AN ACTION RESEARCH ON PROGRAM DEVELOPMENT PROCESS FOR DETERMINING MULTIPLE INTELLIGENCES PROFILES OF 1ST, 2ND AND 3RD GRADERS

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NİDA TEMİZ

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_____

Prof. Dr. Meliha Altunışık
Director

I certify that this thesis satisfies all the requirements as a thesis for the degree of Doctor of Philosophy.

_____

Prof. Dr. Ali Yıldırım
Head of Department

This is to 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 Doctor of Philosophy.

_____

Prof. Dr. Ercan Kiraz
Supervisor

Examining Committee Members

Prof. Dr. Ali Yıldırım	(METU, EDS)	_____
Prof. Dr. Ercan Kiraz	(METU, EDS)	_____
Prof. Dr. Elif Nursel Özmert	(H.Ü SOC. PED.)	_____
Assoc. Prof. Dr. Özgür Erdur Baker	(METU, EDS)	_____
Assist. Prof. Dr. Hanife Akar	(METU, EDS)	_____

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Name, Surname: Nida TEMİZ

Signature :

ABSTRACT

AN ACTION RESEARCH ON PROGRAM DEVELOPMENT PROCESS FOR DETERMINING MULTIPLE INTELLIGENCES PROFILES OF 1ST, 2ND AND 3RD GRADERS

Temiz, Nida

Ph.D., Department of Educational Sciences

Supervisor: Prof. Dr. Ercan Kiraz

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This study aimed to explore a program development process and explain how each component of the process contributes to overall procedure for determining 1st, 2nd, and 3rd grade students' multiple intelligences profiles. The action research was conducted through implementing the incremental components of development process namely; (1) needs assessment, (2) program design, (3) program implementation and verification, (4) summative evaluation.

Purposeful sampling methods were used to select the participants of the study. On the basis of the purposeful sampling methods, the participants comprised of two elementary schools with their 1st, 2nd and 3rd grade students, teachers, parents; three branch teachers; instruments developers; experts from the fields of multiple intelligences, psychology, sociology, social pediatrics, neurology, psychiatry, and child neurology.

The data collection methods were interview, observation, written document analysis, questionnaire. Descriptive and content qualitative analyses were used to analyze the data. For the validity and reliability purposes of the materials developed

throughout the study, quantitative data and quantitative data analysis were conducted.

The results of the needs assessment indicated that the 1st, 2nd and 3rd grade teachers had various purposes to determine their students' multiple intelligences profile. They used various methods having both weaknesses and strengths. The most appropriate method was using multiple methods / sources. The program with its materials was developed in the program design phase. The materials were "story inventory," "film inventory," "parent questionnaire," and "performance assessment." The program including its materials had both weaknesses and strengths. Therefore, effective modifications were conducted on the program in the program implementation and verification phase. Finally, the results of the summative evaluation indicated that the study and the program reached their purposes largely.

ÖZ

1., 2., ve 3. SINIFLARIN ÇOKLU ZEKÂLARINI BELİRLEMEK İÇİN PROGRAM GELİŞTİRME SÜRECİ ÜZERİNE BİR EYLEM ARAŞTIRMASI

Temiz, Nida

Doktora, Eğitim Bilimleri Bölümü

Tez Yöneticisi: Prof. Dr. Ercan Kiraz

Eylül 2010, 406 sayfa

Bu çalışma, 1., 2. ve 3. sınıf öğrencilerinin çoklu zekâ profillerini belirlemek için program geliştirme sürecini ortaya koymayı ve program geliştirme sürecinin bileşenlerinin tüm sürece nasıl katkıda bulunduğunu açıklamayı amaçlamaktadır. Program geliştirme süreci üzerine bir eylem araştırması, program geliştirmenin (1) ihtiyaç analizi, (2) program tasarımı, (3) program uygulama ve gerçekleme, (4) sonuç değerlendirme basamakları uygulanarak gerçekleştirilmiştir.

Çalışmanın katılımcıları amaçlı örneklem metotları kullanılarak seçilmiştir. İki ilköğretim okulu 1., 2. ve 3. sınıf öğrencileri, öğretmenleri ve velileri; üç branş öğretmeni; araç geliştiriciler; Çoklu Zekâ Kuramı, psikoloji, sosyoloji, sosyal pediatri, nöroloji, psikiyatri ve çocuk nöroloji alanlarından uzmanlar çalışmaya katılmıştır.

Veri toplama yöntemleri olarak görüşme, gözlem, doküman analizi, anket kullanılmıştır. Betimsel ve içerik analizi yapılmıştır. Çalışmada geliştirilen materyallerin geçerlilik ve güvenirlik amaçları için nitel ve nicel veri analizi yapılmıştır.

İhtiyaç analizinin sonuçları 1., 2. ve 3. sınıf öğretmenlerinin öğrencilerinin çoklu zekâ profillerini belirlemek için çeşitli amaçları olduğunu işaret etmektedir.

Buna bağlı olarak, zayıf ve güçlü yönleri olan çeşitli metotlar kullanmaktadırlar. Sonuçlar en uygun metodun çoklu yöntem ve kaynaklar birlikte kullanmanın olduğunu işaret etmektedir. Program tasarımı aşamasında program ve dört materyali geliştirilmiştir. Bu materyaller; "hikâye envanteri," "film envanteri," "veli anketi" ve "performans değerlendirmedir." Sonuçlar bu materyalleri içeren programın güçlü ve zayıf yönleri olduğunu işaret etmektedir. Bu nedenle, program uygulama ve gerçekleme aşamasında program üzerinde etkili değişiklikler yapılmıştır. Son olarak, sonuç değerlendirmenin sonuçları, çalışmanın ve programın amaçlarına büyük ölçüde ulaşıldığını işaret etmektedir.

Anahtar Sözcükler: Çoklu Zekâ Kuramı, Çoklu Zekâları Belirleme ve Değerlendirme, Program Geliştirme Süreci, Eylem Araştırması

To children

who

did not have a chance

to explore their abilities

ACKNOWLEDGEMENTS

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ABBREVIATIONS

MIT   : Multiple Intelligences Theory

MONE: Ministry of National Education

METU: Middle East Technical University

TIMI   : Teele Inventory for Multiple Intelligences

MR   : Musical-Rhythmic Intelligence

BK   : Bodily-Kinesthetic Intelligence

ML   : Mathematical-Logical Intelligence

L   : Linguistic Intelligence

VS   : Visual-Spatial Intelligence

N   : Naturalistic Intelligence

IE   : Interpersonal Intelligence

IA   : Intrapersonal Intelligence

SO   : Sociologist

PS   : Psychologist

IQ   : Intelligent Quotient

MI   : Multiple Intelligences

EQ   : Emotional Intelligence

CHAPTER I

INTRODUCTION

> *"An intelligence is the ability or set of
> abilities that allows a person to solve a
> problem or create a product that is of value
> in one or more cultures"*
>
> *Howard Gardner (1983, p.x)*

This study aimed to explore a program development process and explain how each component of the process contributes to the overall procedure for determining 1st, 2nd, and 3rd grade students' multiple intelligences profiles. The program, as a result of the process, avoided promoting labeling and confusing interests with skills, abilities, and intelligences and presented a "process approach" instead of quick-fix and short term approaches in the whole process; and adopted a "collaborative approach" to involve parents and students. Moreover, the program would address various performances of the intelligences because Multiple Intelligences Theory (MIT) emphasizes that multiple intelligences have equal importance and acted in various performances.

In order to achieve this aim, an action research was conducted and the following components of the program development process were undertaken; (1) needs assessment, (2) program design, (3) program implementation and verification, (4) summative evaluation. In this regard, the purpose of the study was multifaceted, in that it focused on:

(a) the purposes of 1st, 2nd, and 3rd grade teachers to determine students' multiple intelligences profiles,

(b) the methods that 1st, 2nd, and 3rd grade teachers use to determine students' multiple intelligences profiles,

(c) the strengths and weaknesses of those methods;

(d) the most appropriate conceptual methods to determine 1st, 2nd, and 3rd graders' multiple intelligences profiles,

(e) design and development of the program's materials,

(f) the strengths and weaknesses of the proposed program resulting from the program development process,

(g) the improvement of the program,

(h) decisions about the future of the program.

1.1 Background to the Study

Gardner (2004) asserted that scientific concern about the nature of intelligence began a century ago with Spearmen and Binet in France. He also pointed out that the perception of intelligence had remained unchanged for the last 100 years even though there were significant improvements and innovations in the fields of physics and biology. In this regard, Gardner (2004) criticized the existence of the unchanged perception of intelligence by stating "This fact could mean either that Binet and Spearman got it right or that their successors have been remarkably myopic" (p. 4). Gardner (2004) also added that enormous changes in the conceptualization of intellect had occurred in recent years in the fields of neuroscience, cognitive science, and artificial intelligence focusing on a multitude of intellectual capacities.

On the basis of Gardner's speech, it was possible to talk about two main approaches to perceiving intelligence. In this regard, Paik (1998) affirmed that there were two major schools of thought on the nature of intelligence. The first group based on the premise of one type of intelligence that was genetic in nature and, thus, fixed at birth. For example, Spearman believed in the existence of factor 'g', a general factor, which has a role in all mental activities (Gardner, 1983; Selçuk, Kayılı, & Okut, 2003). In contrast, the second group claimed there were different forms of intelligence rather than one general factor. For example, Guilford stated that mind was composed of 120 independent factors and each mental function had three dimensions; content, process, and product (Paik, 1998; Selçuk et al., 2003).

Multiple Intelligences Theory developed by Howard Gardner as an account of human cognition in 1983 finds its place in the second group of thought. According to Gardner (1983, 1993) cognitive competence had more than one dimension that

included a set of talents, abilities, mental skills and so forth called intelligences. Therefore, Gardner challenged the traditional singularity perspective on intelligence that accepted intelligence as a sole capacity which was measured by Intelligence Quotient (IQ) tests like the Binet IQ test. The Scholastic Aptitude/Assessment Test (SAT) emphasized only logical − mathematical and linguistic abilities (Gardner, 1983). Hence, he proposed eight intelligences namely; logical-mathematical, linguistic, spatial, musical, bodily-kinesthetic, intrapersonal and interpersonal in 1983 and later in 1997 he added one more intelligence called "naturalistic" (Gardner, 1993, 1999). Moreover, he has studied a candidate intelligence "existential intelligence" (Moran, Kornhaber, & Gardner, 2006).

Gardner (2004) emphasized that the theory of multiple intelligences was not developed as an educational intervention. In fact, it was developed as a theory of mind. However, Gardner (2004) stated the impact of his theory on educational thinking and application throughout the world. Furthermore, Gardner explained two primary reasons for this impact. The first was about the variety of strengths and profiles of the individual taken into consideration and the second reason was about the expectation that students could learn and produce in various ways through MIT.

Congruent with Gardner's thoughts, some considered MIT as an instructional approach, such as Hopper and Hurry. They proposed three reasons for explaining why MIT should be considered as an instructional approach. First, MIT resulted in increased awareness of the learning process. Second, MIT emphasized an individual learning process. Third, MIT indicated the active learning process (2000, as cited in Saban 2009). Similarly, Saban (2009) projected four reasons for acknowledging MIT as an instructional approach. First, MIT accepts each child as an individual with different potentials. Second, MIT proposes new pedagogical approaches for teachers. Third, MIT enables teachers to cooperate with each other. Fourth, MIT lets students be aware of their own ways of learning. In addition to the aforementioned, various authors/researchers emphasized the implications of MIT on education. Brualdi (1996) expressed that there were two implications of MIT on education namely; educators' recognition and teaching to a broader range of talents and skills and teachers' presentations and assessments engaging most or all of the intelligences. The implications of MIT have brought a new question: "In what ways is this person smart?" as an alternative to the traditional question "Is this person smart?" (Gray & Vilens, 1994).

In this respect, this was a crucial shift affecting both the students and the teachers (Aborn, 2006). This shift, as Aborn (2006) emphasized, created an insight in relation to necessity and the importance of knowing students' multiple intelligences in today's classrooms. Correspondingly, researchers conducted various studies and their results underlined the fact that MIT had positive effects on educational settings in terms of various aspects such as students' motivation, achievement, attitudes towards courses, and teachers' feeling about their pedagogy.

In the study, "Content Analysis of Turkish Studies about the Multiple Intelligences Theory," conducted by Saban (2009), 71 master's theses, 8 doctoral dissertations, and 18 research articles between the years 1999 and 2008 were analyzed based on 25 themes. The results of the analysis showed that the research topics with their percentage were namely; students' MI profiles (7.2%), the relationship between MI and learning styles/strategies (3.1%), the relationship between MI and academic achievement (2.1%), development of children's MI (1%), MI theory and school guidance (2.1%), MI theory and textbooks (3.1%), perceptions of the implementation of MI theory (12.4%), the effect of MI theory on kindergarten students' academic achievement and attitudes (2.1%), the effect of MI theory on elementary students' academic achievement and attitudes (45.4%), the effect of MI theory on secondary students' academic achievement and attitudes (15.5%), the effect of MI theory on higher education students' academic achievement and attitudes (1%).

One of the research questions in the study was "Is there a significant difference between the experimental and control groups' post test scores?" The results of the study demonstrated that the difference was in favor of the experimental group post test scores were 80.6% higher than control groups. Moreover, the answer in the study to the question "Is there a significant difference between the experimental and control groups' attainment scores?" was that 67.7% of the studies did not mention the difference while 22.6% of the studies indicated there was a difference in favor of the experimental group. Furthermore, the answer to the question "Is there a significant difference between the experimental and control groups' retention test scores?" showed that 32.3% of the studies indicated that there was a difference in favor of the experimental group while 59.7% of the studies did not use a retention test. Furthermore, the answer in the study to the question "Is there a significant difference between the experimental and control groups' attitude scores?" was that

35.5% of the studies showed there was difference in favor of the experimental group and that 54.8% of the studies did not use an attitude scale. Furthermore, the implications of MIT were not limited to the field of education but also related to various fields including business (Johnson & White, 2002), childrens counseling (O'Brien & Burnett, 2000).

MIT is a theory of human cognition. Because of the focus on "human cognition" and "intelligence", determination and assessment of intelligence came into question. Since literature indicated that knowing the multiple intelligences of students was important, the reasons for the tendency to determine and assess multiple intelligences included demand originated from the implications of MIT on education. In this regard, Aborn (2006) stated that knowing the multiple intelligences of their students was essential for teachers to understand the principle of multiple intelligences theory; and helped their students who had learning difficulties by using their strengths as a guide for career development.

Therefore, educators, researchers and psychologists have tried to develop practical, reliable and valid instruments to assist with instruction, counseling and research since multiple intelligences theory was articulated (Shearer, 2005). However, actualization of the enterprises has not been easy as it was supposed to be since there have been strong issues because of the complex nature of the multiple intelligences. The complexity originated from the multiplicity and interdisciplinary approach in the root of MIT. Gardner used a wide array of evidence for MIT. Gardner's method distinguished him from many other researchers who have studied in favor of multiple intellectual capabilities. The broad evidence group included cognitive developmental psychology, neuropsychology, evolutionary biology, experimental psychology, psychometric psychology (Kornhaber, 2004), genetics, and anthropology. Moreover, the eight intelligences have their own identifiable characteristics which distinguish certain sets and behaviors from one another (Aborn, 2006). Furthermore, an individual's intelligence profile consists of a combination of relative strengths and weaknesses among the different intelligences (Gardner, 2006 as cited in Moran et al., 2006) and people use various intelligences together when doing a simple task (Gardner, 1983).

In spite of the crucial issues about MIT, there have been various methods, and instruments used by people to determine their own or others' multiple intelligences. Shearer (2005) summarized the general types of multiple intelligences assessments

as tests, performance assessments, checklists and self-report surveys. Moreover, Armstrong (2000) expressed the methods used to describe intelligences in students, these were collecting documents, looking at school records, interviewing parents and students, and setting up special activities. The methods were increased by adding other methods such as observation, and interviewing parents. Today, it is easy to reach such instruments in many MIT books and on MIT-related web sites (Shearer, 2005). However, when someone attempts to determine multiple intelligences, s/he should ensure the appropriateness of the methods in relation to MIT and to answer the question "Do the methods take crucial issues about assessment of multiple intelligences into account?" for the validity and reliability of the study. Also, it is clear that there is a huge demand to have such assessment methods. In this respect, this demand should be satisfied by presenting appropriate ways and assessment methods in scientific ways. Related with this, Shearer's (2005) "process approach" and research since 1987 about the assessment of multiple intelligences expresses the weakness in "the lack of intelligence fairness" when summarizing the risky points about multiple intelligences assessments on the basis of Gardner's various writings. According to Shearer (2005), Gardner thought it could be risky to conduct multiple intelligences assessments, depending on various writings of Gardner in five ways:

1- not intelligence-fair—biased towards linguistic abilities,
2- confounds interest with demonstrated skill,
3- promotes labeling of the individual by self and others,
4- encourages simplistic / superficial understanding of an individual's abilities,
5- facilitates stereotyping of groups of individuals (p. 2).

Moreover, Sharer (2005) added several additional dangers to the list that he found as follows;

1- creating a superficial and distorted understanding of Multiple Intelligences (MI),
2- demeaning and undermining acceptance of MI theory,
3- confusing learning styles and personality with intellectual ability,
4- promoting a "quick fix," short-term approach to instruction, curriculum and school renewal,
5- encouraging a "mindless" and non-serious approach toward MI assessment,
6- discouraging thoughtful investment in self-understanding to be followed with the practical application of the results to important educational, vocational and personal decisions,

7- reinforcing the assumption that IQ related skills are the only "real" intelligence (Shearer, 2005, p. 2).

Certainly, the items explaining why it was unsafe to conduct multiple intelligences assessments originated from existing assessment tools and their results. The perils summarized by Sharer (2005) and presented above may be expected if the instruments were unscientifically developed. Furthermore, some instruments which have been developed by academicians or experts also have some potential dangers. One of the characteristics of unscientific inventories is either their presentation or scoring for determining multiple intelligences. Unfortunately, due to a lack of scientifically developed instruments, educators have a tendency to use these unscientific instruments to determine their students' intelligences *scores* and interpret the results and group their students according to eight or nine different intelligences (Moran et al., 2006).

Moreover, researchers perceived the instruments as scoring tests. For example, Sloan (2003) conducted a study with the aim of cross-examining the Myers-Briggs Test and Multiple Intelligence Inventory. He described the multiple intelligences inventory he used in his study because of establishing whether a person has a 'high or low score' in these intelligence types. Problems related with such instruments were not limited to the scoring aspect. Snyder (2000) stated that most of the psychologists and organizations have constructed instruments to evaluate their particular theories of learning styles/multiple intelligences. However, many of the instruments were time consuming, difficult to score, and not practical for classroom use.

Furthermore, one's improvement of multiple intelligences was related to the culture in which s/he lived. Gardner highlighted the importance of the culture aspect in his most popular intelligence definition "An intelligence is the ability to solve problems, or to create products, that are valued within one or more cultural settings" (Gardner, 1983, p.x). In this respect, the methods of determination of multiple intelligences would not be thought of as independent from culture and cultural aspects. However, most of the existing attempts to determine multiple intelligences ignored the cultural aspect.

As a result, the deficiencies of the existing implementation of inventories, tests, surveys, checklists, observations and so forth to determine multiple intelligences

highlighted the great need in determining intelligences through scientific, valid, reliable, and appropriate tools.   Moreover, on the basis of the above discussion, it is apparent that determining, assessing and evaluating multiple intelligences is not an easy task although there is a huge demand for it.

1.2 Purpose of the Study

As expressed in part "1.1 Background to the Study" MIT is a theory about human cognition that has positive implications on education, and that there is a great desire to assess multiple intelligences. Various methods, and materials have been developed for this purpose and they have been in great demanded. However, there have been various problems related with the existing methods that led to a need to develop new method/s developed free from the problems in order to determine, and assess multiple intelligences.

Finally, the study aimed to explore a program development process and explain how each component of the process contributes to the overall procedure for determining 1st, 2nd, and 3rd grade students' multiple intelligences profiles. In this regard, taking the problems related with existing approaches, methods, instruments and Gardner's warnings into consideration, this study aimed to develop a program that could be used easily and which would gain better and more accurate information about 1st, 2nd and 3rd grade students' multiple intelligence profiles. More specifically, the proposed program would

a) determine 1st, 2nd, 3rd graders' multiple intelligences profiles,

b) be appropriate to MIT for example give equal importance to all intelligences, address various performances of all intelligences, not promote labeling, not confuse interests with skills / abilities/ intelligences,

c) inform its users of MIT, and prospect perils of using existing methods to determine multiple intelligences,

d) present a "process approach" not a quick-fix, short term approach,

e) present a "collaborative approach"; collaborate with parents and students themselves.

The study was carried out in four main phases; (1) needs assessment with the purpose of finding out the methods 1st, 2nd and 3rd grade teachers use to determine their students' multiple intelligences profiles and determining the strengths and

weaknesses of the methods; (2) program design phase with the purpose of exploring the content of the methods and materials of the program; (3) program implementation and verification with the purpose of determining the strengths and weaknesses of the program and making suggestions for improvement of the program; (4) summative evaluation with the purpose of concluding final decisions for the future of the program; to maintain the program without changing; to improve the program; to terminate the program. Based on the purpose of the study stated above, one major research question and point probes were formulated:

1. What should the program development process be for determining 1st, 2nd and 3rd grade students' multiple intelligences profiles?

- Why do 1st, 2nd and 3rd grade teachers determine students' multiple intelligences profiles?

- What are the existing methods that 1st, 2nd and 3rd grade teachers use to determine students' multiple intelligences profiles?

- How effective are the methods that 1st, 2nd and 3rd grade teachers use to determine students' multiple intelligences profiles?

- What should the characteristics of the proposed program be in relation to the content and materials to determine the 1st, 2nd and 3rd grade students' multiple intelligences profiles?

- How effective is the proposed program developed throughout the study to determine the 1st, 2nd and 3rd grade students' multiple intelligences?

- What is the choice (to maintain the program without changing; to improve the program; to terminate the program) for the proposed program developed throughout the study for determining the 1st, 2nd and 3rd grade students' multiple intelligences profiles?

1.3 Significance of the Study

Gardner warned individuals about the possible misunderstandings with respect to assessing multiple intelligences. Keeping this caveat in mind, this study has attempted to explore a program development process to determine 1st, 2nd, and 3rd graders' multiple intelligences profiles free from deficiencies. Thus, the end product of the study will be a fully developed program to determine students' multiple

intelligences profiles accurately. Therefore, the program will guide 1st, 2nd and 3rd grade teachers to appropriately determine their students' multiple intelligences profiles. Moreover, the program will assist teachers and school counselors in clarifying the duties set in the "Guidance at Elementary Level" that was introduced in September, 2003 and in issue 2552 of the "Journal of Notification" of Ministry of National Education (MONE). Consequently, this study is the first scientific endeavor to explore a program development process and explain how each component of the process contributes to the overall procedure for determining 1st, 2nd, and 3rd grade students' multiple intelligences profiles in light of the "curriculum and instruction" in Turkey. Therefore, it will provide positive contribution to the field of multiple intelligences and the field of curriculum and instruction. The study is hoped to be significant not only for Turkey but also the world because the study is also expected

    a) to display how a program with materials is developed in order to determine 1st, 2nd, and 3rd graders' multiple intelligences profiles,

    b) to prove that 1st, 2nd, and 3rd graders' multiple intelligences profiles are determined via a program developed by taking Gardner's warnings into consideration,

    c) to express it is not easy to make decisions based on multiple intelligences profiles,

    d) to shift interests from a quick-fix, short term approach to a process approach for determining multiple intelligences profiles,

    e) to guide future studies since preliminary research and the review of literature reveals few studies focusing on determining multiple intelligences profiles,

    f) to contribute to literature in terms of what the existing methods', inventories' and instruments' weaknesses, risky points and strengths are; how methods, and instruments should be designed, developed and evaluated in order to determine students' multiple intelligences profiles, and why multiple methods should be used together.

1.4 Definition of Terms

Intelligence: The concept of "intelligence" originated from the Latin verb "intelligere" (to understand) (Cornoldi, 2006) and has various definitions.

Intelligence is a fundamental faculty, the alteration or the lack of which, is of the utmost importance for practical life. This faculty is judgment, otherwise called good sense, practical sense, initiative, the faculty of adapting one's self to circumstances (Binet, 1905).

> *Intelligence* is the capability of efficiently/adaptively solving a problematic situation working from a mental representation of the problem. Intelligence is all the different aspects of cognitive functioning, such as perception, attention, language, memory, reasoning, and so on (Cornoldi, 2006, p.2).

> *Intelligence* is the capacity to learn from experience, using metacognitive processes to enhance learning, and the ability to adapt to the surrounding environment, which may require different adaptations within different social and cultural context (Sternberg, 2003, p.485).

> "*Intelligence* is the ability to solve problems, or to create products, that are valued within one or more cultural settings" (Gardner, 1983, p.x).

Multiple Intelligences: Multiple intelligences are a group of eight intelligences proposed by Gardner with the Multiple Intelligence Theory in 1983. The multiple intelligences are verbal-linguistic intelligence, logical-mathematical intelligence, musical-rhythmic intelligence, visual-spatial intelligence, bodily-kinesthetic intelligence, naturalistic intelligence, interpersonal intelligence, intrapersonal intelligence (Gardner, 1983, 1993) and existential intelligence (as a candidate intelligence) (Moran, Kornhaber, & Gardner, 2006). Moran, Kornhaber, and Gardner (2006, p.25) defined multiple intelligences as follows;

> *Verbal Linguistic Intelligence*: The ability to understand and use spoken and written communication.
> *Logical Mathematical Intelligence*: The ability to understand and use logic and numerical symbols and operations.
> *Musical Rhythmic Intelligence*: The ability to understand and use such concepts as rhythm, pitch, melody, and harmony.
> *Visual Spatial Intelligence*: The ability to orient and manipulate three-dimensional space.
> *Bodily-Kinesthetic Intelligence*: The ability to coordinate physical movement.

*Naturalistic Intelligence***:** The ability to distinguish and categorize objects or phenomena in nature.

*Interpersonal Intelligence***:** The ability to understand and interact well with other people.

*Intrapersonal Intelligence***:** The ability to understand and use one's thoughts, feelings, preferences, and interests.

*Existential Intelligence***:** The ability to contemplate phenomena or questions beyond sensory data, such as the infinite and infinitesimal.

Multiple Intelligences Profiles: Is an intelligence profile composed of an ideographical combination of multiple intelligences.

Determining Multiple Intelligences Profiles: Determining multiple intelligences profiles is detecting or diagnosing multiple intelligences in a consecutive way.

CHAPTER II

REVIEW OF THE LITERATURE

A review of the literature was undertaken for the purpose of determining what information had been previously documented about the broad topics of Multiple Intelligences Theory and determining multiple intelligences.

The literature review was organized around four main themes in relation to allowing the reader to comprehend what is meant by intelligence and its related terms. The main themes were as follows; historical background of intelligence, multiple intelligences theory, methodological perspectives toward intelligence testing and determining multiple intelligences, research studies on various uses of multiple intelligences in different areas and levels of education.

2.1 Historical Background of Intelligence

Intelligence has long been studied in order to understand what guides high level human thinking. In the early part of the nineteenth century, Gall proposed an idea that an expert can determine the strengths and weaknesses of an individual's mental profile by carefully examining the skull configurations of the individual (Gardner, 1983). Although finding a correlation between intellect and the sheer size of the brain was possible in the past, today Gall's proposal appears to be an absurd thought. The number of recent studies focused on intellect increased considerably and they are mainly congregated under two major schools of thought on the nature of intelligence (Paik, 1998). The first school supports the notion of *one or a single* type of intelligence and its prominent names are Eysenck, Galton, Jensen, and Spearman. The second school supports the idea of *multiple factors of intelligence* and the supporters are Gardner, Sternberg, and Thurstone. In this respect, it was possible to

classify the ideas and theories about intelligence under two main titles; (1) Theories based on an *IQ Perspective* and (2) based on a *Multiple Perspective*.

2.1.1   Intelligence Theories Based on an IQ Perspective

Intelligence theories based on IQ perspective meant the intelligence theories which focused on general intelligence. Moreover general intelligence has been hypothesized to reveal overall brain competence or the close interconnection of a set of mental skills on working memory (Waterhouse, 2006). In this regard, one example was Galton. According to Galton (Selçuk et al., 2003), individual differences come from differences in sensory skills. For Galton, functions of intelligence of an individual are related to his sensory capacities. The more keen the sensory capacities, the higher the intelligence of an individual (Selçuk et al., 2003). Additionally, intelligence theories based on an IQ perspective have agreed that intelligence can be defined by one general factor known as factor *'g'*. For example, Spearman believed in the existence of factor *'g'*, a general factor, which has a role in all mental activities (Gardner, 1983).

Besides, the Intelligence Theories based on IQ perspective have not only agreed on the factor "g" but also claimed that intelligence can be measured by using standardized tests. In this respect, the first test of intelligence was devised by Alfred Binet and Theodore Simon at the beginning of the twentieth century (Gardner, 1983). For Binet, intelligence could be measured and intelligence could be seen in mental functions at complex levels such as comprehension and judgment (Gardner, 1983; Paik, 1998; Selçuk et al., 2003).

For Spearman, factor 'g' could be measured and measurement of intelligence is the measurement of the factor 'g' (Gardner, 1983; Selçuk et al., 2003). Spearman (1904, as cited in Paik, 1998), in doing his research, found that people who performed well on a test of one cognitive ability performed well on another test of another cognitive ability so there was a strong positive correlation between tests of different cognitive abilities. Based on the research, Spearman (1904, as cited in Paik, 1998) stated that this positive manifested as factor g. This positive manifested was supported by Jensen (1997, as cited in Paik, 1998). Eysenck (1982) stated that there was a high correlation between IQ and tests, which included simple cognitive tasks,

and this correlation supports the idea of one general intelligence (as cited in Paik, 1998).

2.1.2 Intelligence Theories Based on a Multiple Perspective

Intelligence theories based on multiple perspectives claimed that there were different forms of intelligence rather than one general factor, the 'g' factor. Guilford stated that mind was composed of 120 independent factors and each mental function had three dimensions; content, process and product (Paik, 1998; Selçuk et al., 2003). According to Thorndike, intelligence was composed of different independent factors, abstract intelligence, mechanic intelligence, and social intelligence. In order for an individual to solve a problem, these factors could be worked together (Selçuk et al., 2003).

Thurstone believed that there were relatively independent mental abilities (Gardner, 1983). He found 13 different factors as mental abilities by using factor analysis. The factors included spatial, perceptual, numerical, logical, verbal, memory, arithmetical reasoning, and deductive abilities (Thurstone, 1938, as cited in Paik, 1998). Another proponent of the multiple perspective was Sternberg. According to Sternberg's 'triarchic' theory, intelligence had three major aspects namely analytic, creative and practical (Paik, 1998; Sternberg, 1996).

One of the intelligence theories based on a multiple perspective was Emotional Intelligence (EQ) Theory. Daniel Goleman (1995) proposed emotional intelligence (EQ). According to Goleman's theory (1995) of EQ, intelligence was both cognitive and emotional. Emotional intelligence contained self-awareness, self-regulation, motivation, empathy and social skills. The response to any stimulus was determined firstly by the emotional mind (Selçuk et al., 2003).

Another theory based on multiple perspective Multiple Intelligences Theory was proposed by Howard Gardner (1983). According to Gardner, there are eight intelligences namely; logical-mathematical, linguistic, spatial, musical, interpersonal, intrapersonal, bodily-kinesthetic (Gardner, 1983, 1993, 1999) and naturalistic intelligence (Gardner, 1999). Moreover, Gardner has studied the potential of a ninth intelligence, existential intelligence, however, the candidate intelligence has not yet met all of the criteria determined by Gardner in order to determine whether a skill or ability is an intelligence or not (Gardner & Moran, 2006).

As a result, the theories based on a multiple perspective have asserted that there were different forms of intelligence. In this regard, Saban (2009) stressed that the theorists such as J.P. Guilford and L.L. Thurstone and the modern theorists like R. Sternberg and D. Goleman refused the unitary notion of intelligence while stressing the multiple nature of human brain capacity. Moreover, he emphasized that MIT rode on the shoulders of the previous theories.

2.2 Multiple Intelligences Theory

Gardner has proposed that human cognitive competence can be defined in terms of talents, abilities, and mental skills called intelligences (Gardner, 1983, 1993). The multiple intelligences are logical-mathematical intelligence, linguistic intelligence, spatial intelligence, bodily-kinesthetic intelligence, musical intelligence, interpersonal intelligence, intrapersonal intelligence, naturalist intelligence. Thus, MIT is one of the intelligence theories based on multiple perspectives. However, there is a difference between MIT and the other intelligence theories based on multiple perspectives. The difference is that MIT is based on the evidence from a number of sources that have not been considered together (Gray & Vilens, 1994).

These sources are the results of the research at Project Zero on the development of various cognitive skills in normal children; studies of breakdown of cognitive abilities in stroke patients and other brain-damaged individuals; works with prodigies, idiot savants, autistic children and other special populations; and a review of literature on psychological testing and the relationship between test scores and performance on different tasks (Armstrong, 1994). Besides this, MIT was based on broad evidence including experimental psychology, psychometric psychology (Gardner & Moran, 2006; Kornhaber, 2004), cognitive psychology, developmental psychology, differential psychology (Gardner & Moran, 2006), psychology, neuropsychology, evolutionary biology (Kornhaber, 2004), genetics and anthropology. Gardner and Moran (2006) emphasized that MIT demanded an interdisciplinary approach, cultural sensitivity and an interactionist-dynamic research methodology. Moreover, they stated that the first two requirements supported Gardner's decision to incorporate anthropological studies and case materials from a variety of cultures in devising and revising MIT. Furthermore, they expressed that

the third reason supported Gardner's choice to include developmental findings (Gardner & Moran, 2006).

In various writings Howard Gardner has presented principles of MIT in order to comprehend MIT (from 1983 to 2007). In this regard, one of the principles of MIT is that an individual's cognitive ability is defined in terms of several relatively independent but interacting cognitive capacities rather than in terms of a single "general" intelligence (Moran et al., 2006). Another principle is that there are eight/nine intelligences namely; logical-mathematical intelligence, linguistic intelligence, spatial intelligence, bodily-kinesthetic intelligence, musical intelligence, interpersonal intelligence, intrapersonal intelligence, naturalist intelligence and (at least provisionally) existential (Gardner, 1983, 1993, 1999; Moran et al., 2006). Moreover, it is possible to label a candidate skill or ability as intelligence only if the candidate skill or ability meets the eight criteria determined by Gardner (1983). In this respect, there is a candidate intelligence which is existential intelligence. The existential intelligence is still candidate because it did not meet all the criteria determined by Gardner. The next principle is that each individual's intelligence profile consists of a combination of relative strengths and weaknesses among the different intelligences (Gardner & Moran, 2006). Another principle is that an individual exhibits vast variations among their intelligences — with one or two intelligences very strong and the others relatively weak (Moran et al., 2006). One of the principles is that intelligences are not isolated; they can interact with one another in an individual to yield a variety of outcomes (Gardner, 1983; Moran et al., 2006). The different intelligences intermix within an individual to yield meaningful scholastic achievement or other accomplishments (Moran et al., 2006). In addition, one intelligence in an individual can interfere with others, compensate for others, or enhance others (Moran et al., 2006). All intelligence types can be identified and developed (Gardner 1983, 1993). Furthermore, the most recently stated principle was also expressed by Aborn (2006) as that largely biological in nature; these intelligences are capable of evolving.

Gardner (1983) defined intelligence as "The ability to solve problems, or to fashion products, that are valued in one or more cultural community settings" (p.x) in "Frames of Minds" which is the first book Gardner in which presented Multiple Intelligences Theory (MIT). Later, he redefined intelligence as a "Biopsychological potential to process information that can be activated in a cultural setting to solve

problems or create products that are of value in culture" (Gardner, 1999, pp. 33-34 as quoted in Neto & Furnham, 2006). MIT has suggested that it is more fruitful to describe an individual's cognitive ability in terms of several relatively independent but interacting cognitive capacities rather than in terms of a single "general" intelligence (Moran et al., 2006).

Both Gardner's intelligence definition and views of intelligence have brought about a question. Actually, the question was expressed by Gardner as one of the criticisms of MIT. The question was "Your "intelligences" – musical, bodily-kinesthetic, and so on – are what others call talents or gifts. Why confuse the issue by using the word "intelligence" to describe them?" (Gardner, 1993, p. 35). Gardner answered the question as follows;

> There is nothing magical about the word "intelligence". I have purposely chosen it to join issue with those psychologists who consider logical reasoning or linguistic competence to be on a different plane than musical problem-solving or bodily kinesthetic aptitude…To call some "talent" and "intelligence" displays this bias. Call them all "talents" if you wish; or call them "intelligence" (Gardner, 1993, pp. 35-36).

Besides, not every candidate skill is called intelligence, Gardner (1983) determined whether a candidate skill or ability was an intelligence or not by using eight 'signs' as criteria namely;

(1) potential isolation by the brain,

(2) the existence of exceptional individuals,

(3) identifiable core operations,

(4) a distinctive development history,

(5) a distinctive evolutionary history,

(6) supportive evidence from cognitive experimental research,

(7) supportive evidence from psychometric tests,

(8) susceptibility to encoding in a symbol system.

Gardner's multiple intelligences which met the criteria are explained below.

Linguistic Intelligence (L): It is an ability to understand and use spoken and written communication (Moran et al., 2006). This kind of ability is exhibited in its fullest form by poets. A specific area of the brain called 'Broca's Area' is responsible for linguistic skills and if a person has damage to this area, s/he can understand words and sentences but has difficulty in speaking (Gardner, 1993). The tasks

reflecting the intelligence are tasks such as reading a book, writing a paper, a novel and a poem, and understanding spoken words (Sternberg, 2003). The professions related with to linguistic intelligence are for example journalist, writer, lawyer (Johnson & White, 2002; Selçuk et al., 2003; Shepard, 2004; Yılmaz & Fer, 2003), poet (Moran et al., 2006), librarian, museum curator, speech pathologist, radio or TV announcer (Johnson & White, 2002), poet, novelist, public speaker (Shepard, 2004), politician, editor (Yılmaz & Fer, 2003), teacher, translator, speaker, educational scientist, comedian (Selçuk et al., 2003).

Mathematical-Logical Intelligence (ML): It is an ability to understand and use logic and numerical symbols and operations (Moran et al., 2006). Certain areas of the brain are responsible for logical mathematical ability and idiot savants can often perform great feats of calculation even though they remain tragically deficient in most other areas (Gardner, 1993). Logical-mathematical intelligence used in solving mathematics problems, balancing a checkbook, in logical reasoning etc. (Sternberg, 2003). The professions matched with mathematical-logical intelligence in the literature are mathematician, scientist (Johnson & White, 2002; Selçuk et al., 2003; Shepard, 2004; Yılmaz & Fer, 2003), detective (Shepard, 2004), accountant, engineer (Selçuk et al., 2003; Yılmaz & Fer, 2003), statistician, inventor, judge, critic, accountant (Selçuk et al., 2003), computer programmer (Moran et al., 2006; Selçuk et al., 2003; Yılmaz & Fer, 2003).

