads**	**Items**	**Loads**	**Items**	**Loads**	**Items**	**Loads**	**Items**	**Loads**	**Items**	**Loads**	**Items**	**Loads**	**Items**	**Loads**
54	(.188)	**22**	(.078)	**76**	(.029)	**-**	-	**80**	(-.069)	**111**	(-.062)	**32**	(.006)	**19**	(.148)	**3**	(-.058)
114	(.030)	**127**	(.059)	**121**	(.087)			**95**	(.042)	**75**	(.058)	**107**	(.060)	**34**	(.046)	**18**	(.036)
		115	(.018)	**25**	(.042)			**29**	(.092)			**26**	(.010)	**49**	(.125)	**63**	(-.008)
												71	(-.004)	**79**	(.079)	**93**	(.023)
														124	(-.060)	**108**	(-.003)
														28	(-.019)	**123**	(.036)
																87	(.039)

4.1.2.2 Analyses of the Inventory for Reliability

In this section of the chapter, the items for each factor (intelligence) are analyzed in order to determine the most appropriate items in terms of reliability.

4.1.2.2.1 Existential Intelligence

The reliability analysis for existential intelligence is as follows:

Table 4.12 Reliability Statistics for Existential Intelligence with 13 Items

Cronbach's Alpha	Number of Items
.845	13

In Table 4.12, it can be seen that the Cronbach's Alpha (α) value is .845 for 13 items related to existential intelligence.

Table 4.13 Item-Total Statistics for Existential Intelligence with 13 Items

Item no	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
9	40.762	89.011	.551	.831
39	41.285	90.425	.383	.842
24	40.897	87.587	.562	.830
69	40.707	87.599	.582	.828
84	40.991	85.473	.632	.825
99	40.885	86.016	.593	.827
129	40.708	91.919	.379	.842
101	40.304	94.523	.345	.843
116	41.148	85.492	.587	.827
131	40.486	90.661	.417	.839
103	40.755	90.448	.472	.836
118	40.876	86.966	.509	.833
133	41.170	88.442	.456	.837

When Table 4.13 is carefully examined, it can be said that there are no items that increase the Cronbach's Alpha value (α) if they are deleted. Thus, all 13 items remain in the inventory.

4.1.2.2.2 Interpersonal Intelligence

The reliability analysis for interpersonal intelligence is as follows:

Table 4.14 Reliability Statistics for Interpersonal Intelligence with 13 Items

Cronbach's Alpha	Number of Items
.748	13

In Table 4.14, it can be seen that the Cronbach's Alpha value (α) is .748 for 13 items related to interpersonal intelligence.

Table 4.15 Item-Total Statistics for Interpersonal Intelligence with 13 Items

Item no	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
6	50.060	42.751	.262	.743
21	49.781	43.095	.359	.736
36	50.408	39.699	.381	.731
51	49.933	41.579	.393	.731
66	50.078	40.228	.473	.722
81	50.355	39.983	.391	.730
96	50.722	41.770	.162	.764
126	50.782	39.572	.337	.737
15	50.267	38.906	.536	.714
30	49.966	41.796	.361	.734
45	50.368	40.466	.341	.736
60	50.451	38.442	.499	.716
90	50.429	38.975	.461	.721

When Table 4.15 is carefully examined, it seems that if item 96 is deleted, the Cronbach's Alpha value (α) will increase to .764. Therefore, the item was deleted and then, the Cronbach's Alpha value (α) was calculated again.

Table 4.16 Reliability Statistics for Interpersonal Intelligence with 12 Items

Cronbach's Alpha	Number of Items
.764	12

As it has already been stated before, Table 4.16 shows that the Cronbach's Alpha value (α) has increased to .764 after item 96 was deleted so the total items for interpersonal intelligence is now 12.

Table 4.17 Item-Total Statistics for Interpersonal Intelligence with 12 Items

Item no	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
6	46.315	37.913	.277	.760
21	46.035	38.286	.376	.753
36	46.663	35.332	.369	.752
51	46.187	36.888	.402	.748
66	46.333	35.609	.482	.740
81	46.610	35.400	.395	.749
126	47.037	35.072	.335	.759
15	46.522	34.228	.557	.730
30	46.221	37.150	.364	.752
45	46.623	35.767	.351	.754
60	46.706	34.067	.494	.736
90	46.684	34.506	.461	.741

Table 4.17 shows that none of the 'Cronbach's Alpha if item deleted' values are more than the Cronbach's Alpha value (α) for interpersonal intelligence (.764), therefore, 12 items remain in the inventory.

4.1.2.2.3 Intrapersonal Intelligence

The reliability analysis for interpersonal intelligence is as follows:

Table 4.18 Reliability Statistics for Intrapersonal Intelligence with 12 Items

Cronbach's Alpha	Number of Items
.619	12

In Table 4.18, it can be seen that the Cronbach's Alpha value (α) is .619 for 12 items related to intrapersonal intelligence.

Table 4.19 Item-Total Statistics for Intrapersonal Intelligence with 12 Items

Item no	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
7	46.538	26.386	.095	.635
37	46.041	24.497	.361	.582
52	45.756	25.507	.348	.589
67	45.800	25.736	.309	.594
82	46.555	25.282	.140	.632
97	45.908	25.040	.367	.584
112	46.714	24.906	.180	.622
100	46.192	24.296	.324	.587
130	46.065	25.449	.212	.610
105	46.242	23.712	.422	.569
120	45.898	24.769	.379	.581
135	46.061	24.954	.278	.597

When Table 4.19 is examined, it seems that if item 7 is deleted, the Cronbach's Alpha value (α) will increase to .635. Therefore, the item was deleted and then Cronbach's Alpha value was calculated again.

Table 4.20 Reliability Statistics for Intrapersonal Intelligence with 11 Items

Cronbach's Alpha	Number of Items
.635	11

Table 4.20 shows that when item 7 is deleted, the Cronbach's Alpha value (α) will increase to .635 with 11 items related to intrapersonal intelligence.

Table 4.21 Item-Total Statistics for Intrapersonal Intelligence with 11 Items

Item no	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
37	42.236	22.161	.370	.598
52	41.951	23.210	.348	.606
67	41.995	23.254	.333	.608
82	42.750	23.041	.132	.656
97	42.103	22.696	.376	.600
112	42.909	22.401	.196	.639
100	42.387	22.106	.317	.607
130	42.260	23.290	.196	.632
105	42.437	21.363	.437	.583
120	42.093	22.296	.406	.593
135	42.256	22.803	.263	.618

Table 4.21 shows that the 'Cronbach's Alpha if item deleted value' for item 82 is higher than the Cronbach's Alpha value (α) for intrapersonal intelligence which can

be seen in Table 4.22. Therefore, it can be stated that if item 82 is deleted, the Cronbach's Alpha value (α) will increase.

Table 4.22 Reliability Statistics for Intrapersonal Intelligence with 10 Items

Cronbach's Alpha	Number of Items
.656	10

When item 82 was deleted, the Cronbach's Alpha value (α) for intrapersonal intelligence increased to .656 as it is shown in Table 4.22.

Table 4.23 Item-Total Statistics for Intrapersonal Intelligence with 10 Items

Item no	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
37	38.448	18.853	.397	.615
52	38.164	19.993	.356	.627
67	38.207	19.930	.357	.626
97	38.316	19.308	.413	.615
112	39.121	19.652	.157	.677
100	38.600	18.937	.323	.630
130	38.473	19.861	.221	.653
105	38.650	18.191	.453	.602
120	38.306	19.088	.420	.613
135	38.469	19.961	.225	.651

Table 4.23 shows that if item 112 is deleted, the Cronbach's Alpha value (α) will increase to .677. Therefore, this item will be deleted and the process will be redone.

Table 4.24 Reliability Statistics for Intrapersonal Intelligence with 9 Items

Cronbach's Alpha	Number of Items
.677	9

Table 4.24 shows that the Cronbach's Alpha value (α) for intrapersonal intelligence increased to .677 after item 112 was deleted.

Table 4.25 Item-Total Statistics for Intrapersonal Intelligence with 9 Items

Item no	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
37	34.819	15.588	.420	.635
52	34.535	16.743	.367	.649
67	34.578	16.751	.356	.651
97	34.687	16.228	.405	.641
100	34.971	15.838	.319	.659
130	34.844	16.456	.245	.676
105	35.021	14.981	.476	.622
120	34.677	15.974	.420	.637
135	34.840	16.831	.214	.681

When Table 4.25 is examined, it can be seen that the Cronbach's Alpha value (α) for Intrapersonal items will increase if item 135 is deleted. Therefore, it is suggested item 135 to be deleted.

Table 4.26 Reliability Statistics for Intrapersonal Intelligence with 8 Items

Cronbach's Alpha	Number of Items
.681	8

When Table 4.26 is examined, after item 135 was deleted, the Cronbach's Alpha value (α) for 8 items increased to .681.

Table 4.27 Item-Total Statistics for Intrapersonal Intelligence with 8 Items

Item no	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
37	30.538	13.009	.425	.639
52	30.253	14.076	.374	.653
67	30.297	14.069	.365	.654
97	30.405	13.616	.408	.644
100	30.689	13.254	.318	.667
130	30.562	13.981	.221	.692
105	30.739	12.434	.483	.623
120	30.396	13.339	.430	.639

Table 4.27 shows that the Cronbach's Alpha value (α) for intrapersonal intelligence will increase to .692 if item 130 is deleted so reliability analysis was conducted again after the item 130 was deleted.

Table 4.28 Reliability Statistics for Intrapersonal Intelligence with 7 Items

Cronbach's Alpha	Number of Items
.692	7

In Table 4.28, it can be seen that the Cronbach's Alpha value is .692 for 7 items related to intrapersonal intelligence.

Table 4.29 Item-Total Statistics for Intrapersonal Intelligence with 7 Items

Item no	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
37	26.260	10.464	.424	.652
52	25.976	11.413	.379	.664
67	26.019	11.304	.391	.661
97	26.128	10.937	.425	.653
100	26.412	10.684	.314	.687
105	26.462	10.001	.473	.637
120	26.118	10.788	.426	.652

Table 4.29 shows that there are no items that will increase the Cronbach's Alpha value (α) if deleted. Therefore, the 7 items shown in this table remain in the inventory for intrapersonal intelligence.

4.1.2.2.4 Bodily/Kinesthetic Intelligence

The reliability analysis for bodily/kinesthetic intelligence is as follows:

Table 4.30 Reliability Statistics for Kinesthetic Intelligence with 9 Items

Cronbach's Alpha	Number of Items
.649	9

Table 4.30 shows that the Cronbach's alpha value (α) is .649 for 9 items related to bodily/kinesthetic intelligence.

Table 4.31 Item-Total Statistics for Kinesthetic Intelligence with 9 Items

Item no	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
4	32.003	22.698	.385	.612
64	33.039	21.140	.302	.631
94	32.565	21.851	.365	.613
109	32.209	21.749	.418	.602
13	32.110	23.024	.330	.622
43	32.814	21.676	.254	.644
58	32.328	21.328	.428	.598
73	32.454	22.563	.311	.625
88	32.409	23.205	.218	.646

Table 4.31 shows that the items do not increase the Cronbach's Alpha value (α) if any of them are deleted. Therefore, 9 items shown in Table 4.31 remain in the inventory related to bodily/kinesthetic intelligence.

4.1.2.2.5 Logical/Mathematical Intelligence

The reliability analysis for logical/mathematical intelligence is as follows:

Table 4.32 Reliability Statistics for Logical Intelligence with 11 Items

Cronbach's Alpha	Number of Items
.712	11

The Cronbach's Alpha value (α) is .712 for 11 items related to logical/mathematical intelligence as it is shown in Table 4.32.

Table 4.33 Item-Total Statistics for Logical Intelligence with 11 Items

Item no	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
2	36.590	40.452	.413	.683
17	36.537	40.689	.481	.673
47	36.471	42.837	.359	.692
62	36.435	44.905	.192	.718
77	36.461	41.997	.327	.698
92	36.090	43.397	.392	.688
122	36.305	42.520	.411	.685
11	36.548	41.902	.331	.697
41	36.255	40.398	.493	.671
56	35.895	45.985	.191	.714
86	36.236	42.961	.367	.691

Table 4.33 shows that if item 62 is deleted, the Cronbach's Alpha value (α) will increase to .718 and if item 56 is deleted, the Alpha value will be .714. Therefore, first, item 62 will be deleted and the process will be repeated.

Table 4.34 Reliability Statistics for Logical Intelligence with 10 Items

Cronbach's Alpha	Number of Items
.718	10

When item 62 was deleted, the Cronbach's Alpha (α) value increased to .718 as it is shown in Table 4.34.