Visual-Spatial Intelligence (VS): It is an ability to orient and manipulate three-dimensional space (Moran et al., 2006) to form mental models of a spatial world and to be able to maneuver and operate using that model. The right hemisphere proves to be the site most crucial for spatial processing. Damage to the region causes impairment of the ability to find one's way around a site or to recognize faces (Gardner, 1993). The tasks reflecting the intelligence are getting from one place to another, reading a map, packing suitcases in the trunk of a car so that they all fit into a compact space etc. (Sternberg, 2003). For spatial intelligence, the most commonly stated professions are sailor, sculptor, painter (Selçuk et al., 2003; Shepard, 2004; Yılmaz & Fer, 2003) pilot, decorator, (Yılmaz & Fer, 2003), engineer, topologist (Selçuk et al., 2004), architect (Moran et al., 2006; Selçuk et al., 2004; Shepard, 2004; Yılmaz & Fer, 2003).

Musical-Rhythmic Intelligence (MR): It is the capability to understand and use concepts such as rhythm, pitch, melody, and harmony (Moran et al., 2006). The parts

of the brain that are responsible for musical ability are located in the right hemisphere, although musical skills are not as specifically localized (Gardner, 1993). Musical intelligence is used in singing a song, composing a sonata, playing a trumpet, or even appreciating the structure of a piece of music, etc. (Sternberg, 2003). The particular professions matched with musical intelligence are piano tuner, musician, music therapist, choral director, conductor (Johnson & White, 2002), conductor, vocalist (Shepard, 2004; Yılmaz & Fer, 2003), music teacher, disc jockey, compositor, actor/actress (Selçuk et al., 2003), composer (Moran et al., 2006; Shepard, 2004; Yılmaz & Fer, 2003).

Bodily-Kinesthetic Intelligence (BK): It is the ability to solve problems or to fashion products using one's whole body or parts of the body and control of bodily movement is localized in the motor cortex with each hemisphere dominant or controlling bodily movements on the contra-lateral side (Gardner, 1993). The tasks reflecting this intelligence are dancing, playing basketball, running a mile, etc. (Sternberg, 2003). The professions matched with bodily-kinesthetic intelligence are physical therapist, dancer, actor, mechanic, carpenter, forest ranger, jeweler (Johnson & White, 2002), surgeon, crafts people (Shepard, 2004), ballerina/ballet, actor/actress, carpenter (Selçuk et al., 2003; Yılmaz & Fer, 2003), sculptor, choreographer, magician (Selçuk et al., 20043), athlete (Moran et al., 2006; Selçuk et al., 2004; Yılmaz & Fer, 2003).

Interpersonal Intelligence (IE): It is the ability to understand other people, what motivates them, and how to work cooperatively with them and this intelligence is localized in the frontal lobes of the brain. Damage in this area can cause personality change (Gardner, 1993). The tasks reflecting this intelligence are related to other people, for example, we use the intelligence when we try to understand another individual's behavior, motivating, and emotions (Sternberg, 2003). The professionals related with interpersonal intelligence are administrator, manager, psychologist, nurse, public relations person, social director (Johnson & White, 2002), teacher, social worker, actor/actress (Shepard, 2004), counselor, psychiatrist (Yılmaz & Fer, 2003), businessman, religious leader, organizer, anthropologist, sociologist, doctor, political party leader, showman, marketing expert, social worker (Selçuk et al., 2004), politician (Moran et al., 2006; Selçuk et al., 2003; Shepard, 2004); salesperson (Moran et al., 2006; Selçuk et al., 2003).

Intrapersonal Intelligence (IA): It is an ability to understand and use one's thoughts, feelings, preferences, and interests (Moran et al., 2006). This intelligence is localized in the frontal lobes of the brain. Damage in the lower area of the frontal lobes is likely to produce irritability or euphoria (Gardner, 1993). This intelligence is used in understanding ourselves (Stenberg, 2003). The professions for intrapersonal intelligence are psychologist, therapist, counselor, theologian, program planner, (Johnson & White, 2002), philosophers, therapist (Yılmaz & Fer, 2003), religious leader, researcher, theoretician, poet, political leader, craftsman, artist, writer (Selçuk et al., 2003), entrepreneur (Johnson & White, 2002; Moran et al., 2006), and autobiographer, however high intrapersonal intelligence should help in almost any job because of its role in self-regulation, although few paid positions reward a person solely for knowing himself or herself well (Moran et al., 2006).

Naturalistic Intelligence (N): It is the ability to understand nature's symbols, and to respect the delicate balance that lets us continue to live (Nolen, 2003). Naturalistic intelligence is used in understanding patterns in nature (Sternberg, 2003). For naturalist intelligence, the mostly stated professions are botanist, astronomer, wildlife illustrator, meteorologist, chef, geologist, landscape architect (Johnson & White, 2002), geologist, farmer, florist (Yılmaz & Fer, 2003), agriculturist, florist, gardener, agriculture technicians, biologist, veterinarian, ecologist (Selçuk et al., 2003), zoologist (Moran et al., 2006; Yılmaz & Fer, 2003).

Existential Intelligence (E): It is the ability to contemplate phenomena or questions beyond sensory data, such as the infinite and infinitesimal. Although Gardner defines existential intelligence, it does not meet all of his criteria for intelligence. Because of this, Gardner named it a "half" intelligence (Wehrheim, 2006). For existential intelligence, the most commonly stated professions are consultant, college professor, teacher (Johnson & White, 2002), cosmologist; philosopher (Johnson & White, 2002; Moran et al., 2006).

Although, there are some example vocations for each intelligence, most vocations involve several intelligences (Moran et al., 2006). Therefore, some of the professions stated above are matched with two or more intelligences. This can also be explained using the principals of MIT that Gardner (1983) expressed that a normal individual has all the intelligences and strengths and weakness in MI but the intelligences work together to allow the individuals to do something, there is a relationship between multiple intelligences and there is no any activity which

contains only one type of intelligence in life, people use different intelligences together even when they do a simple task.

2.2.1   Multiple Intelligences Theory in Education

Educators have become more aware of the research that has been done by cognitive and educational psychologists in the area of learning styles and multiple intelligences (Synder, 2000). Therefore, MIT has been absorbed into the field of education over two decades (Aborn, 2006). Gardner & Moran (2006) stressed that Gardner himself had never asserted an educational recipe growing out of MIT. However, they added that Kornhaber with colleagues collaborated with 41 schools using MIT-based practices for several years (Kornhaber, Fierros, & Veenema, 2004, as cited in Gardner & Moran, 2006). Gardner and Moran reported that Kornhaber presented various ways in which the schools and their students had benefited.

Emig (1997) expressed that research studies showed students learned in different ways and this result was the most important and the most delicate part of Multiple Intelligences Theory. Besides, MIT can bring about a quiet revolution in the way learners label themselves as either "smart" or "dumb", they can perceive themselves as potentially smart in a number of ways (Moran et al., 2006) because, MIT asks the question "in what ways is this person smart?" rather than "is the person smart (Gray & Vilens, 1994). In this respect MIT enabled teachers to view their students as unlimited human beings and expressed that there are no "hopeless students" because each child interprets the world and learns in a unique way (Aborn, 2006). Moreover, Aborn expressed the importance of viewing the children as unlimited human beings by saying that "Our students and children are the ones who are here with us now, at this moment, and we can never live these times again. It is a huge risk for us not to facilitate and encourage them in their wonder" (Aborn, 2006, p. 85).

Emig (1997) indicated that teaching and learning methods should address multiple intelligences in order to improve results. However, most of the educators who attempt to integrate MIT into schools mistakenly believe that teachers must group students for instruction according to different intelligences or prepare eight or nine separate sections for every lesson (Moran et al., 2006). Moran et al. (2006)

expressed that there was no need to prepare nine different lesson plans. Instead, plan rich learning experiences that nurture each student's combination of intelligences.

Moran et al. (2006) use an analogy to explain the cooperative working of multiple intelligences and the importance of cooperative work in educational settings. They stated that the cooperative working of multiple intelligences was the orchestra and educating using the intelligences was orchestrating multiple intelligences. They added that just as the sounds of string, woodwind, and percussion instruments combined to create a symphony, the multiple intelligences intermixed within a student to give in meaningful scholastic achievement or other accomplishments. As in an orchestra, one intelligence (instrument) in an individual could interfere with others, compensate for others, or enhance others (Moran et al., 2006).

2.3 Methodological Perspectives Toward Intelligence Testing and Determining Multiple Intelligences

Intelligence and intelligence testing is the most central and studied topic in psychology, with a history as long as psychology itself (Gottfredson & Saklofske, 2009). The study of intelligence has been pertinent to almost all areas of psychology and other sciences such as neurobiology and behavior genetics. Moreover, intelligence testing has been a contradictive issue in psychology and other areas including education (Gottfredson & Saklofske, 2009).

The interest in defining and measuring intelligence was raised by Galton and James McKeen Cattell (Gottfredson & Saklofske, 2009). Then, Binet and Simon's tests came into view in France at the beginning of the 20th century (Gottfredson & Saklofske, 2009). The test which composed of a series of 30 brief cognitive tests measuring language skills, memory, reasoning, digit span, and psychophysical judgments was developed for use with Paris school children (Boake, 2002). It was adopted in the United States (Gottfredson & Saklofske, 2009) and also the scale widely used in Europe (Boake, 2002). Although, popular and widely used, there were some criticism for the scale that the scale was an arbitrary and artificial scale (Boake, 2002). Next, The Army Alpha and Beta tests were used to examine recruits during World War I (Gottfredson & Saklofske, 2009).

By the 1930s, there was a variety in the content and method of intelligence assessment, specific tests such as the Porteous Maze Kohs Block Design, Goodenough Draw-a-Man, and Raven Progressive Matrices, and more general mental ability tests such as the Munroe-Buckingham General Intelligence Scale and Stutsman Merrill-Palmer Sale of Mental Tests (Gottfredson & Saklofske, 2009).

There were various intelligence tests because various intelligence theories existed. In this regard, Gottfredson and Saklofske (2009) explained various intelligence tests and the approaches or theories they were based on. They expressed that comprehensive tests including Woodcock-Johnson III Tests of Cognitive Abilities (WJ-III), Wechsler Adult Intelligence Scale –Fourth Edition (WAIS-IV), Wechsler Intelligence Scale for Children – Fourth Edition yield a general factor. Like the Planning, Attention, Simultaneous, and Successive/Sequential processing model (PASS), the theories grounded in alternative perspectives emphasized brain-behaviour relationships. The dynamic assessment approach originated from a neo-Piagetian perspective and drawing from Vygotsky's zone of proximal development. Moreover, they touched Multiple Intelligences Theory by saying that "The large scale models such as those developed by Sternberg and Gardner have not led to actual tests or test batteries in the more traditional sense but have heuristic value." (p. 184).

As stated before that large scale models including Multiple Intelligences Theory did not affirm the traditional intelligence tests. Concordantly, theory and research called for a shift away from dependence on a single, general factor (g) explanation of the variance in cognitive abilities and away from efforts to extract meaning from empirically meaningless tests (Canter, 1997). As a matter of fact, the tendency of moving from general factor based tests to multiplicity approach based intelligence assessment were also seen in some of the early intelligence tests. For example, Boake (2002) reviewed the history of David Wechsler's intelligence scales by tracing the origins of the subtests in the 1939 Wechsler-Bellevue Intelligence Scale. He concluded that the revision presented several paradoxes. One of them was related with todays trends that interpreting subtests is preferred and suggested rather than measuring general intelligence. This tendency created changes in Wechsler's own views. For example, Wechsler's earlier view was that the important factor lying behind most of the subtests was general intelligence, not special abilities in 1939.

However, Wechsler's 1941 chapter introducing profile interpretation supposed that the subtests could be interpreted as measures of specific abilities.

Furthermore, it was possible to express that one of the underlying inspiration sources for the tendency was weaknesses of the intelligence tests based on single intelligence. In this regard, intelligence has become more incorporated with describing the "whole person" with regard to academic placement, career development or potential for recovery from brain injury etc. however "brief" intelligence tests based on single factor intelligence assessed specific abilities or centered on particular clients like the visually impaired and the main criticism of earlier intelligence tests has been that these test scores provided little value for diagnosis or psychological prescription (Gottfredson & Saklofske, 2009). Furthermore, Gardner opposed to the traditional single test approach

> Few practices are more nefarious in education than the drawing of widespread educational implications from the composite score of a single test – like the Wechsler Intelligence Scale for Children (Gardner, 1993, p. 176).

Although, there have been some weaknesses related with all intelligences tests, intelligence testing was needed. Gottfredson and Saklofske (2009) explained that intelligence tests were developed based on a need by mass institutions for assessing intellectual needs and talents of large populations. Besides, in schools, intelligence tests were used to assess underachievement, mental retardation, giftedness and the abilities of children having problems interfering with learning for example deafness or visual impairments (Gottfredson & Saklofske, 2009). Furthermore, the tendency towards multiple perspectives and accordingly the use of multiple assessments for assessing intelligence manifested itself in schools, Canter (1997) emphasized that school reform attempts underlined the decreasing value of traditional assessment and requirement the development of alternative means of measuring students' skills and progress.

Furthermore, Gardner (1993) explained that early identification of strengths is perceived helpful in indicating what kinds of experiences children might profit from; also, early identification of weaknesses could be equally important. If a weakness is identified early, there might be a chance to attend to it before it is too late, and to come up with alternative ways of teaching or of covering an important skill area (Gardner, 1993). Moreover, Gardner (1993) stated that a careful assessment

procedure permits informed choices about careers and vocations. He added that it also allowed a more enlightened search for remedies for difficulties. Assessment of deficiencies could predict difficulties the learner would have; moreover, it could suggest alternative routes to an educational goal (learning mathematics via spatial relations; learning music through linguistic techniques) according to Gardner (1993).

Moreover, McMahon, Rose and Park (2004) expressed that there was a need for identifying and evaluating instruments developed to assess multiple intelligences because of increasing interest in Multiple Intelligence Theory. They added that if educators want to use Multiple Intelligences concepts in order to strengthen teaching techniques, they need reliable and valid methods of assessing students' abilities and preferences. In this regard, there are lots of methods to determine multiple intelligences through inventory, survey, test, checklist, and survey in MIT-related literature and web-pages. However, determining multiple intelligences is not easy because Gardner has not suggested a quick-fix, short term approach to determine multiple intelligences (Shearer, 2005). The criticism stated by Gardner of existing methods, and instruments for determining and assessing multiple intelligences are as follows (Shearer, 2005):

1- not intelligence-fair—biased towards linguistic abilities

Gardner and Moran (2006) explained the meaning of "intelligence-fair" as assessing a particular intelligence in its most natural environment. Gardner (2004) emphasized that MIT offered eight or more separate intellectual capacities, each of which had least some independence from the others. Correspondingly, Gardner (2004) added that the degree of independence was not easy because of lacking of "intelligence-fair" measures.

2- confound interest with demonstrated skill

As an example of the criticism of the existing instruments stated above, the study conducted by McMahon and her colleagues can be given. McMahon et al. (2004) conducted a study to evaluate the reliability of the Teele Inventory of Multiple Intelligences (TIMI). They expressed that the TIMI assesses *preferences* for learning on the basis of Multiple Intelligences Theory but the TIMI was in contrast to assessing *actual* intelligences which would need a more varied comprehensive approach to assessment. They concluded that the TIMI did not provide consistent measurement and required further development and improvement and was not a useful tool for educators on the basis of the reliability analyses for each of the

subscales of the instrument. Moreover, they reported that student preferences about the characteristics that were "like me" did not reflect actual preferences for learning on the basis of the item analyses results. Furthermore, Gardner (1993) emphasized that

> An important aspect of assessing intelligences must include the individual's ability to solve problems or create products using the materials of the intellectual medium. Equally important, however, is the determination of which intelligence is favored when an individual has a choice (p. 31).

In spite of Gardner's emphasis, most of the multiple intelligences assessments have ignored the distinction.

3- promote labeling of the individual by self and others

4- encourages simplistic / superficial understanding of an individual's abilities

5- facilitates stereotyping of groups of individuals.

Besides, like Shearer, Kagan and Kagan (1998) expressed the problems related with multiple intelligences tests;

1. Lack of validity

Kagan and Kagan (1998) asserted that establishment of validity was the most fundamental principle of test construction. They thought that internal, external and construct validity were not constructed in the tests.

2. Confound of ability and preference

For the example of the problem related with the tests confounding preference and ability was given by Kagan and Kagan (1998) as follows;

> … we have highlighted the preferences: "Likes to read;" "Enjoys writing;" "Likes to tell stories or jokes." The other items are abilities: "Spells words accurately;" "Has a good vocabulary;" "Listens carefully." When we find what a child scores, we do not know how much that score is a function of ability versus preference (p. 17.9).

3. Forced choice

Kagan and Kagan (1998) explained that

> Many of the existing measures of multiple intelligences provide items which force a choice between two activities, such as "Would you rather read a story, or work on a jigsaw puzzle?" Choosing to read scores a point for the linguistic intelligence; choosing the jigsaw puzzle scores a point for visual/spatial intelligence. The problem with any forced choice measure is that interpretation is always unclear. Did the student choose the jigsaw puzzle not because the

student likes or is good at visual/spatial tasks, but because the student hates to read?.... (pp. 17.9 – 17.10).

4. Reactive measures

Kagan and Kagan (1998) expressed that the problem was related with most of the multiple intelligence assessments which asked to parents to rate their children or asked to students to rate themselves on preferences or abilities because students and parents might not give true answers, their responses might reflect the socially desirable response.

5. Oversimplification

Kagan and Kagan (1998) explained that "the problem here is that there is a multiplicity of intelligences so one score for an intelligence will always be an oversimplification which will mask important individual differences" (p. 17.10).

6. Normative, not ipsative

The problem was that most of the multiple intelligences assessments had normative approach rather than ipsaitve to assess seeking how students score compared to established norms or classmates, rather than how they score compared to themselves and their pattern of skills (Kagan & Kagan, 1998).

7. Normative, not developmental

Most of the existing multiple intelligences assessments took a normative approach rather than developmental approach to multiple intelligences assessment; seeking how good students were via comparison them with others however it must be like a moving picture of an individual (Kagan & Kagan, 1998).

Furthermore, Plucker, Callahan, and Tomchin (1996 as cited in Fasko, 2001) stated several points that must be considered when using alternative assessment in order to identify gifted students such as logistical, training, scoring problems and problems related with the quality, reliability, and validity of performance assessment. After all, it should be expressed that Gardner (1993) proclaimed that the assessment of each intelligence was possible:

> Certainly careful articulation of each intelligence is required in the diagnostic process. I believe that operational definitions of each intelligence along with diagnostic procedures can be constructed, and my colleagues and I are engaged in efforts that address that objective (p.41).

Moreover, Gardner (1993) proposed that assessment of intelligences should be actualized by using the materials of that intelligence. He also expressed that such

assessment were complex tools to assess students' weaknesses and strengths and so they were not always feasible and/or practical for educators' usage.

In addition, Gardner and Moran (2006) stated that it was possible to develop a set of tests asserting to study the focus of each intelligence suggested by MIT. Instead of the quick-fix, short term approach, Gardner suggested a process approach to determine multiple intelligences (Moran et al., 2006; Shearer, 2005). Furthermore, Krechevsky and Seidel (1998, as cited in Fasko, 2001) proposed that four principles for designing assessments for Multiple Intelligences Theory as follows;

1. Assessments have to be designed in order to be intelligence-fair.
2. Assessments should let individuals respond in diverse modes and to demonstrate their understanding in multiple ways.
3. Assessments should help follow the growth over time of children's ability to use their intelligences.
4. Assessments should enable children to understand their own intelligences and how they work.

There were two programs presenting how rich experiences could serve as venues for developing and assessing multiple intelligences (Moran et al., 2006). The first, Project Spectrum, was an interactive assessment for preschool children developed in the 1980s at Harvard Project Zero (Gardner, Feldman, & Krechevsky, 1998; Gardner & Moran, 2006). Gardner and Moran (2006) used the phrase "intelligence-fair" when explaining the assessments developed by Feldman, Krechevsky, Chen, Gardner and other colleagues in 1980's for preschool children. There were fifteen activities for assessing intelligences through reliable scoring rubrics (Gardner et al., 1998 as cited in Moran et al., 2006). Moreover, Gardner (2003, p.6) expressed the goal of Project Spectrum as,

> The goal of Project Spectrum was to create a set of measures whereby one could ascertain the intellectual profile of young children – preschoolers and those in the primary grades. We ended up devising fifteen separate tasks that were designed to assess the several intelligences in as natural a manner as possible….

Some phrases in the direct quotation should be underlined "a set of measures", "fifteen separate tasks". The phrases implied that such effort could be actualized only if the researcher or researchers, aiming to measure, to determine or assess multiple intelligences could devise more than one way or material.

This process evaluated each intelligence directly, rather than funneling the information through a linguistic paper-and-pencil test. Spatial orientation and manipulation tasks evaluated spatial intelligence; group tasks evaluated interpersonal intelligence; self-assessments paired with the other assessments evaluated intrapersonal intelligence (Gardner et al., 1998). Project Spectrum environments did not segment tasks strictly into one intelligence or another instead, they set up situations in which a student could interact with rich materials — and teachers could observe these interactions — to see which intelligences came to the fore and which were relegated to the background (Gadner et al., 1998). Krechevky (1991) explained that

> In the Spectrum approach, all of the information collected on a child is compiled at year's end into a "Spectrum Profile": a short description, written in nontechnical prose, of the child's participation in the project's activities. The report addresses each child's areas of strength, either relative to himself or herself or to the child's peer group (p. 46).

Moreover, Krechevsky (1991) expressed that project spectrum gave importance to individual differences and so the Spectrum approach focused on a wide range of rich activities and assessments. The distinctive features of the Spectrum assessment approach are as follows Krechevky (1991);

1. Blurring the line between curriculum and assessment.

An unfamiliar applicator implemented, timed and standardized instruments in a small room in the traditional test settings and that presented a too narrow and skewed view of a child. On the other hand, in the Spectrum, tasks were not isolated from the school curriculum, the activities of the Spectrum were engaged in an applied and meaningful task presented as part of the school curriculum.

2. Embedding assessment in meaningful, real-world activities.

On the contrary to many standardized assessments, the Spectrum provided the child with real-world activities and ensured that the areas addressed were meaningful to the child, teacher and parent.

3. Using measures that are "intelligence-fair."

Most of the standardized tests viewed all abilities through the window of language and logic. Contrary to this, the Spectrum attempted to touch abilities directly, via their own particular medium.

4. Emphasizing children's strengths.

Contrary to many approaches used with children at risk of school failure, the Spectrum approach looked to identify children's areas of strength and to form their education as much as possible around those domains of competence.

5. Attending to the stylistic dimensions of performance.

In the Spectrum approach, it was important to seek not only at a child's cognitive skills but also stylistic characteristics. Working styles defined how a child interacted with the materials of a domain such as his or her persistence and level of confidence.

Gardner and Moran (2006) expressed that Gardner learned a key point from the project. The key lesson was explained by Gardner and Moran as that it was an expensive and time-consuming process to develop tests and the final results of the developing process might be misused (2006). In this regard, Gardner would favor more resources helping learners comprehend and develop their individual intelligence profiles rather than spending less resources testing, ranking, and labeling them (Gardner & Moran, 2006). Accordingly, Gardner made a personal decision not to directly engage in testing (Gardner & Moran, 2006). Nevertheless, Gardner and Moran (2006) expressed that they comprehended the essentiality of the assessment as component of the educational system and they added that "We have no objection to others developing assessment instruments as long as they are intelligence-fair" (p. 230).

The second environment providing rich experiences using a multiple intelligences approach was the Explorama at Danfoss Universe, a science park in Nordborg, Denmark. Gardner and Moran (2006) expressed that the park was designed according to multiple intelligences theory, this interactive museum was used by people of all ages and enabled observation of the intelligences in their environments. They also explained that there were 50 games ranging from language games to balancing, juggling, making and dissecting tunes, and working with individuals or robots to move objects around. Finally, Gardner and Moran (2006) expressed that Explorama would verify usability in essential as well as real life settings and would give individuals opportunity to comprehend – in an intuitive, phenomenological way – the meaning of multiple, relatively independent intelligences and said,

Of the dozens of efforts to create measures of the various intelligences, Explorama is far the most effective. It is fun to sample across the board or to delve into a particular task, it involves measures that do not require the intrusion of paper-and pencil instrumentation, the materials are novel for the user yet easily understood by anyone from a schooled society, and it gives users the opportunities to predict their own intelligence profile and ascertain whether they are correct (p.230).

2.4 Research Studies of Various Uses of Multiple Intelligences in Different Areas and Levels of Education

There were two main points of this study namely; Multiple Intelligences Theory and determination of multiple intelligences. Thus, there should be research studies related with both main points. However, there were no many research studies directly related with the determination of multiple intelligences. Moreover, McMahon et. al. (2004) expressed that although the studies indicated positive results about Multiple Intelligences-based curricula, none used a standardized approach to assess individual multiple intelligences. Multiple Intelligences were not assessed concerning Multiple Intelligences interventions and it was unclear whether the interventions were effective. In this regard, one of the main purposes of presenting the research studies in this part was to highlight the wide usage of Multiple Intelligences in different areas and level of education and their positive results. Another purpose of this part was underlying the point expressed by McMahon et al. The final purpose was to emphasize the importance of MIT and determination of multiple intelligences and the need for determining multiple intelligences because of the wide usage of MIT.

2.4.1 Research Studies Related With Implications of Multiple Intelligences Theory on Regular Classrooms

In literature, there were various research studies related with MIT. The results related with the effects of MIT on education were positive in terms of students' achievement, attitudes towards courses and opinions. Coşkungönüllü (1998) prepared a masters thesis to investigate whether there was a significant effect of MIT on fifth graders' mathematics achievement, attitudes and opinions. The experimental study was conducted in the 2nd term of the 1997-1998 academic year with two fifth

grade classes with 32 students in TED Ankara College, lasting for three weeks. The experimental group took a math course based on MIT and the other class took a math course based on a traditional approach. A Mathematics Achievement Test and Mathematics Attitude Scale were used. The analyses showed there was a significant effect of MIT on fifth graders' mathematics achievement. There was no significant effect of MIT on fifth graders' attitudes toward mathematics. Students had positive opinions about the implementation of the theory.

Another study was conducted by Yılmaz and Fer (2003) to determine the students' achievement and opinions concerning Social Studies instruction based on MIT. The study lasted eight lesson hours with 16 5th grade students in Istek Özel Kaşgarlı Mahmut primary school in Istanbul during the 2001-2002 academic year. The results showed that most of the instructional activities based on MIT had a good effect on the students and there was a significant difference between the pre-test and post-test achievement scores of the students.

Özdemir, Güneysu, and Tekkaya (2006) conducted a study to investigate whether there was a significant difference between MIT instruction and traditionally designed science instruction on 4th grade students' understanding of "Diversity of Living Things" units. Two classes each with 35 students were randomly selected. One was instructed in MIT strategies whereas the other was instructed traditionally. The Diversity of Living Things Concept Test and Teele Inventory of Multiple Intelligences were used to gather data. The results showed that MIT Instruction produced significantly greater achievement in the unit.

Another study was conducted by Saban (2002) at Essentepe Elementary School, Konya in Turkey. Saban stated that the main aim of the school was to nurture their students' potential through personalized education. In the study, firstly the Turkish version of the Multiple Intelligences Inventory for Adults developed by Armstrong was used to identify teachers own multiple intelligences as educators and adult learners. The results of the study showed that the teachers' interpersonal and intrapersonal intelligences were the strongest, but they needed some improvement in the naturalistic and musical intelligence. After gaining insight into their own intelligence, the teachers used the Turkish version of Armstrong's Checklist for Assessing Students' Intelligences for identifying their students' multiple intelligences. The teachers used this checklist because they would personalize their students' education. The curriculum of the school implemented its MI approach

through three structures; core courses activities, exploratory activities, and projects. After working with MIT for a year, findings suggested that MI theory had positive effects on students and teachers, administrators and parents. The positive effects were summarized as follows;

> The more we collaborate with each other = The more we grow professionally as a team = The more we are able to better our students' education and the more we provide choices for our students = The more we are able to individualize their education = The closer we come to our school's vision" (p.73).

Moreover, one of the excerpts taken from the teachers' views about the effect of MIT presented in the study, a 2nd teacher explained,

> After I introduced my students to the multiple intelligences theory and started using it in my classroom, I was not surprised to hear a student say, "Teacher! I learn best visually, so could you explain this information by drawing a picture on the black-board?" Such a request represents the student's crucial shift from passively receiving information to actively seeking knowledge…. (Saban, 2002, p.71).

Furthermore, the school had been able to achieve local visibility and recognition in less than one year.

Another study done was by Gözütok (2000, as cited in Göğebakan, 2003). In this study, Gözütok performed an implication of MIT project as a qualitative experimental study and aimed to inform parents and teachers about MIT, make the teachers and parents recognize their children's and students' skills, and allow the teachers to implement educational methods based on the skills of their students. Two control list were developed by using Armstrong's MI scale in order to determine the MI profiles of the classrooms. The teachers and parents were informed about MIT and implications of the theory on education. Each teacher planned and implemented his or her lessons based on MIT and it was claimed that the implications of MIT were useful and helped the teachers to manage the classroom. It was also observed that the lessons based on MIT made students successful and happy. However, some of the high school teachers stated that they had some difficulty implementing the theory in their grades.

Güneş (2002) conducted a study in order to find out the changes in 7th grade students' attitudes; their learning the concept of buoyancy upon the Multiple Intelligences based instructional techniques. Observations, written documents,

science attitude scale, buoyancy achievement test, and MI inventory were used as data instruments. The participants of the study consisted of 75 seventh grade students from three classes of a private school in Ankara. All students received the same instruction from same teacher. After analyzing the data, the results showed that the MI based instructional techniques changed students' attitudes towards science positively. This kind of instruction also provided an increase in students' science achievement. Statistical results showed that MI based instructional techniques were successful.

2.4.2 Research Studies Related With Implications of Multiple Intelligences Theory on Learning Difficulties and Disabilities

Although the effects of MIT have mostly been investigated in regular classrooms including both normal achievers and students having learning difficulty, there were some research studies about the implementation of MIT for learning difficulties and disabilities. Recent studies in the field of learning difficulties and disabilities have tended to focus on individual differences (Hearne & Stone, 1995).

Dettori and Ott (2006) conducted a case study originating from their project to identify pupils with specific learning disabilities in mathematics and then to design remedial ways for them. The Wechsler Intelligence Scale for Children, Progressive Matrices Test, Evaluation of Basic Abilities of Arithmetical Computation test, and the Mathematical Test for Compulsory School For 3rd, 4th, 5th grades were used. Two third grade students having serious and similar learning difficulties, mainly in mathematics were selected and examined in terms of their academic achievement and abilities. There were remarkable differences between them in terms of their weaknesses and strengths. Therefore, different individualized remedial ways were conducted. The results showed that the two children did not achieve the same level as their classmates. However, the results also showed that the children demonstrated some level of individual growth and this kept them from falling further behind with respect to their classmates. Moreover, the children actually started making some use of their strong points and slightly improved their attitude toward learning. The researchers pointed out that the children's achievement and ability were not always dependent on each other and teachers must evaluate individual differences carefully,

paying attention not only to difficulties but also to potentialities and points of strength when planning remedial interventions for pupils with learning difficulties.

Noble (2004) conducted a research study with 16 teachers from kindergarten to year 6 in two single stream elementary schools. In the study, MIT was integrated with the revised Bloom's Taxonomy to provide a planning tool for curriculum differentiation. The teachers used the tool over 18 months. Both qualitative and quantitative methods were employed. In general, the results showed that teachers were satisfied with the curriculum differentiation. 73% of the teachers perceived that MIT provided them with a tool to nurture different intellectual strengths and ways of learning for different students. Moreover, several teachers perceived particular benefits of MIT for children who were experiencing learning difficulties and academic weaknesses, or were students with English as a second language.

Schirduan and Case (2004) examined 87 students with attention deficit hyperactivity disorder (ADHD) in grades 2 through 7 and their teachers in 17 Schools Using Multiple Intelligences Theory (SUMIT) sites identified by Project SUMIT at Harvard University in terms of the predominant intelligences, self-concept and level of achievement and success. Qualitative and quantitative methodology and purposeful sampling was used. The teachers reported average achievement levels for the students indicating that students with ADHD in SUMIT sites do better than those students in traditional schools. The results also indicated that the students with ADHD in SUMIT sites felt positive with regard to academic tasks. Also, in the study, a case study was conducted with two 3rd grade and one 2nd grade student. Their predominant intelligences including naturalistic, spatial and bodily kinesthetic were noticeably different from the linguistics and mathematical intelligences. The result indicated that providing a curriculum that taught to their strengths, the students expressed a higher level of competence and self-confidence than that in more traditional curricular settings.

When explaining educational interventions for students with ADHD which was one of the causes of learning disability and difficulty, Salend, Elhoweris and Garderen (2003) emphasized that comprehensive programs for the students should address their unique learning needs and styles rather than focus on reducing inappropriate behaviors. Also they said that teachers could use individualizing assignments to address students' varied instructional levels and needs. Emphasizing strengths rather than weaknesses were important for not only the students having

learning difficulties originating from ADHD, but also all other students having learning difficulties and disabilities.

A twenty-year follow-up research study was conducted by Raskind et al. (2002) to identify various factors in the lives of the students having learning disability that led some to "success" and others to "failure." Results revealed a set of personal characteristics, attitudes, and behaviors were predictive of success. Besides this, the researcher emphasized that it was important for success to develop awareness of strengths, talents and define and understand their view of "success".

Hearne and Stone (1995) emphasized the students, having learning difficulties, were average or above in intelligence and that there were tremendous discrepancies between their academic achievement and their intelligence. Another issue, which emphasized the learning differences well, was twice-exceptional students. Twice-exceptional students were the students who had dramatic learning strengths in some areas and equally dramatic learning weaknesses in others. Winebrenner (2003) stressed that these kind of students opposed the labeling of gifted or learning disabled. Winebrenner suggested focusing on the students' strengths and individual differences, and the many ways of teaching the same concepts when teaching twice-exceptional students. Educators, teachers mostly knew a lot about what children did not know because they looked for it directly, however, the children's own personal interests, strengths and talents were more important (Hearne & Stone 1995; Winebrenner, 2003).

2.4.3 Research Studies Related With Implications of Multiple Intelligences Theory on Career Development

While the research literature abounds with MIT, most of them were related with the implications of MIT on education and especially at elementary level. However, MIT had principles that could give inspiration to various fields in which human beings lived. One of the fields was career and career selection. Johnson and White (2002) said that MI might be related with potential career choices and the recognition of MI strengths and weaknesses might help all students identify the careers they were best suited to pursue. Also, Yılmaz and Fer (2003) expressed that students can be guided to achieve careers that suit their dominant MI. There were certain professions that were more favorable to certain types of MI (Johnson &

White, 2002). Although, certain professions have been matched with certain intelligences, only a few limited research studies have been found in literature.

Johnson and White (2002) conducted a research study to explore MIT as it related to career choice among university students whose major was criminal justice. A questionnaire was administered to 263 students who enrolled at the University of West Florida during the spring 2001 semester. The total number of usable surveys was 189. The results of chi-square analyses indicated the students were predominantly intrapersonal (60.8%). The students' intelligences from most dominant to least were namely; intrapersonal, existential, kinesthetic, naturalist, musical, visual, interpersonal, verbal. Also, the findings showed there were significant differences between career choices and dominant intelligences.

Another research study was conducted by Oral (2001) to determine the intelligences of university students from different departments in terms of MIT. The sample consisted of 615 students from departments including physics, chemistry, biology, mathematics, literature, foreign language, history, geography, psychology and sociology, physical education, and art. Harm's MI Inventory was used as an instrument. The analysis showed the highest scores in kinesthetic intelligence were taken by geography and physical education students; in interpersonal intelligence were taken by biology students; in intrapersonal intelligence were taken by foreign language and history students; in mathematical intelligence were taken by mathematics, physics, and biology students; in musical intelligence were taken by geography students; in linguistic intelligence were taken by foreign language, history, and literature; in visual intelligence were taken by art; in naturalistic were taken by biology and physics students.

Şahin, Ulusoy and Turan (2005) conducted a study to investigate the relationship between university students' dominant brain hemisphere, ability, state traits and their MI. 134 university students from different departments including primary education, science, mathematics, foreign language, music, and physical education in the faculty of education in Kocaeli University participated in the study willingly. The data analyses showed there was a positive correlation between linguistic ability with linguistic; numerical ability with mathematical and visual intelligences; shape-space ability with mathematical and visual intelligences. Also, the data indicated there was a positive correlation between fundamental sciences interest with mathematical intelligence; social sciences interest with interpersonal

intelligence; living things interest with naturalistic; persuasion interest with interpersonal and linguistic intelligences; mechanic interest with visual intelligence; trade interest with interpersonal intelligence; art interest with visual, existential and naturalistic intelligences; literature interest with linguistic intelligence; music interest with musical and visual intelligences; social aid interest with interpersonal intelligence. Also, they found positive correlations between abilities and interests with other type of intelligences but the level of correlations was low.

2.5 Summary of the Literature Review

The literature was reviewed to provide a conceptual framework on the phenomenon in order to situate a conceptual understanding that would form the basis for the present study. The literature review was started with the theme the "Historical Background of Intelligence," firstly theories of intelligence were explained under two main categories namely; (1) Intelligence theories based on an IQ perspective and (2) Intelligence theories based on a multiple perspective. The first part indicated that the intelligence theories based on the IQ perspective agreed on the importance of the factor "g" and IQ tests for measuring the intelligence. The views of Spearman, Galton, Binet, Simon, and Eyesenck about intelligence were explained in the first group. The second part showed that the intelligence theories based on multiple perspective claimed that intelligence was not a single item to be explained with one factor "g". They asserted that there were various forms of intelligence. In this regard, the views of Guilford, Thorndike, Thurstone, Sternberg, Goleman about the nature of intelligence were in the second group. Moreover, at the end of the second part, MIT was defined as a member of the second group. Thus, it was time to introduce the second main theme "Multiple Intelligences Theory."

Under the theme, MIT was explained in depth and detail. Primarily, Gardner (1983) defined intelligence as "the ability to solve problems, or to fashion products, that are valued in one or more cultural community settings" (p.x) in "Frames of Minds" which is the first book Gardner in which presented Multiple Intelligences Theory. The literature review indicated that MIT has its own characteristics differing from the other intelligences theories.

First, MIT was one of the intelligences theories based on multiple perspectives and proposed eight intelligences to define human cognitive competence; however

MIT was different from the other intelligence theories based on multiple perspectives in terms of evidences. MIT is based on various sources that have not been considered together. These sources are the results of the research at Project Zero on the development of various cognitive skills in normal children; studies of breakdown of cognitive abilities in stroke patients and other brain-damaged individuals; works with prodigies, idiot savants, autistic children and other special populations; and a review of literature on psychological testing and the relationship between test scores and performance on different tasks (Armstrong, 1994). Besides this, MIT was based on broad evidence including experimental psychology, psychometric psychology (Gardner & Moran, 2006; Kornhaber, 2004), cognitive psychology, developmental psychology, differential psychology (Gardner & Moran, 2006), psychology, neuropsychology, evolutionary biology (Kornhaber, 2004), genetics and anthropology.

Second, MIT has an interdisciplinary approach since MIT was developed on the basis of the sources and evidences, cultural sensitivity and an interactionist-dynamic research methodology (Gardner & Moran, 2006).

Third, not every candidate skill is called intelligence, Gardner (1983) determined whether a candidate skill or ability was an intelligence or not by using eight 'signs' as criteria namely;

(1) potential isolation by the brain,

(2) the existence of exceptional individuals,

(3) identifiable core operations,

(4) a distinctive development history,

(5) a distinctive evolutionary history,

(6) supportive evidence from cognitive experimental research,

(7) supportive evidence from psychometric tests,

(8) susceptibility to encoding in a symbol system.