Table 4.35 Item-Total Statistics for Logical Intelligence with 10 Items

Item no	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
2	33.044	35.916	.403	.691
17	32.990	35.725	.502	.674
47	32.924	38.011	.360	.698
77	32.914	36.803	.353	.700
92	32.543	38.791	.375	.697
122	32.758	37.689	.415	.690
11	33.002	36.785	.352	.701
41	32.708	35.651	.499	.675
56	32.348	41.371	.164	.725
86	32.689	38.409	.348	.700

It can be seen in Table 4.35 that if item 56 is deleted, the Cronbach's Alpha value (α) will then increase to .725 for logical/mathematical intelligence.

Table 4.36 Reliability Statistics for Logical Intelligence with 9 Items

Cronbach's Alpha	Number of Items
.725	9

As it was predicted, the Cronbach's Alpha value (α) increased to .725 for 9 items related to logical/mathematical intelligence and this is illustrated in Table 4.36.

Table 4.37 Item-Total Statistics for Logical Intelligence with 9 Items

Item no	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
2	28.956	32.726	.401	.702
17	28.902	32.333	.517	.680
47	28.836	34.537	.374	.706
77	28.826	33.364	.365	.709
92	28.455	35.606	.364	.708
122	28.671	34.364	.419	.698
11	28.914	33.508	.353	.711
41	28.620	32.571	.491	.685
86	28.602	35.286	.334	.712

When Table 4.37 is examined, it can be stated that there are no items to be deleted in order to increase the Cronbach's Alpha value so these 9 items shown in the table remain in the inventory for logical/mathematical intelligence.

4.1.2.2.6 Musical/Rhythmic Intelligence

The reliability analysis for musical/rhythmic intelligence is as follows:

Table 4.38 Reliability Statistics for Musical Intelligence with 12 Items

Cronbach's Alpha	Number of Items
.751	12

Table 4.38 shows that the Cronbach's Alpha value (α) is .751 for 12 items related to musical/rhythmic intelligence.

Table 4.39 Item-Total Statistics for Musical Intelligence with 12 Items

Item no	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
5	45.231	46.111	.325	.745
20	46.013	40.999	.408	.732
35	46.131	37.991	.568	.709
50	46.497	41.403	.298	.749
65	46.761	40.853	.273	.756
110	46.046	41.032	.375	.736
125	45.830	43.043	.279	.747
14	45.513	43.685	.352	.739
44	45.612	42.526	.419	.732
59	45.574	41.583	.538	.721
74	45.756	41.225	.525	.720
89	45.777	41.147	.468	.725

When Table 4.39 is carefully examined, it can be stated that item 65 is suggested to be deleted in order to increase the Cronbach's Alpha value (α) to .756.

Table 4.40 Reliability Statistics for Musical Intelligence with 11 Items

Cronbach's Alpha	Number of Items
.756	11

Table 4.40 shows that the Cronbach's Alpha value (α) increased to .756 when there are 11 items for musical/rhythmic intelligence.

Table 4.41 Item-Total Statistics for Musical Intelligence with 11 Items

Item no	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
5	41.924	38.443	.337	.750
20	42.706	34.134	.381	.742
35	42.825	31.105	.565	.714
50	43.190	34.232	.289	.759
110	42.739	33.982	.361	.745
125	42.524	35.359	.300	.752
14	42.206	36.127	.365	.743
44	42.306	35.020	.436	.735
59	42.268	34.245	.550	.723
74	42.449	34.009	.527	.724
89	42.470	33.787	.482	.728

Table 4.41 illustrates that if item 50 is deleted, the Cronbach's Alpha value (α) will increase to .759 for musical/rhythmic intelligence.

Table 4.42 Reliability Statistics for Musical Intelligence with 10 Items

Cronbach's Alpha	Number of Items
.759	10

Table 4.42 shows that the Cronbach's Alpha value (α) increased to .759 when 10 items are included in the inventory for musical/rhythmic intelligence.

Table 4.43 Item-Total Statistics for Musical Intelligence with 10 Items

Item no	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
5	38.354	31.865	.363	.752
20	39.135	28.055	.377	.747
35	39.254	25.436	.551	.719
110	39.168	28.304	.325	.757
125	38.953	29.133	.299	.759
14	38.635	29.752	.377	.746
44	38.735	28.785	.444	.737
59	38.697	27.927	.577	.721
74	38.879	27.740	.549	.723
89	38.899	27.692	.485	.731

When Table 4.43 is examined, it can be stated that none of the items are suggested to be deleted for an increase in the Cronbach's Alpha value (α). Although item 125 seems suitable to be deleted, it will not change the Alpha value, thus 10 items remain in the inventory for musical/rhythmic intelligence.

4.1.2.2.7 Naturalist Intelligence

The reliability analysis for naturalist intelligence is as follows:

Table 4.44 Reliability Statistics for Naturalist Intelligence with 15 Items

Cronbach's Alpha	Number of Items
.806	15

Table 4.44 shows that the Cronbach's Alpha value (α) is .806 for 15 items related to naturalist intelligence.

Table 4.45 Item-Total Statistics for Naturalist Intelligence with 15 Items

Item no	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
8	55.434	73.897	.373	.798
23	55.516	75.359	.255	.805
38	55.576	72.164	.450	.793
53	55.379	74.878	.307	.802
68	55.539	73.747	.381	.797
134	55.685	73.251	.296	.804
119	56.024	72.415	.363	.798
104	56.223	70.561	.438	.793
132	56.036	70.170	.435	.793
117	56.063	70.020	.493	.789
102	56.069	67.827	.540	.785
128	56.059	67.319	.574	.782
113	55.837	71.662	.387	.797
98	56.120	67.430	.577	.782
83	55.941	72.834	.340	.800

When Table 4.45 is examined, it can be seen that all 15 items related to naturalist intelligence are shown after the calculation of Cronbach's Alpha value (α) for this

intelligence. As all of their values are below the Cronbach's Alpha value (α) shown in Table 4.45 (.806), none of them is suggested to be deleted to increase this value.

4.1.2.2.8 Verbal/Linguistic Intelligence

The reliability analysis for verbal/linguistic intelligence is as follows:

Table 4.46 Reliability Statistics for Verbal Intelligence with 12 Items

Cronbach's Alpha	Number of Items
.760	12

Table 4.46 shows that the Cronbach's Alpha value (α) is .760 for 12 items related to verbal/linguistic intelligence.

Table 4.47 Item-Total Statistics for Verbal Intelligence with 12 Items

Item no	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1	42.782	45.675	.504	.730
16	42.541	51.135	.202	.766
31	42.684	46.855	.452	.737
46	42.284	49.411	.419	.742
61	43.145	44.167	.554	.722
91	43.311	44.543	.468	.735
106	42.651	48.734	.402	.743
10	42.609	47.484	.447	.737
40	42.258	49.988	.350	.748
55	42.457	51.201	.231	.761
70	42.645	49.620	.365	.747
85	42.365	50.258	.341	.749

When Table 4.47 is examined, it is suggested that if item 16 is deleted, the Cronbach's Alpha value (α) will increase to .766.

Table 4.48 Reliability Statistics for Verbal Intelligence with 11 Items

Cronbach's Alpha	Number of Items
.766	11

Table 4.48 shows that the Cronbach's Alpha value (α) increased to .766 for 11 items related to verbal/linguistic intelligence.

Table 4.49 Item-Total Statistics for Verbal Intelligence with 11 Items

Item no	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1	38.801	40.928	.513	.735
31	38.704	42.254	.447	.744
46	38.303	44.683	.415	.749
61	39.165	39.439	.567	.727
91	39.330	39.754	.481	.740
106	38.671	44.112	.393	.751
10	38.628	43.046	.429	.746
40	38.278	45.045	.360	.754
55	38.476	46.142	.243	.767
70	38.665	44.832	.365	.754
85	38.385	45.528	.333	.757

Table 4.49 indicates that if item 55 is deleted, the Cronbach's Alpha value (α) will again increase and it will be .767 for verbal/linguistic intelligence.

Table 4.50 Reliability Statistics for Verbal Intelligence with 10 Items

Cronbach's Alpha	Number of Items
.767	10

Table 4.50 shows that the Cronbach's Alpha value (α) is .767 for 10 items related to verbal/linguistic intelligence.

Table 4.51 Item-Total Statistics for Verbal Intelligence with 10 Items

Item no	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1	34.737	36.315	.521	.735
31	34.639	37.572	.454	.745
46	34.239	40.133	.402	.752
61	35.100	34.983	.569	.727
91	35.266	35.214	.485	.741
106	34.607	39.394	.396	.753
10	34.564	38.432	.428	.749
40	34.214	40.362	.357	.757
70	34.600	40.226	.356	.757
85	34.320	40.771	.334	.760

When there are 10 items for verbal/linguistic intelligence, the Cronbach's Alpha value (α) is .767 illustrated in Table 4.51 and as it can be seen, there is no other suggestion for deleting any more items, therefore, 10 items remain in the inventory related to verbal/linguistic intelligence.

4.1.2.2.9 Visual/Spatial Intelligence

The reliability analysis for visual/spatial intelligence is as follows:

Table 4.52 Reliability Statistics for Visual Intelligence with 8 Items

Cronbach's Alpha	Number of Items
.582	8

Table 4.52 shows that the Cronbach's Alpha value (α) is .582 for 8 items related to visual/spatial intelligence.

Table 4.53 Item-Total Statistics for Visual Intelligence with 8 Items

Item no	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
33	28.074	15.707	.339	.531
48	27.878	16.429	.363	.522
78	27.041	18.687	.216	.568
12	27.298	17.279	.333	.535
27	27.586	17.170	.328	.535
42	27.233	17.999	.232	.565
57	27.110	18.152	.240	.562
72	27.468	17.757	.232	.566

Table 4.53 shows that the Cronbach's Alpha values (α) of all 8 items related to visual/spatial intelligence are below the Cronbach's Alpha value (α) shown in Table 4.53 (.582). Therefore, it can be stated that none of them will increase the value if deleted so 8 items shown in Table 4.53 for visual/spatial intelligence remain in the inventory.

Table 4.54 Reliability Statistics for the inventory with 135 items

Cronbach's Alpha	Number of Items
.939	135

Table 4.54 shows the reliability of the inventory with 135 items which was its original form. At the beginning of the study, when the participants responded the inventory, there were 135 items in the inventory and its reliability is .939, which is very high.

Table 4.55 Reliability Statistics for the inventory with 93 items

Cronbach's Alpha	Number of Items
.926	93

Table 4.55 indicates the reliability of the inventory after the analyses for construct validity and internal reliability were completed. When the data reduction finalized, 93 items remained in the inventory and the Cronbach's Alpha value (α) for the inventory in this form was calculated as .926, which is again very high.

4.2 Summary of Findings

In this section, the results of the analyses will be briefly summarized. The findings will be defined with respect to 9 intelligences and the inventory in general.

4.2.1 Existential Intelligence

Before the data analyzed, there were 15 questions in the inventory regarding existential intelligence. In the early steps of the factor analysis, 2 of the items in the inventory – item 54 and item 116 – have been eliminated because of their low factor loadings as it can be seen in Appendix D. However, when the Cronbach's Alpha values for intelligences were calculated, none of the remained items were eliminated as it would decrease the reliability value of existential intelligence according to the Cronbach's Alpha values (α).

Except the two items which have low factor loadings, it can be said that all of the items related to existential intelligence have been categorized in factor 1 with high loadings, therefore, this factor is named as existential intelligence. It can be concluded that items related to existential intelligence were well-designed and clear to be categorized easily.

4.2.2 Interpersonal Intelligence

When the factor loadings of the items related to interpersonal intelligence are examined, it can be seen that 13 out of 15 items have been categorized in factor 6 (see Table 12), thus, this factor is considered as interpersonal intelligence. When reliability statistics were calculated, one of the items – item 96 – was deleted for an increase in reliability of interpersonal intelligence.

It seems that 12 items out of 15 have remained in the inventory and this proves that the items were well-thought and really represented interpersonal intelligence. Their factor loadings are not very high whereas they are quite high above the specified limit. On the other hand, it can be stated that these items have a considerably high internal reliability with 12 items.

4.2.3 Intrapersonal Intelligence

Most of the items related to intrapersonal intelligence (12) were taken into consideration regarding factor loadings, which means 3 items in the inventory – items 2, 127 and 115 – were eliminated and all the others have been categorized in factor 2 so this factor was named as intrapersonal intelligence. After the internal reliability calculations, 5 items – items 7, 82, 112, 130 and 135 – were deleted in order to increase the Cronbach's Alpha value (α).

After these validity and reliability statistics, 7 items related to intrapersonal intelligence remained in the inventory, which is the lowest number amongst all intelligences. Furthermore, all of the 12 items have factor loadings higher than the specified limit, however, it is unfortunate that they are not very high. In addition, the reliability value for this intelligence (.692) is not very high although it is above the average limit.