Fourth, on the basis of the criteria, Gardner's multiple intelligences explaining human cognitive competence are logical-mathematical intelligence, linguistic intelligence, spatial intelligence, bodily-kinesthetic intelligence, musical intelligence, interpersonal intelligence, intrapersonal intelligence (Gardner, 1983, 1993), naturalist intelligence (Moran et al., 2006).

Linguistic intelligence is an ability to understand and use spoken and written communication; *mathematical-logical intelligence* is an ability to understand and use

logic and numerical symbols and operations, *spatial intelligence* is an ability to orient and manipulate three-dimensional space; *musical Intelligence* is the capability to understand and use concepts such as rhythm, pitch, melody, and harmony (Moran et al., 2006). *Bodily-Kinesthetic intelligence* is the ability to solve problems or to fashion products using one's whole body or parts of the body and control of bodily movement is localized in the motor cortex with each hemisphere dominant or controlling bodily movements on the contra-lateral side; *interpersonal intelligence* is the ability to understand other people, what motivates them (Gardner, 1993). *Intrapersonal intelligence* is an ability to understand and use one's thoughts, feelings, preferences, and interests (Moran et al., 2006). *Naturalistic Intelligence* is the ability to understand nature's symbols, and to respect the delicate balance that lets us continue to live (Nolen, 2003). *Existential intelligence* is the ability to contemplate phenomena or questions beyond sensory data, such as the infinite and infinitesimal. Although Gardner defines existential intelligence, it does not meet all of his criteria for intelligence. Because of this, Gardner named it a "half" intelligence (Wehrheim, 2006).

Moreover, the role of the MIT in education was explained in this chapter. There were two main reasons why the role of MIT in education was touched in the literature review. The first reason was that most people met MIT for the first time at schools. That's not all. Moreover, they perceived MIT as a theory of education and instruction. The second reason was that the importance of determining multiple intelligences was clearly felt in the field of education. In this regard, the literature review implied that Gardner himself had never asserted an educational recipe growing out of MIT (Gardner & Moran, 2006). The literature review also indicated that MIT presenting various ways in which the schools and their students had benefited. Moreover, the literature review displayed that most of the educators mistakenly integrate MIT into schools. For example, they thought that teachers must group students for instruction according to different intelligences or prepare eight or nine separate sections for every lesson (Moran et al., 2006). For explaining the implication of MIT on education, Moran et al. (2006) use an analogy to explain the cooperative working of multiple intelligences and the importance of cooperative work in educational settings. As in an orchestra, one intelligence (instrument) in an individual could interfere with others, compensate for others, or enhance others (Moran et al., 2006).

The third main theme of the literature review part was "Methodological Perspectives toward Intelligence Testing and Determining Multiple Intelligences." The literature review indicated that intelligence and intelligence testing is the most central and studied topic in various areas including psychology, neurobiology, education, behavior genetic etc. Therefore, the literature review under this title was started with the historical notes on intelligence and intelligence testing. The review showed that there were various intelligence tests because of various intelligence theories. In this regard, the literature review showed that Gottfredson and Saklofske (2009) expressed that comprehensive tests including Woodcock-Johnson III Tests of Cognitive Abilities (WJ-III), Wechsler Adult Intelligence Scale –Fourth Edition (WAIS-IV), Wechsler Intelligence Scale for Children – Fourth Edition yield a general factor. Like the Planning, Attention, Simultaneous, and Successive/ Sequential processing model (PASS), the theories grounded in alternative perspectives emphasized brain-behaviour relationships. The dynamic assessment approach originated from a neo-Piagetian perspective and drawing from Vygotsky's zone of proximal development. Moreover, they touched Multiple Intelligences Theory by saying that "The large scale models such as those developed by Sternberg and Gardner have not led to actual tests or test batteries in the more traditional sense but have heuristic value" (p. 184). Literature review also indicated that Multiple Intelligences Theory did not affirm the traditional intelligence tests. Moreover, literature review indicated that there were problems, warnings and suggestions about not only traditional intelligence testing but also the existing methods developed to determine and assess multiple intelligences. The problems included not being intelligence fair; confounding interests with skills; promoting labeling, and encouraging simplistic understanding of MIT; facilitating stereotyping of groups or individuals (Shearer, 2005). Furthermore, Kagan and Kagan (1998) expressed the problems related with multiple intelligences tests; lack of validity, confound of ability and preference, forced choice, reactive measures, oversimplification, normative, not ipsative, normative, not developmental.

In addition, literature review showed that it was possible to develop a set of tests asserting to study the focus of each intelligence suggested by MIT (Gardner & Moran, 2006). Instead of the quick-fix, short term approach, Gardner suggested a process approach to determine multiple intelligences (Moran et al., 2006; Shearer, 2005). Furthermore, Krechevsky and Seidel (1998, as cited in Fasko, 2001) proposed

that four principles for designing assessments for Multiple Intelligences Theory as follows;

1. Assessments have to be designed in order to be intelligence-fair.
2. Assessments should let individuals respond in diverse modes and to demonstrate their understanding in multiple ways.
3. Assessments should help follow the growth over time of children's ability to use their intelligences.
4. Assessments should enable children to understand their own intelligences and how they work.

Finally, the research studies directly related with determining multiple intelligences and their effectiveness was somewhat rare or left unstudied while the research literature abounds with the implications of the principles of MIT. Therefore, it was tried to explain the importance of determining multiple intelligences by presenting the research studies which implied the importance and a wide array usage of MIT.

The literature showed that the results of the research studies related with MIT indicated that the effects of MIT on education were positive in terms of students' achievement, attitudes towards courses and opinions. The literature also indicated that some instruments were used in some of the studies. For example, Turkish version of the Multiple Intelligences Inventory for Adults developed by Armstrong was used to identify teachers own multiple intelligences as educators and adult learners and Turkish version of Armstrong's Checklist for Assessing Students' Intelligences was used for identifying their students' multiple intelligences in Saban's study in 2002. Another example that Armstrong's MI scale was also used in order to determine the MI profiles of the classrooms in Gözütok's study in 2000 (as cited in Göğebakan, 2003). Moreover, a MI inventory was used as one of data instruments in Güneş's study in 2002.

Although the effects of MIT have mostly been investigated in regular classrooms including both normal achievers and students having learning difficulty, the literature also indicated that there were some research studies about the implementation of MIT for learning difficulties and disabilities.

While the research literature abounds with MIT, most of them were related with the implications of MIT on education and especially at elementary level.

However, MIT had principles that could give inspiration to various fields in which human beings lived. One of the fields was career and career selection.

In brief, the research studies indicated that MIT had positive implications on various fields in terms of various aspects. However, the literature review of this study focused on the research studies related with education and educational fields including instruction for the students who had learning disabilities and difficulties and career development. The research studies indicated that MIT became popular in various areas including education and the implications were positive. Although the studies indicated positive results about Multiple Intelligences-based curricula, none used a standardized approach to assess individual multiple intelligences. Multiple Intelligences were not assessed concerning Multiple Intelligences interventions; it was unclear whether the interventions were effective (McMahon et al., 2004).

CHAPTER III

METHOD

In this chapter, the methodological details of the study were presented. Firstly, the overall research design of the study was explained. Then, the participants of the study were presented. Next, data sources and data collection instruments and the data collection procedure of the study in relation to the phases of the study were explained. Afterwards, the data analysis of the study was presented. Finally, validity and reliability issues and assumptions, delimitations and limitations of the study were presented.

3.1 Overall Research Design

The purpose of the study was to explore a program development process and explain how each component of the process contributes to the overall procedure for determining 1st, 2nd, and 3rd grade students' multiple intelligences profiles. Having this purpose in mind, an action research, one of the qualitative research types, was conducted.

There are many purposes for conducting an *action research* as one of the qualitative research types. Of the many, one was stated by Strauss and Corbin (1990) as "to uncover and understand what lies behind any phenomenon about which little is yet known" (p.19). In this respect, exploration of what lies behind determining 1st, 2nd and 3rd grade students' multiple intelligences profiles could be best investigated through a qualitative approach. Furthermore, Berg (2001, p. 179) defined action research as "…a method of research where creating a positive social change is the predominant force driving the investigator and the research." Besides, Berg (2001) expressed that one of the primary tasks action research is targeting was uncovering or producing information and knowledge that would be openly functional to a group of

people through research, education and sociopolitical action. On the basis of the definition and the task, it was clear that the present study, with its focus and research questions, considered an action research design necessary to explore a program development process and explain how each component of the process contributes to overall procedure for determining 1st, 2nd, and 3rd grade students' multiple intelligences profile.

Moreover, Berg (2001) emphasized that different sources explained the same set of activities of an action research procedure in different ways. He also expressed that action research followed spiral process. As with all action research, the current study followed action research's basic stages in a spiral process. The basic four stages of action research are as follows:

(1) identifying the research question(s),
(2) gathering the information to answer the research question(s),
(3) analyzing and interpreting the information, and
(4) sharing the results with the participants (Berg, p. 180).

Besides these, for determining 1st, 2nd, and 3rd grade students' multiple intelligences profiles, the study aimed to explore a program development process and explain how each component of the process contributes to the overall procedure so the study followed an action research model for program development process. The model was shown in Figure 1.

This current study, "An Action Research on Program Development Process for Determining Multiple Intelligences Profiles of 1st, 2nd, 3rd Graders" was intended to explore a program development process and explain how each component of the process contributes to overall procedure for determining 1st, 2nd, and 3rd grade students' multiple intelligences profile. The meaning of program was accepted as equal to the meaning of curriculum. For the current study, the definition of curriculum and the model of the program development process were based on the "reflective eclecticism" approach proposed by Posner.
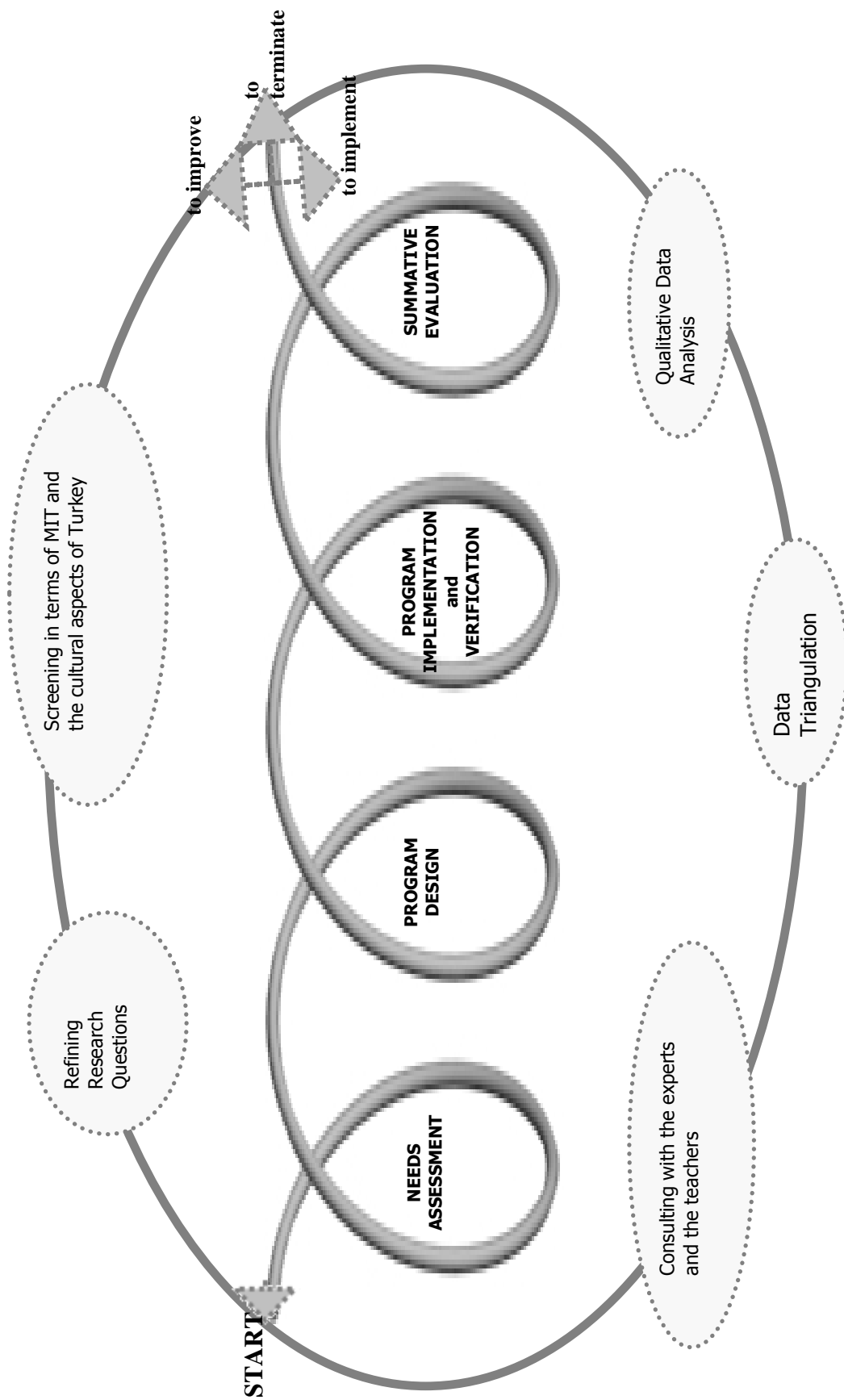
Figure 1 Action Research Model for Program Development Process

Posner (1995) indicated that "Reflective eclecticism" as the most reasonable way for curriculum decisions by saying as follows:

> Reflective eclecticism is based on the assumption that, much as we would like to deny it, there is no panacea in education. People who are looking for "the answer" to our educational problems are looking in vain. Different situations require different practices… What curriculum decision makers require need is an understanding of myriad curriculum alternatives (p.4).

Consequently, because of the reflective eclecticism approach of the study, when exploring a program development process and explaining how each component of the process contributes to overall procedure for determining 1st, 2nd, and 3rd grade students' multiple intelligences profiles, more than one design and development model and approach was used as a guide for the study. In consequence, this program development process was based on the eclectic model comprising of basic characteristics of various curriculum development and design models. In this regard, the main components of the program development process were namely; Needs Assessment, Program Design, Program Implementation and Verification and Summative Evaluation.

3.1.1 Needs Assessment Phase

Needs assessment was a process of determining the things that were necessary or useful for the fulfillment of a defensible purpose (Stufflebeam, McCormick, Brinkerhoff & Nelson, 1984). Accordingly, the needs assessment process of the study consisted of five interrelated sets of activities proposed by Stufflebeam et al. (1984). The five activities were;

1. Preparing to do needs assessment
2. Gathering desired needs assessment information
3. Analyzing the needs assessment information
4. Reporting needs assessment information
5. Using and applying needs assessment information

These steps did not necessarily occur in strict sequence. They could be pursued simultaneously because recycling would inevitably (and should) occur

according to Stufflebeam et al. (1984). The view was operative for the current study. The purposes of the phase were as follows;

1. to find out the purposes of the 1st, 2nd and 3rd grade teachers to determine students' multiple intelligences profiles,

2. to explore the existing methods 1st, 2nd and 3rd grade teachers use to determine students' multiple intelligences profiles,

3. to explore the strengths and weaknesses of the existing methods1st, 2nd and 3rd grade teachers use to determine students' multiple intelligences profiles,

4. to determine the suggestions the participants made in relation to the methods used to determine students' multiple intelligences profiles.

5. to determine the most appropriate methods for determining 1st, 2nd and 3rd grader's multiple intelligences profiles.

3.1.2 Program Design Phase

According to the Tyler model, the educator would comprehend the direction in which each learner should go and then a toolbox of instructional methods was prepared and presented to help students accomplish the desired learning outcomes (Simpson, 1999). Like Tyler's model, a tool box was the focus in the current phase after portraying the "what is" and "what should be" on the basis of the results of the needs assessment phase. The program design model of this study dealt with a tool box, however, the tool box was not for instructional methods but for methods of determining multiple intelligences profiles. Actually the instructional methods of Tyler's model and methods of determining multiple intelligences profiles were parallel in terms of their place and function in the program development process. In the needs assessment phase, methods of determining students' multiple intelligences profiles were explored. In the program design phase, the content of the methods, and materials were determined. Besides this, the development of the methods and their materials were actualized in the program design. The program design phase of the study had the following purposes:

1. to collect data provided to serve as a basis for the content of the materials to determine 1st, 2nd and 3rd graders' multiple intelligences profiles,

2. to apply the data to design and develop the materials of the methods in order to determine 1st, 2nd and 3rd graders' multiple intelligences profiles.

3.1.3 Program Implementation and Verification Phase

After completing the program design, the next phase was program implementation and verification. The phase served the purposes of the formative evaluation. Formative evaluation was a way to detect problems and weaknesses in components in order to revise them and addressed such questions as "How can the program be improved?" and "How can it become more efficient or effective?" (Herman, Morris & Fitz-Gibbon, 1987). In the phase, weaknesses of the program were detected. The determination enabled the researcher to eliminate them before implementation carried out with new groups of students for improving the program. The program implementation and verification phase of the study had the following purposes:

1. to explore the strengths and weaknesses of the program developed throughout the study in order to determine 1st, 2nd, and 3rd graders' multiple intelligences profiles,

2. to determine and conduct the modifications to eliminate the weaknesses of the program developed throughout the study in order to determine 1st, 2nd, and 3rd graders' multiple intelligences profiles,

3. to determine the effectiveness of the modifications to the program developed throughout the study in order to determine 1st, 2nd, and 3rd graders' multiple intelligences profiles.

3.1.4 Summative Evaluation Phase

The last phase was summative evaluation. The final choice was made for the future of the program. Summative evaluation aimed at getting the "total" picture of the quality of the produced curriculum (Ornstein & Hunkins, 1988). In the formative evaluation, the focus was on the effectiveness of the program now. By conducting summative evaluation the focus was on the impact of the program. Summative evaluation was the last point of the program development process. The summative evaluation phase of the study had the following purposes;

1. to determine whether or not the program attain its goals,

2. to make decisions for the future of the program; to maintain the curriculum without changing; to improve the curriculum; to terminate the curriculum.

3.2 Participants of the Study

This study required qualitative data that provided in-depth and detailed information, descriptions through direct quotation and careful description of people, interactions, observations, interviews, inventories and questionnaires to explore the answers to the research questions. In this regard, sampling was important. Therefore, purposeful sampling was preferred while selecting the participants for the study.

Patton (1987) stated "The power of purposeful sampling lies in selecting information-rich cases for study in depth" (pp. 51-52). There were various sampling types of purposeful sampling methods. In this regard, the purposeful sampling strategies proposed by Patton were used in the current study. Patton (1990) presented 15 different strategies and gathered them under the broad title of purposeful sampling (as cited in Coyne, 1997). Moreover, Patton emphasized that "The underlying principle that is common to all these strategies is selecting information rich cases" (1987, p. 58). Besides, Patton (1987) said,

> Nor are these strategies mutually exclusive. Each approach serves a somewhat different purpose. Since evaluations often serve multiple purposes, more than one qualitative sampling strategy may be necessary. In long-term fieldwork all of these strategies may be used at some point (p. 58).

Furthermore, Yıldırım and Şimşek (2003) stated,

> The researchers can use more than one sampling at the same time while making decisions related to sampling or they can put new sampling into practice at any moment at any stage of research if they need it even if it is not in the initial phase of the research (p.75).

As a result, criterion sampling of purposeful sampling methods proposed by Patton was used overall for the study. Although criterion sampling was dominantly used throughout the study, extreme or deviant sampling was also used. The following figure summarizes the participants of the study.

Two 1st grade

Two 2nd grade

Teachers

Two 3rd grade

Emin Sağlamer Public Elementary School

1st, 2nd, 3rd Grade Students

1st, 2nd, 3rd Grade Parents

Schools

Three 1st grade

Teachers

Two 2nd grade

Two 3rd grade

Gazi University Foundation Private Elementary School

1st, 2nd, 3rd Grade Students

1st, 2nd, 3rd Grade Parents

One Art Education

Branch Teachers

One Pysical Education

One Music Education

Participants

Dr. Sue Teele

Instrument Developers

Dr. Thomas Armstrong

Assoc.Prof.Dr. Ahmet Saban

Social Pediatrics

Prof.Dr. Elif Nursel Özmert

Neurology

Prof.Dr. Mehmet Demirci

Psychology and MIT

Prof.Dr. Ziya Selçuk

Psychiatry

Assoc.Prof.Dr. Başaran Demir

Experts

Child Neurology

Assoc.Prof.Dr. Füsun Alehan

Aslıhan Fırat Erk

Psychology

Pınar Yazıcı

Y

Hasibe Yıldırım

Sociology

X

Mathematics Education

Emel Uysal

Figure 2 Participants of the Study

3.2.1 Schools

Firstly, the criteria were set for determining the participant schools. The criteria were as follows: a) the schools should have been familiar with the Multiple Intelligences Theory for at least three years, b) the schools should have experienced Multiple Intelligences Theory for at least three years. After determining the schools which met the criteria, the schools selected as participants were namely; Gazi University Foundation Private Elementary School and Emin Sağlamer Public Elementary School.

Emin Sağlamer Public Elementary School. Also, the school had been one of the pilot schools determined by the MONE for piloting the primary education curricula developed in 2004-2005. The curricula had been developed on the basis of cognitive contemporary approaches including Multiple Intelligences Theory. Furthermore, the school was one of the schools in which the project of student-centered education was conducted by the Educational Research and Development Department. Besides, this school received many seminars in "Multiple Intelligences Theory and Its Implications on Education" and had experienced cognitive contemporary approaches including implementation of Multiple Intelligences Theory.

In addition, Gazi University Foundation Private Elementary School was established in 1998. The philosophy behind establishment of the school was MIT and medium of instruction was mainly implementation of MIT in all class application. Actually, planning and implementing lessons and all other educational implementations including 111. day activities, project-based implementations etc. actualized in the school according to Multiple Intelligences Theory was one of the principles of the school. The school was the first school implicating MIT on education in Turkey.

3.2.2 Teachers

The criteria for determining the participant teachers from the participant schools were as follows;
1. The teachers should have known about Multiple Intelligences Theory for at least three years.

2. The teachers should have experienced Multiple Intelligences Theory for at least three years.

3. The teachers should be willing to participate in the study.

4. The teachers should have good relationships with their students and students' parents.

On the basis of the criteria, three teachers from Gazi University Foundation Private Elementary School and three teachers from Emin Sağlamer Public Elementary School participated in the study. Four of them were female and two of them were male. All of them was experienced teachers in terms of teaching and MIT. The information about the participant teachers was summarized in the following table.

Table 1

Teachers' Years of Experience and Gender in the Needs Assessment and the Program Design

Teacher	Gender	Grade	School	Years of Experience (as a teacher)	Years of Experience (as a 1st, 2nd, 3rd grade teacher)	Years of Experience (knowledge of MIT)
1	F	1	Emin S.	10	1	5
2	M	2	Emin S.	8	1	8
3	M	3	Emin S.	21	4	5
4	F	1	Gazi Unv.	36	16	10
5	F	2	Gazi Unv.	32	6	10
6	F	3	Gazi Unv.	32	6	5

Note. F: Female, M: Male

Moreover, three teachers who did not participate in the needs assessment phase of the study participated in the program design phase of the study. These teachers were one art, one physical education, and one music teacher. The information about the teachers was given in Table 2.

Table 2

Branch Teachers' Years of Experience and Gender

Teacher's field	Gender	Years of experience as a teacher	Years of knowledge of MIT	Years of Experiencing MIT
Art	F	12	4	4
Physical	M	6	6	4
Music	M	4	3	3

Note. F: Female, M: Male

All branch teachers were from outside the participant schools because, the study at the phase of program design needed information gathered through branch teachers and the researcher did not know anything about the branch teachers in the schools selected to conduct the study. Therefore, the researcher searched for branch teachers meeting the criteria. Then, the researcher deliberately selected three teachers from the teachers the researcher knew well in terms of the criteria. The researcher selected three teachers, one from each branch. The teachers did not give permission to state the schools in which they had worked because their schools were not among schools which had obtained formal permission from official institutions. They were not sure whether it was a problem or not so they did not want to state the schools' name.

Furthermore, two class teachers did not participate in the study after the program design phase of the study because they became 4th grade teachers. 4th grade was excluded from the study; the study was conducted with 1st, 2nd, and 3rd graders with their teachers and parents. Therefore, the two did not participate in the program implementation and verification phase of the study. However, the researcher conducted informal interviews with the two whenever it was possible throughout the study.

Moreover, seven teachers who did not participate in the previous phases (needs assessment and program design) of the study participated in the study at the program implementation and verification phase of the study. The same criteria which were used to select the other participant teachers were used in order to select the

participant teachers for the program implementation and verification phase of the study.

Furthermore, the program implementation and verification phase of the study was conducted one year after the needs assessment. Thus, some information about the teachers who participated in the study at the needs assessment phase changed such as their grade. Therefore, the following table gives information about all the teachers who participated in the program implementation and verification phase of the study.

Table 3

Teachers' Years of Experience and Gender in the Program Implementation and Verification

Teacher	Gender	Grade	School	Years of Experience (as a teacher)	Years of Experience (as a 1st, 2nd, 3rd grade teacher)	Years of Experience (knowledge of MIT)
1	F	2nd	Emin S.	11	1	6
2	M	3rd	Emin S.	9	1	9
4	F	2nd	Gazi Unv	37	16	11
5	F	3rd	Gazi Unv	33	6	11
7	F	1st	Emin S.	14	4	6
8	F	2nd	Emin S.	13	4	3
9	F	3rd	Emin S.	9	2	5
10	F	1st	Gazi Unv.	6	4	6
11	F	1st	Gazi Unv.	8	2	9
12	F	2nd	Gazi Unv.	30	6	7
13	F	3rd	Gazi Unv.	27	7	7

Note. F: Female, M: Male

3.2.3 Students

The students who participated in the study were composed of 1st, 2nd, and 3rd graders. The students were from the classrooms of the teachers whose details were given in Table 1 and Table 3. The researcher sent parent permission forms to the students' parents. The permission form presented two options to the parents. One was giving permission; the other was not giving permission for their children's participation in the study. However, some parents did not give the form back to the

researcher or they returned the form uncompleted. Then, the students whose parents gave permission were included in the thesis study as participant students. Table 4 shows the participant students summarized.

Table 4

Participant Students' School, Grade, Gender in the Needs Assessment and the Program Design

School	Class	Grade	Number of students whose parents gave permission		Total
			Female	Male	
Emin S.	CA	1st	14	12	26
Emin S.	CC	2nd	16	15	31
Emin S.	CB	3rd	11	17	29
Gazi Unv	CE	1st	10	11	21
Gazi Unv	CD	2nd	11	9	20
Gazi Unv	CF	3rd	9	10	19
Total			71	74	145

Note. C: Class; A, B, C, D, E, F: Class Codes

The students who participated in the needs assessment phase of the study also participated in the program design phase of the study. However, there was a difference. The difference was making two groups from the students. The first group comprised of all students. The second group was called the focus group and comprised of not all but some of the students. The students of the focus group who participated in the study were selected on the basis of a criterion. The criterion was as follows; the students should have one multiple intelligence significantly more dominant than the other intelligences.

The students were determined on the basis of the data gathered from their parents' answers to the questionnaire. Also, their teachers' views about them were taken into consideration. In this regard, the extreme or deviant sampling method appeared at this stage of the study. Up to now, criterion sampling was pre-dominantly used however, using extreme or deviant sampling was needed and it was used.

It was important to gather data from the students who had one multiple intelligence significantly more dominant than the other intelligences. Because, it was necessary to determine the characteristics of each intelligences in terms of 1st, 2nd and 3rd grade students. For example, the following questions emerged during the study; "Where bodily kinesthetic dominant children (1st, 2nd and 3rd grade) frequently spent time?", "Which games the 1st, 2nd and 3rd grade children who have dominant visual spatial intelligence frequently play?", "Which games the 1st, 2nd and 3rd grade children who have dominant visual spatial intelligence frequently successfully play?"

To answer such questions in order to determine the characteristics of each intelligences, it was necessary to focus on the children who had one multiple intelligence significantly as more dominant than other intelligences. Therefore, focusing on the children when selecting sampling could be explained in the mentality of extreme or deviant sampling strategy. The extreme or deviant sampling strategy was used in conjunction with criterion sampling. The information about the focus group was presented in Table 5.

Table 5

Focus Group Students in Terms of Intelligences, Schools, Grades and Gender

Grade	1st				2nd				3rd				
Type of school	Private		Public		Private		Public		Private		Public		Total
Gender	F	M	F	M	F	M	F	M	F	M	F	M	
Intelligences													
Logical Mathematical	1	2	1	1	1	1	1	2	1	2	1	1	15
Verbal Linguistic	1	1	1	2	1	1	2	1	1	1	1	1	14
Visual Spatial	1	-	2	1	1	-	2	1	1	-	1	1	11
Bodily Kinesthetic	1	2	1	2	-	1	1	2	-	1	-	2	13
Musical Rhythmic	1	-	1	-	1	1	1	1	1	-	1	1	9
Interpersonal	2	1	2	1	1	1	2	1	1	1	1	1	15
Intrapersonal	-	1	1	1	-	-	1	1	-	-	-	1	6
Naturalistic	1	-	1	1	1	-	1	1	1	-	1	-	8
Total	8	7	10	8	6	5	11	10	6	5	6	8	91

Note. F: Female, M: Male

As it was seen in Table 5. On the basis of the data analysis of the teachers' view about their students in terms of their most dominant intelligences and parents'

answers to the questionnaire, 91 students were determined as the focus group. Like the participant teachers of the study, some of the students did not participate in the study after the program design phase of the study because of the grade. The 3rd graders in the needs assessment and program design became 4th grade when the program implementation and verification phase of the study was being conducted. Besides, the other students became one grade higher for example 1st graders became 2nd graders. In addition, some of the students who participated in the previous phases of the study left the class and some new students enrolled in the class. The following table was prepared in order to give updated information about the participant students of the program implementation and verification phase of the study.

Table 6

Participant Students' School, Grade, Gender in the Program Implementation and Verification

School	Class	Grade	Number of students whose parents gave permission		Total
			Female	Male	
Emin S.	CG	1st	20	17	37
Emin S.	CA	2nd	14	13	27
Emin S.	CH	2nd	11	16	27
Emin S.	CC	3rd	16	15	31
Emin S.	CJ	3rd	16	13	29
Gazi Unv	CK	1st	10	9	19
Gazi Unv.	CM	1st	10	12	22
Gazi Unv	CE	2nd	10	11	21
Gazi Unv.	CN	2nd	8	10	18
Gazi Unv	CD	3rd	11	9	20
Gazi Unv.	CP	3rd	13	6	19
Total			139	131	270

Note. CG, CA, CH, CC, CJ, CK, CM, CE, CN, CD, CP: Class Codes

3.2.4 Instrument Developers

The first action to be taken for determining the participant instrument developers was determination of the criteria. The criteria were as follows:

1. The instrument developers should develop their instrument in a scientific manner to determine multiple intelligences.

2. The instrument developers' instruments have been used in Turkey.

The instrument developers who met the criteria and agreed to answer the questions of the interview and then send their answers to the researcher became participant instrument developers for the study. The following figure gives information about the instrument developers in terms of their fields of study; instruments and intuitions.
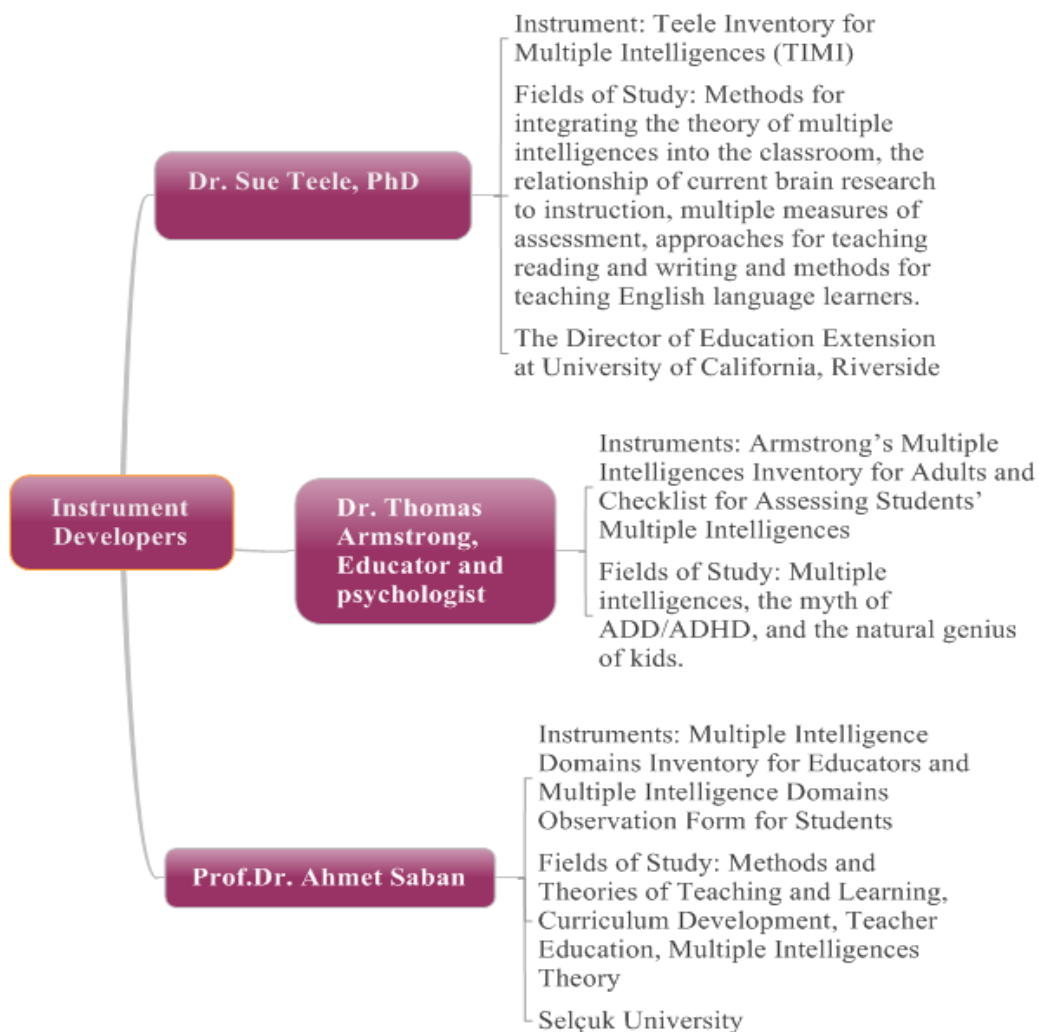
Figure 3 Instrument Developers Participating in the Study

3.2.5 Experts

Just as with the other participants determination process, firstly the criterion was determined for selecting the participant experts. The criterion was that the experts should deal directly with Multiple Intelligences Theory or its bases (sociology, psychology, anthropology, psychiatry, neurology, etc.).

After determining the criterion, the search for experts was started to via the Internet, key people, and the literature. Then, a list including the experts' names, field of study and communication channels was compiled. The list was very long and included sociologists, psychologists, psychiatrists, neurologists, child neurologists, and anthropologists.

After that, all the names in the list were asked via telephone or e-mail to participate in the study as an expert interviewee. The experts who agreed to participate in the study were interviewed. The experts participating in the study was presented in Table 7.

Moreover, the researchers who determined the multiple intelligences profile of students in their studies were sought on the basis of the criteria. The criteria were that (1) The researchers should study Multiple Intelligences Theory or determination of multiple intelligences in Turkey and / or (2) The researchers should determine multiple intelligences of participants in their studies or research in Turkey.

On the basis of the criteria, a search of thesis and articles via the Internet was started in order to find researchers who met the criteria. Then the list including researchers who met the criteria in Turkey was formed. After that, e-mail asking them to participate in the study as interviewees was sent. The e-mail explained the purpose of the study. Afterward, one of the researchers answered the e-mail and agreed to answer to the questions related with her thesis study. The researcher was Emel Uysal. The title of her master thesis was "The relationships between seventh and tenth grade students' self-estimated intelligence dimensions, and their science or physics achievement" She had known Multiple Intelligences Theory for eight years. She used a Multiple Intelligence Inventory as a measuring instrument in her master thesis.

Table 7

Profiles of Experts' Participating in the Study

Field	Name	Institution
Social Pediatrics	Prof.Dr. Elif Nursel Özmert	Hacettepe University
Neurology	Prof.Dr. Mehmet Demirci	Hacettepe University
Psychiatry	Prof.Dr. Başaran Demir	Hacettepe University
Child Neurology	Prof.Dr. Füsun Alehan	Başkent University
Psychology	School Counselor Pınar Yazıcı	Gazi University Foundation Private Primary School
Psychology	School Counselor Aslıhan Fırat Erk	Gazi University Foundation Private Primary School
Sociology	Hasibe Yıldırım	-
Sociology	X	-
Psychology	Y	-
Mathematics Education	Emel Uysal	-

3.2.6 Role of the Researcher

Berg (2001) stated that the researcher in an action research was a participant and cooperated with local practitioners and stakeholders in the process rather than being an external objective observer and consultant. He also asserted "The researcher is considerably more value-laden than other more traditional research roles and endeavors" (p. 185). Moreover, O'Brien (2001) expressed that the adoption of many different roles at various stages of the process might be needed for the researcher of an action research. For him the roles included planner, leader, catalyzer, teacher, listener, synthesizer, facilitator, designer, observer, and reporter. In this regard, the researcher adopted the roles in this action research process.

The researcher attended the participant classes at least once a week during the process of this action research however the researcher generally attended the classes several times a week especially during the program design and program implementation and verification phases because those phases were more

implementation-based than the other phases. In addition, the participant teachers and students throw open classes to the researcher as if the researcher was a teacher in the schools. In this regard, the researcher sometimes with the participant teachers sometimes alone, liked a teacher, implemented the existing inventories to the students, the proposed program's film and story inventories and performance assessments. The following figure summarizes the roles of the researcher.
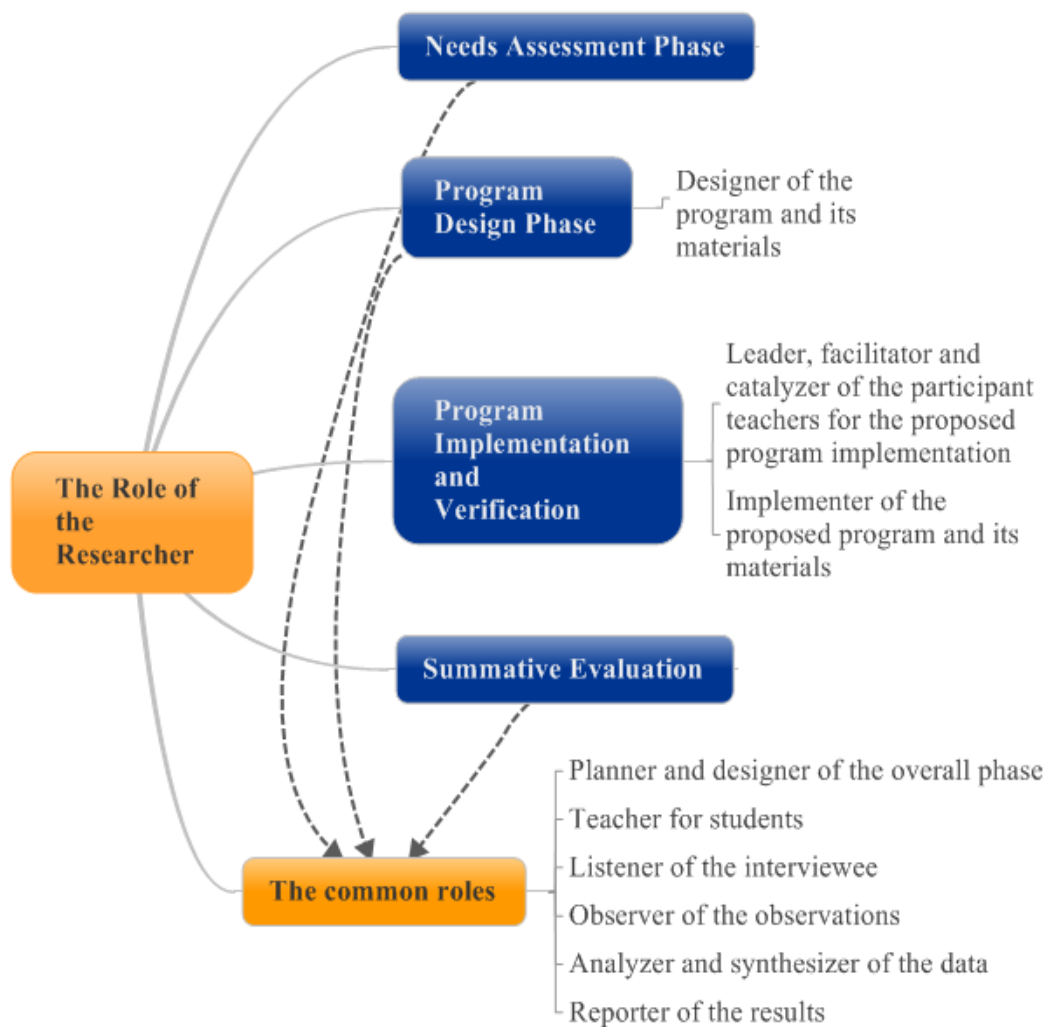
Figure 4 Role of the Researcher

3.3 Data Collection Methods, Sources and Instruments of the Study

In a qualitative research, there are three main kinds of data collection; interviews, observations and written documents (Patton, 1987; Yıldırım & Şimşek, 2003). In this study, these three kinds of data collection were the main data methods. In addition, questionnaires were also used as a data collection instrument. Moreover, the instruments which were developed in order to determine multiple intelligences previously and used commonly in Turkey were among the data sources of the study.

The study had four main phases namely; needs assessment, program design, program implementation and verification and summative evaluation. In this regard, the data sources and collection instruments varied according to the phases of the study. For this reason, the variations were expressed when the data sources and collection instruments were explained. Figure 5 summarizes the data collection methods, sources and instruments according to phases.

3.3.1 Interviews and Interview Instruments

Interviews were conducted in all phases of the program development process. The types of the interviews conducted in the needs assessment and the program design phase were semi-structured. However, the type of the interviews conducted in the program implementation and verification, and summative evaluation phase were not structured and not semi-structured interview and there were no predetermined questions or form including questions. The interviews were conducted around the opinion form items and content in the program implementation and verification phase; the actualization of the program's purposes in the summative evaluation. In this regard, the type of the interviews was parallel to the type "Open-ended sensitization" defined by Rubin (1983, as cited in Yıldırım & Şimşek, 2003). Moreover, the type of interview was parallel with "the informal conversational interview" defined by Patton (2003) in some aspect. Furthermore, the type of the interview was similar with "unstructured interview" defined by Bloom and Crabtree (2006) in some aspects.
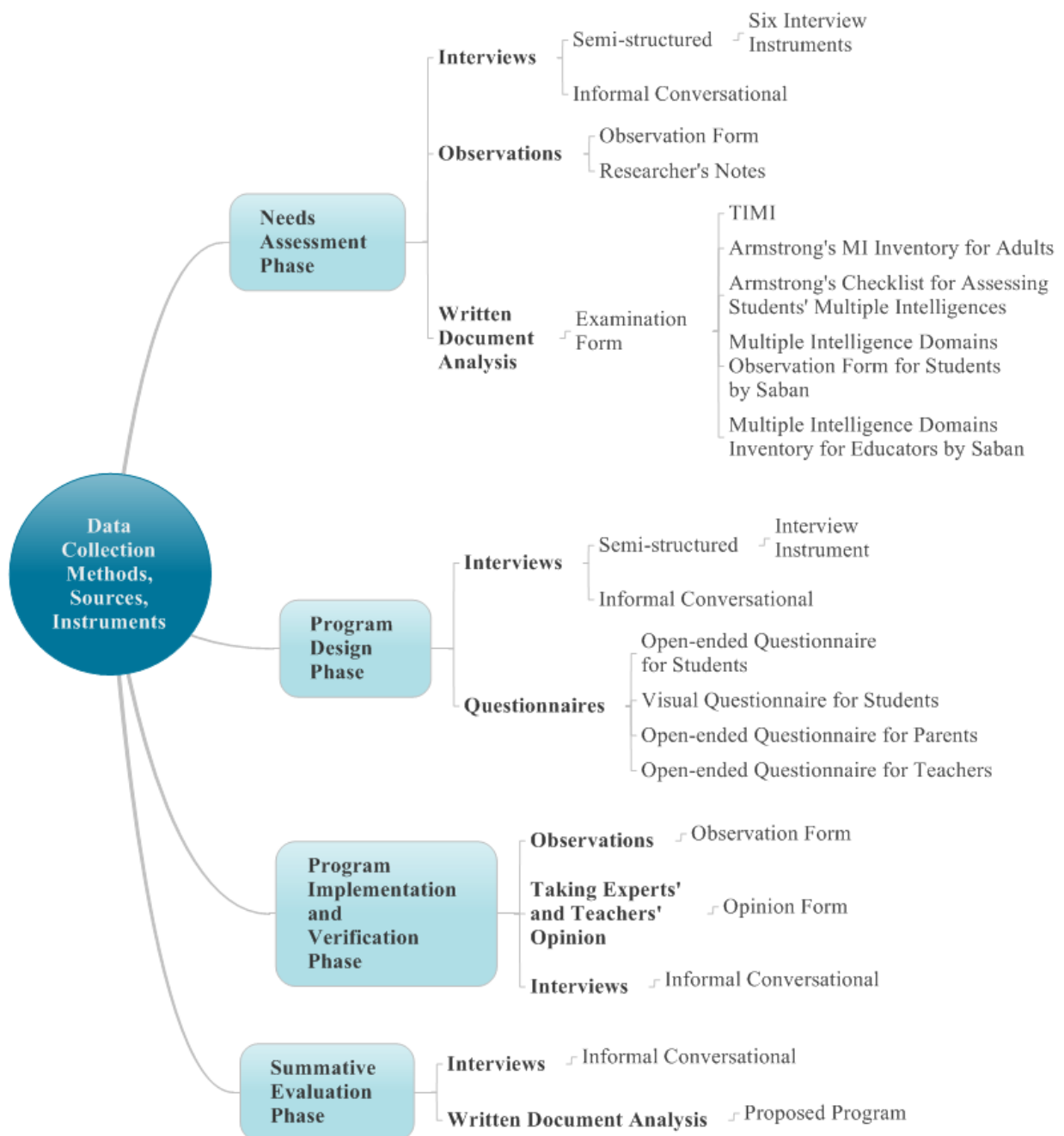
Figure 5 Data Collection Methods, Sources and Instruments of the Study

Based on the experts' opinions, the semi-structured interview instruments were prepared and piloted before actual implementation. After that, necessary modifications were made to the interview instrument to improve its readability, meaningfulness, appropriateness and so forth.

In the needs assessment phase, interview instruments were administered to 1st, 2nd and 3rd grade participant teachers, experts from the fields of psychiatry, sociology, psychology, neurology, social pediatrics, mathematics education. The interviews with the mathematics educator who determined multiple intelligences in her master thesis and the instrument developers were conducted by e-mail because they either lived abroad or a long way away from Ankara. Other interviews were conducted face to face in a warm, conversational atmosphere. In the program design phase, interviews were conducted with three branch teachers namely; the music education teacher, the art education teacher, and the psychical education teacher. In the program implementation and verification phase, interviews were conducted with the experts and the teachers who expressed their opinions about the program by using the opinion forms. For obtaining in depth and detailed information, interviews were conducted with them about the program after they completed the opinion forms. In addition, interviews were conducted with the students whenever it was needed throughout the phase. The researcher used a tape-recorder when the interviewee gave permission other wise the researcher recorded interviews by hand. Informal conversational interviews were conducted with teachers whenever it was possible.

The main focuses of the interview instruments were constructed in the light of the purposes for different phases of this study. The focuses of the needs assessment phase were as follows:

a) *The purposes* [the 1st, 2nd and 3rd grade teachers have to determine their students' multiple intelligences profiles]

b) *The existing methods* [the 1st, 2nd and 3rd grade teachers use to determine their students' multiple intelligences profiles]

c) *The strengths and weaknesses of the existing methods*

d) *The suggestions* [for the proposed program in order to determine 1st, 2nd and 3rd grade students' multiple intelligences profiles]

The focuses of the interview instruments conducted in the program design phase were as follows:

a) *Branch teachers' determination* of their students' multiple intelligences profiles

b) *Methods used by branch teachers* to determine their students' multiple intelligences profiles

c) *Branch teachers' views* about branch teachers' participation in students' multiple intelligences determination process conducted by 1st, 2nd and 3rd grade teachers

d) *Branch teachers' suggestions* for the proposed program in order to determine multiple intelligences profiles of 1st, 2nd and 3rd graders students

The interview questions were presented in the Appendices. Appendix A is the interview questions for the teachers, B is for sociologists, C is for psychiatrist, D is for social pediatrics and neurologists including adult neurologist and child neurologist, E is for psychologists, F is for researcher, G is for instrument developers, J is for branch teachers.

3.3.2 Observations and Observation Form and Researcher's Notes

Observations were conducted by the researcher when the teachers were applying the existing instruments including TIMI and Multiple Intelligence Domains Observation Form in the needs assessment phase using observation form I (see Appendix H). In addition, in the program implementation and verification phase, observations were conducted by the researcher when the proposed program and its materials were applied using observation form II (see Appendix O). Moreover, observations were conducted by the teachers when the researcher was applying the program. Furthermore, the researcher took notes when conducting observations.

3.3.3 Written Document Analysis and Examination Log

Written document analyses were conducted in the needs assessment and summative evaluation phases. In the needs assessment phase, TIMI, Armstrong's MI Inventory for Adults and Checklist for Assessing Students' Multiple Intelligences, Multiple Intelligence Domains Inventory for Educators and Multiple Intelligence Domains Observation Form for Students were examined as written documents. In terms of the principles of MIT and risky points stated by Gardner and Shearer, all the instruments were examined by the teachers and the researcher using the examination log in needs assessment; the program developed throughout the study was examined by the researcher in summative evaluation.

In the needs assessment, the examination log (see Appendix I) was prepared by the researcher and piloted by a 2nd grade teacher who did not participate in the study as an actual participant teacher. In the summative evaluation phase, the items of the opinion forms used in the program implementation and verification phase of the study were used when the program was examined.

3.3.4 Questionnaires

Questionnaires were needed at the program design phase. In this regard, three open ended questionnaires and one visual questionnaire was prepared by the researcher. Open ended questionnaires were prepared for students, parents, and teachers. The visual questionnaire was prepared for students. The common focuses of the open-ended questionnaire for students and parents were as follows;

a) The house activities they like to do most

b) The out of house and school activities they like to do most

c) The learning activities with which they learned most

d) The courses they like most / they are most successful at

e) The situations in which they are happy

f) The cartoons they most like to watch

g) The home games they most like to play

h) The computer games they most like to play

i) The games played out of doors they most like to play

j) The environment they most like to spend time in

k) The occupation they would most like to have in their future

Moreover, the open ended questionnaire for students had four additional focuses namely:

a) The school activities they like to do most

b) The colors they like most

c) The geometric shapes they like most

d) The school games they most like to play

Additionally, the open ended questionnaire for parents had two additional focuses namely:

a) TV programs they like most

b) The readings they most like to read

The visual questionnaire was prepared by the researcher on the basis of the focus "the pictures the students like most." Additionally, the main purpose of the questionnaire for teachers was observable characteristics of the multiple intelligences from the teachers' view.

The researcher applied the questionnaires, after the questionnaires were examined by Prof.Dr. Ercan Kiraz and Prof.Dr. Ziya Selçuk and another expert and some modifications were made to the questionnaires according to the examination results.

The researcher piloted the open ended questionnaire for students on eighteen students namely; three 1st grade, three 2nd grade and three 3rd grade students from two schools. Then, the researcher made some modifications to the questionnaire. After that the researcher implemented the questionnaire (see Appendix K). Moreover, the visual questionnaire was piloted with twenty four students namely; four 1st grade, four 2nd grade and four 3rd grade students from each school. The questionnaire (see Appendix L) passed teachers' and experts' examination and the pilot study. After that the questionnaire was applied to the students by the researcher.

Furthermore, the parent questionnaire (see Appendix M) was submitted to four participant teachers with the purpose of taking their opinions and criticism of the instrument before application and piloted with the parents who completed the questionnaire. The researcher then analyzed their responses by interviewing them when they were completing the questionnaire. Additionally, the questionnaire for teachers (Appendix N) was piloted with two 1st, one 2nd and one 3rd grade teacher. They stated that the questionnaire could be applied to the participant teachers.

3.3.5 Taking Experts' and Teachers' Opinions and Opinion Forms

The experts opinions was taken in the program implementation and verification phase. Opinion forms were developed by the researcher to take the experts' and the teachers' opinions for each material. The forms were submitted to the expert from the field of measurement and evaluation, Assoc.Prof.Dr. Şener Büyüköztürk. Modifications were made to the forms in the light of the expert's view then the expert approved the forms. After that, the forms were submitted to the six teachers; two were 1st grade, two were 2nd grade and two were 3rd grade teachers. The experts who submitted the forms were Prof.Dr. Ercan Kiraz, Prof.Dr. Ziya Selçuk,

and Prof.Dr. Elif Nursel Özmert, two school counselors and one sociologist. Moreover, the forms were submitted to six teachers. A total of twelve people examined the program including the program materials by using the forms.

3.4 Data Collection Procedure of the Study

The data collection procedure of the study was explained under four subtitles in regard to four main phases of the program development process model. Figure 6 summarizes the data collection procedure of the overall study.

3.4.1 Data Collection Procedure of the Needs Assessment Phase

Before starting the actual data collection procedure of the study, the researcher had started to prepare reports to make an application to the Middle East Technical University (METU) Human Research Ethical Commission and the Ministry of National Education (MONE) requesting the necessary permissions to conduct this research study.

The researcher prepared the interview instruments for interviewing the experts, the teachers, the instrument developers and the researcher and then submitted them to her supervisor and another expert in order to take their opinion and criticism of the interview instruments. Moreover, the interview instruments prepared by the researcher were piloted before the actual implementation.

Next, the experts were sought by the researcher under the five basic fields namely; psychology, psychiatry, neurology, sociology, anthropology. The researcher examined the CV's of the academician-experts in those fields via the Internet. While the researcher was searching for the experts, she added two experts from two new fields; child neurology and social pediatrics. The researcher determined the experts by mostly focusing on their fields of study. After that the researcher prepared an e-mail summarizing the focus and purposes of the study and then sent it to the experts. The researcher then interviewed the experts who agreed to participate in the study. Unfortunately, no anthropologists were interested in the study. Therefore, the researcher did not take the contribution of an anthropologist for the study.
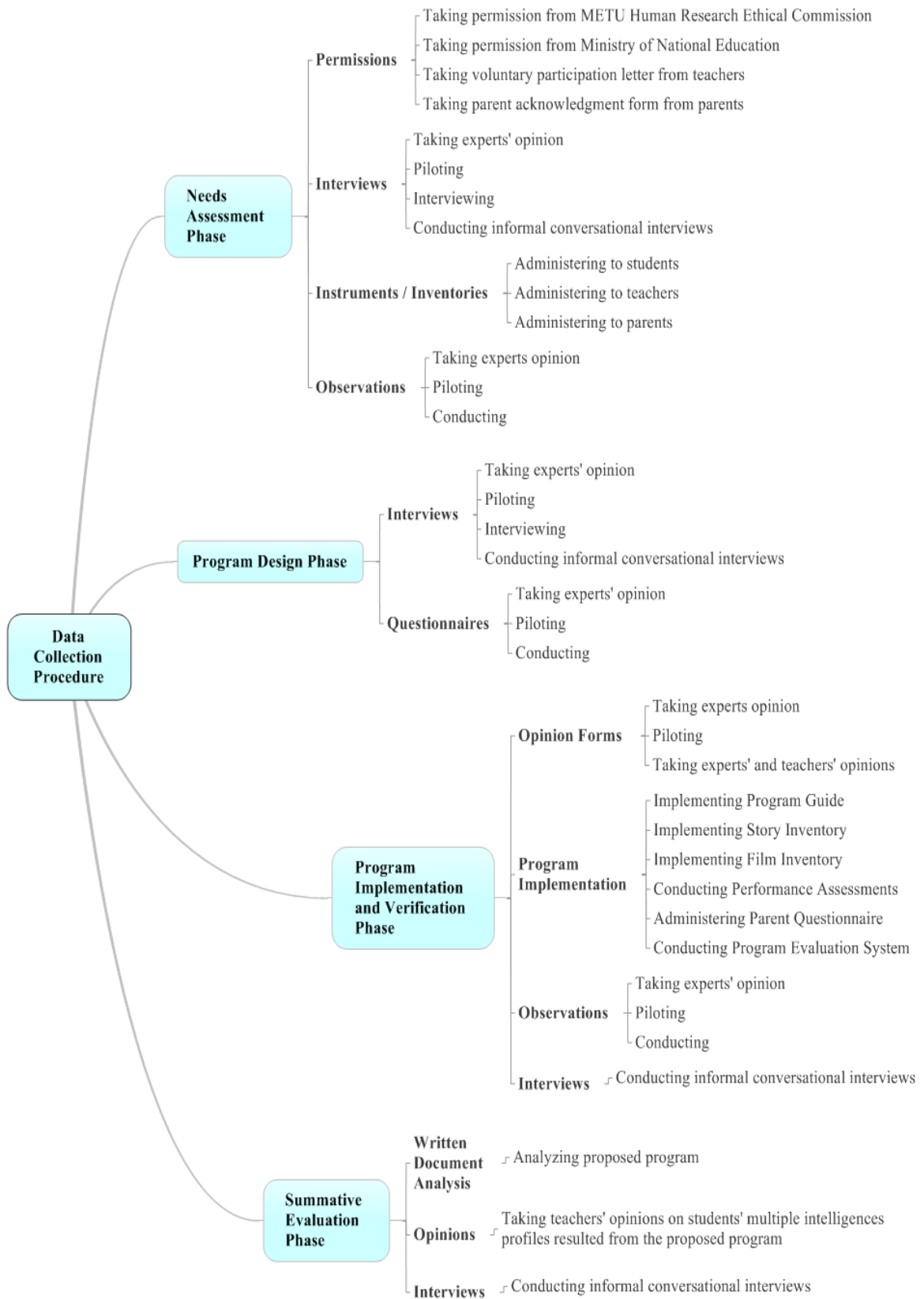
Figure 6 Data Collection Procedure of the Study

A period of considerable effort followed, the researcher interviewed academician-experts from the fields of psychology, psychiatry, neurology, sociology, social pediatrics and child neurology. Face-to-face interviews were conducted and each interview lasted about 1 hour.

The researcher also included the experts from the field of psychology and sociology. Three psychologists and two sociologists participated in the study. The researcher interviewed them in terms of the needs assessment.

As with the experts, the researcher prepared an e-mail summarizing the focus of the study and then sent it to the instrument developers. Then, the researcher interviewed the instrument developers namely; Dr. Sue Teele, Dr. Thomas Armstrong, Prof.Dr. Ahmet Saban. Besides, the researcher reached Dr. Branton Shearer and he was interested in the study however he was very busy and had no time to answer the questions. Thus, he did not participate in the study.

In addition, the researcher tried to reach researchers conducting studies in which multiple intelligences were determined. One of the researchers agreed to participate in the study and answered the interview questions via the Internet.

While interviewing the instrument developers, the researcher made the applications to the METU Human Research Ethical Commission, MONE for the permission. The researcher received their approvals before starting to collect data from the schools. The approvals were presented in Appendix P.

In parallel with taking the permissions, the researcher contacted the schools namely; Emin Sağlamer Public Elementary School and Gazi University Foundation Private Elementary School. The researcher knew the schools and most of their teachers very well. Thus, the researcher held a meeting with the teachers and the principals of the schools to share details of the study. Then the researcher asked the teachers to sign a "voluntary participation letter". Also, she piloted the interview instrument with 1st, 2nd, and 3rd grade teachers not participating in the actual study in the same schools.

Afterward, the researcher delivered the "parent acknowledgment form" to the students with the help of the teachers. The teachers collected the forms after two weeks. The researcher and the teachers categorized the letters in terms of parents' answers "yes" or "no" for participation in the study.

Then the researcher prepared an observation form for use when conducting the existing instruments. The observation form was submitted to the researcher's

supervisor in order to take his views about the instrument. After taking his approval, the researcher piloted it with two teachers before the actual implementation.

The TIMI was administered to 1st, 2nd, and 3rd graders by the researcher and the teachers participated in the study. Observations were carried out during the implementation of TIMI. The sample pages of TIMI were presented in Appendix Q.

The researcher interviewed the teachers for the purposes of the needs assessment process. Face-to-face interviews were conducted and each interview lasted about 1 hour.

The researcher asked the teachers to fill in the "Checklist for Assessing Students' Multiple Intelligences" developed by Prof.Dr. Ahmet Saban. The teachers completed the inventories appropriately in ten days. The sample pages of the checklist were presented in Appendix R.

The researcher prepared an examination log. Then the researcher piloted it. After that, the researcher asked the teachers to examine the existing instruments TIMI (see Appendix Q), Armstrong's MI inventory for adults (see Appendix T) and the checklist (see Appendix U) for assessing students' multiple intelligences, the inventory and the checklist form (see Appendix S). Informal conversational interviews had been conducted with the teachers whenever it was possible throughout the needs assessment process.

Observations were carried out during the implementation of the existing instruments throughout the needs assessment process. Additionally, the researcher consulted with the committee members whenever it was possible. The dates and detailed information of the data collection procedure of the needs assessment phase of the study are presented in the Appendix V.

3.4.2 Data Collection Procedure of the Program Design Phase

After analyzing the data collected throughout the needs assessment phase of the study, the researcher prepared the report of the needs assessment phase of the study. Then, the researcher shared the report with the thesis committee. After taking their opinions, criticisms and suggestions, the researcher started to conduct the studies of the second phase of the study, the "program design phase."

Before starting the second phase, the researcher examined the results of the needs assessment phase of the study in the light of the criticism and the suggestions

made by the thesis committee. The researcher then planned how the program design phase of the study would be conducted and which activities would be conducted in the phase. Although, the researcher made a plan for conducting the program design phase, the researcher was aware of the characteristics of the qualitative research. Therefore, the researcher knew that the plan might be changed according to the direction of the research study. It might be seen as flexibility. In this regard, flexibility was one of the beauties of the qualitative research. Most of the data collection instruments and collection procedures of the program design phase of the study were formed while the actions were actualizing.

Firstly, the researcher prepared the interview instrument to interview branch teachers including the music education teacher, the art education teacher, and the psychical education teacher. Secondly, the researcher submitted the interview instrument to an expert in order to take the expert's criticism and suggestions on the interview instrument. Thirdly, the researcher piloted the interview instrument with two branch teachers. After that, the researcher conducted the interviews with the music education teacher, the psychical education teacher and the art education teacher.

Following these activities, the researcher developed the open-ended questionnaires. One was for applying to the 1st, 2nd, and 3rd grade students, one was for applying to the teachers and one was for applying to the parents. After developing the instruments, the researcher submitted them to her supervisor in order to take his opinion, criticism and suggestions on the instruments.

Moreover, the open – ended questionnaires prepared for gathering data from the 1st, 2nd and 3rd grade students and the parents were submitted to four teachers; two were from Emin Sağlamer Public Elementary School and two were from Gazi University Foundation Private Elementary School in order to take their opinions and criticism of the instrument. Next, the open – ended questionnaire for obtaining data from the 1st, 2nd and 3rd grade students was piloted in two participant schools. The pilot study was carried out with three 1st grade, three 2nd grade, and three 3rd grade students from each school. Totally eighteen students participated in the pilot study. After that, the researcher piloted the open – ended questionnaire for gathering data from the parents with eight mothers and three fathers.

Afterward, the researcher applied the open-ended questionnaire to 1st, 2nd and 3rd grade students and delivered the open-ended questionnaire prepared for gathering

data from the parents to the teachers. The teachers sent the questionnaires to the parents. The researcher gathered the parent questionnaires from two schools in two weeks. After obtaining the data from the student questionnaire and parent questionnaire, the researcher prepared a student visual questionnaire for gathering necessary data the necessity of which emerged during the course of the program design phase of the study.

The researcher took Prof.Dr. Ziya Selçuk's criticism, opinions and suggestions about the instruments including the open-ended questionnaires for obtaining data from the 1st, 2nd and 3rd grade students, teachers and parents. The student visual questionnaire was submitted to the researcher's supervisor and another expert to get their criticism and suggestions for the instrument. After that, the student visual questionnaire was submitted to the teachers to get their criticism and suggestions for the instrument.

Next, the student visual questionnaire was piloted with twelve students in the schools. Four 1st, four 2nd and four 3rd grade students from each participant school, totally twenty four students participated in the study. In addition, open-ended teacher questionnaire was piloted with three teachers.

After piloting the instruments, the researcher applied the student visual questionnaire to the 1st, 2nd and 3rd grade students and the teacher open – ended questionnaire to the teachers. Informal conversational interviews were conducted with the participants including the teachers, students and the experts including sociologists and psychologists and the members of the thesis committee throughout the program design phase of the study. The dates and detailed information of the data collection procedure of the program design phase is presented in Appendix W.

3.4.3 Data Collection Procedure of the Program Implementation and Verification

The data collection procedure of the program implementation and verification phase of the study was explained basically under two main stages. The first stage was the procedure of data collection from the first group of classes participated in the previous phases of the study. The second stage was the procedure for data collection from the second group of classes included in the study at the program implementation and verification phase. Moreover, it was planned to complete the

first stage of the data collection before the second semester of the 2008 – 2009 academic year and to analyze the data during the semester holiday so that necessary modifications could be made to the program including materials. Then, it was planned to start collecting data from the second group of the classes during the second semester. The researcher's plan was successful with only a few small issues.

The researcher started to collect data for program implementation and verification phase in 18 September, 2008 by submitting the observation form which would be used when implementing the materials of the program to an expert in order to take their criticism and suggestions for the instruments. The researcher had developed opinion forms for gathering the experts' opinion and suggestions on the overall program especially on the materials of the program. Then, the researcher submitted the forms to her supervisor Prof.Dr. Ercan Kiraz and Assoc.Prof.Dr. Şener Büyüköztürk who is an academic expert in the field of measurement and evaluation. After the researcher received their suggestions and opinions on the instruments, she made necessary modifications to the instruments and then submitted them for their approval. They gave their approval and the researcher piloted the opinion forms. According to the pilot study, the opinion forms worked.

As stated before, the data collection procedure of the program implementation and verification phase of the study was conducted in two stages. In this regard, the first stage in fact was considered a pilot study of the program including materials and focused on determining the strengths, weaknesses, suggestions and solutions for the weakness while the second stage focused on determining the effectiveness of the solutions and suggestions and also the strengths and weaknesses. Moreover, both sections had the aim of improving the study.

The researcher started to implement the materials of the program. The researcher firstly submitted the opinion forms to the 1st, 2nd and 3rd grade teachers in Emin Sağlamer Public Elementary School by asking them to examine the program's materials in detail with the help of the opinion forms. The same day, the researcher delivered the parent questionnaires to the 2nd and 3rd grade parents via the students in Emin Sağlamer Public Elementary School. Moreover, the researcher implemented the "story inventory 1" to the 2nd and 3rd grade students in the same school at the same time.

Then, the researcher also presented the opinion forms to 1st grade, 2nd grade and 3rd grade teachers by asking them to examine the program's materials in detail

with the help of the opinion forms; delivered "parent questionnaires" to the 1st, 2nd and 3rd grade parents via the students; implemented the "story inventory 1" to the 1st, 2nd and 3rd grade students in Gazi University Foundation Private Elementary School.

After that, the researcher asked the researcher's supervisor, the participant sociologist and the psychologists to examine the program's materials in detail with the help of the opinion forms. Next, Prof.Dr. Elif Nursel Özmert was also asked to examine the program's materials in detail with the help of the opinion forms.

Following these activities, the researcher gathered the parent questionnaires from the schools. Moreover, the researcher implemented the "story inventory 2" to the students in the schools and, the opinion forms were submitted to the school counselors in order to get their opinions and suggestions. Using the opinion forms completed by the teachers, the researcher interviewed them in Gazi University Foundation Private Elementary School.

The researcher then presented the opinion forms to Prof.Dr. Ziya Selçuk asking him to examine the program's materials in detail with the help of the opinion forms. The researcher delivered the opinion forms to the experts and teachers while collecting the completed opinion forms. In this regard, the researcher took the forms from Prof.Dr. Elif Nursel Özmert and interviewed her.

The researcher implemented the materials of the program in the same week in two participant schools with mixed success. An additional implementation was that the researcher implemented the "performance assessment 1" and "story inventory 3" in the schools. Moreover, the researcher used the opinion forms completed by the teachers to interview them in Emin Sağlamer Public Elementary School.

Afterward, the "performance assessment 2" and "story inventory 4 and 5" were implemented in the classes in the participant schools. The researcher then took her supervisor's and sociologist's opinions and suggestions for the program with the help of the opinion forms.

The "performance assessment 3 and 4" and "story inventories 6, 7, and 8" were implemented in the classes of the participant schools. Then, the researcher implemented the "film inventory" to the participant classes in the schools.

Then, the researcher took the opinion forms completed by Prof.Dr. Ziya Selçuk and interviewed him. Thereby, the first stage of the program implementation and verification phase of the study was completed.

The data obtained throughout the first section was analyzed during the semester holiday. Moreover, the researcher made some modification to the program including program materials in light of the analysis.

The second stage of the data collection procedure started with implementing the "story inventory 1" and "performance assessment 1" to the classes of the participant schools. Moreover, the participants delivered the "parent questionnaires" to the classes with the help of the teachers. As previously stated, the classes were different from the classes which participated in the first stage. The new classes were participating for the first time in this phase of the study.

The researcher in turn implemented the materials of the program in the two participant schools. The materials were "performance assessment 2, 3 and 4"; "story inventory 2, 3, 4, 5, 6 and 7" and the 8th worksheet; film inventory. Furthermore, the researcher gathered the parent questionnaires from the parents with the help of the teachers in the two participant schools while implementing the other materials of the program. Additionally, the researcher implemented the film inventory to the students twice because of re-test purposes.

The researcher also conducted informal conversational interviews with the participants including the experts, the teachers and the students throughout the program implementation and verification phase of the study as in the other phases of the study. The dates and detailed information of the data collection procedure of the program implementation and verification phase is presented in Appendix W.

3.4.4 Data Collection Procedure of the Summative Evaluation Phase

The summative evaluation phase was the last phase of the study. At the end of the phase, the future of the program was determined. In this regard, the phase was the last but not the least. Accordingly, the data collection procedure of the summative evaluation phase was not limited by dates. To decide the future of the program was not limited to one phase. Therefore, the data collection procedure of the summative evaluation phase started at the beginning of the study and ended at the end of the study. However, some data was specifically collected at the end of the study called as the summative evaluation phase. The data collection procedure was explained below.

The researcher had analyzed the program including materials developed throughout the study as written documents since the beginning of development of the

program. Specifically, the program had been analyzed with the purpose of the summative evaluation since 01, Jun, 2009 because the program development was completed at that date. The analysis continued at the end of the study.

The researcher asked the teachers to order each of their students' multiple intelligences from the most dominant to the most recessive. The researcher compared the orders resulting from the program developed throughout the study and the orders made by the teachers. The ordering made by the teachers lasted approximately four months.

The researcher conducted interviews with the teachers and experts including school counselors, psychologist, and sociologists throughout the summative evaluation phase of the study. The dates and detailed information of the data collection procedure of the summative evaluation phase is presented in Appendix W.

3.5 Data Analysis of the Study

The overall design of the study was qualitatively constructed. In the study the materials of the program were also developed naturally as qualitative. For validity and reliability purposes, the materials required quantitative data and quantitative data analysis. In this regard, quantitative analysis was conducted. For this reason, the data analysis of the study had two sub titles; qualitative data analysis and quantitative data analysis.

The qualitative data collection and the qualitative data analysis had been continuing throughout the study from the first phase "needs assessment" to the end stage "summative evaluation." However, the quantitative data collection and quantitative data analysis slightly started in the "program implementation and verification" and came to the fore in the last phase "summative evaluation."

3.5.1 Qualitative Data Analysis of the Study

The qualitative data were subjected to descriptive and content analysis techniques with the help of the steps constructed on the basis of the descriptions stated by Yıldırım and Şimşek (2003) and Strauss and Corbin (1990) for the present study. Descriptive analysis let the researcher go over the main points of the data and then interpret the data according to pre-codes.

Content analysis enabled the researcher to examine the data in depth. The content analysis made it possible to find out concepts and categories not noticed throughout the descriptive data analysis. The four main steps were (1) data coding, (2) generating categories, (3) organization and definition of the data by codes and categories, and (4) conclusion.

Data Coding

Initially, the researcher located the pre-codes. Next, the data was reviewed and divided into its consequential parts and marked in accordance with the pre-codes decided earlier. The researcher then formed the extra code list and coded the data in the light of the whole code list.

For example, the pre-codes determined by the researcher for the purposes of teachers to determine their students' multiple intelligences profiles were "helping students with learning difficulty," "preparing multiple intelligences based instructional activities," "developing weaknesses," "determining most dominant intelligences," "guiding students according to dominant intelligences," etc. Then additional codes emerged from the analysis such as "informing parents," "informing students about their intelligences," "efficient and effective classroom management," "knowing students in depth," etc.

Generating Categories

The researcher reviewed the codes all together and found common features among them. The next step was the creation of categories by commonality. Then, umbrella terms of categories were developed in order to systematize the data collected for example, "Theme 3: To help students handle with problems by activating their dominant intelligences," "Theme 4: To inform others" etc.

Organization and Definition of Data by Codes and Categories

The data were defined and put in order according to the predetermined arrangement by quoting and presenting findings.

Conclusion from Findings

In this step, relationships built through findings were interpreted. Following figure summarizes the data analysis procedure.
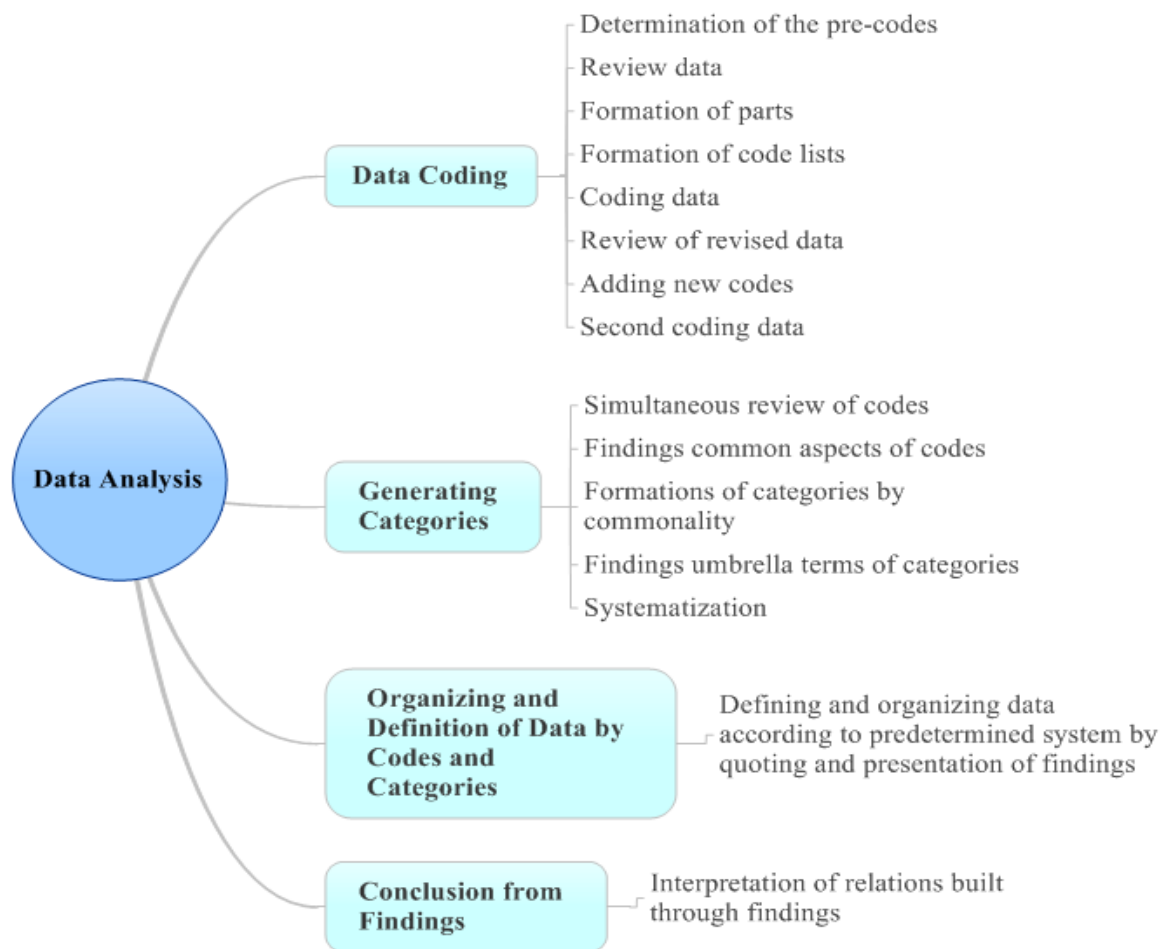
Figure 7 Qualitative Data Analysis Procedure of the Study

3.5.2 Quantitative Data Analysis

For the validity and reliability issue of the program developed throughout the study not only qualitative methods but also quantitative methods were used. For the reliability issue, the Spearman rank order correlation was calculated to measure the relationship between the orders made by the teachers and the orders presented by the program developed throughout the study. Statistical analysis was carried out using SPSS software version 11.5. Moreover, for the reliability issue of the film inventory which was one of the program materials developed throughout the study, the Wilcoxon Signed Rank Test (2-tailed) was calculated to evaluate the pre and post

orders for each intelligence. A P value < 0. 05 was regarded as statistically significant. SPSS software, version 11. 5 was used.

3.6 Validity and Reliability of the Study

If a research does not have rigor, the research becomes fiction and worthless (Morse, Barret, Mayan, Olson & Spiers, 2002). Therefore, reliability and validity has attracted a great deal of attention in all research methods (Morse et al., 2002). However, some qualitative researchers thought that the terms validity and reliability were relevant to quantitative paradigm (Altheide & Johnson, 1998; Leininger, 1994, as cited in Morse et al., 2002). In addition, some qualitative researchers suggested new criteria for determining reliability and validity in qualitative research for example Guba and Lincoln substituted reliability and validity with the parallel term of "trustworthiness" including four aspects namely; credibility, transferability, dependability and confirmability (1985, as cited in Morse et al., 2002). Finally, reliability and validity were defined as trustworthiness, rigor and quality in qualitative paradigm (Golafshani, 2003).

Golafshani (2003) stated that the term "reliability" was used for testing or evaluating quantitative research but the mentality was most often used in all kinds of research studies. Besides, one of the criticisms directed at qualitative research was the lack of methods and tests for ensuring reliability in qualitative research (Yıldırım & Şimşek, 2003). However, in qualitative research, there were precautions in order to ensure both reliability and validity (Yıldırım & Şimşek, 2003). In this regard, the precautions for ensuring reliability were presented in relation to the precautions taken by the current study.