One of the possible reasons for this result is that the constructed items do not really represent the characteristics of the intelligence. Another reason might be the fact that responses were not honest and truly provided so that the data could not be reliable to have conclusions. On the other hand, as intrapersonal intelligence is about the inner-world of individuals, it can be suggested that this is one of the difficult intelligences to measure with an inventory. This is an issue that needs further and deeper investigation.

4.2.4 Bodily/Kinesthetic Intelligence

Most of the items related to bodily/kinesthetic intelligence are seen in factor 6 so this factor is considered as bodily/kinesthetic intelligence. Within this factor, 9 of

these items out of 15 were taken into consideration and 6 of them – items 19, 34, 49, 79, 124, 28 – were eliminated because of their factor loadings.

Like intrapersonal intelligence, the reliability of this intelligence is not very high. Additionally, the factor loadings of the 9 items related to bodily/kinesthetic intelligence are not very high, therefore, it can be stated that the items related to this intelligence also have some problems.

4.2.5 Logical/Mathematical Intelligence

The majority of the 15 items which were constructed to gather data related to logical/mathematical intelligence, have been found in factor 7, that is why this factor is named as logical intelligence. 11 of the items were in factor 7 so 4 items – items 32, 107, 26, 71 – were eliminated due to low factor loadings.

When the data related to logical/mathematical intelligence was examined for reliability purposes, it was found out that if two items were deleted, the reliability would be stronger so the calculated two items – items 62 and 56 – were also eliminated during the internal reliability statistics. Therefore, a total of 9 items remained in the inventory with a considerably high internal reliability.

4.2.6 Musical Intelligence

12 items related to musical/rhythmic intelligence were placed in factor 5, therefore, factor 5 is considered as musical/rhythmic intelligence and 3 items in the inventory – items 80, 95 and 29 – were eliminated during the process of factor analysis. Later during the internal reliability analyses, 2 more items – items 50 and 65 – were also deleted for an increase in the reliability. Even though musical/rhythmic intelligence started with 12 items, at the end of the process there were 10 items related to this intelligence, which was idealistic.

4.2.7 Naturalist Intelligence

Another interesting analysis is the analysis of factor 4. When this factor was examined, it was surprisingly seen that all of the naturalist items were in this column so the name of the column became naturalist and the data was analyzed accordingly. As all of these items had high factor loadings, none of them was deleted in the early steps of the analyses. Moreover, the 15 items related to naturalist intelligence have passed the test on reliability as well.

Additionally, the reliability value for this intelligence is the second highest which could be considered as reasonable, thus, at the end of the analyses, there were no items needed to be deleted neither for validity nor reliability purposes. The reason of this might be the clarity and understandability of items that participants easily responded these items. Another reason might be the natural habitat participants live. Cyprus is a small island and agricultural and farming jobs are still considered valuable. Also instead of blocks of buildings, there are detached houses with lots of trees and green areas on the island. Therefore, the naturalist intelligence of participants might be the participants having highly developed naturalist intelligence and this affected the results in this study.

4.2.8 Verbal/Linguistic Intelligence

For the verbal/linguistic intelligence, 12 of the 15 items were in the third column which is factor 3, therefore, this factor was considered as verbal/linguistic intelligence. Therefore, the other 3 items related to this intelligence – items 76, 121 and 25 – became eliminated in an early step of the analyses.

During the reliability analyses, two more items – items 16 and 55 – were deleted in order to increase its reliability. As a result, 10 items remained in the inventory

related to verbal/linguistic intelligence, which is idealistically good. In addition, the validity of this intelligence is quite high which is another indicator that these items seem appropriate to represent the verbal/linguistic intelligence.

4.2.9 Visual/Spatial Intelligence

This is the intelligence shown in factor 9. When the factor loadings were considered, almost half of the 15 items related to visual/spatial intelligence (7) – items 3, 18, 63, 93, 108, 123 and 87 – were eliminated. However, when the internal reliability statistics were calculated, none of the remained items were eliminated as this would decrease the internal reliability of visual/spatial intelligence according to the Cronbach's Alpha values.

The reliability of visual/spatial intelligence is, unfortunately, not high. Visual/spatial intelligence is a part of all individuals' daily lives. To a point, everyone needs to develop this intelligence in order to survive. Therefore, this intelligence can be distinguished from the others in a way and the drawback this notion brings is that it is not easy to measure this intelligence separately. It can be stated that there are some problems with this part of the inventory and the reason or reasons should be further investigated.

4.2.10 The Inventory

The original form of the inventory with 135 items was a highly reliable inventory (see Appendix B, C). Although it included many items and some of them turned out to be useless, it was considered as a reliable inventory (94%). On the other hand, some items were directly eliminated according to their low factor loadings within the process of factor analysis. Furthermore, when the internal reliability values were calculated, some more items were deleted as well. Thus, many items have

been deleted and the inventory has become a more accurate one with 93 items (see Appendix E, F) and its reliability has not changed; it is still considered a highly reliable inventory (93%).

Table 4.56 Overall Results of the Analyses

Intelligence	Number of items after analyses	Cronbach's Alpha value
Existential	13	.845
Interpersonal	12	.764
Intrapersonal	7	.692
Kinesthetic	9	.649
Logical	9	.725
Musical	10	.759
Naturalist	15	.806
Verbal	10	.767
Visual	8	.582

As it can be seen from Table 4.56, at the end of the analyses, the existential intelligence consists of 13 items with the Cronbach's Alpha value of .845. The interpersonal intelligence consists of 12 items with the value of .764 and intrapersonal intelligence consists of 7 items with the Cronbach's Alpha value of .692. In addition, the bodily/kinesthetic intelligence is tested by 9 items with the reliability value of .649. Although 9 items measure logical/mathematical intelligence, the Cronbach's Alpha value for this intelligence is .725. Musical/rhythmic intelligence consists of 10 items with .759 Cronbach's Alpha value. Naturalist intelligence consists of 15 items, which is the same with the

beginning of the analyses, and its reliability value is .806. Verbal/linguistic intelligence consists of 10 items like musical/rhythmic intelligence but the Cronbach's Alpha value is .767. Finally, visual/spatial intelligence can be measured with 8 items and their Cronbach's Alpha value is .582. Additionally, Table 4.57 shows the items that have been eliminated after the analyses.

Table 4.57 Eliminated Items After Analyses

Intelligence	Eliminated Items After Analyses	Number of Remained Items
Existential	54, 114	13
Interpersonal	96, 111, 75	12
Intrapersonal	7, 22, 82, 112, 127, 115, 130, 135	7
Kinesthetic	19, 34, 49, 79, 124, 28	9
Logical	32, 62, 107, 26, 56, 71	9
Musical	50, 65, 80, 95, 29	10
Naturalist	-	15
Verbal	16, 76, 121, 25, 55	10
Visual	3, 18, 63, 93, 108, 123, 87	8

Chapter 5

CONCLUSION

This chapter aims to pull the strings of the whole study and present a summary of the whole study, the conclusions drawn from the study, some pedagogical implications and suggestions for further research.

5.1 Summary

The Theory of Multiple Intelligences, which was put forward by Howard Gardner in 1983 suggests that every single person has a combination of nine intelligences and this combination varies from person to person. The nine intelligences are verbal/linguistic intelligence, logical/mathematical intelligence, visual/spatial intelligence, bodily/kinesthetic intelligence, musical/rhythmic intelligence, interpersonal intelligence, intrapersonal intelligence, naturalist intelligence and existentialist intelligence. Looking at intelligence like this gives all individuals equal chance to learn anything they would like to learn in their own way.

Every day the implications of MI Theory in education are increasing as well as its success stories. Its implication in various aspects and stages of education is world-widely tried and approved by many educators, teachers, parents, students, curriculum designers, program designers, researchers and scholars. In the past, students were considered as smart or dumb according to the exam results and the instruction was mainly based on verbal and mathematical abilities. Today, with the

light of MI Theory, a new notion that ‘students can learn everything, but not in a fixed way, they can learn in their own way’ has arisen.

Education takes an important responsibility in here and tries to make this happen; at least it has to make this happen. The common belief is that education prepares students for real life and if education is full of artificial facts and theories, there is no freedom for students and no chance for creativity or imagination, then, it would not be possible to talk about solving real life problems.

Furthermore, students learn better when they are aware of what they are capable of. Knowing themselves and believing in themselves are very important in the road to success. When they are aware of their strengths and weaknesses, they can improve their weak sides and fight with their strong sides. This can be achieved through knowing the nine intelligences they possess.

When the previously prepared and used MI inventories were examined, it can be realized that some items do not match with the characteristics of Turkish Cypriot students, therefore, it might be difficult to gather accurate information by these means of data collection instrument. In addition, in TRNC context no comprehensive attempts have been made to develop an MI inventory. As a result, this study aims to fill this gap in the literature and develop a Multiple Intelligences Inventory for Turkish Cypriot high school students who are about to make a vital decision about choosing a career.

When the literature is examined, it can be stated that the starting point of the MI Theory is Project Zero (1983). As the co-director of this project, Howard Gardner

found out that individuals with brain damage still function some abilities although they are labeled as idiot savants. Thus, he put forward his groundbreaking Theory of Multiple Intelligences and the most important characteristics of the theory can be stated as follows:

- It is pluralistic.
- It makes whole-brain learning possible.
- Real world is taken into account as the basis.
- People are born with all intelligences and they are not fixed.
- Intelligences can be taught, learned, developed or enhanced.
- The combination of each person is different from the others.
- People possess both highly developed intelligences and less developed intelligences.

On the other hand, there have been various research related to MI Theory. The perceptions of teachers and/or students towards MI, its impact on recall, its impact on academic achievement, its relation with exam results, and so on. It is interesting that although there are numerous MI inventories, there is no evidence on how most of these researchers have come up with these inventories.

In this study, 517 high school students studying at grades 10, 11 and 12 from Famagusta and Iskele Districts in order to represent the population which is the high school students studying at grades 10, 11 and 12 in TRNC context. The research was conducted in the Academic Year 2010-2011 Spring Semester. 4 different schools accepted to contribute to the research. In order to develop an MI inventory, a pool was constructed and then 6 experts' opinions were considered for

content validity. After the inventory was formed and administered, the incomplete and possibly dishonest responses (12) were eliminated and factor analysis was done. After factor loadings were examined and some items were deleted, reliability calculations for both every intelligence and inventory were administered and the inventory was given in its latest form.

5.2 Conclusions Drawn from the Study

In order to draw conclusions from the study, research questions mentioned in Chapter 1 will be re-visited and answered with the findings of the study. Therefore; the first research question is:

a. How do the constructed items in the inventory represent the 9 intelligences according to experts' opinions with respect to content validity?

Regarding content validity, a number of actions have been taken. First of all, previously done inventories both in Turkish and in English have been reviewed and the characteristics of 9 intelligences from various sources were studied in detail. Then, an item pool was prepared with the items that are considered as appropriate for the TRNC context. Before expert opinion was asked, the researcher and her supervisor eliminated the least appropriate items. After that, four field experts have been approached for content validity purposes. They have been asked to choose the most appropriate items for the TRNC context and since their choices were common, 15 items for each intelligence, a total of 135 items, were selected in order to be involved in the inventory. Later for content validity purposes again, a language expert from Turkish Language Teaching Department at the Eastern Mediterranean University and a Turkish language teacher, teaching high school students also approached in order to consider the language appropriateness for the targeted population in the targeted language.

b. How do the constructed items in the inventory have a determined factor structure with respect to construct validity?

For construct validity purposes, factor analysis was completed by using SPSS on the computer. Before the data was entered onto the computer, the responses received from the participants were checked and incomplete and possibly dishonest responses were eliminated.

Then, KMO and Bartlett's Test was completed to check whether the data is factorable for factor analysis. As the KMO value of the inventory is .804 and as this value is closer to 1, it can be stated that the factorability of this test is appropriate. In addition, as in the Bartlett's Test, $p < .05$ – in this study $p=.000$ – it is possible to state that the data is factorable.

After the factorability of the data was proven by this test, 'Component Matrix' and 'Rotated Factor Matrix' calculations were made in order to see the factor loadings of items (see Appendix D). Later, factor loadings were examined and if there are some items with very low loadings, they were eliminated. As the loadings of some intelligences were very low, the bottom limit of loadings were determined as .10 and the factor loadings less than .10 were eliminated. Then, factors were given names of 9 intelligences according to the distribution of items under 9 factors. Finally, the items which are given in the correct factor have been taken into consideration and the other items in different factors were eliminated.

c. How do the constructed items in the inventory have internal consistency with respect to Cronbach's Alpha value?

As 9 intelligences are included in the inventory, the data is multi-dimensional instead of unitary. As a result, all items related to one intelligence type are separated from

the items related to other intelligences and then evaluated. For evaluation, their Cronbach's Alpha values were examined in order to determine if there are any items to be deleted for an increase in the internal consistency. After factor analysis calculations were conducted, the remained items were evaluated and for each intelligence the results in the following table (Table 5.1) revealed:

Table 5.1 Internal Consistency Estimates of Reliability

Intelligence	Number of items after factor analysis	Cronbach's Alpha Value	Number of items after reliability value calculations	Cronbach's Alpha value
Existential	13	.845	13	.845
Interpersonal	13	.748	12	.764
Intrapersonal	12	.619	7	.692
Kinesthetic	9	.649	9	.649
Logical	11	.712	9	.725
Musical	12	.751	10	.759
Naturalist	15	.806	15	.806
Verbal	12	.760	10	.767
Visual	8	.582	8	.582

As it can be seen in Table 5.1, for existential intelligence, it was found out that all 13 items after the factor analysis are appropriate to remain in the inventory as the Cronbach's Alpha value for 13 items is .845. For interpersonal intelligence, it was found out that if 1 of the 13 items was deleted, the value would increase to .764 so 12 items related to interpersonal intelligence remained in the inventory.

Table 5.1 also shows that for intrapersonal intelligence, 5 of the 12 items were eliminated so the Cronbach's Alpha value increased to .692 for 7 items. After the factor analysis, the remained 9 items related to bodily kinesthetic intelligence were

considered appropriate to be involved in the inventory because of the Cronbach's Alpha value of .649. The reliability value for logical/mathematical intelligence was .712 and it became .725 after eliminating 2 items of the 11 items related to logical/mathematical intelligence. For musical intelligence, again 2 items deleted and the Cronbach's Alpha value increased to .759 for 10 items.

The illustration in Table 5.1 can be interpreted that after factor analysis, none of the 15 items related to naturalist intelligence was deleted and the elimination of any items would not increase but would decrease the reliability value of the items related to naturalist intelligence so all 15 items remained in the inventory. For verbal/linguistic intelligence, it was found out that if 2 of the 12 items were deleted, the Cronbach's Alpha value would be .767 so 10 items related to verbal/linguistic intelligence remained in the study. Last but not least, none of the 8 items related to visual/spatial intelligence were deleted as deleting any would decrease the reliability value less than .582.

d. How does the inventory have reliability with respect to Cronbach's Alpha value?

When the Cronbach's Alpha value for the inventory with 135 items was calculated, it was found out that it is .939. The interpretation of this value is that the reliability of the inventory is very high, in other words, the inventory with 135 items is 94% reliable.

On the other hand, when all factor analysis and internal consistency estimates of reliability calculations were completed, the Cronbach's Alpha value for the inventory with 93 items was calculated, it was found out that this value is .926. Although it seems that the Cronbach's Alpha value decreased, it can be interpreted

as very high again as the inventory with 93 items (see Appendix E, F) is 93% reliable.

In conclusion, when the analyses of the study are considered, it can be stated that the 9 intelligences are well-represented with their related items. The items related to some of the intelligences can seem problematic. The reason for this is that their Cronbach's Alpha values are not very high, especially the value for visual intelligence, so their reliability can be questioned. Another reason is that the validity of visual intelligence can be provided by involving more visual materials instead of words and phrases in the inventory. In addition, visual intelligence can be considered as the most interrelated intelligence with the other types and it is the most difficult one to be measured with a pen-and-paper test. Therefore, the items and their statement should be very clear so that when factor analysis is conducted, reliability and validity increase.

Another important point to be stated can be about the intrapersonal intelligence. When the analyses of intrapersonal are examined, it can be seen that many items have been deleted as they decrease the reliability of the inventory. One of the reasons for this can be the fact that this intelligence is about internal factors and participants' motivation to express their feelings is not high to be seen with the items in the inventory. Additionally, as there are a number of inconsistent political issues ongoing these days, people, even students, might feel themselves insecure to mention their feelings and to express themselves. Therefore, a number of items related to intrapersonal intelligence in the inventory might be eliminated.

Regarding validity, as 6 different experts who work in the field of education in various universities and who have previously made many studies on the theory of multiple intelligences, have agreed on the appropriateness of the items in the inventory, it can be said that the content is valid. Although factor loadings seem low for some intelligences, the reliability values for internal consistency estimates and the reliability value of the inventory are very high, it is possible to say that the inventory is reliable.

5.3 Pedagogical Implications

The Theory of Multiple Intelligences, coined by Howard Gardner, has always been a major concept in education since the first day it was put forward. Therefore, many studies have been conducted in relation to Gardner's theory. Yet, Gardner never proposed a methodology; hence a variety of applications appeared in time.

When the TRNC context have been considered, it is unfortunate that there are no implications of the MI Theory in any school. However, as it has been mentioned in Chapter 3, there was a reform in the TRNC education System in 2005 (MONEC Brochure, 2005) and learner-centred approach was initiated. Since then, the education system in TRNC was updated and involved some characteristics that are in parallel with the MI Theory. Although it still needs a lot of work to do, it is possible to say that it has been improved very much. The college entrance examinations can be given as an example of MI implications. For the first time this year, the content of college entrance exams changed. In the past, it included only Turkish language and mathematics whereas it includes all school subjects which consist of science, social science, arts, sports, English language, religion, music, P.E. in addition to Turkish language and mathematics.

On the other hand, when the real implication of MI Theory is considered, there should be very specific actions to be taken. Teachers, for instance, need to provide freedom for their students and they also need to be aware of their students' differences which make them unique individuals. It is crucial for students to have an education with no limits in order to gain consciousness about themselves and the real world. If people are educated for artificial knowledge, they will not be able to transform their information into real life.

Furthermore, when the new curricula and syllabi are designed, students and learning should be the focus instead of the products such as exam results. Learning process, how students learn is as important as the goal whereas in TRNC Education System this notion has not been applied yet. This is a necessary update that follows today's trend because if students do not learn how to cope with the real world, they will not be able to stand on their own feet in real life.

5.4 Suggestions for Further Research

In the light of the findings and results found out at the end of this study, the following suggestions were possible to be made:

1. The latest form of the inventory in this study is suggested to be improved, especially the items with low factor loadings related to some intelligences – intrapersonal and visual – in order to see whether the problem is the statement of the items. Therefore, new items can be added.
2. The inventory can be applied to private schools as well so that the results can be correlated with the results in this study.
3. The inventory can be applied to the whole population to see whether the results will be different.

4. The inventory is in its infancy so it can be applied to a different sample that covers schools in all parts of the TRNC in order to correlate it with this study.

REFERENCES

Armstrong, T. (1999). *Seven Kinds of Smart: Identifying and Developing Your Multiple Intelligences.* New York: Penguin Putnam Inc.

Armstrong, T. (2000a). *Multiple Intelligences in the Classroom* (2nd ed.). Virginia: Association for Supervision and Curriculum Development Publishing.

Armstrong, T. (2000b). *In Their Own Way: Discovering and Encouraging Your Child's Multiple Intelligences* (Revised and Updated ed.). New York, Penguin Putnam Inc.

Armstrong, T. (2003a). *You're Smarter Than You Think: A Kid's Guide to Multiple Intelligences.* Minneapolis: Free Spirit Publishing.

Armstrong, T. (2003b). *The Multiple Intelligences of Reading and Writing: Making the words come Alive.* Virginia: Association for Supervision and Curriculum Development Publishing.

Arnold, E. (2007). *The MI Strategy Bank: 800+ Multiple Intelligence Strategies for the Elementary Classroom* (2nd ed.). Chicago: Zephyr Press.

Baum, S., Viens, J., & Slatin, B. (2005). *Multiple Intelligences in the Elementary Classroom: A Teacher's Toolkit.* New York: Teachers College Press.

Bee, H., & Boyd, D. (2004). *The Developing Child* (10th ed.). Boston: Pearson Education, Inc.

Bellanca, J., Chapman, C., & Swartz, E. (1997). *Multiple Assessments for Multiple Intelligences* (3rd ed.). Illinois: SkyLight Training and Publishing, Inc.

Bellflower, J. B. (2008). *A Case Study on the Perceived Benefits of Multiple Intelligence Instruction: Examining Its Impact on Student Learning*. Unpublished PhD Dissertation. Fielding Graduate University. UK.

Berman, M. (2005). *A Multiple Intelligences Road To An ELT Classroom* (Reprinted ed.). Wales: Crown House Publishing Ltd.

Best, J. W., & Kahn, J. v. (2006). *Research in Education* (10th ed.). Boston, Pearson Education, Inc.

Bowen, J., Hawkins, M., & King, C. (1997). *Building Success in School and Life through Multiple Intelligences.* Arizona: Zephyr Press.

Brace, N., Kemp, R., & Snelgar, R. (2009). *SPSS for Psychologists* (4th ed.). London: PALGRAVE MACMILLAN.

Campbell, L., & Campbell, B. (1999). *Multiple Intelligences and Student Achievement: Success Stories from Six Schools.* Virginia: Association for Supervision and Curriculum Development Publishing.

Campbell, L., Campbell, B., & Dickinson, D. (2004). *Teaching and Learning through Multiple Intelligences* (3rd ed.). Boston: Pearson Education, Inc.

Chapman, C. (1993). *If The Shoe Fits...: How to Develop Multiple Intelligences in the Classroom* (Revised ed.). Illinois: SkyLight Training and Publishing, Inc.

Chapman, C., & Freeman, L. (1996). *Multiple Intelligences Centers and Projects.* California: Corwin Press.

Christison, M. A. (1998). Applying Multiple Intelligences Theory: In Preservice and Inservice TEFL Education Programs. *English Teaching Forum, 36*(2), 2-13.

Cohen, L., Manion, L., & Morrison, K. (2005). *Research Methods in Education* (5th ed.). London and New York: Routledge Falmer.

Colman, A. M. (2006). *Oxford Dictionary of Psychology* (2nd ed.). New York: Oxford University Press Inc.

Cooper, F. (2008). *An Examination of the Impact of Multiple Intelligences and Metacognition on the Achievement of Mathematics Students*. Unpublished PhD Dissertation. Capella University. USA.

DeAmicis, B. (1999). *Multiple Intelligences Made Easy.* Chicago: Zephyr Press.

Demirel, Ö., Başbay, A., & Erdem, E. (2006). *Eğitimde Çoklu Zeka: Kuram ve Uygulama.* Ankara: Pegem Yayıncılık.

Eyyam, R., Doğruer, N., & Meneviş, İ. (2010). The Correlation Between Students' Multiple Intelligences and Their Success in English Exams. *The 6th International ELT Conference* (pp. 114-117). Izmir: COMU Publications.

Eyyam, R., Meneviş, İ., & Doğruer, N. (2010). Çoklu Zeka ve Akademik Başarı Arasındaki İlişki. *International Conference on New Trends in Education and Their Implications* (s. 916-920). Antalya: Pegem Akademi.

Fogarty, R., & Stoehr, J. (2008). *Integrating Curricula with Multiple Intelligences: Teams, Themes, and Threads* (2nd ed.). California: Corwin Press.

Gall, M. D., Gall, J. P., & Borg, W. R. (2007). *Educational Research: An Introduction* (8th ed.). Boston: Pearson Education, Inc.

Gardner, H. (1983). *Frames of Mind: The Theory of Multiple Intelligences.* New York: Basic Books.

Gardner, H. (1999). *Intelligence Reframed: Multiple Intelligences for the 21st Century.* New York: Basic Books.

Gardner, H. (2004). *Frames of Mind: The Theory of Multiple Intelligences.* New York: Basic Books.

Gardner, H. (2006). *Multiple Intelligences: New Horizons.* New York: Basic Books.

Griswold, J. S. (2006). *Writing Lessons: Using the Multiple Intelligences.* California: Teacher Created Resources, Inc.

Hoerr, T. R. (2000). *Becoming a Multiple Intelligences School.* Virginia: Association for Supervision and Curriculum Development Publising.

Jasmine, J. (2005). *Multiple Intelligences Activities: Grades 5-8.* California: Teacher Created Resources, Inc.

Johnson, B., & Christensen, L. (2004). *Educational Research: Quantitative, Qualitative, and Mixed Approaches* (2nd ed.). Boston: Pearson Education, Inc.

Ibragimova, N. (2011). *Multiple Intellıgences Theory In Action In EFL Classes: A Case Study*. Unpublished master's thesis. Eastern Mediterranean University. North Cyprus.

Kagan, M., & Kagan, S. (1998). *Multiple Intelligences: The Complete MI Book.* California: Kagan Cooperative Learning.

Kornhaber, M., Fierros, E., & Veenema, S. (2004). *Multiple Intelligences: Best Ideas from Research and Practice.* Boston: Pearson Education, Inc.