For the external reliability, the probable precautions were explaining the researcher's role explicitly; defining the participants who were a data source clearly; defining the social environment and processes arising during the research process; describing the conceptual framework used when analyzing the data; explaining the methods of data gathering and analysis in detail (LeCompte & Goetz, 1982, as cited in Yıldırım & Şimşek, 2003). In this regard, especially the third chapter of the thesis was prepared in detail lest readers and future researchers miscomprehend. The researcher's role throughout the study was explained; participants of the study were defined in relation to each phase of the study, the schools in which the study was

conducted were described; the methods of data gathering, data sources and conceptual framework of the data analysis was explained under their titles in chapter 3 "method." Additionally, the chapter presented tables and figures contributing to readers and future researchers comprehension of the current study. Moreover, precautions were taken not only in chapter three but also other chapters including chapter four "results" and chapter five "discussion." However, chapter three more directly presented the information fulfilling the requirements of the precautions taken for ensuring external validity.

For internal reliability, the probable measurements were presenting the data descriptively, in other words presenting data gathered through observations, interviews, document etc. without interpretation via direct quotations; counting more than one researcher in the research; proving and supporting the results obtained from observations with interviews; analyzing data by more than one researcher; analyzing data within conceptual framework previously well defined. In this regard, the results of the study were presented in detail and direct, indirect quotations were used without making interpretations in the chapter four "results".

Moreover, the participants of the study included experts from the fields of psychology, sociology, neurology, social pediatrics, psychiatry and curriculum and instruction. The experts functioned as both data sources and consultants so the data gathering and analysis procedures and the results were shared with them as far as possible throughout the study.

Furthermore, the teachers and the researcher actualized some of the implementations together for example implementations of at least one of the story books, implementation of the film inventory and implementation of at least one of the performances. Moreover, the teachers and the researcher assessed the students' performances using the same criteria presented by the program document. This way, precautions related with more than one researcher in terms of data analysis were taken in this thesis study. Finally, analyzing the data in a well defined framework was a precaution not only for external but also internal reliability.

For validity, Yıldırım and Şimşek (2003) expressed that the fundamental characteristics of qualitative research presented advantages and strategies for providing validity. They summarized the advantages and the strategies as researcher's flexibility in terms of using new strategies, adding new questions to the interview, conducting new interviews not previously planned, using various and

different methods of data gathering. Moreover, they added that gathering data via face to face interviews, observations conducted in the natural environment and proximity to fieldwork enabled researchers to ensure validity. Furthermore, they emphasized that reporting the data and how the results were achieved in detail enhanced the validity.

In this regard, the researcher added new questions to the formal interview forms during the research process; also informal conversational interviews were conducted including the emerging questions simultaneously on the basis of the current state. Moreover, the researcher added new data collection methods whenever they were needed for example the visual questionnaire emerged from the analysis of and the results indicated by, the analysis of the open-ended questionnaires conducted with the students and parents during the program design phase of the study although it was not planned at the beginning of the study. Another example was that the students were asked to suggest new names for the characters of the story inventory after taking experts' opinions because the results of the experts' opinions indicated that their suggestions were required. Furthermore, the researcher could turn back to the field work and schools, whenever it was necessary. Additionally, the data and data analysis results were explained clearly throughout the study, especially in chapter three "method" and chapter four "results." The information mentioned so far about the current study indicated that the current thesis study benefited from the advantages in the nature of qualitative research in terms of ensuring validity.

Besides, Morse et al.' expressions (2002) were parallel with the precautions stressed by Yıldırım and Şimşek (2003) in terms of focusing on the process of the research rather than focusing on the product or end state of the research. Morse et al. (2002) underlined that rigor did not depend on special procedures external to the research process itself; they emphasized verification referring to the systems used during the process of research to incrementally contribute to ensuring reliability and validity and hence the rigor of the study. Furthermore, they stated that qualitative research was iterative rather than linear, so that a good qualitative moved back and forth between design and implementation to insure congruence among questions, literature, recruitment, data collection and analysis. In this respect, they expressed the verification strategies such as ensuring methodological coherence, sampling sufficiency, developing a dynamic relationship between sampling, data collection and analysis, thinking theoretically, and theory development.

In this regard, it was clear that the current study fulfilled the requirements of the verification strategies suggested by Morse et al. (2003). The research question and probes were reviewed throughout the study in terms of congruence between the research question and components of the method. Actually, the researcher's flexibility originated from the nature of the qualitative research and the usage of the flexibility by the current study provided the methodological coherence. Another verification strategy was related with the appropriateness of the sampling. In this regard, preferring the purposeful sampling methods including criterion sampling and extreme or deviant sampling for selecting participants including experts, teachers, students and their parents; choosing private and public schools provided saturating data ensuring replication in categories; replication verification and comprehension and completeness. Another strategy was collecting and analyzing data concurrently. In this respect, especially the method chapter of the current study clearly indicated that the data collection procedure and data analyzing were actualized in an iterative interaction. The current research process required iterative relationships among research questions, sampling, data collection and analyzing. For example, during the program design, a focus group was made with the students who had one of their multiple intelligences extremely dominant on the basis of the results emerging from the analysis of the data gathered through the materials and methods previously carried out. It meant that a new participant group was made during the program implementation and verification phase on the basis of the results of the data analysis. Another example, sampling was enlarged during the program implementation and verification phase of the study; the phase was the third phase of the study. Moreover, especially the "program implementation and verification" phase reconfirmed and verified the ideas and results in new data. Thus, thinking theoretically has had a dominant position throughout the study.

Another important concept was triangulation to ensure reliability and validity in qualitative research. Golafshani (2003) stated that studying with multiple methods including observation, interviews and recordings would provide more valid, reliable and varied constructions of realities.

In this regard, he underlined that triangulation included multiple methods of data collection and analysis however there was more than one fixed method for all the researches, and so the methods of triangulation depended on the criterion of the research in order to evaluate validity and reliability of a study (Golafshani, 2003).

Denzin (1978) stated four basic types of triangulation namely; data triangulation, investigator triangulation, theory triangulation and methodological triangulation. Figure 8 summarizes types of triangulation actualized throughout the study.

In the current study, data triangulation was actualized by gathering data from various participants about the same phenomena; gathering data from similar participants at different times by carrying out the program developed throughout the study in two schools and two semesters with different the 1st, 2nd and 3rd graders in the program implementation and verification phase. Besides this, the data were gathered through various methods and data sources from the same participants such as interviews, informal conversational interviews, observations, questionnaires and document analysis. By this aspect, the current study provided methodological triangulation. Furthermore, the experts participated in the study with two functions namely; as a consultant and a data source. Therefore, the data analysis and the results of the analysis were shared with them as far as possible. Moreover, as with the experts, the teachers participated in the study with two functions as data sources and as co-researcher as far as possible. As a result, the current study tried to ensure validity and reliability as a qualitative research in the light of the related literature expressed above.

For the validity and reliability issues of the program developed throughout the study not only qualitative methods but also quantitative methods were used. For the face validity, content validity and construct validity of the materials, expert opinions were taken. The forms were submitted to the six teachers; two were 1st grade, two were 2nd grade teachers and two were 3rd grade teachers. The experts submitted to the forms were Prof.Dr. Ercan Kiraz, Prof.Dr. Ziya Selçuk, Prof.Dr. Elif Nursel Özmert, two school counselors and one sociologist. In total twelve people examined the program including the program materials using the forms.

For the reliability issue, the Spearman rank order correlation was calculated to measure the relationship between the orders made by the teachers and the orders presented by the program developed throughout the study. For the reliability issue of film inventory, the Wilcoxon Signed Rank Test (2-tailed) was calculated to evaluate the pre and post orders for each intelligence. A P value < 0.05 was regarded as statistically significant.
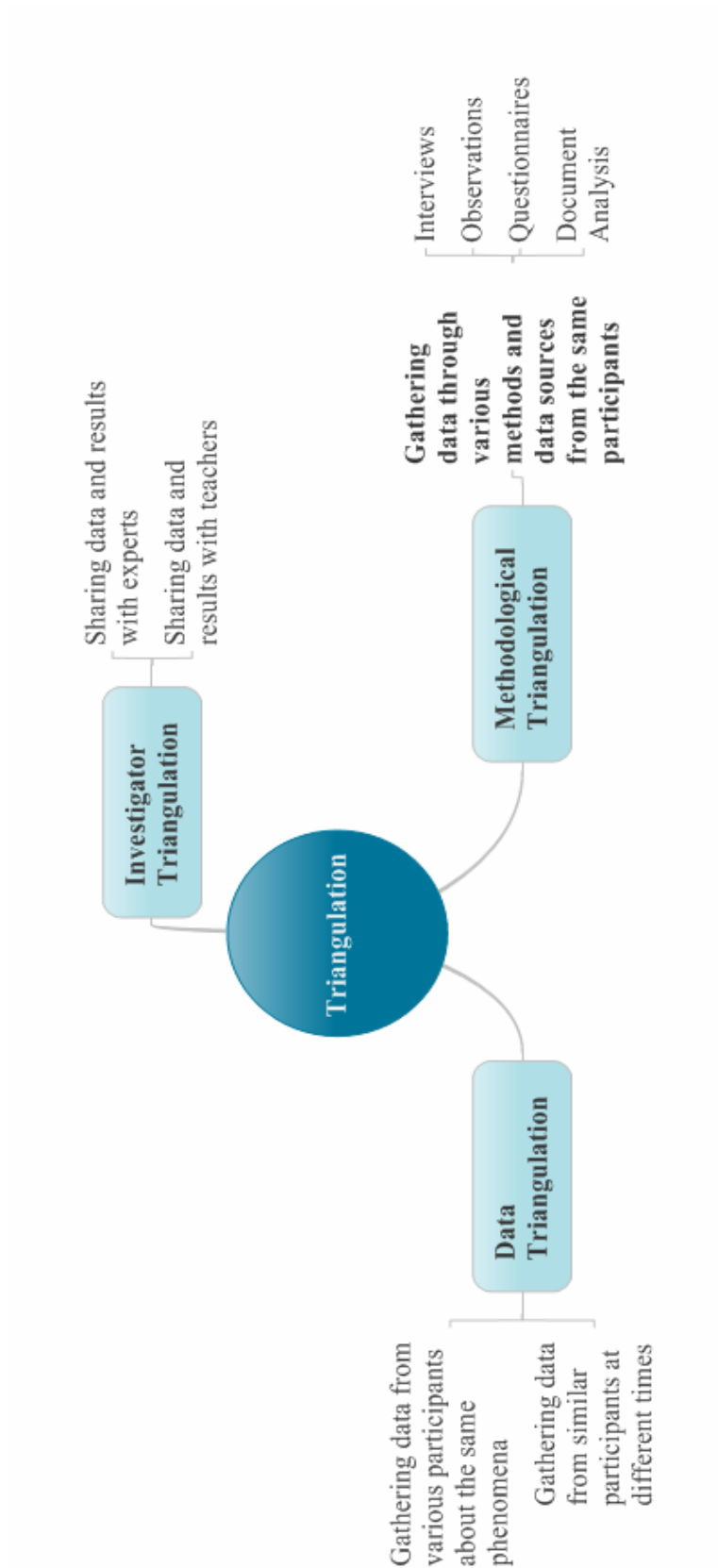
Figure 8 Types of Triangulation Actualized Throughout the Study

3.7 Assumptions

It was assumed that the participants provided honest and accurate information during throughout the study, and the information was correctly recorded and summarized by the researcher.

3.8 Delimitations of the Study

This study was delimited to various groups of participants including two elementary schools (Gazi University Foundation Private Elementary School, Emin Sağlamer Public Elementary School) with their 1st, 2nd and 3rd grade students, teachers, parents; three branch teachers (art, psychical education and music); instruments developers; experts from the fields of multiple intelligences, psychology, sociology, social pediatrics, neurology, psychiatry and child neurology.

3.9 Limitations of the Study

Due to the fact that the study was conducted in two elementary education schools and the participants chosen purposefully, the findings of the study may not be generalized. With regard to this, there is a risk in meeting external validity and external reliability.

The researcher played a participant-observer role during the study. The students got used to the stated situation in a short time and accepted the researcher as their teacher, similar to their other branch teachers. However, there might be possible researcher effects in the study. This limitation poses a threat the internal validity to some extent.

Absence of other observers except for class teachers for the validity check of the researcher's observations was another important limitation of the study. Because of some characteristics of the study, it can be called a longitudinal study. Absence of some participant students in some lessons created problems during the study.

Moreover, possible statistical analyses could not be conducted because of some limitations. In this regard, the correlation among the four materials could be calculated however, each material has some aspects of each intelligence. It means that the four materials do not assess the same aspect of the same intelligence; each provides information about various aspects of the same intelligences. Therefore, the

correlation among the four materials could not provide information about the validity of the materials. The criterion and concurrent predictive validity could not be conducted because there were no equivalent assessment tools.

Test – retest could be conducted for each material. However, it was conducted only for the film inventory reliability because the students got used to the story inventory and the characters of the story inventory well. Moreover, the implementation of the inventory with seven story books took a long time. For these reasons, the test – retest could not be conducted. As with the story inventory, the test – retest could not be calculated for the parent questionnaire. The applications of the parent questionnaire took a long time collecting data from the parents proved difficult. Additionally, the test – retest could not be conducted for the performance assessment because it composed of three comprehensive performance-activities. Each took time and the researcher frequently implemented it without the help of the teachers. Moreover, the inter-rater agreement could not be conducted because the teachers did not participate in the performance assessment part effectively.

CHAPTER IV

RESULTS

The main purpose of this study was to explore a program development process and explain how each component of the process contributes to the overall procedure for determining 1st, 2nd, and 3rd grade students' multiple intelligences profiles. Using the methodology outlined in Chapter III, a large amount of data was gathered from various data sources and instruments. The following research question and point probes were investigated:

Research Question:

The study was guided by one major research question:

1. What should the program development process be for determining 1st, 2nd and 3rd grade students' multiple intelligences profiles?

   - Why do 1st, 2nd and 3rd grade teachers determine students' multiple intelligences profiles?

   - What are the existing methods that 1st, 2nd and 3rd grade teachers use to determine students' multiple intelligences profiles?

   - How effective are the methods that 1st, 2nd and 3rd grade teachers use to determine students' multiple intelligences profiles?

   - What should the characteristics of the proposed program be in relation to the content and materials to determine the 1st, 2nd and 3rd grade students' multiple intelligences profiles?

   - How effective is the proposed program developed throughout the study to determine the 1st, 2nd and 3rd grade students' multiple intelligences?

   - What is the choice (to maintain the program without changing; to improve the program; to terminate the program) for the proposed

- program developed throughout the study for determining the 1st, 2nd and 3rd grade students' multiple intelligences profiles?

As explained in Chapter III, the program development process of the study had four main phases namely; (1) needs assessment, (2) program design, (3) program implementation and verification, and (4) summative evaluation. The phases were actualized to answer the point probes in order to answer the main research question. In this regard, the first three probes were answered in the needs assessment phase, the fourth probe was answered in program design phase, the fifth probe was explored in program implementation and verification phase and the sixth probe was investigated in summative evaluation phase. Therefore, the results of the study were arranged around the phases of the program development process. Before presenting the results in relation to the needs assessment, the following figure was presented to summarize the needs assessment phase of the study.
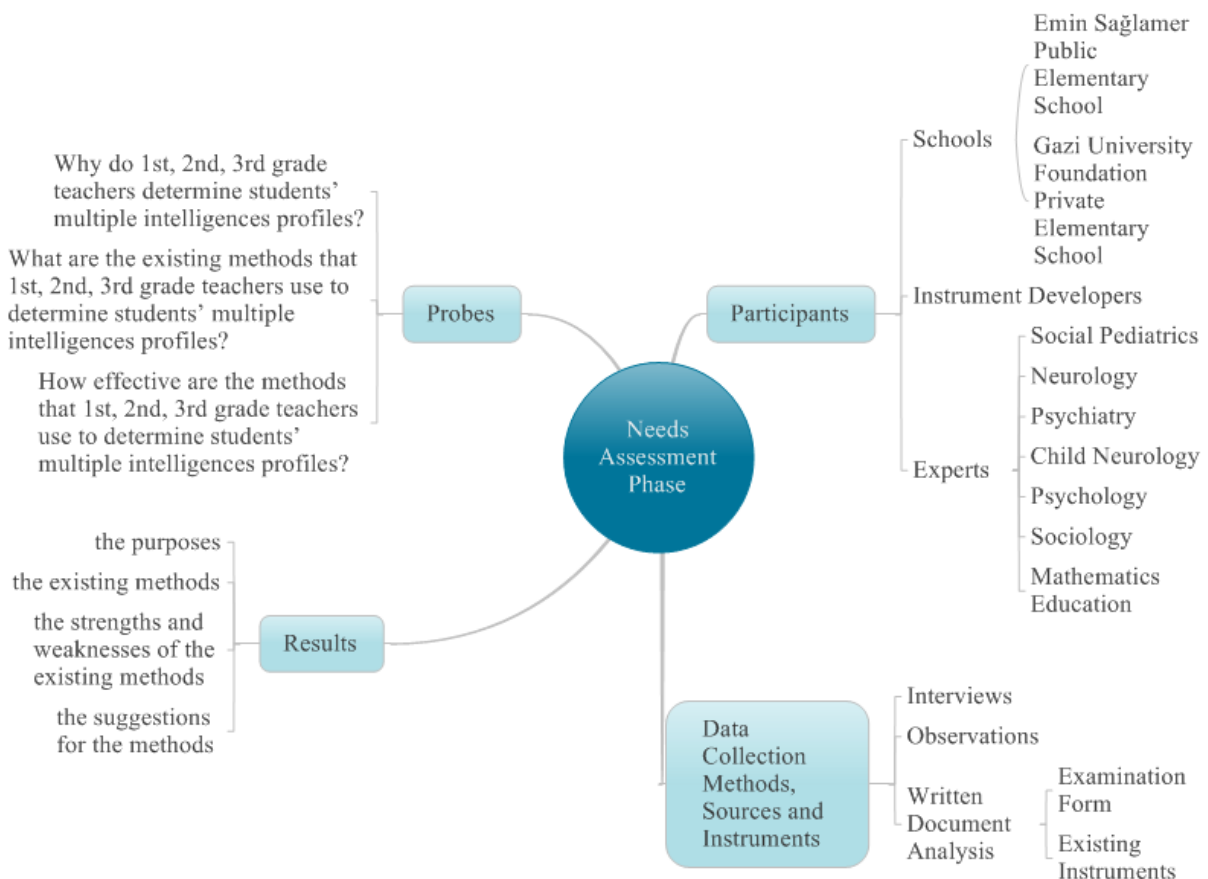

Figure 9 Summary of the Needs Assessment Phase

4.1 Results of the Needs Assessment Phase

The results of needs assessment phase were presented under the subtitles; the purposes, the existing methods, the strengths of the existing methods, the weaknesses of the existing methods, and the suggestions for the methods.

4.1.1 Purposes

The first prompt looked at the purposes of the 1st, 2nd and 3rd grade teachers to determine students' multiple intelligences profiles. Data analyses indicated that there were seven purposes. The purposes were as follows;

(1) knowing students' characteristics affected by multiple intelligences in detail,

(2) learning students' weaknesses and strengths in terms of multiple intelligences,

(3) assisting students by activating their dominant intelligences to handle problems,

(4) informing stakeholders (branch teachers, parents, school counselors etc.) about students' multiple intelligences profiles,

(5) managing classes in accordance with students' multiple intelligences profiles,

(6) comprehending the principles of MIT,

(7) suggesting leisure time activities according to students' dominant intelligences.

Purpose I: Knowing students' characteristics affected by multiple intelligences in depth and detail

Interviews were conducted with six teachers to find out why they determined their students' multiple intelligences profiles. Responses indicated that while some of the purposes were common for all teachers, some of them were general among the same grade teachers. The purpose of knowing the students' characteristics affected by multiple intelligences in detail was one of the purposes stated by all teachers. By stating the purpose, they meant that they wanted to know how the students think and learn and what students were interested in, liked or disliked. The teachers thought

that the students' characteristics were affected and determined by their multiple intelligences profiles. In this regard, one of the teachers said "As a teacher, I should learn about my students' multiple intelligences to know their thinking and learning styles better." Similarly, the teacher TB stated "…my purpose is to know my students' learning methods and with which they learn best. I think the methods were directly related with their intelligence profiles composing of multiple intelligences."

Moreover, the teacher TE emphasized that she wanted to know her students practically as soon as possible and she thought that the best way to do this was by determining students' multiple intelligences profiles. Furthermore, the teacher TC expressed that thought that knowing students' multiple intelligences profiles enabled him to know students in a whole and realistic view. Furthermore, the teacher TA congregates all of the responses of the teachers as follows:

> I have tried to understand my students' multiple intelligences since I learned multiple intelligences theory because the intelligence profile of a student enables a teacher to see how the student thinks, learns and what the student is interested in, likes and dislikes…. (TA).

Similarly, in addition to the formal interviews during the informal conversational interviews, teachers brought out the same purpose. In this respect, underlying importance of the 1st grade, the teacher TE stated,

> In my opinion, especially 1st grade teachers should know their students' multiple intelligences. Why? Because we should know their characteristics as soon as possible because we teach them how to read and write. If we learn our students' strengths and weaknesses we can enable our students to develop positive attitudes towards school…. (TE).

Observations of teachers' implementations of existing or own methods to determine students' multiple intelligences profiles were essential to reach the real examples for the purposes they had. The analysis of the researcher's observation notes indicated that all the teachers used the information in order to know their students in detail. However, the analysis displayed that their considerations for knowing their students in detail were different from each other.

Three of the two of whom were 1st grade teachers and the other was 3rd grade teacher teachers started to determine their students' multiple intelligences profiles at the beginning of the semester. The 1st grade teachers thought that they should know their students in terms of the learning methods with which they learn best and most

easily and their interests as soon as possible because they faced the students at the start of school. In addition, the 3rd grade teacher thought that children changed in terms of their developmental phases at the 3rd grade. The teacher TB supposed the students could recognize their interests, talents and abilities between the period from 1st grade and the beginning of the 3rd grade:

> Because my observations indicated that the students start to evaluate themselves at the beginning of the 3rd grade in terms of their strengths and weaknesses in their abilities, talents, and interests. Before that time, they were temperamental about activities. I think at the beginning of the 3rd grade, students start to give signals of their certain and keen abilities, talents or interests. Thus, I tried to determine my students' multiple intelligences at the 1st day of 3rd grade in order to discover their characteristics on the basis of multiple intelligences.

Data analysis further displayed that the participant psychologists agreed with the purpose. One of them stated that 1st, 2nd and 3rd grade classes constituted the basic cycle of elementary education including basic, first and second. According to the psychologists, the 1st, 2nd and 3rd grade classes were basic level, the 4th and 5th grades were the first level and 6th, 7th and 8th grades were the second level of elementary education. Because of these reasons, the basic level teachers should determine their students' multiple intelligences in order to know them in detail at the basic level for the psychologist. Another psychologist underlined that the purpose also belonged to the school counselor saying "…The purpose belongs to not only the 1st, 2nd and 3rd grade teachers, but also to school counselors like us, and school principals because all of us need to know the students in depth" (PS3). The psychologist PS2 went a step further about the purpose:

> Actually, multiple intelligences determination is important not only in terms of the 1st, 2nd and 3rd grade students, but also all human beings. Everything starts with knowing an individual and one of the keys is determining multiple intelligences profiles (PS2).

As a result, one of the purposes the teachers had in order to determine their students' multiple intelligences profiles was knowing students' characteristics affected by multiple intelligences in detail. The data analysis showed that the characteristics included how they think and learn best and what their interests, skills, abilities were.

Purpose II: Learning students' weaknesses and strengths in terms of multiple intelligences

Another purpose stated by all the teachers was to learn students' weaknesses and strengths in terms of multiple intelligences. However, the data analysis showed that the purpose could be separated into two subcategories according to the teachers' foci. The first group of teachers focused on strengths and the other group focused on weaknesses.

The analysis of the interviews conducted with the teachers revealed that four of the six teachers focused on students' dominant intelligences when explaining why they determined their students' multiple intelligences profiles. They emphasized that they should know their students' dominant intelligences because they used the information in various situations including school show activities, encouraging the students to educational clubs and planning learning-teaching activities for individualized education. In this regard, the teacher TA expressed how they used the information about her students' dominant intelligences:

> … I used the information about their strengths when planning learning-teaching activities for personalized education instruction; making decisions as to which student participates in which school show activities.

Furthermore, the analysis of the interviews conducted with the teachers demonstrated that three teachers, two of whom were 2nd grade teachers and one 3rd grade teacher, emphasized that the purpose of learning about students' strengths was very important because of cultivating happy individuals. According to the teachers, the information about their students' strengths helped them to cultivate happy individuals, the 2nd grade teacher TD stated

> If you want to raise happy individuals for the future as a teacher, you should accommodate your students with learning activities in which they can be successful and then they can improve their self-confidence. If you know students' strengths in terms of multiple intelligences, it is possible.

The 3rd grade teacher expressed the importance of determining students' dominant multiple intelligences and how she used the information as follows,

> I give importance to learning children's strengths when determining multiple intelligences. I used the information when distributing them to school clubs. Because I cannot give them the opportunity to determine their own clubs because they tended to select the clubs their best friends selected. Also, I want

them to be successful and enjoy in the clubs. I reach my aim by using the information about their dominant intelligences (TF).

According to the data analysis, while the four teachers focused on dominant intelligences, the others, TB and TE, focused on determining the recessive ones. TB explained that teachers could have an opportunity to improve their students' weaknesses. He stated that "…MIT emphasizes the necessity and importance of improving weak intelligences. Thus, one of my purposes for determining my students' multiple intelligences is to learn both their weak and strong intelligences."

Like teacher TB, teacher TE emphasized that determining weak intelligences was important as well as determining dominant ones. In this regard, TE clarified one of the purposes she had when determining her students' multiple intelligences as follows,

> … The purpose is to learn about students' weak and strong intelligences. Teachers should give opportunities to their students to use their dominant intelligences when teaching them; otherwise, teachers paralyze students' dominant intelligences. Moreover, they should improve their students' weak intelligences. The possibility of improving weak intelligences is the most powerful aspect of MIT, I think.

Interestingly, the analysis of the informal conversational interviews showed that two 2nd grade teachers and one 1st grade teacher had focused on dominant intelligences during the formal interviews, but they put equal importance on both activating dominant intelligences and improving weak intelligences throughout the informal conversational interviews conducted with them. One of them was a private school teacher while the others have worked in public schools. Both the 2nd grade teachers stated that the purposes of determining multiple intelligences profiles in the 2nd grade were different from the ones in the 1st grade. They emphasized that the ultimate purpose of determining multiple intelligences in the 1st grade was to know the students; however, in the 2nd grade the purpose had started to move from knowing students towards developing non dominant intelligences and satisfying the needs originating from the dominant intelligences of the students. The teacher TA was the 1st grade teacher in a public school. She stated that

> I am a 1st grade teacher now. My purpose of determining multiple intelligences of my 1st grade students is to know their strengths and weaknesses. In this manner, I can know my new (1st grade) students in the first semester of the

academic year and then I can start to develop their weak intelligences and feed their dominant intelligences in the second semester with the help of the knowledge I gained about their multiple intelligences (TA).

The analysis of the interviews conducted with the experts presented that one of the participant sociologists of the study supported the teachers' purpose "to learn about students' strengths and weaknesses." The sociologist emphasized that teachers and parents should determine their children's multiple intelligences to prepare them for social life because individuals used all multiple intelligences in social life to some extent. In this regard, she followed,

> Actually, if an individual can use all intelligences well, s/he is/will be a social person in all societies. Therefore, parents and teachers as guards and counselors of the children should achieve realistic knowledge about their children's multiple intelligences hereby they help the children develop their weak intelligences; recognize their own strengths and use them effectively as a part of a society for the future.

Moreover, the data analysis pointed out that the participant psychologists emphasized the purpose "to learn about students' weaknesses and strengths in terms of multiple intelligences". All three gave importance to the weaknesses and improvement of the weaknesses because of being healthy human beings. They thought that an individual should improve his / her weaknesses for his / her life. Moreover, they stated that one of the keys was using strengths in order to improve the weaknesses.

Purpose III: Assisting students by activating their dominant intelligences to handle problems

The analysis of the interviews conducted with the experts showed that according to the two psychologists participating in the study, the purpose of determining multiple intelligences profiles was to assist children having problems to solve their problems related with learning in the most effective and efficient ways. The psychologist PS2 asserted that "If a teacher wants to suggest to a student the most effective way to solve her/his problems, the teacher should refer to the child's intelligence-composition." The other psychologist also expressed the importance of determining multiple intelligences by stating the road aiming to reach the child should be constructed on the child's special intelligence-composition including multiple intelligences in a different proportion.

The data analysis presented that, like the psychologists, of the six, three teachers indicated that they determined their students multiple intelligences profiles because they used the information when assisting the students solve their learning difficulties and social problems. One of the teachers explained an anecdote related with this point as follows,

> … Two students who have been my students for three years commonly faced difficulties in mathematics. I knew their multiple intelligences profile. Thus, I used activities touching their dominant intelligences when explaining the math subjects they have difficulty with. Finally, they overcame the difficulties using this method (TB).

Furthermore, the analysis of the interview conducted with Dr. Armstrong who developed the MI inventory for adults and the MI checklist for students showed that he commented on the reasons to determine multiple intelligences as follows "I believe that the rationale for wanting to determine a student's multiple intelligences is valid, that this can help us reach the student according to their real learning needs." Actually Dr. Armstrong's comment supported the teacher TB's anecdote because TB reached his students in terms of their real learning needs in the math course.

Furthermore, the analysis of the observations indicated that three teachers used the information about their students' multiple intelligences profiles when assisting the students having problems and challenges related with learning. In other words, they used the information to teach the students faced with difficulty in learning a subject and to manage the classroom effectively. When comparing the results drawn out the analysis of observations and the formal interviews conducted with the same teachers, an interesting consequent emerged from the comparison, which was that the teachers often used the information with purposes they did not express during the formal interviews. The analysis of the researcher's observation notes displayed that the teachers who did not state the current purpose assisted the students facing difficulty in the learning process by activating their dominant intelligences. In this regard, one of the teachers used visual teaching materials for visually dominant students facing difficulties in learning maths. On the other hand, the same teacher made a group with three students facing difficulties in maths and let them study in a group because she knew the students' dominant intelligence was interpersonal intelligence.

Purpose IV: Informing stakeholders (branch teachers, parents, school counselors etc.) about students' multiple intelligences profiles

The data analysis pointed out there were three sub-purposes under the purpose "informing stakeholders (branch teachers, parents, school counselors etc.) about students' multiple intelligences profiles" namely; informing parents about their children's multiple intelligences profiles, informing branch teachers about students' multiple intelligences profiles and informing students about their own multiple intelligences profiles.

Purpose 4.1: Informing parents about their children's multiple intelligences profiles

The analysis of the interviews conducted with the teachers revealed that two 3rd grade teachers emphasized the importance of informing parents about their children's multiple intelligences profiles as a purpose of determining students' multiple intelligences. They emphasized that the information had vital importance not only for teachers but also parents. They thought that parents could form their expectations of their children and their behavior towards the children in a realistic view if they knew their children's multiple intelligences profiles. However, data analysis displayed that there was an important difference between the two teachers' thoughts. The difference was the tendency the teachers had towards the parents. The 3rd grade teacher working in a public school wanted to share the information about the students' multiple intelligences profiles with their parents in order to inform them with positive tendency towards the parents. The teacher TB stated that

> The parents are ready to take instruction from me as their children's teacher. Thus, they believe me when making decisions about their children. In this regard, I feel that I should instruct them about their children's education. Therefore, one of my purposes is to inform the parents about their children's multiple intelligences profiles.

The 3rd grade teacher TF thought that parents had unrealistic views about their children. She stressed that she had tried to make the parents be realistic about their children's talent and abilities in terms of multiple intelligences. She said that

> … The parents could not be objective about their children. The information I give them enables them to behave realistically towards their children, to form realistic expectations about the children. For this reason, one of my purposes is to inform parents about their children's multiple intelligences profiles.

Analysis of the informal conversional interviews showed that the teachers internalized the purposes they explicitly stated during the formal interviews. The same teachers spoke on the same purposes they had stated previously. In this manner, the analysis of the informal conversional interviews supported the results gained from the analysis of the formal interviews. Some excerpts taken from the informal conversional interviews are as follows "I want to share the results of your research with my students' parents in order to inform them about their children's real intelligence potential in terms of MIT" (TF). "Could I share the results of your research with my students' parents? Besides, I want to organize a seminar and share the results with the parents, if you accept" (TB).

The analysis of the interviews conducted with the experts from the field of psychology, sociology and child neurology supported the purpose stated by the teachers "to inform parents about their children's multiple intelligences profile." One of the sociologists expressed that the importance of the purpose as a mother was as follows,

> I am not only a sociologist, but also a parent. My child is a 1st grade student. Therefore, teachers should have the purpose of informing parents about the children's multiple intelligences, according to me. Besides I do not believe we are objective observers of our children, so teachers should help us…. (SO1).

Like the sociologist, the child neurologist participating in the study was a mother of twins who attended to the 2nd grade. She said that

> If I were not a mother, I would not learn about multiple intelligences. As you know, we deal with intelligence, cognitive, but we have not studied the theory yet. We still use IQ tests and maintain the IQ approach to intelligence in the field of neurology. Thus, I feel lucky because I know multiple intelligences; otherwise, I would not try to determine and evaluate my children's intelligence profile and their characteristics. In this regard, one of the purposes teachers have should be to determine the multiple intelligences and inform parents about both multiple intelligences theory and their children's multiple intelligences profiles.

One of the psychologists stressed that they informed parents about their children's psychology. Furthermore, the psychologist stated that most parents consulted her about their children's learning difficulties, learning skills and intelligence quotation. Moreover, she added that she explained MIT to parents however she could not determine multiple intelligences profiles. In this regard, she

expressed that teachers should share the information about the students' multiple intelligences profiles with parents. She believed that the sharing enabled teachers to cooperate with parents in order to construct effective and efficient teaching.

Purpose 4.2: Informing branch teachers about students' multiple intelligences profiles

The data analysis of the study revealed that the purpose "to inform branch teachers about students' multiple intelligences profiles" was stated by only two teachers. One of the teachers was from the 1st grade and the other, a 2nd grade teacher. Both worked in the private school.

The teachers emphasized that they were classroom teachers and they dealt with their students more closely than the branch teachers. They explained that music, art, psychical education and drama were taught by branch teachers to their students. Besides, they believed that the courses were critical courses for multiple intelligences. They explained that they had a responsibility to share information about the students' multiple intelligences profiles with the branch teachers because they should also be responsible for feeding the students' multiple intelligences. Furthermore, they wanted to take information from the branch teachers about the students' talents and abilities. The teacher TE emphasized that the other educators who dealt with her students in some ways should know the students' multiple intelligences in order to speak the same language with her and give the students opportunity to develop or use their multiple intelligences. Besides, the teacher underlined that the branch teachers focused on the intelligences which were in harmony with their courses so the branch teachers should be informed in terms of students' multiple intelligences profiles:

> … Unfortunately, the courses in which we can easily develop intelligences are rarely touched in classic courses including math, life science taught by the branch teachers. I say "unfortunately" because the courses give the students opportunity to improve or use the intelligences in their nature. However, the branch teachers, I think, feed the students with only the intelligence in the foundation of the course. Thus, they should know the students' multiple intelligences profile in order to use their dominant intelligences to improve the abilities in their courses.

TD said similar things to the teacher TE and gave an example "For example, if a music teacher knows students' multiple intelligences profiles, he can improve their musical intelligences by using their dominant intelligences…."

Purpose 4.3: Informing students about their own multiple intelligences profiles

The data analysis implied that one of the purposes of the teachers was "informing students about their own multiple intelligences profiles." The analysis of the interviews conducted with teachers demonstrated that three teachers had the purpose. Teacher TC stressed the importance of informing students about their multiple intelligences profiles and taking information about their multiple intelligences for themselves by referring Gardner:

> Teachers absolutely should make their students be aware of their strengths and weaknesses. Furthermore, Gardner defined intrapersonal intelligences emphasizing individuals' realistic view of their strengths and weaknesses. There is no need to hide their multiple intelligences profiles; on the contrary, we should share our information related with their intelligences and also ask them to help us when determining their multiple intelligences.

The data analysis also demonstrated that two other teachers asserted the purpose containing a risk of labeling. Therefore, they offered a solution while stating the purpose. In this regard, the teacher TF stated

> … Actually I am not aware of the solution I have used for years. The solution is not saying the "intelligences" as "intelligences". I share my students multiple intelligences profiles with them without articulating the concept "intelligence" because most of the students, like their parents, have a tendency to put huge importance on mathematical and linguistic intelligences. Therefore, I use the words "ability or skill" rather than "intelligence….

The teacher TB explained how he shared the information about multiple intelligences profiles with his students:

> …Also, I have shared my observation results related with their multiple intelligences with the students. However, I have been careful when sharing. I started with "you can do this if you use your strengths" and then I tell her/him strengths. Thus, students could see what I meant or indicated about their strengths and weakness. Moreover, whenever it is possible I say that everyone has weaknesses and strengths and everyone has a chance to improve their weaknesses by using strengths….

Furthermore, the analysis of the interviews conducted with the psychologist PS1 and sociologist SO2 showed that both psychologist and sociologist stated that

the purpose was valid. However, the psychologist focused on individuals (students), while the sociologist focused on society while stating their agreement on the purpose.

> I think the purpose was meaningful. Individuals should know their weaknesses and strengths for their physical and psychological health. I have spoken with children realistically as much as possible. This is right. However, there is an important line between causing psychological problems and helping them to be happy individuals with information of realistic characteristics of themselves (PS1).

> If we want to raise students as social people for the future, teachers should inform students about their weaknesses and strengths. If the teachers do this in the limits of pedagogy, the students will have opportunities to improve their weak intelligences and use strength intelligences properly. Thus, the students will be healthy social people and then there will be a healthy society composing of healthy people (SO2).

Purpose V: Managing class in accordance with students' multiple intelligences profiles

The data analysis of the study showed that the purpose "managing class in accordance with students' multiple intelligences profiles" was stated by two teachers. Teacher TD associated multiple intelligences with communication language. For the teacher, the teachers who knew students' multiple intelligences profiles could manage easily the class:

> … to find out the students' communication languages. I believe that the intelligences are communication channels. Besides, I had difficulty in classroom management before learning MIT. Now, I am managing the class by seeping in their communicative intelligences (TD).

The analysis of the interviews conducted with the teacher TA revealed that the teacher emphasized the important function of knowing students' multiple intelligences profiles in classroom management. The teacher stressed that students' dominant intelligences were the key of classroom management.

> I manage my classroom easily and effectively by activating the dominant multiple intelligences of my students. Thus, it is a very important purpose for me to determine the multiple intelligences of my students when determining multiple intelligences (TA).

The analysis of the observation notes supported that the teachers (TD, TA) used the information about their students' multiple intelligences profiles when

managing their classroom. Furthermore, TC did not state the purpose during both formal and informal conversational interviews. However, the analysis of the observations conducted in the classroom of TC indicated that she activated her students' dominant intelligences very well when managing the classroom.