Kuzey Kıbrıs Türk Cumhuriyeti Milli Eğitim ve Kültür Bakanlığı [MONEC]. (2005). Kıbrıs Türk Eğitim Sistemi [Brochure]. Devlet Basımevi. TRNC.

Lazear, D. (1998a). *The Rubrics Way: Using Multiple Intelligences to Assess Understanding.* Chicago: Zephyr Press, Inc.

Lazear, D. (1998b). *Intelligence Builders for Every Student: 44 Exercises to Expand Multiple Intelligences in Your Classroom.* Chicago: Zephyr Press.

Lazear, D. (1999a). *Eight Ways of Knowing: Teaching for Multiple Intelligences* (3rd ed.). California: Corwin Press.

Lazear, D. (1999b). *Multiple Intelligence Approaches to Assessment: Solving the Assessment Conundrum* (Revised ed.). Chigago: Zephyr Press, Inc.

Lazear, D. (2000). *The Intelligent Curriculum: Using Multiple Intelligences to Develop Your Students' Full Potential.* Chicago: Zephyr Press.

Lazear, D. (2003). *Eight Ways of Teaching: The Artistry of Teaching with Multiple Intelligences* (4th ed.). California: Corwin Press.

Lazear, D. (2004). *Higher-Order Thinking: the Multiple Intelligences Way.* Chicago: Zephyr Press, Inc.

Levinson, B. (Director). (1988). *Rainman* [Motion Picture].

Lois Cohen, L. M. (2005). *Research Methods in Education* (5th ed.). London and New York: Routledge Falmer.

McKenzie, W. (2005). *Multiple Intelligences and Instructional Technology* (2nd ed.). bilmem: ISTE Publications.

Meneviş, İ., Doğruer, N., & Eyyam, R. (2009). Öğrencilerin Sözel-Dil Zekası ile Ana Dil, İkinci Dil ve Yabancı Dil Derslerindeki Başarılarının Karşılaştırılması. *18. Ulusal Eğitim Bilimleri Kurultayı* (s. 359-364). Izmir: Pegem Akademi.

Patten, M. L. (2005). *Understanding Research Methods: An Overview of the Essentials* (5th ed.). California: Pyrczak Publishing.

Reber, A. S., & Reber, E. S. (2001). *Dictionary of Psychology.* London: Penguin Group.

Reginald, T. (2007). *The Effects of a Multiple Intelligence Self-Assessment Intervention on Adolescents' Career Decision Self-Efficacy*. Unpublished PhD Dissertation. Walden University. USA.

Saban, A. (2004). *Çoklu Zeka Teorisi ve Eğitim* (4th b.). Ankara: Nobel Yayın Dağıtım.

Silver, H. F., Strong, R. W., & Perini, M. J. (2000). *So Each May Learn: Integrating Learning Styles and Multiple Intelligences.* Virginia: Association for Supervision and Curriculum Development Publishing.

Sözüdoğru, O., & Yaratan, H. (2011). *An Investigation on Multiple Intelligences: Relationship between University Students' Dominant Intelligence Types and Their Areas of Study.* Saarbrücken: LAMBERT Academic Publishing.

Stefanakis, E. H. (2002). *Multiple Intelligences and Portfolios: A Window into the Learner's Mind.* New Hampshire: Heinemann.

Suter, W. N. (1998). *Primer of Educational Research.* Boston: Allyn and Bacon.

Teacher Created Resources. (2006). *The Best of Multiple Intelligences Activities.* California: Teacher Created Resources, Inc.

Viens, J., & Kallenbach, S. (2004). *Multiple Intelligences and Adult Literacy: A Sourcebook for Practitioners.* New York: Teachers College Press.

Vogt, W. P. (2007). *Quantitative Research Methods for Professionals.* Boston: Pearson.

Wiersma, W., & Jurs, S. G. (2005). *Research Methods in Education: An Introduction* (8th ed.). New York: Pearson Education, Inc.

Wilkens, D. K. (2006). *Multiple Intelligences Activities: Grades K-4.* California: Teacher Created Resources, Inc.

Yavuz, B. (2010). The Effects of Multiple Intelligences Activities on Vocabulary Achievement and Attitudes of Learners of English. Unpublished PhD Dissertation. Dokuz Eylul University. Turkey.

Zweirs, J. (2006). *Developing Academic thinking Skills in Grades 6-12: A Handbook of Multiple Intelligence Activities* (3rd ed.). California: International Reading Association, Inc.

APPENDICES

APPENDIX A

KUZEY KIBRIS TÜRK CUMHURİYETİ
MİLLİ EĞİTİM GENÇLİK VE SPOR BAKANLIĞI
GENEL ORTAÖĞRETİM DAİRESİ MÜDÜRLÜĞÜ

Sayı: GOÖ.0.00.35-A/10/11- 176 **03.05.2011**

Sayın İpek Meneviş
Doğu Akdeniz Üniversitesi
Gazimağusa.

İlgi: 25.04.2011 tarihli başvurunuz.

Talim ve Terbiye Dairesi Müdürlüğü'nün TTD.0.00.03-12-11/425 sayı ve 03.05.2011 tarihli yazısı uyarınca ilgi başvurunuz incelenmiş olup müdürlüğümüze bağlı Gazimağusa Türk Maarif Koleji, Namık Kemal Lisesi, Polatpaşa Lisesi, Bekirpaşa Lisesi ve Doğu Akdeniz Koleji 10., 11. ve 12. sınıf öğrencilerine yönelik hazırlanan "Çoklu Zeka Envanteri" konulu anketin uygulanması müdürlüğümüzce uygun görülmüştür.

Ancak anketi uygulamadan önce anketin uygulanacağı okulların bağlı bulunduğu Müdürlükle istişarede bulunulup, anketin hangi okulda ne zaman uygulanacağı birlikte saptanmalıdır.

Anketi uyguladıktan sonra sonuçlarının Talim ve Terbiye Dairesi Müdürlüğü'ne ulaştırılması gerekmektedir.

Bilgilerinize saygı ile rica ederim.

Mehmet S. Kortay
Müdür

EU/PC

Tel (90) (392) 228 3136 – 228 8187
Fax (90) (392) 227 8639
E-mail mebi@mehmet.net
Lefkoşa-KIBRIS

APPENDIX B

Dear students,
This study is a part of a graduate thesis which aims to develop a Multiple Intelligences Inventory in order to guide you before your preferences for your higher education. The information you will provide will only be used in this study.
There are no right or wrong answers in this inventory. Please choose one of the alternatives provided for each item. Please read the statements below, choose the best alternative for you and mark it on the optic answer sheet.
Thank you for your contribution.

İpek Meneviş
Faculty of Education, Eastern Mediterranean University

SECTION I PERSONAL INFORMATION

Gender	: **a)** Girl	**b)** Boy		
Age	: **a)** 15	**b)** 16	**c)** 17	**d)** Other:
Nationality	: **a)** TRNC	**b)** TR	**c)** TRNC-TR	**d)** Other:
Place of Home	: **a)** City Centre	**b)** Rural	**c)** Village	
Income Level of Parents	: **a)** 1300 TL ≥	**b)** 1300 TL	**c)** 1301 – 2499 TL	**d)** 2500 - 4999 TL **e)** 5000 TL ≤
School Type	: **a)** State College	**b)** Private College	**c)** State High School	
School Name	:			
Mother's Job	:			
Father's Job	:			

SECTION II MULTIPLE INTELLIGENCES INVENTORY

No	**Items**	**a lot like me**	**like ne**	**not sure**	**a little like me**	**not like me at all**
1	I like reading novels/stories.					
2	I like solving mathematical problems.					
3	I like to observe.					
4	I like doing sports.					
5	I like listening to music.					
6	I like chatting with my friends and on the phone or on the computer.					
7	I see myself as an independent person who is not influenced by others.					

No	Items	a lot like me	like ne	not sure	a little like me	not like me at all
8	I like walking in the nature.					
9	I wonder and search how life started.					
10	I believe language courses and social sciences (history, geography, etc.) are easier than maths and science courses.					
11	I can de mathematical calculations in my head.					
12	I can easily understand plans, sketches and maps.					
13	When I express myself, I use gestures, mimics and body language.					
14	I like music lessons very much.					
15	I feel comfortable when I spend time with my friends.					
16	I like listening to stories.					
17	I can guess the outcomes of event beforehand.					
18	I like painting with colours.					
19	I like dancing.					
20	I like singing.					
21	I would like to be a member of a group or a team.					
22	I try to go away and calm myself in an argument.					
23	I attend activities in the nature such as camping or picnic.					
24	I try to enlarge my information about the existence of the universe.					
25	I like reading newspaper and magazines.					
26	I can easily remember numbers and statistical information (team scores, the height of mountains, etc.).					
27	When I read, I learn more from pictures than words.					
28	I like breaking things into pieces and rejoining them.					
29	I hum unconsciously while studying or working.					
30	I always greet people and inquire after health.					
31	I like telling stories.					
32	I like making lists.					
33	I can envision events easily.					
34	I like handcrafting.					

No	Items	a lot like me	like ne	not sure	a little like me	not like me at all
35	I can play a musical instrument.					
36	I have many friends.					
37	I have realistic opinions on myself, my strengths and weaknesses.					
38	I show utmost care to protect the nature, plants and animals in the nature.					
39	I like searching about religions.					
40	I can easily remember names of people.					
41	I like to repair broken things or the things that don't work.					
42	I can remember faces easier than names.					
43	I learn better by experiencing or doing..					
44	I am sensitive to the noise and disturbing sounds around me.					
45	I like studying with my friends to learn.					
46	I like reading poems.					
47	I can find my way in unknown places for me.					
48	I like taking photographs.					
49	I like creating things with my hands.					
50	I like rhyming words.					
51	I prefer team sports (basketball, volleyball, football) to individual sports (tennis, swimming cycling).					
52	If I believe in something I do my best to actualize it.					
53	I am against throwing waste products randomly to the environment.					
54	I would like to work on Arts.					
55	I can talk effectively in different settings.					
56	I can see the relationship between reasons and results.					
57	I like to draw figures/diagrams to solve problems.					
58	I feel at rest mentally when I do sports.					
59	I like making musical sounds with my body (murmuring, tapping, clapping, etc.).					
60	I feel uncomfortable while being watched when I do something.					
61	I like learning foreign languages.					

No	Items	a lot like me	like ne	not sure	a little like me	not like me at all
62	I can easily read graphs.					
63	I like watching DVD, VCD, TV, etc.					
64	I feel bored when I sit for a long time.					
65	I like to have background music while studying or working.					
66	I try to solve my problems with my friends rather than by myself.					
67	I always learn lessons from my mistakes.					
68	I support recycling in order to protect the nature.					
69	I wonder and search about stars and the sky.					
70	I can express myself well in writing.					
71	I like playing games like chess, checker.					
72	I have a good photographic memory.					
73	I am an active and lively person.					
74	I buy music CDs and download my favourite songs from the Internet.					
75	I organize activities to spend time with my friends.					
76	I like sending and receiving messages (e-mails, sms, mms).					
77	I believe that there is a reasonable explanation for everything.					
78	Graphs, tables, sketches help me understand things better.					
79	If I have to memorize something, I write it many times until I learn it.					
80	I feel at rest by listening to the voices in nature.					
81	I like teaching or helping friends.					
82	I like to be on my own in my free time.					
83	I usually like to spend time out of house in the nature.					
84	I wonder and search about why the world is like this.					
85	Taking notes helps me learn and remember things.					
86	I like number-related puzzles and logic games.					
87	I like visiting historical places.					
88	I like folk dances.					
89	I like going concerts.					

No	Items	a lot like me	like ne	not sure	a little like me	not like me at all
90	I don't feel discomfort when I enter various settings.					
91	I like word games and crosswords.					
92	I am neat and tidy.					
93	I look at photos on newspaper and magazines.					
94	I do at least a sport or physical activity.					
95	I cannot imagine a life without music.					
96	I like every kind of social activities.					
97	I have both short-term and long-term goals that I try to reach.					
98	I like to collect/examine things like stones, plants or fruits that are found in the nature.					
99	I wonder and search about what is happening in other planets.					
100	I prefer studying alone to studying with my friends.					
101	I am interested in other countries.					
102	I am interested in documentaries and films about nature.					
103	I wonder and search about my family tree.					
104	I like the courses which include ecology, nature, plants and animals.					
105	I like to write in a diary.					
106	I know many words in my native language.					
107	I don't start anything without thinking about and planning every single detail.					
108	I like to work on visual puzzles like jigsaws or mazes.					
109	I learn more comfortably by touching and feeling.					
110	I can easily remember the melody of songs.					
111	I prefer being in a crowd to being alone.					
112	I can evaluate events objectively.					
113	I like working in the garden, growing flowers and plants.					
114	I spend time to think about how everything looks as a whole.					
115	I don't care much about what other people think about me.					

No	Items	a lot like me	like ne	not sure	a little like me	not like me at all
116	I wonder and search about why people believe in Darwin's Theory (people evolve from monkeys.					
117	I am sensitive to the changes in nature and try to raise awareness of the people around me on these issues.					
118	I wonder and search about what happens after death.					
119	Extraordinary climate changes attract my attention.					
120	I am at peace with myself.					
121	It is easy for me to express what I see by using words.					
122	My mind is concentrated on "shapes/patterns", "regularities" or "logical sequences."					
123	I think geometry is easier than mathematical operations.					
124	It is easy to show rather than to express with words.					
125	I listen to music when I am tired.					
126	I attempt to meet new people.					
127	I can easily state the reasons and results of my actions.					
128	I try to learn the reasons and results of the events happening in nature.					
129	I spend time to think about how everything fits in the big picture.					
130	I spend time to think about the important issues.					
131	I wonder and search about why people believe that they are the children of Adam and Eve.					
132	I can easily recognise and classify plants and animals.					
133	I search about the ideas of philosophers.					
134	I like having pets.					
135	I am self-sufficient.					

APPENDIX C

Sevgili Öğrenciler,
Bu çalışma, Kıbrıslı Türk öğrencilerin üniversite eğitimine karar verirken rehber olabilecek çoklu zeka envanteri geliştirme amacını taşıyan yüksek lisans tezinin bir parçasıdır ve vereceğiniz yanıtlar bu çalışmada kullanılacaktır.
Bu envanterde doğru veya yanlış yanıtlar yoktur. Envanterde bulunan ifadeler için verilen seçeneklerden yalnızca bir tanesini seçmeniz gerekmektedir. Lütfen bütün soruları dikkatlice okuyarak uygun seçeneği optik cevap anahtarına işaretleyiniz.
Çalışmaya katkı koyduğunuz için teşekkür ederim.

İpek Meneviş
Eğitim Fakültesi, Doğu Akdeniz Üniversitesi

BÖLÜM I **KİŞİSEL BİLGİLER**

Cinsiyetiniz	: **a)** Kız	**b)** Erkek		
Yaşınız	: **a)** 15	**b)** 16	**c)** 17	**d)** Diğer:
Uyruğunuz	: **a)** KKTC	**b)** TC	**c)** KKTC-TC	**d)** Diğer:
Yaşadığınız yer	: **a)** Şehir Merkezi	**b)** Şehir Dışı	**c)** Köy	
Ailenizin Gelir Düzeyi	: **a)** 1300 TL ≥	**b)** 1300 TL	**c)** 1301 – 2499 TL	**d)** 2500 - 4999 TL **e)** 5000 TL ≤
Okul Türü	: **a)** Devlet Koleji	**b)** Özel kolej	**c)** Devlet Lisesi	
Okulunuzun adı	:			
Annenizin Mesleği	:			
Babanızın Mesleği	:			

BÖLÜM II **ÇOKLU ZEKA ENVANTERİ**

No	Maddeler	Bana çok uygun	Bana biraz uygun	Kararsızım	Bana pek uygun değil	Bana hiç uygun değil
1	Roman/hikaye okumayı severim.					
2	Matematik problemlerini çözmeyi severim.					
3	Gözlem yapmayı severim.					
4	Spor yapmayı severim.					
5	Müzik dinlemeyi severim.					
6	Arkadaşlarımla bilgisayarda veya cep telefonu ile sohbet etmeyi (chat yapmayı) severim.					
7	Kendimi bağımsız ve hiçbir kitlenin etkisi altında kalmayan birisi olarak görürüm.					
8	Doğada yürüyüş yapmayı severim.					

No	Maddeler	Bana çok uygun	Bana biraz uygun	Kararsızım	Bana pek uygun değil	Bana hiç uygun değil
9	Yaşamın nasıl başladığını düşünür, araştırırım.					
10	Bence dil dersleri ve sosyal bilimler (tarih, coğrafya, vs.) dersleri, matematik veya fen bilimleri derslerinden daha kolaydır.					
11	Kafamdan matematik işlemleri yapabilirim.					
12	Plan, kroki ya da haritaları kolaylıkla anlayabilirim.					
13	Kendimi ifade ederken jest, mimik ve vücut dilimi çok kullanırım.					
14	Müzik dersini çok severim.					
15	Arkadaşlarımla zaman geçirmek beni rahatlatır.					
16	Hikaye dinlemeyi severim.					
17	Bazı olayların sonuçlarını önceden tahmin edebilirim.					
18	Boyayla resim yapmayı severim.					
19	Dans etmeyi severim.					
20	Şarkı söylemeyi severim.					
21	Bir takımın ya da bir grubun üyesi olmak isterim.					
22	Bir tartışma sırasında oradan uzaklaşır sakinleşmeye çalışırım.					
23	Piknik ve kamp yapmak gibi doğa aktivitelerine katılırım.					
24	Evrenin varoluşu hakkında bilgimi artırmaya çalışırım.					
25	Gazete ve dergi okumayı severim.					
26	Rakamları ve istatistiksel bilgileri (takım skorları, en yüksek dağın yüksekliği, vs.) kolayca hatırlarım.					
27	Okurken kelimelerden daha çok resimlerden öğrenirim.					
28	Bir şeyi parçalarına ayırmayı ve onları tekrar birleştirmeyi çok severim.					
29	İş yaparken, çalışırken farkında olmadan mırıldanırım.					
30	Çevremdeki insanlara daima selam veririm, hatırlarını sorarım.					

No	Maddeler	Bana çok uygun	Bana biraz uygun	Kararsızım	Bana pek uygun değil	Bana hiç uygun değil
31	Hikaye anlatmayı severim.					
32	Liste yapmayı severim.					
33	Kafamda olayları kolayca canlandırabilirim.					
34	El sanatları ile uğraşmayı severim.					
35	Bir müzik aleti çalabilirim.					
36	Geniş bir arkadaş çevrem vardır.					
37	Kendimle ilgili konularda güçlü yönlerim ve zayıf yönlerimle ilgili olarak gerçekçi görüşlere sahibim.					
38	Doğayı ve doğadaki bitki ve hayvanları korumaya dikkat ederim.					
39	Din konusunu araştırmayı severim.					
40	İnsanların isimlerini kolayca hatırlayabilirim.					
41	Arızalı, çalışmayan bir şeyi tamir etmekten hoşlanırım.					
42	Yüzleri isimlerden daıa kolay hatırlarım.					
43	Bir şeyi en iyi,yaşayarak ve yaparak öğrenirim.					
44	Çevremdeki gürültülere ve rahatsız edũci seslere karşı duyarlıyım.					
45	Arkadaşlarımla ortak çalışma yaparak öğrenmeyi severim.					
46	Şiir okumayı severim.					
47	Tanımadığım bir ortamda gideceğim yeri bulabilirim.					
48	Fotoğraf çekmeyi severim.					
49	Ellerimi kullanarak bir şeyler üretmeyi, yaratmayı severim.					
50	Sözcükleri kafiyeli olarak kullanmayı severim.					
51	Takım sporlarını (basketbol, voleybol, futbol) kişisel sporlara (tenis, yüzme, bisiklet) tercih ederim.					
52	Bir şeye inanırsam onu gerçekleştirmek için çok çaba harcarım.					
53	Atıkların doğaya gelişigüzel bırakılmasına karşıyım.					
54	Sanat konusunda çalışmalar yapmak isterim.					

No	Maddeler	Bana çok uygun	Bana biraz uygun	Kararsızım	Bana pek uygun değil	Bana hiç uygun değil
55	Çeşitli ortamlarda etkili bir biçimde konuşabilirim.					
56	Nedenler ve sonuçlar arasındaki ilişkiyi farkedebilirim.					
57	Problem çözmek için şekiller çizmeyi severim.					
58	Spor yaptığımda zihinsel olarak rahatlarım.					
59	Vücudumla müzik sesleri çıkarmayı (mırıldanma, el çırpma, parmaklarla tempo tutma, parmakları şıklatma) severim.					
60	Bir işi yaparken izlenmekten rahatsız olurum.					
61	Yabancı dil öğrenmeyi severim.					
62	Grafikleri rahatlıkla anlayabilirim.					
63	DVD, VCD, TV, vs. seyretmeyi severim.					
64	Uzun süre bir yerde oturmaktan sıkılırım.					
65	İş yaparken, çalışırken arkadan hafif bir müzik çalmasını tercih ederim.					
66	Bir problemim olduğu zaman onu kendi başıma değil yakın arkadaşlarımla çözmeyi denerim.					
67	Yaşadıklarımdan ders çıkarırım.					
68	Doğayı korumak için geri dönüşümü desteklerim.					
69	Yıldızları ve gökyüzünü merak eder, araştırırım.					
70	Yazılı olarak kendimi iyi ifade edebilirim.					
71	Satranç, dama gibi oyunlar oynamayı severim.					
72	Fotografik hafızam iyidir.					
73	Hareketli ve aktif bir insanım.					
74	Müzik CD'leri alırım veya sevdiğim müzikleri internetten indiririm.					
75	Arkadaşlarımla beraber katılacağım aktiviteler düzenlerim.					
76	Mesajlaşmayı (e-posta, kısa mesaj) severim.					
77	Her şeyin mantıklı bir açıklaması olduğunu düşünürüm.					
78	Grafikler, tablolar, şekiller benim olayları daha iyi anlamamı sağlar.					

No	Maddeler	Bana çok uygun	Bana biraz uygun	Kararsızım	Bana pek uygun değil	Bana hiç uygun değil
79	Bir şey ezberlemem gerekirse onu öğreninceye kadar defalarca yazarım.					
80	Doğadaki sesleri dinlemek çok dinlendiricidir.					
81	Arkadaşlarıma bir şeyler öğretmeyi ya da onlara yardım etmeyı severim.					
82	Boş zamanlarımda tek başıma olmayı severim.					
83	Genelde ev dışında, doğada zaman geçirmeyi severim.					
84	Dünyanın neden bu şekilde olduğunu merak eder, araştırırım.					
85	Not tutmak bir şeyleri anlamamı ve hatırlamamı kolaylaştırır.					
86	Sayı bulmacalarını ve mantık oyunlarını severim.					
87	Tarihi yerleri ziyaret etmeyi severim.					
88	Halk danslarını severim.					
89	Konsere gitmeyi severim.					
90	Değişik ortamlara girmekten rahatsızlık hissetmem.					
91	Kelime oyunlarını ve bulmacaları severim.					
92	Düzenli ve titizim.					
93	Bir magazin ya da gazetede daha çok fotoğraflara bakarım.					
94	En az bir spor veya bir fiziksel aktivite yaparım.					
95	Müziksiz bir hayat düşünemiyorum.					
96	Her çeşit sosyal aktiviteden hoşlanırım.					
97	Başarmaya uğraştığım kısa ve uzun vadeli hedeflerim vardır.					
98	Taş, bitki ve meyve gibi doğadan gelen şeyleri toplamayı/incelemeyi severim.					
99	Diğer gezegenlerde neler olduğunu merak eder, araştırırım.					
100	Başkalarıyla beraber çalışmaktansa, yalnız çalışmayı tercih ederim.					
101	Değişik ülkelere ilgi duyarım.					
102	Belgeseller ve doğayla ilgili hazırlanmış filmlere ilgi duyarım.					

No	Maddeler	Bana çok uygun	Bana biraz uygun	Kararsızım	Bana pek uygun değil	Bana hiç uygun değil
103	Soyağacımı merak eder ve araştırırım.					
104	Ekoloji (çevre bilimi), doğa, bitkiler, hayvanlar ile ilgili konuların işlendiği dersleri çok severim.					
105	Günlük tutmayı severim.					
106	Anadilimde geniş bir sözcük dağarcığım vardır.					
107	Her detayı düşünüp planlamadan yapmam gereken işlere başlamam.					
108	Yapbozları ve labirent oyunları gibi görsel bulmacaları çözmeyi severim.					
109	Dokunarak, hissederek daha rahat öğrenirim.					
110	Şarkıların melodilerini kolaylıkla hatırlarım.					
111	Kalabalığın içinde olmayı yalnız kalmaya tercih ederim.					
112	Olayları tarafsız olarak değerlendirebilirim.					
113	Bahçe işleriyle uğraşmayı, çiçek ve bitki yetiştirmeyi severim.					
114	Her şeyin bir bütün olarak nasıl göründüğünü düşünürüm.					
115	Diğer insanların benim hakkımda ne düşündüklerine çok kafa yormam.					
116	İnsanların neden Darwin Teorisi'ne (insanlar evrim geçirmiş ilkel hayvanlardan gelmiştir) inandığını düşünür, araştırırım.					
117	Doğada meydana gelen değişimlere karşı duyarlı davranır ve çevremdekileri bilinçlendirmeye çalışırım.					
118	Ölümden sonra ne olduğunu merak eder, araştırırım.					
119	Olağanüstü iklim değişiklikleri ilgimi çeker.					
120	Kendimle barışık bir insanım.					
121	Gördüklerimi kelimelerle ifade etmek benim için kolaydır.					
122	Beynim her zaman "şekiller/desenler", "düzenlilikler" ya da "mantıksal sıralamalar" ı arar.					
123	Geometri bana matematik işlemlerinden daha kolay gelir.					