Purpose VI: Comprehending the principles of MIT

The data analysis of the interview conducted with Armstrong via e-mail indicated another purpose for determining multiple intelligences profiles. The purpose was "comprehending the principles of MIT." Armstrong explained how he decided to develop a checklist and inventory as follows;

> My decision to create a "checklist" of items was determined by my desire to have people think about Multiple Intelligences Theory more deeply. I thought that if they applied the model to their own lives, they would be more likely to be interested in the theory, and apply it effectively. I did not develop the checklists for evaluative purposes, nor was I interested in obtaining reliability or validity on the checklists. I see them as "awareness tools" rather than diagnostic instruments, and feel my own checklists should be used with this in mind.

It was clear that Armstrong highlighted the importance of comprehending MIT and he emphasized the purpose "comprehending the principles MIT" when determining the multiple intelligences.

Purpose VII: Suggesting leisure time activities according to students' dominant intelligences

Data analysis of the study showed that only one of the teachers participating in the study stated the purpose "suggesting leisure time activities according to students' dominant intelligences". Teacher TD stated that "…one of my purposes for determining my students' multiple intelligences profiles is to suggest hobbies, leisure time activities and school clubs related with their dominant intelligences."

The informal conversational interviews and observations have been conducted throughout the study. The purpose has not been supported by the other sources yet.

4.1.2 Existing Methods

Finding out the methods that 1st, 2nd and 3rd grade teachers used to determine students' multiple intelligences profiles was an important aspect with respect to developing an appropriate program including the most appropriate methods in order to determine students' multiple intelligences profiles. Although there would be many different methods to find students' multiple intelligences profiles, each method might have its unique strengths and weaknesses. Therefore, using proper methods to determine the intelligences should be considered as an important factor for appropriateness. This was a very important aspect of an accurate placement of an intelligence to multiple intelligences profiles. Therefore, the data gathered through the interviews with teachers, expert psychologists, sociologists, child neurologists, psychiatrists and instrument developers were analyzed to underline the existing methods, investigate the weaknesses and strengths of the methods, and provide suggestions for the alternatives.

Four general themes emerged in relation to the second prompt namely; (1) existing methods, (2) strengths of the existing methods, (3) weaknesses of the existing methods, (4) the suggestions for the methods. The following figure summarizes the existing methods.
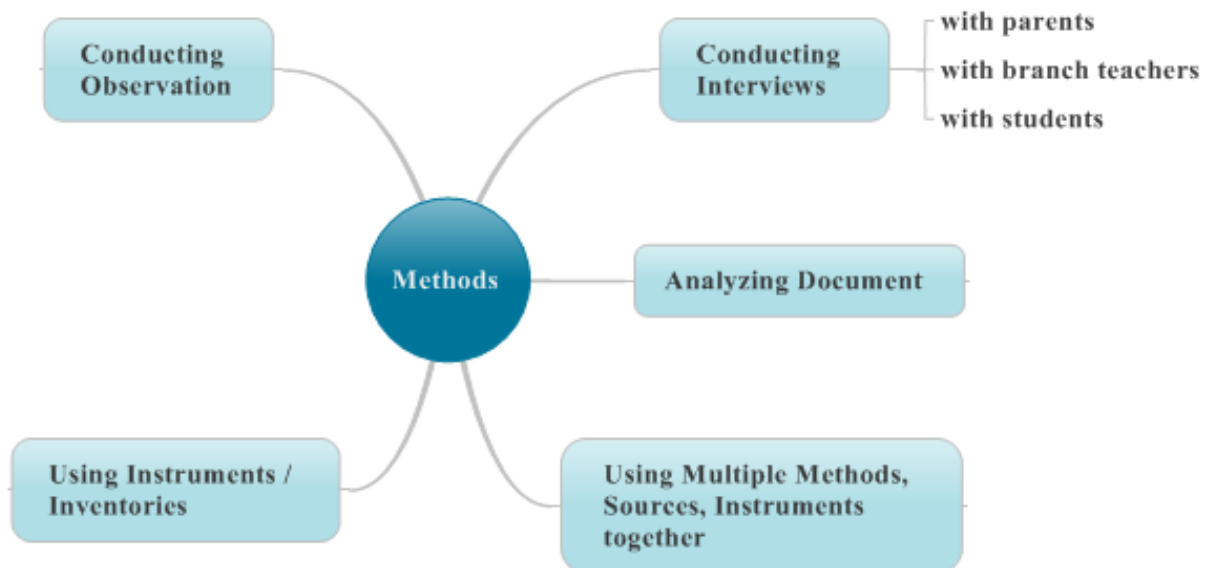
Figure 10 Existing Methods

4.1.2.1 Conducting Observation

The researcher interviewed with six teachers, two 1st grade, two 2nd grade, and two 3rd grade teachers. Each teacher stated his/her methods they used to determine their students' multiple intelligences profiles. The analysis of the interviews and the observations indicated that the method used by all the teachers was observation. All the teachers stated that they observed their students in order to determine their multiple intelligences profiles. The teacher TE stated that most teachers used only the observation method for determining students' multiple intelligences profiles. The teacher TF put a good word in for TE by saying "Observation! It is the best method, I think, to determine the students' multiple intelligences. I only use it for this purpose." The teacher TC expressed that he used multiple methods together. However, he expressed that observation was the most dependable by saying "Although I use multiple sources to determine my students' multiple intelligences, I mostly depend on the results of my observations. The focus of the multiple sources is observation for me."

The analysis of the observations conducted by the researcher supported that all teachers used observation to determine students' multiple intelligences profiles. The analysis also indicated that their observations did not have any route or observation form, document. The teachers observed the students all the time. The observations were conducted by the teachers where and when it was possible. There was not a specific time or place for their observations. Furthermore, the data analysis implied that they actually did not miss the signals the students sent related with their dominant intelligences. In this regard, the analysis also indicated that the teachers focused on the dominant intelligences rather than the weak ones when observing their students. For example, TC usually presented alternative instructional activities to his students then observed which activity they preferred. In that way he could determine students' dominant intelligences.

The analysis of the informal conversational interviews with the teachers indicated that the teachers focused on the dominant intelligences of their students when observing them. For example, the teacher TA expressed that the students more willingly participated in the activities based on their dominant intelligences. Furthermore, the teachers TD and TE stated that they used lots of instructional activities for all of the multiple intelligences and they made all students participate in

all activities during the lessons. They said that although all the students participated in all activities, all of them did not have the same willingness for all activities. They explained that students' willingness for activities were criteria for determining students' dominant intelligences. The analysis of the conversational interview with teachers TD and TE showed that the teachers did not state the concept "weak intelligences" although uttering the concept "dominant intelligence" over and over.

The analysis of the interview the researcher conducted with Dr. Thomas Armstrong via e-mail showed that Armstrong gave the most importance to observation as a way to determine multiple intelligences. Armstrong stated his opinion about the methods including inventory, questionnaire, interviewing others, checklist and observation when answering the interview questions. For observation, he stated his opinions as follows: "My favorite and preferred way of determining multiple intelligences, as long as the student is given the opportunity to engage in all the multiple intelligences…."

Furthermore, the analysis of the interview conducted with Armstrong indicated the clue explaining why Armstrong's favorite way was observation was hidden in the following quotation;

> I believe that the profile of a student's multiple intelligences can only be approximated via a range of assessment tools including and especially, seeing the student demonstrating the different intelligences in action.

It was seen that Armstrong thought that multiple intelligences demonstrated by students in action was important for him in terms of determining multiple intelligences profiles. The analysis of the interviews conducted with the instrument developers showed that Teele like Armstrong emphasized the importance of observation as a method to determine the multiple intelligences. She said that observation most likely was the most accurate ways for assessing multiple intelligences.

Moreover, the data analysis showed that the expert from the field of child neurology stated that observation could be a method for determining students' multiple intelligences profiles for children because she applied that method to determine her children's multiple intelligences profiles.

The analysis of the interviews conducted with the experts from the fields of psychology, sociology and the researcher participating in the study indicated that

observation was one of the methods the teachers used or should use to determine students' multiple intelligences profiles. The following excerpts were taken from the interview transcripts. One of the psychologists stated that, "Observation is a way which is used to determine most of the things about the children at primary level. One of the things is multiple intelligences" (PS2). The sociologist SO2 expressed that "Most of the time, observation is the best way to decide on something about individuals and even society. Thus, I am sure observation is used by the teacher with the purpose of determining their multiple intelligences."

4.1.2.2 Using Instruments / Inventories

The analysis of the data gathered through interviews and observations displayed that four of the six teachers stated inventory was a method teachers should use to determine their students' multiple intelligences profiles. The teachers were teacher TA, TC, TD, TE. The data analysis showed that two of them tried to use the instruments developed for assessing their students' multiple intelligences before this study, the other two used the ones presented by the researcher during the study.

The teacher TA and TC used TIMI developed by Teele before the study was conducted. Other teachers TD and TE expressed the necessity of using inventory, but they complained about the lack of inventories which were scientifically developed, understandable and easy to conduct and access. The teacher TD expressed the issue by saying,

> …I do not know where I could get them from. Sometimes, researchers came to our school, determined our students' multiple intelligences, learning styles etc. They used some documents, inventories, tests, but we could not keep them. We did not even receive the results of their studies….

The Teacher TE expressed that

> … inventories should be one of the methods for teachers to assess their students' multiple intelligences. However, I do not have any inventories, neither does our school, I also think it is important whether the inventories are scientifically developed, easy to conduct or not.

The analysis of the interviews conducted with the instrument developers showed that they had different views about using inventories to determine multiple

intelligences although they developed an inventory with the purpose of determining multiple intelligences.

Armstrong, one of instrument developers who participated in the study, stated that using inventory had limitations because it was based on paper and pencil and wording could be crucial in determining whether students would check it or not. On the other hand, Dr. Teele thought that using inventory especially a spatial inventory was more valid to determine multiple intelligences. As one of the experts participating in the study, the child neurologist stated "… a visual inventory can be a way to determine multiple intelligences….", emphasizing she did not have enough knowledge about the methods.

Moreover, the researcher interviewed with the mathematics educators who determined the multiple intelligences in her study via e-mail. The analysis of the interview pointed out that using inventory was the most practical and reliable way when determining a large sampling for the researcher. She also indicated that using more than one method was most preferable for the teachers.

Furthermore, the psychologist and sociologist said using inventory was one of the methods teachers used to determine students' multiple intelligences profiles. One of the sociologists participating in the study expressed the cultural aspects of the society in which inventory would be used.

Using inventory might be one of the ways for determining multiple intelligences; however, some factors related with society's cultural aspects including traditions and customs should be taken into consideration. Therefore, inventory might be a way but, by taking the point into consideration (SO2).

4.1.2.3 Conducting Interviews With Stakeholders

The data analysis indicated that the method included three sub methods; interview with parents, interview with branch teachers and interview with students.

Interview With Parents

The analysis of related data pointed out three teachers who stated interview with parents as a method. The teachers were TA, TB, TC. They stated that parents' opinions should be taken into consideration by teachers because teachers could not observe their students outside of school. All three indicated that they interviewed the

parents; however, they did not record their opinions. Teacher TA and TB explained why they took parents opinions as that they believed parents' observations were important when determining students' multiple intelligences profiles. Moreover, they stated they did not record because they were busy and could remember their comments. Furthermore, the data analysis showed that one of the sociologists and psychologists emphasized the importance of mutual interviews among teachers and parents.

Interviews With Branch Teachers

The data analysis of the study indicated that teachers TD and TE expressed that interviews should be conducted with branch teachers including drama, physical education, art education, music education and foreign language. The teachers presented different reasons between each other. Teacher TD thought that branch teachers could easily observe and determine students' abilities and skills in terms of their courses. The teacher also added that because of that reason musical intelligence should be determined by the music teacher; bodily intelligence by the psychical education teacher and drama teacher together; linguistic intelligence by the foreign language teacher and class teacher together; visual – spatial intelligence by the art education teacher. The teacher TE stated that "… I try to determine my students' multiple intelligences and then take branch teachers' opinions for the intelligences related with their field."

Interview With Students

One of the instrument developers who participated in this study was Thomas Armstrong. The analysis of the interview conducted with Armstrong showed that he stated interview with students as a method to learn about their multiple intelligences, which interestingly was not stated by the teachers. In this regard, the quotation was taken from the transcript of the interview conducted with Armstrong.

I believe a one-to-one interview with the student is also a very effective approach to assessment, because the student is respected for their knowledge of themselves, and because the student is likely to know a great deal about how they learn, as long as they have some degree of intrapersonal (reflective) intelligence….

One of the inventory developers who participated in this study was Sue Teele. She stressed that interview might be one of the methods used for determining multiple intelligences "If the interviewer is very knowledgeable regarding multiple intelligences …."

4.1.2.4 Analyzing Document

The analysis of the observations showed that the teachers TA, TC, TD, TE examined their students portfolios when determining students' multiple intelligences profiles. The analysis of the informal conversational interviews with teachers TC and TE indicated that they believed that the portfolios were very useful indicators for determining students' dominant intelligences because the portfolios included students' projects and performance assignments. They explained that the projects and performance assignments enabled students to use their abilities and skills. According to the teachers, most of those types of assignments required the students' creativeness and perfection, so the students tended to use their dominant abilities and multiple intelligences.

4.1.2.5 Using Multiple Methods Together

The data analysis indicated that some of the teachers used multiple methods together. The analysis of the interviews pointed out that all teachers, except teacher TF, used more than one method together to determine students' multiple intelligences profiles. Furthermore, they believed that teachers who wanted to determine students' multiple intelligences profiles should use more than one method. However, not all of them stated the same methods in the multiple methods they used together. Teachers TA and TC stated that the multiple methods included conducting observation, inventories, and interviews with parents, document analysis including students' portfolios and notebooks. Teachers TD and TE said that their multiple methods included all the methods stated by the teachers TA and TC except conducting interviews with parents. They stated that interviewing branch teachers was one of the methods they used. Teacher TB stated that he conducted observation and interviewed parents to determine students' multiple intelligences.

Analysis of the interviews conducted with the experts pointed out that the experts had positive thoughts about using a multiple methods approach for the teachers to determine students' multiple intelligences profiles. The experts were from the fields of psychology, psychiatry, child neurology, sociology and mathematics education. They thought that if more than one source/method was conducted with the same purpose, the total results would be more reliable and useful for teachers.

The analysis of the interview conducted with Dr. Armstrong demonstrated that Dr. Armstrong agreed with the people indicating the necessity of using more than one method. The analysis also indicated that Dr. Teele did not reject the method of "using multiple methods" although she did not directly state the method. She stated her opinion on the methods including conducting observation; checklist, inventory, and interview, so it could be assumed those methods could be used together.

4.1.3 Strengths of the Existing Methods

The data analysis of the study presented that five basic methods used by the 1st, 2nd, and 3rd grade teachers used to determine students' multiple intelligences profiles. Furthermore, the analysis of the data related with the methods revealed the strengths of the methods. For each method, strengths were presented in the following parts.

4.1.3.1 Strengths of Conducting Observation

Observation was stated by all teachers as a method of determining their students' multiple intelligences profiles. The data analysis showed four main strengths of the method.

Strength 1: Economic

The analysis of the interviews conducted with the teachers showed that the teachers thought that conducting observation was an economic method to determine students' multiple intelligences profiles. They explained that observation did not require any materials and time. Thus, they thought that aspect of the method was the strongest aspect of it. The following excerpts were taken from the interviews. "Observation might be accepted as the best method to determine the multiple

intelligences because you can use it without sticking to any special materials" (TC). "The method of observation does not need special time. If a method needs a special time, it might not be useful for us …." (TD). "… also you can observe your students whenever it is possible and whenever you want…." (TE). "Observation can be conducted without any materials. This characteristic of it is very good not only for me, but also for all teachers…." (TF).

Furthermore, the analysis of the data gathered throughout the study displayed that the experts from the fields of psychology, sociology implied that observation was used by most of the teachers with the purpose of determining multiple intelligences since observing students gave lots of information to the teachers using only their eyes.

Strength 2: Routine

The data analysis indicated that another strong characteristic of conducting observation stated by three teachers was that conducting observation was a routine activity for class teachers. In this regard, the teacher TA said "Observation is actually a usual activity for teachers, so it can be conducted by teachers easily." Moreover, the teacher TB emphasized that they always observed their students not only for determining multiple intelligences, but also other purposes."

Psychologists stressed that observation was a routine activity for teachers because it was one of the methods to know the students. Thus, the psychologist PS1 expressed that observation was thought as one of the effective and efficient techniques of knowing and understanding students so teachers were familiar with conducting observations. Like the psychologist, the sociologist SO2 said that observation was both an effective and friendly method for teachers. She also expressed that observation was a lucky method because there were not many methods which were both effective and routine also because most effective methods were generally troublesome and new for people.

Strength 3: Unobtrusive Method

Data analysis of the study indicated that one of the strengths for observation was that it was an unobtrusive method because they could determine their students' multiple intelligences unbeknownst to the students. This strength was stated by two teachers. They believed that students should not know their purpose of determining

multiple intelligences profiles. The teachers also explained that if the students knew that their teachers were trying to determine their multiple intelligences profiles, they might behave differently. They expressed that conducting observation did not have the risky point. In this regard one of the teachers stated,

> Another strength of observation is that your students do not know why you look at them because your looking is very normal for them. If a student recognizes that you are going to determine his intelligences, he begins to behave in the way you want him to …. (TE).

The teacher TF expressed, "I look at them all the time. My looking, my eyes do not disturb them. Thus, students cannot notice my purpose. Then, they cannot cheat me. In this regard, observation is effective."

The analysis of the interviews conducted with Ms. Uysal showed that she stated that observation was proper for the 1st, 2nd and 3rd grade students. She explained why the method was as proper as the methods including inventory, checklist required students' answers to the questions; however, observation did not require students' answering. The analysis implied that the character of observation was one of the strengths of the method for her as a researcher.

Strength 4: Real Life

The analysis of the formal and informal interviews conducted with the teachers showed that five teachers thought that observation enabled them to observe the students when they were involved in various activities based on different intelligences in real life situations. Moreover, they stated that multiple intelligences could be determined during various activities so teachers could determine their children's multiple intelligences by observing their students while the students were conducting various activities in real life situations.

The analysis of the informal conversational interviews conducted with the teachers TA and TC at the same time showed that they stressed that multiple intelligences profiles were not determined in a limited time and most of the methods teachers used to determine students' multiple intelligences profiles were conducted over a limited time except observation. In this respect, the teacher TC stated,

> … I know that Multiple Intelligences Theory suggested that intelligence cannot be evaluated by IQ tests. Also, the theory expressed that intelligence shows its abilities in real life activities.... Thus, observation.

The teacher TA agreed with TC. Furthermore, analysis of the interview conducted with Dr. Armstrong implied that Dr. Armstrong spoke about the method of observation positively. He defined the method as his favorite method of determining students' multiple intelligences. Analysis of the interview conducted with Teele indicated that she stressed, like Armstrong, that observation was the best method to assess multiple intelligences. The analysis of the data showed that the participant psychologist thought that observation enabled teachers to assess their students' multiple intelligences in real life conditions effectively.

4.1.3.2 Strengths of Using Instruments / Inventories

Using instruments / inventories was stated by the participants of the study as a method to determine students' multiple intelligences profiles. The data analysis indicated that most of the teachers participating in the study stated inventory as one of the methods they thought useable to determine their students' multiple intelligences; however, two of them used inventory. The following sub titles were determined at the end of the data analysis as strengths of using inventory / instruments.

Strength 1: Quick Result

The analysis of the data gathered throughout the needs assessment showed that the strongest characteristic of using inventory/instrument was that it provided quick results about students' multiple intelligences profiles. In relation to this strength, the teacher TC said, "I use inventory with the purpose of taking quick results .…" Moreover, the teacher TA expressed,

> I used inventory at the beginning of the semester because of 1st grade. I needed to get information about my students' multiple intelligences as soon as possible because I am a 1st grade teacher. Observation and other ways took too much time ….

The psychologist PS3 supported the view of the teachers about the quick result character of using inventories. Analysis of the informal conversational interview with the psychologist showed that the psychologist emphasized that taking quick results from a method was important because that type of result was frequently needed by teachers. Also, the psychologist expressed that they used inventories, tests,

questionnaires with various purposes because they needed to take quick results even though they had known the power of observation. She finalized her explanation saying that in this regard she thought that teachers who named quick results as a strength of using inventory were right.

The analysis of the interview conducted with the child neurologist implied that child neurologists also needed quick results. She expressed that she did not like to use IQ tests because she knew and believed in MIT, so she wanted to use a test or an inventory prepared according to MIT. She stated that

> As a child neurologist, I and the other child neurologists should use tests presenting quick results and developed in scientific ways. Moreover, schools send students to us in order to take reports about the students' intelligences and cognitive aspects. The psychological consultants and guidance services or teachers of the schools send their students to us with this purpose. Furthermore, parents bring their children to us in order to learn about their intelligences. We use IQ tests because we do not have an inventory to determine multiple intelligences. If we had an inventory or a method, we could use in the clinic environment, I and most of my colleagues would use it rather than IQ tests because I catch clues from the children who have low IQ results that they have some strong characteristics which could be explained with Multiple Intelligences Theory when I examine them. However, I have to report my thoughts or observations with a test or method. It is beneficial to present suggestions and results on the basis of Multiple Intelligences Theory to the children who come to us.

Strength 2: Comprehension of MIT

The analysis of the interview conducted with Dr. Armstrong displayed that he developed his inventory with the purpose of helping people to comprehend MIT. He called his inventory a checklist and added that

> My decision to create a "checklist" of items was determined by my desire to have people think about multiple intelligences theory more deeply… I did not develop the checklists for evaluative purposes, nor was I interested in obtaining reliability or validity on the checklists. I see them as "awareness tools" rather than diagnostic instruments, and feel my own checklists should be used with this in mind.

When the researcher asked the question how he overcame the risky points stated by Shearer and Gardner while he was developing his inventory, Armstrong answered the question as follows,

I didn't overcome the risky points - I have simply asked people who use my inventories (from my books) to use them responsibly, not to use them for any formal assessment process, and to use them primarily as an awareness tool to help people (including students) think about their multiple intelligences….

The analysis of the interview conducted with the child neurologist implied that she thought that inventory enabled parents, teachers and child neurologists to comprehend multiple intelligences. She stated that Multiple Intelligences Theory was known by the parents and the teachers in private schools, but if there had been an inventory, parents, teachers and our field would have given up thinking of the IQ approach.

4.1.3.3 Strengths of Conducting Interviews With Parents

Data analysis indicated two main strengths for the method of conducting interviews with parents.

Strength 1: Constant Observation

The analysis of the interview conducted with Armstrong implied that he thought that observation was important, but not only observation in school settings, but also in observation at home was necessary. In this regard, the parents' views and thoughts about their children's strengths and weaknesses became important. Three teachers participating in the study expressed that they gave importance to parents' thoughts about their children multiple intelligences. The reason the data analysis and the teachers indicated was same as Dr. Armstrong's indication "observing at home". They expressed that teachers could not observe their students at home.

The teachers also expressed that they tried to observe their students all the time when interviewing with their parents. The analysis of informal conversational interviews conducted with the teachers also supported their statements in the formal interviews. The following excerpts were noted after the informal conversational interviews with them. "I think my parents help me complete the puzzle of determining multiple intelligences. I get their views about their children's strengths and weaknesses" (TB). "Actually parents can observe their children all the time, thus if they can share their real observations with us, the information would be very beneficial when we are determining their children's multiple intelligences" (TC). The

data analysis also showed that the strength was stated by the psychologist and child neurologist participating in the study.

Strength 2: Proof Evidence

The data analysis of the study implied being proof evidence was one of the strengths of conducting interviews with parents. The psychologist PS2 participating in the study stated that

> Children are freer in their home. Thus, children can display various strengths and weaknesses that they do not show in their school. Therefore, teachers can use parents' views and opinions about their children to prove their determination of their students' multiple intelligences.

The analysis of the informal conversational interviews conducted with the teachers TB and TC indicated that the teachers saw the proof aspect of interviewing parents as the strength of the method. TB stated that he could take realistic observation results from their students' parents and then use the information in order to prove his thoughts which emerged from his observations of the students' multiple intelligences profiles. TC emphasized that parents' confirmation for his thoughts about their children made him feel more comfortable.

4.1.3.4 Strengths of Conducting Interviews With Branch Teachers

Analysis of the data implied one strength for the method of conducting interview with branch teachers.

Strength 1: Proof Evidence

The analysis of the data gathered during the needs assessment phase of the study showed that the strengths of conducting interviews with branch teachers were similar to the strengths of conducting interview with parents. The data analysis of the interviews conducted with the teachers indicated that the teachers TD and TE stated that branch teachers' views help them confirm their determination of the students' multiple intelligences profiles. Teacher TD stated that she tried to determine her students' visual spatial, bodily kinesthetic, musical intelligences; however, she needed the confirmation of the branch teachers related with the intelligences. TE stated that the psychical education teacher for bodily kinesthetic intelligence and music education teacher for musical intelligence were more knowledgeable than her,

so she tried to include their views and then she felt right about her opinion about the intelligences of the students.

Furthermore, the data analysis of the interviews conducted with the psychologists showed that the psychologists gave importance to the branch teachers' opinions about the students' multiple intelligences profiles. However, one of them added that the class teachers should take branch teachers' views about not only intelligences directly related with their fields, but also the other intelligences. She explained why she thought as follows

> … because the branch teachers can observe which intelligences the students' chose to use in their courses. For example, a music teacher might realize that a student comprehends musical notes more easily with the visual materials…. (PS1).

4.1.3.5 Strengths of Conducting Interview With Students

The data analysis indicated that the method of conducting interview with students had one strength.

Strength 1: Knowing Themselves Well

The analysis of the interview conducted with Dr. Armstrong showed that he gave importance to students' opinions about their strengths and weaknesses well. He stated that

> I believe a one-to-one interview with the student is also a very effective approach to assessment, because the student is respected for their knowledge of themselves, and because the student is likely to know a great deal about how they learn, as long as they have some degree of intrapersonal (reflective) intelligence. I sometimes have used my MI Pizza as a recording device while I interview a student - I make notes as we go around the circle of the intelligences, about what they feel about each intelligence, things they enjoy doing, have a hard time doing, etc. This document (the filled-in MI Pizza) often provides excellent data for planning in helping a child with their learning needs.

The following figure is Armstrong's MI Pizza.
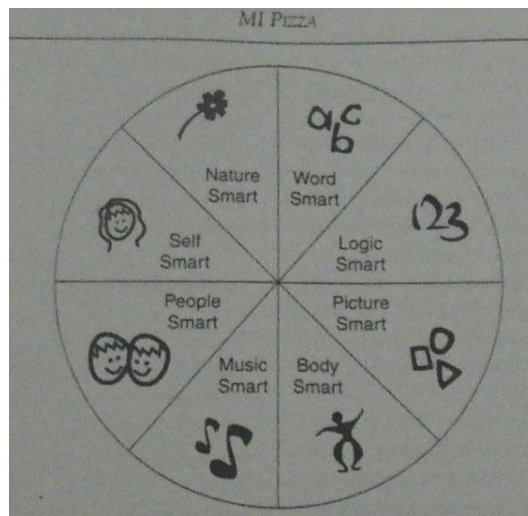
Figure 11 MI Pizza (Armstrong, 2000, p.33)

The researcher asked some of the teachers to think about the method and criticize it in terms of weaknesses and strengths. One of the teachers spoke about prospective strengths of the method as follows, "I am a 3rd grade teacher, so the method might be useful because my students actually have realistic views about their strengths and weaknesses…." (TB). One of the sociologists who participated in the study expressed the importance of what the student believed in terms of skills was magnified by the society in which the student lived. The sociologist SO2 explained the reason of her thought that "… Because the 1st, 2nd and 3rd graders may be affected by their society when answering the questions in the interview with the chart. If a teacher is sure that her students can be objective, the way will be used…."

4.1.3.6 Strengths of Analyzing Document

Two main strengths emerged from the data analysis of the study for the method of analyzing document.

Strength 1: Unobtrusive Method

Most of the teachers participating in the study stated document analysis as one of the methods to determine students' multiple intelligences profiles. The data analysis of the needs assessment phase showed that their meaning of document analysis was portfolio analysis. The data analysis also indicated that they thought the

strength of document analysis was that students did not notice the purpose of the teachers in terms of determining multiple intelligences profiles. They thought that if the students knew they were being assessed with this purpose, they would start to behave unrealistically.

Teacher TA stated that her students started to prepare new portfolios. She thought her students felt very free when preparing their homework and documents which were put in their portfolios, so they were not aware of her assessing purpose. Teacher TD said that

> If my students do not feel that they are assessed, I feel more comfortable and I think I will reach more accurate results of whatever I try to assess. This occurs also for multiple intelligences. Therefore, this aspect of portfolio assessment is a strength .....

Strength 2: Proof Evidence

The analysis of the data implied that one of the strengths of the method was being proof evidence for students' multiple intelligences profiles. The psychologist PS2 also supported the strength of document analysis. She stated that others especially parents, wanted to see evidence of their children's multiple intelligences profiles determined by the teachers. She added that document analysis was used as evidence. Moreover, the analysis of the informal conservational interview conducted with the sociologist SO2 indicated that the she defined the characteristic of being evidence of document analysis as one of the strengths.

4.1.3.7 Strength of the Using Multiple Methods

The data analysis indicated that using multiple methods together had one strength.

Strength: Most Reliable Determination

The data analysis of the needs assessment phase of the study showed that most of the participants suggested the method of using multiple methods together in order to determine students' multiple intelligences profiles. The results of the data analysis also indicated that the strength of the using multiple methods together was that the method resulted in the most correct information because multiple methods could

compensate for the deficiencies of each other and provided data triangulation. The analysis of the interview conducted with Dr. Armstrong via e-mail indicated that he emphasized the importance of using multiple methods as follows;

> I believe that the profile of a student's multiple intelligences can only be approximated via a range of assessment tools including and especially, seeing the student demonstrating the different intelligences in action.

Furthermore, Ms. Uysal said that "The most reliable method is to use various methods together such as observation, inventory, questionnaire, performance assessment etc." Moreover, the results of the data analysis showed that the experts including the child neurologist, psychiatrist, psychologists, and sociologists suggested the method of using multiple methods together. The sociologist SO1 participating in the study stated that "… using multiple methods enabled teachers to reach the most reliable result by completing deficiencies with each other and also multiple methods served as data triangulation." All the teachers stated more than one method when speaking about the methods they used in order to determine students' multiple intelligences profiles. Figure 12 summarizes the strengths of the existing methods.

4.1.4 Weaknesses of the Existing Methods

The data analysis indicated that the methods had some weaknesses. Each weakness of each method was explained in the following parts.

4.1.4.1 Weaknesses of Conducting Observation

Although the method of observation was stated by all the teachers and most of the other participants of the study, the analysis of the data gathered throughout the needs assessment phase of the study showed that the method of observation had some weaknesses in terms of determining 1st, 2nd and 3rd grade students' multiple intelligences profiles.
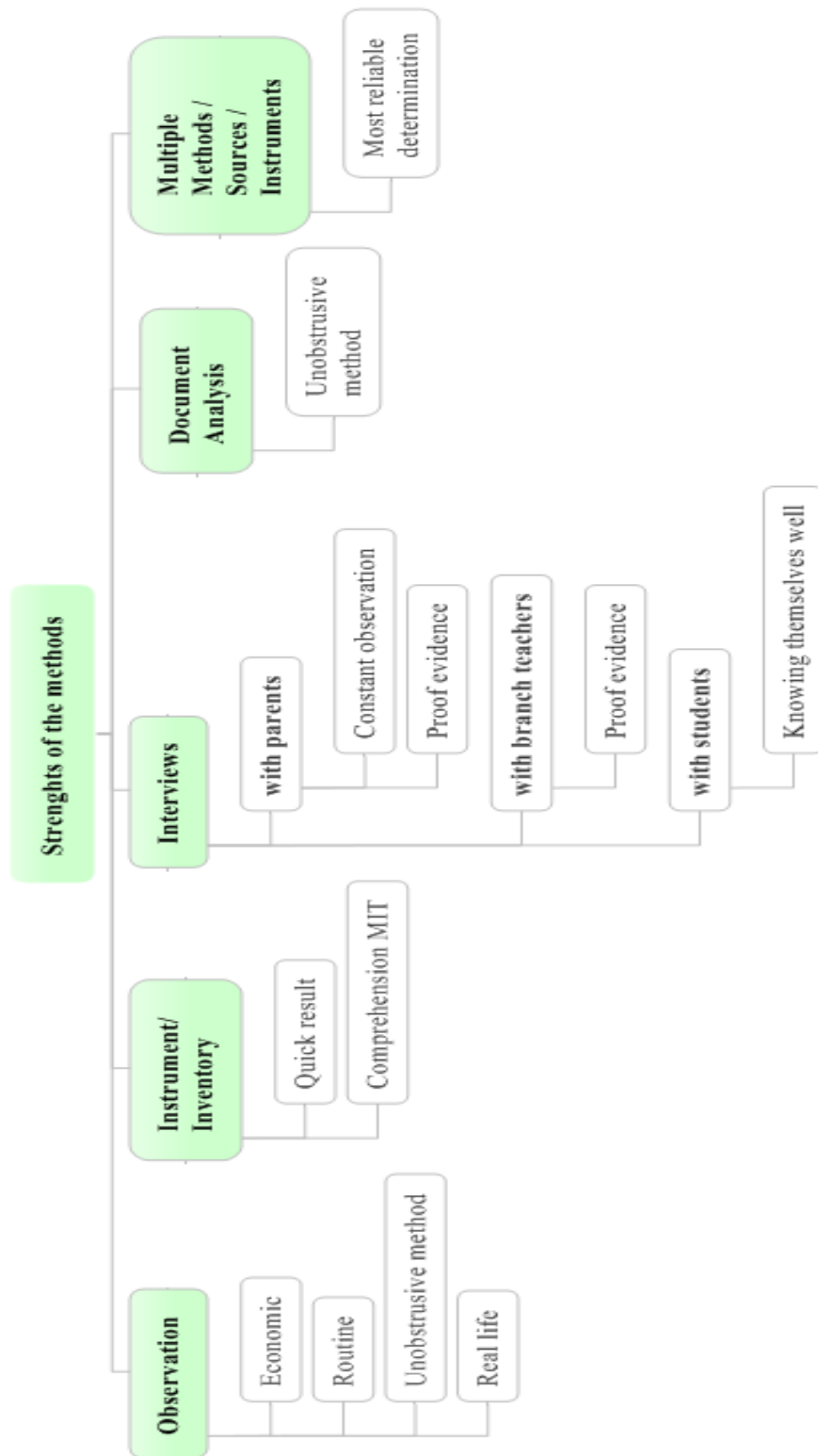
Figure 12 Strengths of the Existing Methods

Weakness 1: Process / Time

First of all, the data analysis of the interviews conducted with Dr. Teele via e-mail showed that she stated that observation was the best method; however, she added that it required more time, so it was not always possible. Moreover, the data analysis of the study showed that the weakness was also stated by the teachers especially by the 1st grade teachers. The following quotations belong to the 1st grade teachers.

> I know observation is an effective method and I use it; however, I need to use another method to determine my students' multiple intelligences because I cannot wait to take the results of the observation because of 1st grade (TA).

> One of the weaknesses of the observation is that there was no end state. Thus, I think 1st grade teachers use methods presenting quick results while continuing to observe their students .... (TE).

Furthermore, the data analysis of the study indicated that the teachers who stated the weakness were not only 1st grade teachers, but also other grade teachers. The teachers TB and TF expressed the weaknesses. The teacher TB stated that the teachers making observation with the purpose of determining students' multiple intelligences should be patient. He explained why the teachers should be patient as "… because observation does not present quick results about multiple intelligences …." TF said that she believed in the effectiveness of observation; however, she complained about its taking too much time.

Analysis of the interviews conducted with the experts showed that some of them expressed the weaknesses of the method "observation." The psychologist PS2 emphasized that teachers like all people wanted to reach the most effective and correct information in the least time. She defined it as "being economic." She also expressed that the tendency was normal. However, the tendency causes observation usage to decrease effectively and properly. The sociologist SO2 expressed that observation was an effective and powerful data gathering method not only for teachers, but also researchers including sociologists; however, it should be conducted properly and patiently; otherwise, it loses its effectiveness and other strengths. She added the following,

> Observation does not require any materials, your eyes are enough. However, observation is not a simple way. It is not only looking around with your eyes.

Actually, it has requirements like the other methods of research. Teachers should be careful to observe students properly and patiently. If teachers accept observation as looking around and they imply the activity as observation, there is a dangerous mistake. Observation is a lucky and routine way, so it is effective only if observation is conducted properly and patiently in depth.

Weakness 2: Focusing on Dominant Intelligences

One of the data gathering sources of the study was observation. The analysis of the observations showed that teachers conducted observation as a method of determining their students' dominant multiple intelligences and they were not interested in weak intelligences. They observed the students in terms of the signs of multiple intelligences to determine students' dominant intelligences. Moreover, the analysis indicated that teachers were not aware of that event.

Since there was no special time for teachers to conduct observation, the researcher observed the teachers whenever it was possible. Then if the researcher recognized observation, she took notes. The analysis of the notes showed that four of the six teachers shared their observation examples with the researcher, which were related with only the students' dominant intelligences. Generally, the teachers observed the students' choices on various instructional activities, courses, clubs, and show activities. Then the teachers tried to determine which students chose which activities. They believed that the choices of the students were an indicator of their dominant intelligences. The researcher asked the psychologists and the sociologists participating in the study to state their thoughts on the result related with the method "observation." They confirmed the result as a normal tendency for the teachers. The psychologist PS2 said,

> The focusing on the dominant intelligences as a result of observation is very normal. Most observers consciously or unconsciously tend to recognize the dominant things in the situations they observe. Moreover, individuals show their dominant abilities, skills more easily then their weak skills and abilities. Thus, the teachers see the dominant characteristics of their students at the first glance. However, the teachers should be aware of the normality and spend more energy to see the weaker intelligences of their students because all intelligences are equally important….

The sociologist SO2 stated that,

> The main problem is that the teachers do not know the meaning of observation. Observation is not looking around and detection of the explicit things and is more than the meaning. It is to be able to see visible and invisible things. It

requires energy and endeavor. Therefore, if the teachers want to use the method of observation to determine multiple intelligences, they should know the meaning of it and fulfill its requirements.

Weakness 3: No Route / No Record

The data analysis of the study revealed that one of the weaknesses of the method "observation" was not having a route and record procedure system. The sociologist SO2 explained observation as a method of gathering data and expressed that it should be conducted properly. She defined proper observation as follows,

> Proper observation is conducted with a route. The route can be an anecdote record, diary etc. for teachers. These techniques are necessary when observation is conducted because observation should be analyzed after it is conducted. If the teachers only observe their students and do not analyze the observation after finishing, they would not take its advantages. Therefore, the teachers should use at least one technique to record observation….

The analyses of the interview conducted with Dr. Armstrong showed that he suggested using of observation for teachers with the purpose of determining multiple intelligences. Also, he expressed the documentation was important for observation as follows, "… Teachers should also document their observations through teacher's diaries, photographs, recordings, CDs, and DVDs." Also, the psychologist PS3 emphasized recording observation notes. She stated that, "If teachers want to use observation effectively, they should take notes about observations they conduct."

The analysis of observation conducted by the researcher of the study implied that most of the teachers did not use any route or record their observations. Moreover, the data analysis of the study indicated that the lack of route and documentary was thought by the teachers as strength of the observation. The results implied that teachers liked observation because they did not use any material, route and they thought that observation did not require documentation and recording. However, two of the teachers indicated that they used recording by writing their observation notes and taking photographs and recording videos. Furthermore, the analysis of interviews implied that the teachers focused on their students' dominant multiple intelligences even if they recorded their observation.