No	Maddeler	Bana çok uygun	Bana biraz uygun	Kararsızım	Bana pek uygun değil	Bana hiç uygun değil
124	Göstererek yapmak anlatarak yapmaktan daha iyidir.					
125	Yorulduğumda müzik dinlerim.					
126	Yeni insanlarla tanışmak için girişimlerde bulunurum.					
127	Davranışlarımın neden ve sonuçlarını kolaylıkla ortaya koyarım.					
128	Doğada meydana gelen olayların neden ve sonuçlarını öğrenmeye çalışırım.					
129	Parçaların bütünün içinde nasıl yerleştirildiklerini düşünürüm.					
130	Benim için önemli olan konular üzerine düşünürüm.					
131	İnsanların neden Adem ve Havva'dan geldiklerine inandıklarını merak eder, araştırırım.					
132	Bitkileri/hayvanları kolaylıkla tanır ve sınıflandırırım.					
133	Filozofların düşüncelerini araştırım.					
134	Evcil hayvan beslemeyi severim.					
135	Kendi kendime yetebilirim.					

APPENDIX D

Rotated Factor Matrix(a)

	1	2	3	4	5	6	7	8	9
E1	.537	.241	.151	.078	.026	-.061	.097	.048	-.081
E10	.246	.288	.170	.128	.167	.020	.103	.018	.249
E11	.635	.056	.041	-.009	-.096	-.039	.148	.085	.002
E12	.400	.067	.083	-.043	.056	.131	.069	-.031	.198
E13	.409	.191	.079	.051	.024	.007	.267	.145	.313
E14	.554	.037	.008	-.056	.012	.159	.004	-.051	.255
E15	.516	.097	.122	.020	-.025	.072	.014	.074	-.080
E2	.578	.244	.055	.174	-.007	-.053	.082	.090	-.157
E4	.188	.102	.518	.146	.197	-.075	.008	.094	.013
E5	.643	-.028	.114	.201	-.016	-.014	.072	.067	-.073
E7	.632	-.005	.115	.133	-.013	-.048	.061	.091	-.055
E8	.030	.154	.047	.073	.350	.005	-.008	-.098	-.145
E9	.349	.051	.156	.205	.029	.108	.124	.104	.158
E3	.364	.070	.062	.095	-.126	-.018	.118	-.055	.228
E6	.674	.010	.115	.147	-.036	-.028	.150	.118	-.105
Inter1	.100	-.068	.012	-.120	.279	.362	-.032	-.020	-.069
Inter10	-.014	.127	.075	.028	.268	.501	-.004	.220	-.068
Inter11	.042	.285	.073	.311	.245	.272	-.020	-.100	.053
Inter12	.060	.109	.067	-.040	.217	.313	.025	.130	-.014
Inter13	.052	.214	.230	.134	.182	.368	.001	.328	-.083
Inter14	.044	.027	.133	.043	-.048	.058	-.064	.027	.071
Inter15	.118	.254	.112	.018	.151	.418	.052	.171	.129
Inter2	-.107	.163	.091	.084	.192	.351	-.028	-.002	.065
Inter3	-.030	.182	.044	.090	.263	.197	.031	.259	-.215
Inter4	-.076	.219	.027	.144	.055	.477	.039	.037	.120
Inter5	-.051	.135	.037	.016	.117	.494	-.021	.228	-.025
Inter6	.069	.133	.174	.182	.109	.285	.009	.068	-.062
Inter7	.117	-.035	.005	.052	.033	.112	.078	.245	.004
Inter8	.006	.058	.014	.070	.037	-.062	.053	-.216	.029
Inter9	.166	-.017	.179	.006	.082	.388	-.079	-.011	-.024
Intra1	.107	.101	-.015	-.090	-.013	-.037	.109	.247	-.031
Intra10	.090	.351	.063	.201	.098	-.068	.036	.109	-.029
Intra11	.118	.018	-.006	-.015	.058	.090	.076	.093	.091
Intra12	-.044	.225	.074	-.008	.116	.255	.060	.175	.075
Intra13	.111	.562	.002	.087	.102	.071	-.036	.018	.142
Intra14	-.051	.433	.065	.174	.176	.027	.055	-.075	.087
Intra15	.101	.267	-.050	-.042	.166	.054	-.028	.140	-.041
Intra2	.139	.078	.047	.171	.007	.025	.136	-.062	-.020
Intra3	-.009	.458	.067	.117	.109	.041	.053	.052	-.070
Intra4	.042	.368	.085	.121	.171	.181	.048	.027	.114
Intra5	.055	.408	.024	.045	.135	.173	.016	-.040	.015
Intra6	.142	.142	.026	-.015	.045	-.185	.014	-.082	.086
Intra7	.067	.386	.041	.185	.198	.049	.065	-.026	-.009
Intra8	.100	.102	.077	.130	.037	-.122	.018	-.054	-.050

	1	2	3	4	5	6	7	8	9
Intra9	.174	.059	.472	.080	-.094	.194	.060	-.160	.024
K1	.040	-.052	.110	.037	-.048	.243	.069	.426	.121
K10	-.061	.151	.082	.035	.035	.381	.047	.401	.093
K11	.165	.156	.110	.139	-.028	.224	-.040	-.019	.103
K12	.013	.070	.386	.065	.123	.292	.075	.088	-.079
K13	-.015	.155	.023	.049	-.014	.221	.026	.514	-.013
K14	.074	.203	.144	.144	.179	.110	.024	.095	.149
K15	.011	.160	.093	.162	.250	-.025	.053	.044	.066
K2	-.071	.444	.226	.002	.120	.130	.004	.148	-.095
K3	-.087	.149	.516	.047	.184	.297	.059	.046	-.098
K4	.183	.000	.122	.116	.022	-.040	.290	.125	.287
K5	.094	-.031	.468	.266	.039	-.036	.021	.157	.201
K6	-.049	.213	-.018	.151	.310	.084	-.060	.079	.064
K7	.214	.057	.204	.217	.180	-.002	.151	.247	.270
K8	-.001	.084	.070	.243	.088	.193	.134	.329	.023
K9	-.005	.100	.119	.099	.008	.136	.028	-.060	.003
L1	-.054	.078	.010	.095	-.070	.105	.739	-.082	-.115
L10	.301	-.124	.045	.034	.016	.072	.284	.190	.063
L11	.103	.358	-.066	.059	.183	.128	.010	-.045	.036
L12	.149	-.009	.078	.130	-.007	.044	.585	.117	.034
L13	.010	.176	.155	.252	-.125	.188	.101	.065	.085
L14	.070	.309	.109	.076	-.038	.162	-.004	.043	.108
L15	.143	.188	.074	.024	-.018	.035	.324	.189	.137
L2	.024	.034	-.062	-.009	-.034	-.001	.657	.197	-.086
L3	.046	.456	.142	.015	.134	-.010	.006	.074	.006
L4	.189	.155	-.028	-.111	-.022	.054	.229	.374	.040
L5	.089	.288	.256	.211	.047	.112	.154	-.003	-.028
L6	.257	-.187	-.079	-.012	-.013	.000	.265	.317	.381
L7	.055	.255	.023	.026	.009	.157	.231	.398	-.021
L8	.166	.494	.089	.042	.064	.056	.060	.082	-.037
L9	.182	.085	.016	.095	.062	-.170	.300	.437	.002
M1	-.036	.044	-.001	-.023	.471	.123	-.046	-.001	.029
M10	.043	.100	-.012	.069	.504	.139	-.005	.053	-.104
M11	.139	.193	.170	.337	.092	.113	.082	.036	.155
M12	-.125	.083	.072	.084	.534	.317	-.017	-.021	-.214
M13	-.093	.064	.202	-.035	.618	.037	-.009	-.008	.070
M14	.003	.241	.208	-.040	.490	-.006	.072	.059	.072
M15	.021	.215	.180	-.024	.462	.118	.079	-.066	.026
M2	.002	.122	.446	.061	.240	.056	-.001	.057	.111
M3	-.018	.152	.521	-.055	.395	.159	.086	.027	-.051
M4	.093	.104	.244	.034	.134	.215	.092	-.114	.076
M5	.068	-.010	.326	.001	.166	.042	.127	.115	-.096
M6	.163	.272	-.004	.149	-.069	-.003	.086	-.068	-.015
M7	.196	.168	.260	.007	.042	.105	.022	.089	.065
M8	.040	.032	.272	.022	.274	.123	.147	.066	.102
M9	-.032	.120	.094	.005	.271	.166	-.054	.009	.219
N1	-.021	.090	.262	.477	.005	.120	.004	-.044	.007

	1	2	3	4	5	6	7	8	9
N10	.152	-.011	.185	.456	-.003	.141	.186	.132	.251
N11	.378	.187	.089	.373	.066	.026	.182	.038	.029
N12	.448	.055	.008	.284	.036	.027	.092	.092	.183
N13	.442	.210	-.002	.237	-.045	.020	.038	.138	.193
N14	.147	.068	.036	.217	.059	.050	.004	.384	.164
N15	.063	-.066	.112	.221	.205	.162	-.012	.237	.041
N2	.006	.017	.081	.202	.014	.460	.016	.088	.017
N3	.098	.217	.077	.504	.060	.078	.018	.034	-.009
N4	.064	.219	.010	.406	.179	-.011	.095	-.074	-.144
N5	.102	.221	.006	.486	.077	-.021	.092	-.041	-.158
N6	.081	.010	.224	.256	.032	.242	.034	.149	.181
N7	.194	.002	.202	.543	-.006	.115	.182	.018	.151
N8	.317	.031	-.107	.311	.055	-.060	.032	.240	.056
N9	.279	.038	.138	.478	-.019	.032	.141	.149	.076
Ve1	.073	.452	.370	.189	-.011	-.013	.083	-.239	-.197
Ve10	.205	.257	.291	.050	.077	.158	-.053	.060	-.078
Ve11	.089	.064	.042	-.084	.297	.414	-.010	-.042	-.032
Ve12	.055	.227	.278	.265	.151	.118	.035	-.196	-.063
Ve13	.138	.071	.192	.215	.104	.033	.304	.120	.019
Ve14	.106	.333	.199	.032	.055	.025	-.048	.231	-.009
Ve15	-.028	.441	.115	.030	.059	.164	-.071	.098	.042
Ve2	.055	.137	.173	-.010	.050	.069	-.269	.085	-.088
Ve3	.084	.297	.434	.228	-.007	-.029	.016	-.149	-.044
Ve4	.104	.325	.139	.279	.149	.193	-.038	.063	-.128
Ve5	.117	.348	.483	.183	-.020	.082	.046	-.091	.010
Ve6	.019	.128	.029	.007	.089	.147	.016	.079	.022
Ve7	.188	.227	.495	.129	-.030	.139	.039	-.013	-.017
Ve8	.162	.485	.207	-.122	-.071	.188	.008	.311	-.081
Ve9	.200	.068	.087	.180	.200	.050	-.002	.042	-.151
Vi1	.151	.203	.171	.286	-.002	-.041	.158	.075	-.058
Vi10	.118	.139	.122	.104	.236	.013	.122	.352	.101
Vi11	.177	.125	.058	.193	.123	-.092	.319	.137	.117
Vi12	.263	.097	.147	.281	.106	.037	.010	.098	.090
Vi13	-.178	.000	.180	.103	.225	.124	.042	.080	.138
Vi14	.161	.029	.169	.185	.020	-.029	.355	.038	.159
Vi15	.209	-.018	.072	.063	.039	.042	.413	.110	.039
Vi2	.152	.041	.023	.077	.026	-.194	.269	.372	.036
Vi3	.148	.017	.538	.191	.064	-.031	.062	.103	.153
Vi4	.042	.049	.178	.145	.182	.005	.194	.058	.141
Vi5	.023	.385	.102	.088	.255	-.042	.081	.137	-.008
Vi6	.015	.104	-.042	.143	.248	.165	.039	.173	.132
Vi7	.065	.140	.236	.123	.247	.185	-.014	.046	.023
Vi8	.265	.065	.086	.096	.075	-.055	.547	.062	-.003
Vi9	-.029	.142	-.028	.084	.369	.096	.016	.021	.036

APPENDIX E

MULTIPLE INTELLIGENCES INVENTORY

No	Items	a lot like me	like ne	not sure	a little like me	not like me at all
1.	I like reading novels/stories.					
2.	I like solving mathematical problems.					
3.	I like doing sports.					
4.	I like listening to music.					
5.	I like chatting with my friends and on the phone or on the computer.					
6.	I like walking in the nature.					
7.	I wonder and search how life started.					
8.	I believe language courses and social sciences (history, geography, etc.) are easier than maths and science courses.					
9.	I can de mathematical calculations in my head.					
10.	I can easily understand plans, sketches and maps.					
11.	When I express myself, I use gestures, mimics and body language.					
12.	I like music lessons very much.					
13.	I feel comfortable when I spend time with my friends.					
14.	I can guess the outcomes of event beforehand.					
15.	I like singing.					
16.	I would like to be a member of a group or a team.					
17.	I attend activities in the nature such as camping or picnic.					
18.	I try to enlarge my information about the existence of the universe.					
19.	When I read, I learn more from pictures than words.					