4.1.4.2 Weaknesses of Using Inventories / Instruments

The data analysis indicated that there were seven main weaknesses for using inventories, instruments. The weaknesses were that using instruments was not enough to determine students' multiple intelligences profiles; not intelligence fair, created labeling, presented numerical results. Moreover the instruments developed were not taking cultural aspects into consideration. Furthermore, students gave dishonest answers and focused on dominant intelligences. Moreover, instruments did not have sufficient instruction.

Weakness 1: Not Enough

The data analysis of the study indicated that the method of using inventories / instruments was not enough to determine students' multiple intelligences profiles. Dr. Armstrong emphasized that

> I believe that the results of any multiple intelligences inventory should be viewed with caution and some skepticism, since a paper and pencil inventory can only give us a limited amount of information about the child's learning needs; it is one tool among many that we should use.

However, the analysis of the data gathered throughout the needs assessment phase of the study indicated that instruments including inventories were accepted by most of the teachers as evaluative material presenting quick scientific results without the skepticism expressed by Dr. Armstrong. The following excerpts taken from the informal conversational interviews with teachers are presented below. "I do not understand why I need to use another method to determine my students' multiple intelligences because the inventory was developed by doctors (PhD)" (TC). "I thought that the inventories presented not on the Web but in the books like Saban's book were perfect; however, Armstrong said that we should examine inventories with skepticism …." (TA).

The researcher also asked the teachers what the weaknesses of using inventories would be during the informal conversational interviews. The teachers including the ones who accepted the inventories as evaluative material thought that inventory was not enough to reach certain results about their students' multiple intelligences. "I used inventory but not only inventory, also observation, parent view, portfolio analysis" (TA). "I do not use inventory. I think that only inventory cannot

be used. Observation is also necessary…. I did not know an inventory presenting certain results….” (TB). “I think inventory should be used, but it should be used as one of the ways to determine multiple intelligences” (TD).

Analysis of Dr. Armstrong’s “Checklist for Assessing Students’ Multiple Intelligences” and Saban’s “Multiple Intelligences Domains Observation” by the teachers showed that most of the teachers realized that both developers presented the materials in their books about Multiple Intelligences. Moreover, the materials were presented by them in a chapter about determining multiple intelligences and the chapter included various methods including the materials. In this regard, the teacher TC expressed that the authors expressed various methods for determining the multiple intelligences and the checklist and observation form were among the methods. He concluded that “…Therefore, the inventories were not enough to determine students’ multiple intelligences for the authors and us, I think.”

Moreover, Teacher TB expressed that if the checklist and the observation form had been enough to determine students’ multiple intelligences, the developers of them would not have explained the other methods including observation, collecting documents etc. Furthermore, the teacher TF said,

> I do not understand why the scientists do not develop a valid and reliable method or methods formed and ordered. The developers developed the materials; however, they also say “use it” “also use it” etc. One of the weaknesses of the inventories is that the inventories cannot be used alone.

Weakness 2: Not Intelligence Fair

Gardner (1993) stressed that most testing instruments are biased towards two intelligences linguistic and logical mathematical. Gardner also proposed a solution to develop instruments that were intelligence-fair by activating all intelligences. The analysis of the existing instruments indicated that the Teele Inventory for Multiple Intelligences (TIMI), Dr. Armstrong’s Multiple Intelligences Inventory for Adults and Checklist for Assessing students’ multiple intelligences and the Multiple Intelligence Domains Inventory for Educators and Multiple Intelligences Domains Observation Form in Prof.Dr. Saban’s book “Multiple Intelligences Theory and Education” were not intelligence fair. The analysis indicated that the inventory and checklist developed by Armstrong and the inventory and the observation form

developed by Prof.Dr. Saban were mainly linguistic and the inventory developed by Teele was mainly visual.

Data analysis indicated a dilemma about the examinations of Armstrong's Checklist for Assessing Multiple Intelligences and Saban's Multiple Intelligences Domains Observation Form. The dilemma stated by most of the teachers was that the inventories were not intelligence fair. They mostly addressed the linguistic and logical intelligences. However, the analysis of their examination logs and interviews conducted with the teachers when the teachers were examining the materials indicated that they examined the materials as though the users of the materials were the students. After the analysis appeared, the researcher warned the teachers about the user of the materials. The teachers did not realize the point before the researcher's warning about examining the materials again.

After solving the dilemma, the researcher analyzed their examination logs and interview transcripts conducted when the teachers' were examining and applying the forms. The analysis showed the teachers stated the user of the materials was teachers. In this regard, they added that the activation and fairness in terms of students' multiple intelligences were not applicable. However, the data analysis showed that some of the teachers stated that their thoughts emerged from their examinations in terms of intelligence fairness in point of the users "teachers." In this regard, the teacher TB stated,

> The checklist and the observation form are verbal materials in terms of teachers. If an instrument should be intelligence – fair with regard to users, the checklist and the observation form are not proper materials because they require reading and marking…However, if here the focus is students, the materials could not be examined in terms of intelligence fairness for students.

After examining the instruments, the teacher TC said that Armstrong's and Saban's materials were not intelligence-fair because it activated the linguistic and logical intelligences of the users. Furthermore, the teacher TD expressed that Saban's and Armstrong's materials were not used by the students and the teachers made decisions about their students using the materials on the basis of their knowledge about them. She followed "In this regard, the teachers use their linguistic, logical, interpersonal and visual intelligences when completing the materials."

Moreover, the observation form used by the researcher when the instruments were being used by the teachers showed that there were similarities and differences

between the results that emerged from the examination logs and the observations. While the teachers were focusing on intelligence fairness with regard to the users "teachers" after the researcher's warning about the user, the researcher focused on the student aspect. The reason for the researcher's focus might result from dealing with solving the dilemma. The researcher focused on the students because she realized that the focus should be students after dealing with the dilemma and analysis of the results that emerged from the examination forms. In this regard, the analysis of the researcher's observation notes showed that Saban's observation form and Armstrong's checklist included items for all intelligences. However, the analysis showed that the items were problematic. The analysis indicated that the problem was related with the specification of the items. Actually, the developers had stated that reliability and validity issues and scientific development process of the instruments were not conducted.

The analysis of the observation notes indicated that the problematic items resulted in the negative effectiveness in their intelligence fairness aspect. Moreover, the analysis pointed out there was not balance among the items in terms of various aspects including (1) the items composing more than one intelligence equally, (2) the items starting with the words; enjoy, like and including interest, (3) the items almost all 1st, 2nd and 3rd grade children exhibit (4) others. In this regard, the items of the instruments were explained under these aspects.

(1) the items composing more than one intelligence equally

The analysis of the researcher's observation and examination notes indicated that the teachers faced difficulties to check some of the items of the checklist. A total of four teachers tried to use checklist for determining a few students' multiple intelligences profiles. Two of them knew English while the other two did not. Therefore, the researcher translated the items verbally to the teachers. All the teachers thought about some items for a long time, so the researcher examined the items. The examination showed that the items included more than one intelligence aspect. For example; one of the items belonging to linguistic intelligence was that "having a good memory for names, places, dates, or trivia", the examination of the item indicated that the places aspect might relate with visual spatial intelligence and the date aspect might relate with the logical mathematical intelligence.

The analysis also showed that there were some items composing more than one intelligence equally in the observation form presented in Saban's book. The teachers stated the items when completing the observation form by thinking aloud. The following excerpts were taken from the teachers' statements; when thinking about the item "has strong memory for names, places, and dates" for a student, the teacher TB stated "Actually, the item of linguistic intelligence includes not only linguistic characteristics, but also logical and spatial intelligence characteristic."

When thinking about the item of logical mathematical intelligence "finds interesting computer games," the teacher TD said that "The item cannot be related only with logical mathematical intelligence because today's children like computer games very much regardless of dominant logical mathematical intelligence."

(2) the items starting with the word; enjoy, like and including interest

The analysis of the researcher's observation and examination notes displayed that three of four teachers expressed the items including words "enjoy, like" resulted in some skepticism about whether the behaviors implicated the focus intelligence. The three teachers thought aloud when completing the checklist for determining some of their students. They said that whether enjoying, liking or being interested implicated intelligence or not. For example, two of the items which belonged to logical mathematical intelligence were enjoying playing chess, checkers, or other strategy games; liking to do experiments in science-related subjects.

When completing the checklist, one of the teachers thought aloud "…actually enjoying is different from doing well, I think. Also, I think the item could be playing chess, checkers or other strategy games well and successfully" (TC). When completing the checklist, for the item "loves to take things apart and put them back together again" one of the teachers stated the behavior related with enjoying originated from various reasons. The teacher also said "One of the reasons was that the item might originate from the student's wanting to take attention …." (TB). Moreover, the analysis indicated that not only the checklist, but also the observation form had the items focusing and including the words like, love, enjoy, interest. In this regard, the following excerpts were as follows,

Like the Armstrong's checklist, the observation form includes items related with loving, liking, enjoying. The item "like math course very much" is presented in the part of logical math intelligence. I do not believe that liking

math course is one of the signs indicating dominant logical mathematical intelligence (TC).

When thinking on the item "likes films, slides and other visual presentations" for one student, the teacher TE said "lets look at the item. How can I decide on the item for the student? I ask the question to myself because the student does not like them but he learns with visual presentations well. I can not understand why "liking"."

(3) the items almost all 1st, 2nd, and 3rd grade children enact

The researcher's observation and examination notes indicated that some of the items in the checklist included behaviors exhibited by almost all 1st, 2nd and 3rd grade children. The researcher took some notes when observing the implementation process of the teachers. The researcher took notes when the teachers thought aloud. In addition, the researcher noted statements the teachers made to the researcher. The following excerpts were taken from the observation notes.

> Some of the items included by some of the intelligences had things that are liked or shown by all children. For example, "likes to view movies, slides, or other visual presentations" is one of the items put for the spatial intelligence part. However, almost all children like to view movies, slides and other visual presentations. Another example was related with bodily kinesthetic intelligence part. The item "enjoys running, jumping, wrestling, or similar activities." This behavior is also enacted by all children (TB).

> Most of the items of bodily kinesthetic intelligence part were exhibited by almost my all students. For example, the item "moves, twitches, taps, or fidgets while seated for a long time in one spot." And the item "enjoys working with clay or other tactile experiences (e.g., finger-painting) (TE).

> I see the item related with math games for mathematical logical intelligence. However, the item also included phrase "computer games". I think all students like computer games. Computer games are not limited to logical mathematical intelligence (TD).

The analysis of the researcher's examination notes supported the teachers' thoughts. The analysis indicated that some of the items included behaviors exhibited by most of the 1st, 2nd and 3rd grade students. Data analysis of the study indicated that there were items criticized as too general in the observation form. In this regard, the teacher TF stated that "The characteristic is general for all children. Today's children speak fluently and have good pronunciation. I do not understand why the item is put

in the part of the linguistic intelligence." For the item "pronounce word appropriate to their age level accurately."

The teacher TB said "the item is very general because the 1st, 2nd and 3rd grade children like running, jumping and acting" for the item "likes running, jumping and such physical behavior very much" in the part of bodily kinesthetic intelligence.

Weakness 3: Labeling

The data analysis revealed that one of the weaknesses in relation with using instruments including inventories was labeling. The analysis of the interview conducted with Dr. Teele showed that she knew the risky point of inventories, so she expressed that she overcame the risk by using pictures in her inventory. She stated that

> I found the spatial inventory to be less risky because language was not involved. I think the labeling issue is a concern and encourage teachers to utilize my instrument as a pre and post assessment based on their teaching with methods that address all the intelligences.

Although the data analysis of the study showed that the instrument developers tried to overcome the risk of labeling students according to their instruments' results, teachers had a tendency to label the students according to the results obtained from the instruments. Furthermore, interestingly, they criticized their students' parents negatively because of their tendency towards labeling; however, they also had the tendency. The analysis of the answers the teachers stated to the questions in formal interviews showed that they were against labeling the students. However, the analysis of the informal conversational interviews and observations implied that some of the teachers participating in the study had a tendency to label their students in terms of inventory and checklist results. For example, the researcher's observation notes showed that the teacher TC expressed "The student (indicating her with index finger) is bodily kinesthetic; you can not see her when sitting down … TIMI also showed her bodily kinesthetic as dominant .…" Also, the analysis of the informal conversational interview showed that the teacher TF stated "I have two logical mathematical intelligence students; they have achieved logical thinking very well .…"

The data analysis indicated that psychologist PS3 and sociologist SO2 also expressed this weakness. The psychologist PS3 said that the method of using

inventories, checklist and observation had the risk of labeling. However, she also stated that the risk could be seen in any method attempting to determine multiple intelligences profiles. Furthermore, the sociologist SO2 emphasized that teachers could label their students according to the results obtained through any material including observation. The psychologist PS2 expressed that whether the inventory was visual or linguistic was not important for labeling. She said that,

> I do not agree with Teele's explanation about labeling and TIMI. She believed that TIMI minimized or did not have the risk of labeling because TIMI was a visual inventory. I think labeling is not related with visually, it is related with the user of the inventory. If the user wants to use labels, the user labels their students with the help of the inventory including TIMI….

Weakness 4: Cultural Difference

One of the origins giving inspiration to the current study was that there were no methods scientifically developed and taking the cultural aspect into consideration in Turkey. Therefore, one of the questions in the formal interview document prepared by the researcher for the participants of the study was related with the importance of the cultural aspect. The analysis of the answers to the question in the interview document showed that Dr. Armstrong agreed with the importance of the cultural aspect and emphasized the effects of culture determination process multiple intelligences. He stated that

> This is interesting given the chapter I've just written on cultural issues around MI; I think the idea of creating paper and pencil "tests" is a very western-European idea; other cultures determine competency in very different ways, especially through active demonstration of a competency (e.g. the old apprenticeship system, whereby the apprentice must make a boot, or table, or necklace, or spear, as well as the master).

Dr. Teele had thoughts opposite to Armstrong's about the possibility of an international way. For, Dr. Teele, the cultural aspect was very important; however, she stated that it was possible to determine multiple intelligences using an international method. She stated that

> … What I have focused on with my instrument being used in 35 countries is that there are both commonalities and differences in how individuals learn in different countries. The instrument is more difficult if it is linguistic as language interpretation becomes a variable.

Dr. Armstrong stated that

No, I don't believe there would be one international way to determine multiple intelligences; I think the "international way" would be to gather together assessment approaches from many different cultures, and use the best elements of each.

Although Dr. Armstrong' stressed the cultural aspect as inventory developer and expert, the analysis of the existing and mostly used instruments including inventories in Turkey showed that the inventories originated in foreign countries and so did not take cultural aspects of Turkey into consideration. The analysis of the observation conducted by the researcher when TIMI was applied to the students showed that the students had difficulties in understanding some pictures in TIMI. The result of the data analysis implied the importance of cultural differences. The TIMI's pictures, which the students had difficulties to understand or put different meanings on, were presented below.

The analysis of TIMI as a written document showed that the inventory did not include naturalistic intelligence. However, naturalistic intelligence was added by Gardner as an intelligence to multiple intelligences in 1997. Although, TIMI did not include naturalistic intelligence, five pictures of 56 pictures suggested naturalistic intelligences according to analysis of TIMI. The codes of the pictures were 6B, 13A, 20B, 23B, 24B. The pictures were presented below.

6B   13A   20B

23B   24A

The analysis of the observations conducted during the implementation of TIMI in the classrooms also supported the result. During the implementation of TIMI, the researcher and the teachers as implementers asked the children to express why they chose the picture or not. The children choosing the pictures explained why they had chosen the pictures, indicating reasons related with nature. For each picture students stated various reasons.

Furthermore, the analysis of the observation conducted by the researcher during the implementation of TIMI in the classrooms indicated that mostly 1st grade and 2nd grade students and some of 3rd grade students asked the question "Which bear should I think?" The pictures were 3B, 4A, 10B, 15A. The pictures were presented as follows.

3B

4A

10B
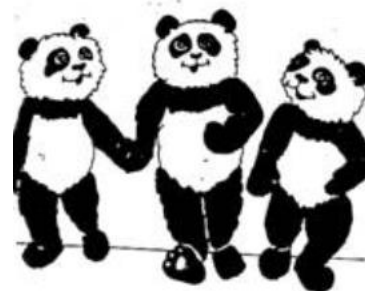
15A

Moreover, the analysis of the observation displayed that most of the 1st and 2nd grade students did not choose the picture 21B. The students stated a reason was that there was a depressing atmosphere in the picture. The picture was presented below.

21B

The data analysis of the study showed that all grade students put various meanings on the picture 24B. However, none of them was related with intrapersonal intelligence, but they were related with interpersonal intelligence. The picture was presented as follows,
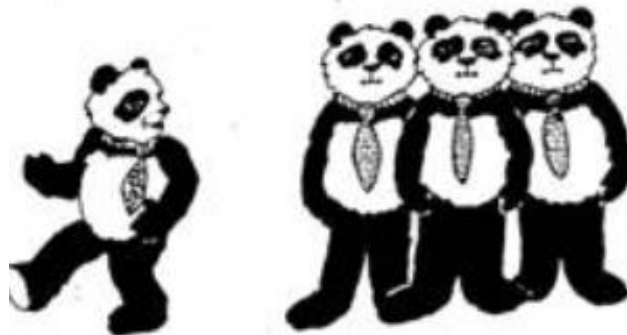
25B

The analysis showed that nine 1st, eight 2nd and twelve 3rd grade students said that the panda bears in picture 25B were playing a game. One of the 1st grade students stated that the panda bears were government employees and they were going to have lunch together in the lunch break. The researcher asked the psychiatrist

participating in the study to state what he thought about the result of the observation related with the students' confusion about the bears. The psychiatrist answered the question as follows

> I did not know TIMI before I met you. I have tried to understand TIMI while helping you. The pictures of TIMI seem to be exposed to various interpretations by the students. Your experience with the students about the picture also seems to be possible. If I were asked to interpret the picture 25B, I would not say any meaning related with intrapersonal intelligence as a priority, I think. The panda bears' expressions do not reflect the real meaning meant to be given by the developer….

The data analysis of the study showed that the picture 8A was criticized by one of 3rd grade students who stated that "I like reading and books; however, the panda bear sits on the books. The bear shows misbehavior, so I did not select the picture." Most of the students participating in the study asked the researcher to explain the pictures 11A, 12A, 12B, 18B because of English sentences integrated in the pictures. Some of them chose the pictures while some did not after the researcher's explanation. Although the students in the private school had learned English, their level of English was basic. Therefore, all needed the researcher's translation. The pictures were presented on next page.

Finally, the analysis of TIMI and observations showed that there were two pictures about which the students mostly asked the question "What is this? What does the panda bear do?" The pictures were 17B and 18B. The pictures were presented below.

17B   18B
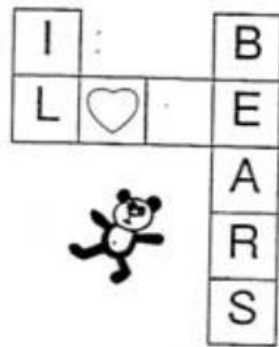
11A

18B

12A

12B

6

Weakness 5: Insufficient Instructions

The analysis of the data showed that teachers complained about the instructions of the instruments included in the current study. One of the inventories examined in the content of this study was TIMI. One of the teachers who had used TIMI before the study said that instruction of TIMI was English, so he did not understood it properly. He expressed that he had an English teacher translate it into Turkish, and then he could use it. However, he also said he did not like the instruction of the TIMI, especially the following part of the instruction.

> … We are going to look at some pictures of panda bears and see which pictures are the most like you." Turn to the first page and say: "See the four pictures on the first page" Indicate this by holding up page 1, 1A and 1B and 2A and 2B. Say "Look at the pictures on 1A and 1B. Think about which picture is most

like you Is 1A more like you or is 1B more like you? Select the picture that is most like you….

The data analysis indicated that the other teachers also criticized the questions asked students because of cultural aspect. The teachers expressed that their students did not accept the meaning of a panda bear most like a person. Therefore, the question was not international for the teachers. Furthermore, the observations conducted by the researcher indicated the same problem related with the question. All the class laughed when hearing the question. TIMI was one of the inventories used in Turkey. All the teachers participating in the study except the teacher TC did not use TIMI before the study. Therefore, the researcher asked the teachers to examine the instructions of TIMI. Most of the teachers found deficiencies in the instruction.

Firstly, the data analysis showed that the teachers criticized the language of the instruction of TIMI. They thought that if TIMI was an international inventory, the instruction of it should be in various languages. Teacher TB stated that he did not use TIMI; however, he emphasized he did not understand the instruction of the inventory because he did not know English. "I would not have understood the instruction if you had not explained it. I do not understand why the instruction is not in Turkish" (TF).

Ms. Uysal expressed that if the inventories and tests were adapted in Turkish in terms of language and cultural differences, there would not be a problem related with the aspects. Furthermore, one of the teachers explained that the meaning of instruction was not limited to the introduction page of an inventory. She criticized the instruction of TIMI totally and stressed that there were more than two pictures containing writing in English such as 11A, 12A, 12B, 18B. However, the analysis of the interview conducted with Dr. Teele showed that she said that "My instrument would work very well if it had not required language."

Moreover, the researcher asked the teachers to examine the inventory developed by Dr. Armstrong and published in his book. The analysis of the teachers' thoughts about the parent inventory implied that the teachers thought that the inventory could be completed by only parents who know MIT. "My parents help me whenever I need them. However, they do not know the multiple intelligences, so they could not complete the inventory properly" (TA). "Unfortunately, my parents do not know the theory. I prefer to use inventories or methods relying on me and my students for determining their multiple intelligences" (TB). "If teachers think that

their students' parents know MIT, the inventory might be applied to the parents; otherwise, the parents should read the whole book" (TC). "The parents of my students are well educated people. However, they do not like forms or inventories, so I think they will not be interested in the inventory…." (TF). Furthermore, the data analysis showed that the teacher TB and TC suggested that the researcher of the study should prepare a document for the parents. The document should give summary information about MIT and the dominant characteristics of the multiple intelligences. Data analysis of the study indicated that the teachers complained about the instructions of Armstrong's checklist for assessing students' multiple intelligences.

Not all the teachers used the checklist because of the English text. Only two of the teachers who participated in the study knew English and used it for their four students. The researcher observed them when completing the checklist for their students and took notes. Additionally, she translated the inventory informally and verbally for some of the other teachers and took their views about the checklist. The basis of the data analysis showed that the teachers thought that the instructions of the checklist was not enough to use it properly. In this regard, one of the teachers said

> I knew English, so I could understand the checklist. However, there are not instructions for its usage. In his book, where the checklist was presented, there were some explanations about its usage. However, they were not enough for me as a teacher. I think they are too superficial (TA).

> I think Armstrong presents the checklist as an example. Actually, he expresses it for informal use of the material. However, it might not be understood as in the example or material which does not have a reliability and validity check. Therefore, there should be a well prepared instruction of the checklist even if its function is given as an example (TC).

Furthermore, the analysis of the observation conducted by the researcher supported the teachers' thoughts. The analysis of the observation showed that the teachers tried to find a well prepared instruction and they were not satisfied with the explanations in the book.

Weakness 6: Dishonest Answering

The analysis of the data obtained for the instruments indicated that one of the weaknesses related with the instruments was that the instruments might not receive

honest answers from their users. The checklist for assessing students' multiple intelligences was developed by Dr. Armstrong in English. In this regard, the parents in Turkey could not understand and complete it. However, the analysis of the data showed that teachers thought that their students' parents did not give honest answers to such linguistic inventories. The teacher TB said that his students were 3rd grade and if their parents realized that an inventory was applied to them with the purpose of determining their students' strengths and weaknesses, they would not be honest.

Like the teacher TB, the teachers TE and TF believed that the parents would not be honest when completing such inventories. They thought that the parents would define their children in the way they wanted to see them. According to the analysis of the interview conducted with Ms. Uysal thought that "I think that individuals can give answers which do not reflect her/his individuality because of socially desirable answers." The data analysis revealed that the psychologist also agreed with her thoughts about socially desirable answers. However, she added that environment and culture were very important to determine whether socially desirable answers occurred or not.

Weakness 7: Numerical Results

Data analysis of the study indicated that one of the psychologists stated that most of the instruments presented numerical results. She added that this type of the results might be a weakness. She stated that the parents especially tended to see numerical results because they believed that numerical results had more demonstrativeness than the verbal ones. She also shared with the researcher one of her anecdotes as follows

> … I explained that her child's visual spatial intelligence and mathematical logical intelligences were dominant to the student's mother. She was not satisfied with my verbal explanations. Then, the father of the student came to the school and asked me to show numerical evidence for the student's dominant intelligences.…

The data analysis of the study showed that the sociologist SO1 agreed with the psychologists thoughts by saying

> The persuasiveness of numbers is a reality for our society. I have not made any research about this case. I can guess the numerical approach rooted in IQ

approach. Therefore, I think a method aimed at determining multiple intelligences should not present numerical result.

Analysis of the teachers' views and the researcher's observation notes indicated that Armstrong's and Saban's instruments presented numerical results. Saban explained that his observation form was not an intelligence test and could not be used for this purpose (2003). Moreover, analysis of the interview conducted with Dr. Armstrong showed that he emphasized that his inventory had the risks stated by Shearer (2005). The risks were not intelligence fair, confounding interests with skills, promoting labeling, causing superficial understanding of an individual and facilitating stereotyping of groups of individuals. In this regard, he said "… They are the reasons why I have not sought to use my checklists for any kind of serious evaluation, and have discouraged others from using my checklists in that way." Furthermore, Armstrong warned people, who used his inventory by saying that

> I didn't overcome the risky points - I have simply asked people who use my inventories (from my books) to use them responsibly, not to use them for any formal assessment process, and to use them primarily as an awareness tool to help people (including students) think about their multiple intelligences. I encourage people to use other MI tools as well to help students and others learn about their own MI (see my chapter on teaching students about MI theory, in my book Multiple Intelligences in the Classroom, 2nd ed.).

Although Dr. Armstrong and Prof.Dr. Saban warned people about their instruments, teachers had a tendency to focus on the numerical results.

4.1.4.3 Weaknesses of Conducting Interviews With Parents

The data analysis indicated that there were two main weaknesses for conducting interviews with parents. The weaknesses were that parents gave dishonest answers and focused on dominant intelligences.

Weakness 1: Dishonest Answering

Analysis of the data indicated that teachers did not prefer to interview the parents because they believed that their students' parents did not give real information about their children. Also, they thought that the reason for the parents' unrealistic views was that their view of an IQ approach was about intelligence. In

this regard, the parents have a general tendency to see their children's mathematical logical and linguistic intelligences as dominant.

The analysis of the interview conducted with Ms. Uysal showed that she agreed with this weakness. She stressed that "… Parents' opinions can be taken; however, it should not be forgotten that parents might give information about the child in their imagination not about their real children…."

Moreover, the data analysis showed that the psychologist PS2 stressed the same risk. She emphasized that parents loved their children and they had a tendency to see their children with the characteristics that were in their imagination, so they might not give realistic information. Also, she added that not all the parents had the same tendency.

Weakness 2: Focusing on Dominant Intelligences

The data analysis of the study showed that parents' focus on their children's dominant intelligences was another weakness of the method. Two teachers expressed that the teachers could get information from their students' parents, but only about the students' dominant intelligences. The teacher TC stated that

> When I was a 1st grade teacher two years ago, I realized that parents spoke about their children's strengths, but not their weaknesses. Also, they stopped giving information and examples which supported my opinions when I started to talk about their children's weaknesses. Therefore, teachers should take the risks of interviewing the parents into consideration when interviewing.

The analysis of the data showed that the psychologist PS3 also stated the same weakness about the interview with the parents. She stated that

> … Whenever I ask something related with their children's weaknesses, I can not get answers from the parents, but they explain lots of strengths about their children. I mean that parents have a tendency to see their children as perfect….

4.1.4.4 Weaknesses of Conducting Interviews With Branch Teachers

The analysis of the data showed that there were three main weaknesses for conducting interview with branch teachers. The weaknesses were that the branch teachers did not like the task, close interview and observation with students. In addition, branch teachers focused on extreme successes.

Weakness 1: Dislike the Task

The analyses of the data showed that the teachers complained about the branch teachers in terms of taking information from them. The teachers explained that the branch teachers did not like to spend time on elementary students. "I actually give importance to the branch teachers' opinions; however, I am afraid of asking them to do something because they do not like to be involved with the students at primary level.…" (TF).

The analysis of the informal conversational interviews indicated the same weakness. The teacher TB said that "Branch teachers! I do not want to make criticism about them because they do not deal with teachers and students at primary level.…" (TB). The psychologist PS2 and PS3 agreed with the result; however, they approached the weakness more positively than the teachers. The psychologist PS2 stated that, "The branch teachers do not like to complete forms or being interviewed because they are very busy with the work of activities including school activities and national bairam's activities." The psychologist PS3 said that

> The branch teachers mostly give course to the students not only at the primary level, but also at the 6th, 7th and 8th grades and high school level in a school. Therefore, they do not know the students like the class teachers. Thus, they do not give their opinions about the students especially the characteristics of the students.

Weakness 2: Not Close Interview and Observation With Students

The analysis of the interviews conducted with the teachers showed that they thought that branch teachers did not have opportunities to interview the students closely and observe them in detail like the classroom teachers. "I do not think branch teachers observe the students more effectively than classroom teachers.…" (TB). "Their thoughts could be taken into consideration, but it should not be forgotten that they do not have closer relationships with the students than us …." (TA).

The psychologists and the sociologists agreed with the weakness about the interview with the branch teachers. The psychologist PS2 stated that branch teachers were not close to the students like their class teachers, thus the information taken from the branch teachers might not be satisfying compared to that obtained from the class teachers. Moreover the psychologist PS3 expressed that branch teachers generally focused on their branch and the skills and abilities related with the branch

so they were not close to the students in terms of whole characteristics. In parallel with the psychologists, the sociologist SO1 thought that the analysis of the data obtained from branch teachers should be conducted with class teachers about their students because the 1st, 2nd and 3rd grade students were only well known by their parents and their class teachers.

Weakness 3: Focusing on Extreme Success

The analysis of the interviews made with the teachers indicated that their opinion about the weak points related with interviewing with branch teachers was that branch teachers focused on the students who showed extreme success in their course. In this regard, the teacher TE stated,

> The music teacher deals with the students who sing well; the physical education teacher know the students who are athletic; the art teacher likes the students who draw pictures very well! And so! I do not understand their contribution to my process of determining multiple intelligences of all my students. They can only help me with the students they know ….

The data analysis of the study showed that the weakness was also stated by the psychologists. They expressed that the result or weakness was very normal because branch teachers were experts in their branches, they were very busy because of schools' extra activities and they had lots of students.

4.1.4.5 Weaknesses of Conducting Interview With Students

The analysis of the data displayed that there were two main weaknesses for conducting interview with students. The weaknesses were that students presented superficial information and the method could create labeling.

Weakness 1: Superficial Information

One of the weaknesses of conducting interview with students was providing superficial information. The weakness was highlighted in the analysis of the interview conducted with the researcher participating in the study. She expressed that "Using only the technique of self assessment provides superficial information…."

Weakness 2: Labeling

The analysis of the data indicated that one of the weaknesses related with interviewing students was labeling. Three teachers and experts including one of the sociologists and one of the psychologists thought that if teachers interviewed with their students and shared the results of the interviews with the students, the students would label themselves and their friends.

Analysis of the informal interviews conducted with the teachers indicated that the teachers who did not state any weaknesses related with the interview with students during the formal interviews expressed that they worried about the risk of labeling. In this respect, the teacher TB said "I do not use the method because my students have a tendency to learn about not only their characteristics, but also their friends'. Then, they start to compare themselves with each other…."

Furthermore, the teacher TF expressed that if she interviewed students about their intelligences, they would try to explain to their parents what she did and then the parents would ask her lots of unnecessary questions. Because of this reason, she did not want to answer their questions. The data analysis indicated that one psychologist and one sociologist stated the weakness. However, they also expressed that the risk should not be an obstacle for teachers to use the method.

> … Children have a tendency to learn about others especially about their friends. However, the teachers can explain the theory and then share the results with the students. I think the students can comprehend the theory well if it is explained at their level of understanding…. (PS3).

> I think the students may label each other in terms of multiple intelligences because they are the product of the society in which they were born and have grown up. If their parents have the tendency to label them, they will show the behavior towards each other. However, the risk can be overcome with the teachers' explanations that the teachers should not label the students or show any tendency to label them (SO1).

4.1.4.6 Weaknesses of Analyzing Document

The analysis of the data showed that there were three weaknesses related with document analysis namely; lacking route of conducting document analysis, using only portfolios for document analysis and focusing on dominant intelligences.

Weakness 1: Lack of Route

The analysis of the informal interview conducted with the psychologist PS1 indicated that teachers should have a route determined and developed by the experts for how to conduct a document analysis with the purpose of determining multiple intelligences. The analysis of the observation conducted by the researcher showed that the teachers did not have any such routes and also they did not need to have any routine because they only used portfolios.

In the informal interviews conducted with the teachers, they expressed that they did not have any routes. "I do not use any criteria or rubric when assessing the portfolios in terms of multiple intelligences.…" (TC). "I examine portfolios by getting the general feel of them. Each portfolio has a certain feel in terms of multiple intelligences…." (TE).

Weakness 2: Using Only Portfolio

The analysis of the data indicated that the teachers examined and used their students' portfolios as document analysis with the purpose of determining multiple intelligences profiles. The informal conversational interviews conducted with the teachers implied that they did not think about various documents as written documents. "I analyzed written documents. I examine the students' portfolios including lots of written documents.…" (TA). "I also examine portfolios to determine multiple intelligences of the students. I think the examination is written document analysis." (TD).

Weakness 3: Focusing on Dominant Intelligences

The analysis of observations showed that the teachers examined only portfolios as document analysis and focused on their students' best products prepared and made using their dominant intelligences.

4.1.4.7 Weaknesses of Using Multiple Methods Together

The analysis of the data showed that there were two main weaknesses for the method of using multiple methods together. The weaknesses were that the method required too much time and it did not have a route.

Weakness 1: Required too Much Time

The analysis of the data indicated that all the teachers participating in the study stated more than one method to determine students' multiple intelligences profiles. The analysis also showed that the teachers could not use all the methods stated in the study together though they emphasized the importance of using multiple methods together. The data analysis implied that the reason of not using multiple methods together was that it required too much time and also the method was the most difficult one to be actualized by the teachers. Furthermore, analysis of the informal conversational interviews conducted with the teachers displayed that they complained about the method because of requiring too much time. Teacher TA stated,

> I am a 1st grade teacher and have lots of responsibilities. I sometimes get my parents' help in the classroom. I want to determine my students' multiple intelligences profile and I know the best method is using multiple sources. However, I cannot find enough time for all methods in my mind….

Like the teacher TA, teachers TB, TD and teacher TF stated the same weakness for the method. "The method of using multiple sources together needs too much time" (TB). "I want to use all the sources, but I do not have enough time to use them all together. I think I will not use all them properly because I will not have enough time like the class teacher" (TF).

> I have tried to use multiple sources together because of 2nd grade. I mean that I did not use all the methods together when I was teaching at the 1st grade. Now, my load is lighter, so I can use what I know to use for determining the multiple intelligences of the students (TD).

The data analysis showed that the psychologists participating in the study expressed that the weakness might be meaningful; however, it was the best way for determining students' multiple intelligences. Furthermore, the psychologist PS2 added that the weakness was very normal and minimal for the best method.

Weakness 2: Lacking a Route

Another weakness related with the method was lacking a route. The psychologist PS1 emphasized that there should be a route for each method of

determining multiple intelligences profiles of the students including the method of using multiple sources/instruments/methods. She added that

> … because if the teachers who stated a necessity of too much time as the weakness of using multiple sources together had a route, they would not complain about the method. Thus, I think the real weakness of the method is lacking a route.…

The analysis of the informal conversational interviews conducted with the teachers supported the weakness expressed by the psychologist that teachers needed a route for the multiple sources. Most of them stated that they could not conduct all the sources together. The analysis indicated that the teachers thought that all the methods should be used at the same time; however, the meaning of using multiple sources was gathering data from various sources with the same purpose. The researcher realized the misunderstanding of the teachers and explained the meaning of the method, then asked them to think about the method again. After thinking about the method, the teacher TF stated that she thought the method was useable however she needed a map explaining when and how she should start to use them properly.

4.1.5 Suggestions for the Methods

The data analysis of the study showed that there were suggestions given for each method by the participants of the study. The analysis showed that the method of *observation* should

a) be easy to conduct,
b) have route including observation checklist or guidance sheet defining sample behaviors or reactions would be possible to be observed in school and out of school,
c) present understandable instruction for implementers,
d) be economic in terms of material and time as much as possible,
e) be research-based,
f) not create labeling,
g) not present numerical result,
h) present understandable results for shareholders including teachers, students, parents,

i) take the cultural aspects into consideration,

j) be conducted that the students would not being noticed,

k) focus not only on dominant intelligences but also on weak intelligences,

l) help to comprehend MIT,

m) be recorded by various ways including teacher's diary, photo, CDs, DVDs etc.,

n) be conducted when students involving real life activities,

o) include students' reactions, behaviors in courses like drawing, singing song etc.,

The data analysis displayed that the method of *interview with parents* should

a) present understandable instruction for implementers,

b) focus on students' out of school activities and behaviors,

c) have route including interview questions, recording materials and all details about the interview process,

d) have interview questions about not only strengths but also weaknesses of the students in terms of multiple intelligences,

e) be easy to conduct,

f) have instruction which is understandable for teachers, parents,

g) have route which is valid,

h) have instruction part in order to inform parents about Multiple Intelligences Theory,

i) make parents to be objective about their children's strengths and weaknesses,

j) not create labeling,

k) not present numerical result,

l) take the cultural aspects into consideration,

m) not include Internet versions**,**

n) use the word "skill or ability" rather than "intelligence"

o) present quick results

The analysis of the related data indicated that the method of *interview with branch teachers* should

 a) not be conducted face to face,

 b) have route which is easy to conduct,

 c) have route which is a sheet,

d) have route which is accessed easily,

e) include not boring and short questions focusing on not only strengths but also weaknesses of the students in terms of multiple intelligences,

f) have route including all details about the interview process,

g) have interview questions which could be asked for all branch teachers,

h) be process approach,

i) present understandable instruction for implementers including all shareholder including class teachers, branch teachers etc.

The analysis of the related data indicated that the method of *interview with students* should

a) have route which is easy to conduct,

b) have route which is understandable,

c) have route including all details about the interview process,

d) have understandable interview questions for students,

e) not create labeling,

f) not be boring for children.

The analysis of the related data indicated that the method of *inventory* should

a) be easily conducted,

b) be accessed easily,

c) present understandable instruction for implementers including all shareholder including class teachers, students, branch teachers etc.,

d) not be based only on paper and pencil,

e) have practical usage,

f) not create labeling,

g) focus not only on dominant intelligences but also on weak intelligences,

h) not present numerical result,

i) present understandable results for shareholders including teachers, students, parents,

j) take the cultural aspects into consideration,

k) have spatial visual aspect,

l) present quick results,

m) be enough to determine multiple intelligences as much as possible,

n) be intelligence fair as much as possible,

o) be conducted that students would not being noticed,

p) include Turkish characters like Keloğlan, Hacivat Karagöz,

q) include colors determined carefully,

r) be prepared by considering gender difference,

The analysis of the related data indicated that the method of *using multiple methods together* should

a) put all effective and efficient ways to determine Turkish children's multiple intelligences together in a form that could be used by other teachers and practitioners,

b) have route which is easy to conduct,

c) have route which is accessed easily,

d) have route which is understandable,

e) be used with a guidance including information about intelligence and MIT and instruction of how the multiple sources are used with together in which order, and how assessment process would be conducted etc.,

f) not create labeling,

g) not present numerical results,

h) take the cultural aspects into consideration,

i) not be boring for implementers including all shareholder including class teachers, students, branch teachers etc.,

j) not use the word "intelligence,"

k) help to comprehend MIT,

l) provide data triangulation and also complete the weaknesses of each other when strengthen the results of each other,

m) have an order, for example, firstly inventory will be used then observation and then others will be used,

n) not include the method of interview with branch teachers,

o) not include the method of interview with parents,

p) take gender difference into consideration,

q) include a in service training,

r) include too many forms to be completed by only teachers,

s) not include inventories taken from the Internet.