No	Items	a lot like me	like ne	not sure	a little like me	not like me at all
20.	I always greet people and inquire after health.					
21.	I like telling stories.					
22.	I can envision events easily.					
23.	I can play a musical instrument.					
24.	I have many friends.					
25.	I have realistic opinions on myself, my strengths and weaknesses.					
26.	I show utmost care to protect the nature, plants and animals in the nature.					
27.	I like searching about religions.					
28.	I can easily remember names of people.					
29.	I like to repair broken things or the things that don't work.					
30.	I can remember faces easier than names.					
31.	I learn better by experiencing or doing..					
32.	I am sensitive to the noise and disturbing sounds around me.					
33.	I like studying with my friends to learn.					
34.	I like reading poems.					
35.	I can find my way in unknown places for me.					
36.	I like taking photographs.					
37.	I prefer team sports (basketball, volleyball, football) to individual sports (tennis, swimming cycling).					
38.	If I believe in something I do my best to actualize it.					
39.	I am against throwing waste products randomly to the environment.					
40.	I like to draw figures/diagrams to solve problems.					
41.	I feel at rest mentally when I do sports.					
42.	I like making musical sounds with my body (murmuring, tapping, clapping, etc.).					

No	Items	a lot like me	like ne	not sure	a little like me	not like me at all
43.	I feel uncomfortable while being watched when I do something.					
44.	I like learning foreign languages.					
45.	I feel bored when I sit for a long time.					
46.	I try to solve my problems with my friends rather than by myself.					
47.	I always learn lessons from my mistakes.					
48.	I support recycling in order to protect the nature.					
49.	I wonder and search about stars and the sky.					
50.	I can express myself well in writing.					
51.	I have a good photographic memory.					
52.	I am an active and lively person.					
53.	I buy music CDs and download my favourite songs from the Internet.					
54.	I believe that there is a reasonable explanation for everything.					
55.	Graphs, tables, sketches help me understand things better.					
56.	I like teaching or helping friends.					
57.	I usually like to spend time out of house in the nature.					
58.	I wonder and search about why the world is like this.					
59.	Taking notes helps me learn and remember things.					
60.	I like number-related puzzles and logic games.					
61.	I like folk dances.					
62.	I like going concerts.					
63.	I don’t feel discomfort when I enter various settings.					
64.	I like word games and crosswords.					
65.	I am neat and tidy.					
66.	I do at least a sport or physical activity.					

No	Items	a lot like me	like ne	not sure	a little like me	not like me at all
67.	I have both short-term and long-term goals that I try to reach.					
68.	I like to collect/examine things like stones, plants or fruits that are found in the nature.					
69.	I wonder and search about what is happening in other planets.					
70.	I prefer studying alone to studying with my friends.					
71.	I am interested in other countries.					
72.	I am interested in documentaries and films about nature.					
73.	I wonder and search about my family tree.					
74.	I like the courses which include ecology, nature, plants and animals.					
75.	I like to write in a diary.					
76.	I know many words in my native language.					
77.	I learn more comfortably by touching and feeling.					
78.	I can easily remember the melody of songs.					
79.	I like working in the garden, growing flowers and plants.					
80.	I spend time to think about how everything looks as a whole.					
81.	I am sensitive to the changes in nature and try to raise awareness of the people around me on these issues.					
82.	I wonder and search about what happens after death.					
83.	Extraordinary climate changes attract my attention.					
84.	I am at peace with myself.					
85.	My mind is concentrated on “shapes/patterns”, “regularities” or “logical sequences.”					
86.	I listen to music when I am tired.					

No	Items	a lot like me	like ne	not sure	a little like me	not like me at all
87.	I attempt to meet new people.					
88.	I try to learn the reasons and results of the events happening in nature.					
89.	I spend time to think about how everything fits in the big picture.					
90.	I wonder and search about why people believe that they are the children of Adam and Eve.					
91.	I can easily recognise and classify plants and animals.					
92.	I search about the ideas of philosophers.					
93.	I like having pets.					

APPENDIX F

ÇOKLU ZEKA ENVANTERİ

No	Maddeler	Bana çok uygun	Bana biraz uygun	Kararsızım	Bana pek uygun değil	Bana hiç uygun değil
1.	Roman/hikaye okumayı severim.					
2.	Matematik problemlerini çözmeyi severim.					
3.	Spor yapmayı severim.					
4.	Müzik dinlemeyi severim.					
5.	Arkadaşlarımla bilgisayarda veya cep telefonu ile sohbet etmeyi (chat yapmayı) severim.					
6.	Doğada yürüyüş yapmayı severim.					
7.	Yaşamın nasıl başladığını düşünür, araştırırım.					
8.	Bence dil dersleri ve sosyal bilimler (tarih, coğrafya, vs.) dersleri, matematik veya fen bilimleri derslerinden daha kolaydır.					
9.	Kafamdan matematik işlemleri yapabilirim.					
10.	Plan, kroki ya da haritaları kolaylıkla anlayabilirim.					
11.	Kendimi ifade ederken jest, mimik ve vücut dilimi çok kullanırım.					
12.	Müzik dersini çok severim.					
13.	Arkadaşlarımla zaman geçirmek beni rahatlatır.					
14.	Bazı olayların sonuçlarını önceden tahmin edebilirim.					
15.	Şarkı söylemeyi severim.					
16.	Bir takımın ya da bir grubun üyesi olmak isterim.					
17.	Piknik ve kamp yapmak gibi doğa aktivitelerine katılırım.					
18.	Evrenin varoluşu hakkında bilgimi artırmaya çalışırım.					
19.	Okurken kelimelerden daha çok resimlerden öğrenirim.					
20.	Çevremdeki insanlara daima selam veririm, hatırlarını sorarım.					
21.	Hikaye anlatmayı severim.					
22.	Kafamda olayları kolayca canlandırabilirim.					
23.	Bir müzik aleti çalabilirim.					

No	Maddeler	Bana çok uygun	Bana biraz uygun	Kararsızım	Bana pek uygun değil	Bana hiç uygun değil
24.	Geniş bir arkadaş çevrem vardır.					
25.	Kendimle ilgili konularda güçlü yönlerim ve zayıf yönlerimle ilgili olarak gerçekçi görüşlere sahibim.					
26.	Doğayı ve doğadaki bitki ve hayvanları korumaya dikkat ederim.					
27.	Din konusunu araştırmayı severim.					
28.	İnsanların isimlerini kolayca hatırlayabilirim.					
29.	Arızalı, çalışmayan bir şeyi tamir etmekten hoşlanırım.					
30.	Yüzleri isimlerden daha kolay hatırlarım.					
31.	Bir şeyi en iyi, yaşayarak ve yaparak öğrenirim.					
32.	Çevremdeki gürültülere ve rahatsız edici seslere karşı duyarlıyım.					
33.	Arkadaşlarımla ortak çalışma yaparak öğrenmeyi severim.					
34.	Şiir okumayı severim.					
35.	Tanımadığım bir ortamda gideceğim yeri bulabilirim.					
36.	Fotoğraf çekmeyi severim.					
37.	Takım sporlarını (basketbol, voleybol, futbol) kişisel sporlara (tenis, yüzme, bisiklet) tercih ederim.					
38.	Bir şeye inanırsam onu gerçekleştirmek için çok çaba harcarım.					
39.	Atıkların doğaya gelişigüzel bırakılmasına karşıyım.					
40.	Problem çözmek için şekiller çizmeyi severim.					
41.	Spor yaptığımda zihinsel olarak rahatlarım.					
42.	Vücudumla müzik sesleri çıkarmayı (mırıldanma, el çırpma, parmaklarla tempo tutma, parmakları şıklatma) severim.					
43.	Bir işi yaparken izlenmekten rahatsız olurum.					
44.	Yabancı dil öğrenmeyi severim.					
45.	Uzun süre bir yerde oturmaktan sıkılırım.					
46.	Bir problemim olduğu zaman onu kendi başıma değil yakın arkadaşlarımla çözmeyi denerim.					

No	Maddeler	Bana çok uygun	Bana biraz uygun	Kararsızım	Bana pek uygun değil	Bana hiç uygun değil
47.	Yaşadıklarımdan ders çıkarırım.					
48.	Doğayı korumak için geri dönüşümü desteklerim.					
49.	Yıldızları ve gökyüzünü merak eder, araştırırım.					
50.	Yazılı olarak kendimi iyi ifade edebilirim.					
51.	Fotografik hafızam iyidir.					
52.	Hareketli ve aktif bir insanım.					
53.	Müzik CD'leri alırım veya sevdiğim müzikleri internetten indiririm.					
54.	Her şeyin mantıklı bir açıklaması olduğunu düşünürüm.					
55.	Grafikler, tablolar, şekiller benim olayları daha iyi anlamamı sağlar.					
56.	Arkadaşlarıma bir şeyler öğretmeyi ya da onlara yardım etmeyi severim.					
57.	Genelde ev dışında, doğada zaman geçirmeyi severim.					
58.	Dünyanın neden bu şekilde olduğunu merak eder, araştırırım.					
59.	Not tutmak bir şeyleri anlamamı ve hatırlamamı kolaylaştırır.					
60.	Sayı bulmacalarını ve mantık oyunlarını severim.					
61.	Halk danslarını severim.					
62.	Konsere gitmeyi severim.					
63.	Değişik ortamlara girmekten rahatsızlık hissetmem.					
64.	Kelime oyunlarını ve bulmacaları severim.					
65.	Düzenli ve titizim.					
66.	En az bir spor veya bir fiziksel aktivite yaparım.					
67.	Başarmaya uğraştığım kısa ve uzun vadeli hedeflerim vardır.					
68.	Taş, bitki ve meyve gibi doğadan gelen şeyleri toplamayı/incelemeyi severim.					
69.	Diğer gezegenlerde neler olduğunu merak eder, araştırırım.					
70.	Başkalarıyla beraber çalışmaktansa, yalnız çalışmayı tercih ederim.					

No	Maddeler	Bana çok uygun	Bana biraz uygun	Kararsızım	Bana pek uygun değil	Bana hiç uygun değil
71.	Değişik ülkelere ilgi duyarım.					
72.	Belgeseller ve doğayla ilgili hazırlanmış filmlere ilgi duyarım.					
73.	Soyağacımı merak eder ve araştırırım.					
74.	Ekoloji (çevre bilimi), doğa, bitkiler, hayvanlar ile ilgili konuların işlendiği dersleri çok severim.					
75.	Günlük tutmayı severim.					
76.	Anadilimde geniş bir sözcük dağarcığım vardır.					
77.	Dokunarak, hissederek daha rahat öğrenirim.					
78.	Şarkıların melodilerini kolaylıkla hatırlarım.					
79.	Bahçe işleriyle uğraşmayı, çiçek ve bitki yetiştirmeyi severim.					
80.	Her şeyin bir bütün olarak nasıl göründüğünü düşünürüm.					
81.	Doğada meydana gelen değişimlere karşı duyarlı davranır ve çevremdekileri bilinçlendirmeye çalışırım.					
82.	Ölümden sonra ne olduğunu merak eder, araştırırım.					
83.	Olağanüstü iklim değişiklikleri ilgimi çeker.					
84.	Kendimle barışık bir insanım.					
85.	Beynim her zaman "şekiller/desenler", "düzenlilikler" ya da "mantıksal sıralamalar" ı arar.					
86.	Yorulduğumda müzik dinlerim.					
87.	Yeni insanlarla tanışmak için girişimlerde bulunurum.					
88.	Doğada meydana gelen olayların neden ve sonuçlarını öğrenmeye çalışırım.					
89.	Parçaların bütünün içinde nasıl yerleştirildiklerini düşünürüm.					
90.	İnsanların neden Adem ve Havva'dan geldiklerine inandıklarını merak eder, araştırırım.					
91.	Bitkileri/hayvanları kolaylıkla tanır ve sınıflandırırım.					
92.	Filozofların düşüncelerini araştırım.					
93.	Evcil hayvan beslemeyi severim.					