The analysis of the related data indicated that the method of *analyzing document* should

a) be easily conducted,

b) have route including criteria about the analysis,

c) include not only portfolio but also students' notebooks, individual dossiers, diaries,

d) be conducted such that the students would not notice.

4.2 Results of Program Design Phase

After the purposes and the methods of the program were determined, the fourth point probe focused on the characteristic of proposed program in relation to the content and materials in order to determine the 1st, 2nd and 3rd grade students' multiple intelligences profiles. The phase was the program design phase and Figure 13 displayed details about it.

4.2.1 1st, 2nd and 3rd Grade Students' General Characteristics

For determining the content and the frame of the methods, the data about the 1st, 2nd and 3rd grade students' interests and general activities were gathered under the following umbrella items;

The school activities they most like to do

The courses they most like / they are most successful at

The learning activities with which they learned most

The assignments they most like / they are most successful at

The home-based activities they most like to do

The games they most like to play

TV cartoons they most like

The readings they most like to read

The out of house and school activities they most like to do

The environment they most like to spend time

The colors they most like

The geometric shapes they most like

The occupation they most like to have in their future

The interests and frames

Characteristics of multiple intelligences

Visual Aspects

The 1st, 2nd, 3rd graders' general characteristics

The 1st, 2nd, 3rd grade focus group students' characteristics

Four materials

Film Inventory

Story Inventory

Parent Questionnaire

Performance Assessment

Results

Observation Form

Opinion Form

Observations

Taking Experts' and Teachers' Opinion

Informal Conversational Interviews

Data Collection Methods, Sources and Instruments

Program Design Phase

Probe

Participants

What should the characteristics of proposed program be in relation to the content and materials to determine the 1st, 2nd, 3rd grade students' multiple intelligences profiles?

Schools

Experts

Emin Sağlamer Public Elementary School

Gazi University Foundation Private Elementary School

Psychology

Sociology

Figure 13 Summary of the Program Design Phase

4.2.1.1 The School Activities the 1st, 2nd and 3rd Grade Students Most Like to do

The analysis of the data gathered through the questionnaires applied to the students and the informal conversational interviews with the teachers and the experts showed that the school activities the 1st, 2nd and 3rd grade students most like were school club activities, school shows, games and gifting activities. The answers can be examined in terms of gender, grade and school type in the table displayed in Appendix X.

The analysis of the students' answers showed that most of the students liked to participate in school club activities. For example, student sts11r2 stated that "I like participating in the activities prepared by the school club of which I am a member most because we play lots of games in our school art club." Moreover, the data analysis revealed that the students stated the school clubs were art club, music club, library club, chess club and sports club.

The data analysis of the students' answers revealed that 31 students indicated that school show activities were the ones they liked most. For example, one of the students stated "I like preparing activities for school shows" (sts8b3) and another student's answer was that "I like to participate in all activities actualized during school special days" (sts8r2).

The analysis of the students' answers to the question related with the school activities indicated that the third category was gifting and the fourth one was games. Additionally, the students also gave answers inconsistent with the previous categories; their answers were themed and stated under the category "others". Furthermore, some of the students left some answers blank.

After constituting the table (see Appendix X), the researcher asked some of the participant teachers to express their opinions on the implications of the table. Most of the teachers agreed with the results shown by the table. Two teachers from the private school expressed their opinions. One of them stated that the answers totally reflected the reality. The other teacher stated "We do not organize reading bairams for the 1st graders. As you see, the table tells us that the 1st graders do not give answers related with reading bairams. I think the table is appropriately factual." Furthermore, two teachers from the public school stated their opinions on the table. One of them expressed that the table showed the average answers which could be given by all 1st, 2nd and 3rd grade students. He also continued that some of the

answers were specialized according to grades or gender; however, that was normal such as reading bairams stated by 1st graders, hopscotch stated by girls or football expressed by boys.

The researcher asked the teachers to interpret why the category "school clubs activities" was stated most by the students and the answer to the question "Do the school clubs really work?" The private school teachers emphasized that their students were the students of a private school and the school club activities worked well with the students' interests and the teachers' efforts. On the other hand, one of the teachers from the public school interpreted the result differently. He stated that

> The activities "art, sport, music, chess etc." are liked by the 1st, 2nd and 3rd grade students. If you as a teacher provide the students opportunities to actualize the activities under the title "club", they will call it "club". If the students actualize the activities in the class or school garden, they will say class activities or school garden activities as an answer (TB).

The researcher took the view of one of the psychologists participating in the study and worked as school counselor. The psychologist's answer was congruent with the teacher TB's view. She emphasized that the themes indicated the ordinary activities liked by the 1st, 2nd and 3rd grade students and they do them in the school clubs.

4.2.1.2 The Courses the 1st, 2nd and 3rd Grade Students Like Most / the 1st, 2nd and 3rd Grade Students Most Successful at

The data were gathered through open-ended questionnaires applied to the students and the parents. Informal conversational interviews were conducted with the participants of the study. The analysis of the students' answers showed that most of students stated "Turkish" as their most liked course. Also, the order of the courses from the most stated to least stated were psychical education, visual arts, mathematics, computer education, foreign language, music and life science (see Appendix Y). The course the students liked most was also sought via open-ended questionnaire applied to the parents. Interestingly, the analysis of the parents' answers to the question related with the courses indicated that the courses the parents expressed were different from the courses their children stated.

The data analysis implied that most of the parents saw the courses mathematics as their children's most liked course. The order of the courses according to the number of the parents was as follows; Mathematics, Psychical Education, Turkish, Visual Arts, Life Science, Music, Computer, Drama and Foreign Language (see Appendix Z).

The researcher conducted informal conversational interview with the teachers on the results presented above. Four teachers thought the results were normal. They thought that the students' answers were more realistic than the parents' answers. The teacher TA stated

I am not surprised with the results. Most of the parents give importance to mathematics and they want their children's success in the course so they believe their children are successful at the course.

The teacher TE's response was congruent with the teacher TA. The teacher TE said "The parents do not learn to see their children with realistic eyes. They emphasize math and success at math. Therefore, I believe the students' answers are realistic." The teacher TE stated "Parents, oooh parents. They see their children as they want to see them. Therefore, please be sure the students always are more honest than their mothers and fathers."

Other teachers expressed the course "Turkish" was more enjoyable because of its content. They stated that the content of the course provided opportunities for the teachers to plan and imply enjoyable, active, visual, auditory activities. Moreover, they said the course might be stated by the students because of the reasons. One of them interpreted "I think, I am sure why the 1st grade stated the course Turkish as the most liked course. The reason is the 1st grade's focus course is "Turkish" and their other courses are organized around it." Furthermore, most of the students' explanations about why they stated Turkish as their most liked course were similar with the teachers' views. For example; "I liked Turkish because we frequently characterize the stories that we read" (sts14b3). "Turkish because we frequently play in the courses" (sts6b2). They said the course might be stated by the students because of the reasons. One of them interpreted "I think, I am sure why the 1st grade stated the course Turkish as the most liked course. The reason is the 1st grade's focus course is "Turkish" and their other courses are organized around it."

Moreover, the school counselors stated the students liked active courses. The counselors expressed that the courses should be seen as active courses by the students. Furthermore, the students' responses were congruent with the psychologists' view. The following excerpts were taken from the interviews conducted with the students. The student sts15r3 emphasized the active aspect when expressing his favorite course "I liked the course "physical education" because we can jump, run and exercise." The student sts4b1 emphasized the play aspect by saying "Life Science because I can play in the course." The student sts9b3stated that "Music because we can both listen to music and dance." The student sts5b3 expressed that "Art because we can draw and sometimes make small dramas before drawing." The student sts1b1 said "Math because we learn numbers joyfully." The student sts17b1 said "I liked the course Math because I can move when counting."

4.2.1.3 The Learning Activities With Which the 1st, 2nd and 3rd Grade Students Learn Most

The analysis of the open-ended questionnaire applied to the students indicated that there were various learning activities in which the students learned most. The data analysis provided nine categories on the basis of the themes emerging from the students' answers (see Appendix AA). The categories were (1) playful activities, (2) visual spatial activities, (3) verbal linguistic activities, (4) interpersonal activities, (5) bodily kinesthetic activities, (6) logical mathematical activities, (7) musical activities, (8) intrapersonal activities, (9) naturalistic activities.

The researcher conducted informal conversational interviews with some of the students in terms of the reasons for their statements. The majority of the students interviewed expressed that they learned with the learning activities well but they did not know or think about why they learned well with the activities. For example, the student sts2b2 said that "I learn well with group activities. I do not know why." The student sts9r1 expressed "I learn well with games. I do not know why." The student sts5r1 stated "I like myself and I learned well on my own. I do not know why."

The learning activities with which the 1st, 2nd and 3rd grade students learned well were searched through an open-ended parent questionnaire. The analysis of the data showed that the parents' answers were parallel with the answers of the students. The researcher asked the school counselors to express their views on the results.

They expressed that the results of the data analysis indicated the parents were knowledgeable about the learning activities with which their children learned well. One of them explained as follows,

> ... because the parents do not have any prejudgment about the learning activities although they have prejudgment about the courses. They think all learning activities are good just as long as their children learn" (PS3).

The researcher also conducted informal conversational interviews with the teachers. The analysis of the interviews indicated that the teachers' thoughts and interpretations were similar to the school counselors' views on the results. One of the teachers stated "Most parents touch learning activities positively. They are open to accept new learning activities because they believe new learning activities enable their children to learn best." Another teacher stated "You can easily recognize the parents' optimist answers, views on the learning activities. On the other hand, they give net answers to the questions about the courses which their children are successful at or like."

Furthermore, the psychologist PS2 emphasized the usefulness of the data with the purpose of developing materials because of categories. The psychologist PS2 stated,

> I think you can use all the learning activities when developing instruments or materials. The categories were very nice for the study. They can be matched with the intelligences. Thus, the results give the information for the characteristics of the intelligences in terms of the learning activities.

Like the psychologist PS2, the teacher TE stressed the usefulness of the data. The teacher TE stated,

> It is very important to see conformity between students' and parents' answers in terms of learning activities. You can use "learning activities" when developing a material aimed at gathering data from parents. Fortunately, they are honest to answer the questions related with learning activities. Therefore, the numbers are not important for data related with learning activities.

The table displayed in Appendix AA presented the themes and the categories emerging from the data analysis.

4.2.1.4 The Assignments the 1st, 2nd and 3rd Grade Students Most Like / the 1st, 2nd and 3rd Grade Students Were Most Successful at

According to the data analysis, there were eight categories namely; (1) verbal linguistic, (2) mathematical logical, (3) intrapersonal, (4) interpersonal, (5) bodily kinesthetic, (6) musical rhythmical, (7) naturalistic, (8) visual spatial. It was clear the categories were the names of the intelligences.

The data analysis indicated that there was parallelism between the parents' and the students' statements in terms of the assignments the students most like / were most successful at. In this regard, the researcher discussed the result with the participant teachers and the participant psychologists. The data analysis revealed that most of the teachers thought that the parallelism was not a coincidence because the parents observed their students' assignments because of the requirements of new curricula. For example, the teacher TD stated "…the new curricula especially require parent participation in the students' assignment process. Thus, the requirement enables the parents to observe their students' reactions to both learning activities and assignments." Teacher TB said

> Most of the parents are not interested in their children's assignments. The new curricula also support their interests because the curricula let the parents participate in the learning-teaching process. In this regard, the parents' answers can be taken into consideration in terms of assignments.

Two teachers expressed that they were not sure whether the parallelism was a coincidence or not. They explained that they thought that most of their parents were not knowledgeable about their children's characteristics. However, they stated that the new curricula had an effect on various aspects of schooling including the parent aspect. They added that because of this reason the parents might become conscious about their children's school life and so the results would be real.

Furthermore, the data analysis presented that the psychologists stated that the parallelism was normal. Especially the school counselor explained that parents tended to explain what they wanted to see when answering any question related with the courses; math and linguistics otherwise they objectively stated their observations related to assignments. The following excerpts were taken from the interviews with psychologists. "If the topic discussed with them is mathematics, language, science

and technology, the parents frequently will tend to state what they want to see. Otherwise, the parents frequently give honest answers" (PS3). The psychologist PS2 expressed that

> I think their sensitive point was math and Turkish naturally. In this regard, if a teacher or researcher wants to take information from parents, he or she does not directly ask them about intelligence and courses. However, s/he can ask about learning activities, assignments, I think on the basis of the results.

The table displayed in Appendix AB presented the categories and themes in terms of "assignments" on the basis of the students' answers.

4.1.2.5 The Home-Based Activities the 1st, 2nd and 3rd Grade Students Most Like to do

One of the questions included in the open-ended questionnaires applied to the students and the parents was related with "home-based activities". The question asked about the home-based activities the students most liked to do." The analysis of the students' answers produced five categories namely; (1) playing, (2) naturalistic activities, (3) watching TV, (4) playing musical instruments, (5) reading (see Appendix AC).

The analysis of the students' answers to the question showed that the most of the 1st, 2nd and 3rd grade students liked watching TV at home. Secondly, the students stated playing games. Then, the students stated reading as a liked activity actualized at home. Seven students stated naturalistic activities and six students stated playing musical instruments at home as their most liked activity. The table displayed in Appendix AC presented the themes and the categories emerging from the students' answers in terms of grade, gender and school type.

The researcher asked two of the psychologists, one of the sociologists and four teachers to examine the results and express their views. The analysis of their views showed that the one of the psychologists expressed that she became happy when seeing that the table included categories except watching TV. The psychologist thought that almost all 1st, 2nd and 3rd grade children watched TV most of their time at home. However, she explained the reason for the emergence of the other categories as follows;

The questionnaire asked the students to write one home-based activity which they most like to do. Thus, some of them did not write TV otherwise all the students wrote TV. Although watching TV is an activity actualized by all students at home, some of them stated activities different from it as their most liked home activities. It was a good and realistic result because of writing one activity (PS1).

The data analysis indicated that the other psychologist PS2's view was similar to psychologist PS1. The psychologist PS2 emphasized that the open-ended questionnaire asked the students to write only one thing for each question so they had to think about their answers before writing and wrote the real answer. Furthermore, the psychologist PS2 stated that the table implied what she expected from the students' answers for such a question. Moreover, she stated that the researcher conducted the open-ended questionnaire to collect data about the 1st, 2nd and 3rd graders' characteristics and multiple intelligences characteristics, the researcher developed a material on the basis of categories except multiple intelligences. She explained why she thought like that as follows;

… because if analysis of any data produced multiple intelligences, it meant that there were things which could be separated according to multiple intelligences. However, if the categories say another thing, the researcher should focus on them in terms of deciding the frames of any material which the researcher will develop. Therefore, the current results, for me, indicated watching, reading and playing are key words. You can develop material which can be watched, read or played (PS2).

The sociologist SO1 expressed views like psychologist PS2. The SO1 stated,

I agree with the results as a mother. My child most likes to watch TV, films and secondly she likes to play games. Also I can observe the results in my environment. I can say the children like TV because most of them find what they want to find. Therefore, you can develop a material on the basis of TV or films.

Moreover, four participant teachers examined the results and all of them stated that the 1st, 2nd and 3rd grade students liked to watch TV. Moreover, the researcher asked the teachers what they thought about a material like a film for the program. The analysis of the teachers' thoughts showed that they thought developing such a material was a good idea. For example, the teacher TC said "I think the idea is right.

Actually, the right idea is implied by the results." The teacher TE expressed that "I think it is good idea because the students like to deal with one of the things they like to do." The teacher TB said "Yes, I agree with the idea, it might be nice, very nice." The teacher TD stated that "I will propose such things on the basis of the reality "the children like watching TV, films." It can be a most useful material. Also, you can use cartoons."

The analysis of the parents answers related with the home-based activities indicated that the parents mostly stated watching TV as their children's most liked home-based activities. Secondly, they expressed computer games. Thirdly, they said reading as a home-based activity actualized by their children at home. Also, three parents expressed that their children liked to deal with plants and pets at home.

4.1.2.6 The Games the 1st, 2nd and 3rd Grade Students Most Like to Play

Another thing examined through open-ended questionnaires applied to students and parents was "the games they most like to play." The analysis of the students' answers to the questions related with the games presented seven categories namely; (1) verbal linguistic games, (2) logical mathematical games, (3) visual spatial games, (4) bodily kinesthetic games, (5) intrapersonal games, (6) interpersonal games, (7) computer games. The analysis of the parents' answers to the questions produced the same categories and one more category. The category was outdoor play.

According to the results, the order from the most stated to the least stated answers of the students was as follows; bodily kinesthetic games, logical mathematical games, verbal linguistic games, computer games, visual spatial games, interpersonal games and intrapersonal games. The table in Appendix AD presented the results about the games.

When we looked at the analysis of the parents' answers, the order changed but the themes included the categories were approximately the same. The order of the answers from most stated to the least stated were as follows; bodily kinesthetic games, interpersonal games, computer games, verbal linguistic games, visual spatial games, logical mathematical games, intrapersonal games and outdoor games.

The researcher asked five teachers, the sociologists and one of the psychologists to examine the results and interpret them. The data analysis showed that all the teachers expressed that the 1st, 2nd and 3rd grade students liked to play

games. Moreover, they stated that actually all the games were liked by the students because the students were at the game stage of their lives.

The analysis of the data showed that one sociologist and three psychologists expressed that 1st, 2nd and 3rd grade students liked to play games. They expressed that the differences between the order of the categories on the basis of the parents' and students' answers was normal. They explained that there were lots of games in the game repertoire of the parents and students so the difference resulted from this point.

4.1.2.7 TV Cartoons the 1st, 2nd and 3rd Grade Students Most Like to Watch

The cartoons the students' most liked were researched through an open – ended questionnaire applied to the students. Moreover, the researcher asked the participant teachers and the experts to express their views on the results obtained from the analysis of the students' answers. The analysis of the students' answers to the question related with the cartoon the students most like showed that there were various cartoons the students said they liked. Naturally some of the cartoons were frequently stated and some of them rarely were stated by the students.

The cartoons were namely; Smurfs, Winx, Scooby Doo, Bratz, Winnie the Pooh, Kids Next Door, The Flintstones, Rugrats, Cedric, Dora, Tom and Jerry, Spiderman, Casper, Hey Arnold, Donald Duck, Tsubasa, Barbie, Mask. Actually, the analysis of the cartoons showed that the cartoons stated by the students were categorized in three main groups according to the type of the students' schools. The first group was composed of the cartoons stated by the students from both private and public school such as Smurfs, Winx, Winnie the Pooh, Bratz, The Flintstones, Spiderman, Donald Duck. The second group was mainly stated by the students from private school such as Rugrats, Cedric, Dora, Hey Arnold, Kids Next Door, Tsubasa. The third group was mainly stated by the students from public schools such as, Scooby Doo, Tom and Jerry, Casper, Barbie. The table displayed in Appendix AE summarized the result of the analysis.

Besides, it was possible to categorize the cartoons in terms of gender because not all but some cartoons were stated mostly by one gender group. The cartoons stated commonly by the girls were namely Winx, Bratz, Casper and Barbie. The

cartoons mainly stated by the boys were Tom and Jerry, Spiderman, Mask and Tsubasa.

The data implied that there were similarities between the first seven most popular cartoons. The first and the most agreed upon the similarity was that all the cartoons were about a group of characters. The cartoons which were placed in the first seven of any categorization of cartoons were namely Smurfs, Winx, Scooby Doo, Bratz, Winnie the Pooh, Kids Next Door, The Filestones. In this regard, teachers and experts emphasized the similarity. For the first three cartoons composed of a group of characters, the psychologist PS1 thought that was usual actually for the children because they liked to watch films or cartoons composing of groups of characters. The sociologist SO2 expressed that the aspect of the first three cartoons was not surprising for her. In this regard, she stated "The children like adventures surrounding a group of characters. The students in your study are friend-childhood so they like very much friendly adventures." For the aspect, the teacher TB stated,

1st, 2nd and 3rd graders like to be in groups. In parallel, they like to watch cartoons about crowds. Your study proves this feature in the students'. Most of the cartoons stated by the students are about a group of characters.

The second similarity was that the scenes of the cartoons were colorful. The analysis of the interviews conducted with the experts and teachers showed that if someone talked about cartoons, it was inevitable to refer to colorful scenes. In this regard, the psychologist PS2 said that "The children like colorful scenes and books. If they had a chance to choose the colors of the buildings surrounding us, all of them would be colorful." Similarly, one of the teachers expressed that "Children like multicolored books, magazines, materials, colorful cartoon and films. When I examined the first three cartoons, I realized that the cartoons were very bright colorful scenes" (TD).

Furthermore, the data analysis presented that the third similarity was that there were various exaggerated elements in the cartoons for example Smurfs were unreal creatures, Winx's and Bratz's eyes, Bratz's head size, the talking animals in the cartoon Winnie the Pooh etc. For the similarity, the psychologist PS1 stated that cartoons were generally about imaginative objects and some of the cartoons were completely based on imagination while some others had a little imaginative element. In this regard, she examined the mostly stated cartoons in the current study and she

said "I reached the result which, I always thought, that the children like the imaginative elements in cartoons and films.

1.4.2.8 The Readings the 1st, 2nd and 3rd Grade Students Most Like to Read

Another item which was examined in terms of the 1st, 2nd and 3rd graders characteristics was the readings the students' most like to read. The data analysis indicated that actually, there was one category. The category was fairy tales. However, the analysis of the students' answers showed that some students stated the category directly, some others expressed it indirectly. For this the answers the students gave for the question related with "reading" were categorized into five categories. The categories were namely; Fairy tales, the books including various classic fairy tales like "Her Güne Bir Masal"; the books of one classic fairy tale like Cindrella; Snow White etc.; The series of one story character like Keloglan; Ayşegül, etc.; the books of one fairy tale (see Appendix AF).

The data analysis of the study indicated that the experts acknowledged that the result was normal because they were children. The psychologists PS2 and PS3 stated that the children liked fairy tales and most of the children grew up listening to the fairy tales. In this regard, one of the psychologists expressed that "I frequently work with students at primary grades including 1st, 2nd and 3rd graders so I think the results are valid for the students" (PS2). The sociologist SO1, like the psychologists, advocated that all of us grew up listening to fairy tales and we had original fairy tales originating from Anatolia. All the teachers' views were congruent with the experts' views. They stated that children especially 1st, 2nd and 3rd graders liked fairy tales and they expressed that they used fairy tales in every lesson as much as possible. In this respect, the teacher TF stated that

> If I answered the question asked to the students, my answers would be parallel with their answers. Today, the children, at primary education level, like fairy tales and firstly they prefer to read books including various fairy tales together.

The analysis of the data revealed that the second category composed of fairy tales originating from foreign origins. In this regard, the teachers expressed that it was not important whether the fairy tale originated from foreign or native sources because fairy tales were universal for children. In this regard, the teacher TE expressed that "It is not important whether a fairy tale originates from Turkish or

foreign culture for children because they are interested in the fairy tales not their origin." The teacher TD said "Fairy tales are accepted by all over the world. Thus, I think there is nothing to worry about or finding out reasons for."

Finally, the experts were asked to criticize the results of the data analysis of the answers given by the students to the questions regarding "stories." They stated that the results were normal according to usual 1st, 2nd and 3rd graders in Turkey. One of the teachers participating in the study said

> You can reach the results in any ordinary 1st, 2nd or 3rd grade classroom in Turkey. However, there are some private schools with various missions, for example; the goal of one school may be to teach English to their students and so they have them read the books in English. Except the private schools, the results were standard, I think (TD).

4.2.1.9 The Out of House and School Activities the 1st, 2nd and 3rd Grade Students Most Like to do

The out of house and school activities the 1st, 2nd, and 3rd grade students most like to do was another item which was researched through open-ended questionnaires applied to the students and the parents. Moreover, the researcher conducted informal conversational interviews with the participant teachers and the experts of the study in terms of the results of the open-ended questionnaires analysis.

The analysis of the data related with the students' answers indicated that the results were similar to the results related with "games." The data analysis displayed six categories namely; (1) bodily kinesthetic activities, (2) games, (3) visual arts activities, (4) interpersonal activities, (5) vacation activities, (6) other activities. Actually, the similarity between the results of the data analysis related with the games and the out of school activities pushed itself forward in the categories of the current data analysis namely; bodily kinesthetic activities and games. The details of the results were presented in the table displayed in Appendix AG.

According to the data analysis, the students mostly played games out of school and the house. The second category composing of the activities stated by 42 students was bodily kinesthetic activities. The third category was interpersonal activities with 17 students. 13 students expressed visual arts activities as their most liked activities

out of the school and the house. Eight students stated shopping and five students expressed vacation activities as their most liked activities.

The data analysis of the parents' answers indicated that almost all parents stated that their children mostly liked to play games out of the school and the house. However, six of them stated bodily kinesthetic activities, four of them expressed playing musical instruments, and three of them stated dealing with pets as their children's most liked activities out of the school and the house.

The researcher conducted informal conversational interviews with three teachers, one of the psychologists and one of the sociologists in terms of the table (see Appendix AG). The data analysis indicated that all three teachers, the psychologist and the sociologist thought that the table reflected reality. Additionally, they expressed that playing games was again number one as it was before. The teacher TE emphasized that the bodily kinesthetic activities were also games or sport games, thus the most stated activities were games. Moreover, the psychologist stated that the results of the current data analysis proved the previously reached result "the children most like to play games." She also suggested that the researcher took the result into consideration when developing material. The sociologist made the same suggestion by saying,

> As I emphasized, some results except the results having direct multiple intelligences, the categories might be used for creating frames of materials to be developed. In this regard, material can be developed on the basis of the results related with games. Or material including a games aspect can be developed on the basis of the results related with games. Because, the results supported well known knowledge that the 1st, 2nd and 3rd grade students like playing games.

4.2.1.10 The Environment in Which the 1st, 2nd and 3rd Grade Students Most Like to Spend Time

One of the questions included in the open-ended questionnaires was related with the environment in which the students most like to spend time. The analysis of the students' answers to the question related with the environment produced six categories namely; home, interpersonal environments, bodily kinesthetic

environments, naturalistic environments, logical mathematical environments and playful environments (see Appendix AH).

The analysis of the parents' answers to the question in the open-ended questionnaire indicated that there were five categories. The categories were home, interpersonal environments, bodily kinesthetic environments, naturalistic environments and playful environments.

Actually, the data analysis indicated that the environments stated by the students and their parents were very similar. However, the order of the same categories was different according to the data analysis. The order from the most stated answer to the least stated answer by the students was as follows; bodily kinesthetic environments, playful environments, interpersonal environments, naturalistic environments, home and logical mathematical environments. On the other hand, the order for the results from the analysis of the parents' answers was playful environments, interpersonal environments, bodily kinesthetic environment, naturalistic environment and home. Moreover, the category "logical mathematical environment" was not in the categories according to the analysis of the parents' answers.

After completing the analysis of the data obtained from the questionnaires, the researcher as usual consulted with the teachers and the experts. In this regard, three teachers, one of the psychologists and one of the sociologists expressed their views on the results.

The data analysis showed that the teachers expressed that the results seemed to be useful for the study. They said that today's kids spend their time not only at home, but also in other environments reflecting their interests and abilities. One of the teachers stated that she realized there were verbal, visual, intrapersonal and musical environments in the categories. She continued as follows,

> … actually home might be accepted as intrapersonal environment. If you develop a material including the environments, you can accept concerts as a musical environment and art galleries because my class visited the environments (TE).

Moreover, the other two teachers expressed that the results indicated that there were similarities between the themes included in the categories of the parent and student questionnaires. They interpreted that the similarity was an advantage because

in this manner the researcher determined the environments of the multiple intelligences.

Furthermore, the data analysis revealed that the psychologist stated that the categories and themes were the same as the result of the data analysis. In this regard, the psychologist expressed that the researcher might use the categories when composing the materials. Like the psychologist, the sociologist also stated the categories were useful for developing materials. The sociologist expressed that

> As I said before, the categories showing variety could be used as a frame when material is being developed. Therefore, the results may be used and an environment aspect may be one of the frames for developing material (SO1).

4.2.1.11 The Colors the 1st, 2nd and 3rd Grade Students Most Like

The analysis of the data obtained from the students' answers to the questions related with colors showed that the 1st, 2nd and 3rd grade students most like the color "yellow." The most stated second color was blue. After blue, the order of the colors stated by the students from the mostly stated to rarely stated was as follows; pink, orange, purple, red, white, black and brown (see Appendix AI).

The researcher asked some of the students to state why they most liked the color they stated. The analysis of the students' expressions indicated that there were various reasons for them. The following excerpts were taken from the informal conversational interviews with some of the students. "I most like yellow, because it is cheering" (sts14b3). "Pink because it is cheerful" (sts6r1). "Blue because the color of the sky and sea is blue" (sts19b2). "Yellow because it is warm and like the sun" (sts18p2). "I think all girls like pink. I am girl and like pink most" (sts8p3). "Green because it is cheerful, I think" (sts12b3). "Red because it is very bright" (sts21b2).

Although the data analysis indicated that there were various reasons, the data analysis also showed that 12 students interviewed for their reasons for the colors stated the adjectives "cheering, bright, happy, and beautiful." After that, the researcher asked the psychologists, one of the sociologists and four teachers to interpret the results related with the colors. In this regard, the data analysis showed that all four teachers stated that the colors might be predicted before seeing the results because the colors especially yellow, pink, blue, red, green were the colors the 1st, 2nd and 3rd grade students frequently used in their drawings. Moreover, one of

them emphasized that the 1st, 2nd and 3rd grade students generally did not like the colors "black or brown". Moreover, he added that the results supported his observation. Furthermore, two of the teachers called attention to the colors "blue and pink." One of them said

> As you see the students who stated the color pink were all girls. On the other hand, the color "blue" was mostly stated by the boys. Therefore, I think you should use commonly liked colors for girls and boys when you are developing material or using the colors because of gender bias (TF).

The data analysis showed that the psychologists stated that the most stated colors were actually the colors they were used to seeing on cartoons and in children books. One of the psychologists like the teacher TF stressed the effect of the gender difference on the colors. The psychologist PS1 stated that

> The data are very nice which indicate that the girls like pink while the boys like blue.… you can focus the other colors generally such as yellow, orange, purple because the colors were equally stated by both genders.

The researcher asked the psychologists to explain the meaning of the colors in terms of psychology. They avoided expressing the meanings by saying that there were various views and approaches for interpreting the colors. One of them stated "Generally, people have given negative meanings to black. However, I can see some happy children like and use the color in their drawings. Therefore, I disapprove of giving certain meanings to the colors" (PS2). Another psychologist agreed with the psychologist PS2's view by saying,

> As you know, the meanings of the colors are also affected by cultural aspects. For example, Japanese people wear white in their mourning days. If the study was conducted in Japan, you would express white as negativity. However, there are not certain meanings of the colors in our society, I think. Therefore, it is not right to give certain meanings to the colors in Turkey (PS3).

The sociologist acknowledged the psychologist PS3's thought in terms of the cultural aspect effects. She stated that

> The meanings of the colors have generally been interpreted according to the society in which the colors are interpreted. You can approach the cultural

aspects from the view of a country or a family. In this regard, I prefer to interpret the colors in small groups such as the neighborhood or even family and so I think it is impossible to speak on certain meanings of the colors (SO1).

4.2.1.12 The Geometric Shapes the 1st, 2nd and, 3rd Grade Students Like Most

The researcher asked the students to state the geometric shapes they like most through an open-ended questionnaire. The analysis of their answers showed that most of the students like round and circular shapes. Actually, seven geometric shapes were stated according to the data analysis. The order of the shapes from the most stated to rarely stated were round, circle, rectangular, square, triangle, pentagon and hexagon. The details of the analysis were presented in the table displayed in Appendix AJ.

The researcher conducted informal conversational interviews with the students in terms of their answers related with the geometric shapes. The data analysis of the students' expressions showed that there were various reasons. The following excerpts were their answers explaining why they most like the geometric shape. "I like circle because it is easy to draw it" (sts9r1). "I like the round because it is like a head" (sts12b1). "I like circle because it is like a bicycle wheel" (sts18r3). "The round because it is like an egg" (sts19b3). "I like rectangular because a robot is composed of the shape" (sts20b1). "The square because it is like a Lego piece" (sts12r3).

The researcher took the views of the teachers on the results in relation to shapes. Four teachers expressed their views. The analysis of the teachers' views revealed that two teachers explained that they observed that most of the students liked round and circle; however, they were not sure about the reasons for their preferences. In this regard, the teacher TA put forward "I think drawing the round and circle is easy for the students, so they might like it." and the teacher TE expressed "I think they see the shape everywhere and it is easy for the students to draw." The other two teachers explained the students' liked round and circle by relating it with cartoons. The teacher TC offered that "Most of the cartoons watched by the students contain circular objects. Moreover, children book illustrations generally are circular. Therefore, the result is very acceptable for me." The teacher TD stated that "I think the cartoons affect the students' preferences. One of the effects is that the circular shapes are liked by the students."

The researcher also conducted informal conversational interviews with two psychologists about the results. The data analysis indicated that they stressed that they did not know any study related with the students' interests and the geometric shapes and so they could not interpret it.

4.2.1.13 The Occupation the 1ˢᵗ, 2ⁿᵈ and 3ʳᵈ Grade Students Would Most Like to Have in Their Future

The occupations the students would most like to have in their future was another item researched through open-ended questionnaires in the program design phase. The analysis of the students' and parents' answers to the question related with the occupation showed that there were eight categories namely; verbal linguistic occupations, logical mathematical occupations, visual spatial occupations, bodily kinesthetic occupations, musical occupations, naturalistic occupations, interpersonal and intrapersonal occupations and other occupations.

Although the analysis of both the students' and the parents' answers produced the same categories, the data analysis revealed that there were differences between the orders of the categories. The order of the categories from the most stated to rarely stated according to the students' answers were bodily kinesthetic occupations, verbal linguistic occupations, other occupations, visual spatial occupations, logical mathematical occupations, interpersonal and intrapersonal occupations and naturalistic occupations and musical occupations (see Appendix AK).

According to the parents' answers, the order of the categories from the most stated to the least stated way as follows; other occupations, logical mathematical occupations, verbal linguistic occupations, visual spatial occupations, interpersonal and intrapersonal occupations, bodily kinesthetic occupations, naturalistic occupations and musical occupations.

Although the orders emerging from the data analysis were different, the themes were approximately the same under each category. The results were discussed with the teachers, psychologists and sociologists. The psychologists stated that both results were natural and as expected. One of them said

> Students gave answers on the basis of their interests; parent gave answers on the basis of what they wanted to see. However, there were multiple

intelligences as categories. The result is very valuable for the study. You can use them when developing material (PS1).

The psychologist PS2 stated that the parents naturally expressed what they wanted their children to be. The sociologist stated that the importance of career planning had been comprehended by the parents and students for ten years. Because of the revival, she added that the parents choose occupations for their children as realistically as possible, she thought. She also stated that

> ... the parents might state the best occupations in terms of status and economic aspects. All parents want their children to have the best occupation in their minds. Because of that, they may not be realistic. On the other hand, the students state the occupations in their playful mind. Thus, they cannot think about the economic and status aspects of an occupation. Therefore, the most important result is that there are occupational categories in relation to multiple intelligences (SO1).

4.2.2 1st, 2nd and 3rd Grade Focus Group Students' Characteristics

The overall data analysis indicated that the umbrella terms were categorized into three main groups according to the categories the umbrella terms included. The three main groups were (I) the interests and frames and (II) the characteristics of multiple intelligences and (III) the visual aspects.

(I) The Interests and Frames Used When Developing the Materials

The group "interests and frame" meant that the group included the umbrella terms and did not have categories related with multiple intelligences. The categories under the umbrella terms directly indicated the 1st, 2nd and 3rd graders' general interests. Therefore, the categories were used to construct the frame of the materials which would be developed for the program. In this regard, the data analysis showed that the umbrella terms included by the group "the interests and frames" were as follows;

The school activities they most like to do

The home-based activities they most like to do

The readings they most like to read

The cartoons they most like to watch

The environment they most like to spend time

The out of house and school activities they most like to do

The common aspect of the categories included by the umbrella terms presented above was that they presented the 1st, 2nd and 3rd graders' interests and characteristics in general rather than focusing on the characteristics of each intelligence. In addition, the analysis of the focus group students' and parents' answers indicated that their answers did not load on any themes in the categories. Their answers scattered across the themes under the categories. However, the last two umbrella terms presented above have both the categories matched with multiple intelligences and the categories indicating general characteristics. The categories included by the last umbrella terms were taken into consideration because they presented themes in terms of both "interests and frames" and the "characteristics of some of the multiple intelligences." As a result, the researcher determined the most outstanding categories by examining the total number of students who stated the answers covered by the categories.

(II) The Characteristics of the Multiple Intelligences

The overall data analysis revealed that there were some categories matched with multiple intelligences. The predetermined umbrella items including the categories were namely;

The learning activities with which they learned most

The assignments they most like / they were most successful at

The games they most like to play

The occupation they would most like to have in their future

They out of house and school activities they most like to do

The environment in which they most like to spend time

After the group "the characteristics of multiple intelligences" emerged from the overall data analysis, the focus group students' answers were examined. The open-ended questionnaire was applied to the teachers in terms of the characteristics of multiple intelligences.

The results obtained from the umbrella items presented above were analyzed by focusing on the focus group students' and parents' answers and the teachers' answers to the open-ended questionnaires. Thereby, the results belonging to all participants, 1st, 2nd and 3rd grade students, were constricted with the answers of the

focus group students and their parents. The characteristics of the multiple intelligences were explained under the following titles.

4.2.2.1 Characteristics of Logical Mathematical Intelligence

The Learning Activities: There were 15 students determined as logical – mathematical dominant. The analysis of the logical mathematical dominant students' answers to the questionnaire showed that most of them expressed mathematical logical activities. In this regard, the number and the answers of the students are as follows; eight of the mathematical logical dominant students stated mathematical logical activities, 4 of them stated playful activities; two of them stated intrapersonal activities, one of them said visual spatial activities, as the learning activities with which they learned most.

The data analysis of the teachers' open-ended questionnaire confirmed the results of the analysis of the focus group's answers. The data analysis indicated that the teachers thought that the logical mathematical dominant students mostly became successful at the logical mathematical learning activities including problem-solving, mathematical operations, writing mathematical problems and compare-contrast activities. Two of the teachers also expressed that the mathematical logical dominant students pushed themselves forward not only in the course of mathematics but also in the games and activities having logical content. In this regard the teacher TC stated that

> Mostly, mathematical success is taken into consideration; however, my observations show that the mathematical logical dominant students are good at solving problems, playing logical games, dealing with numbers. The characteristics can be observed in not only the math course but also other courses.

The Assignments: The data analysis revealed that 11 of the 15 mathematical logical intelligence dominant students stated mathematical logical based assignments and four of them expressed verbal linguistic based assignments as their successful ones. The analysis of the data obtained through the open-ended questionnaire applied to the teachers showed that four teachers expressed the types of assignments when explaining the characteristics of the mathematical logical dominant students. Two of the four pointed out that they did mathematics' assignments well. The other two

asserted that the students liked the assignments including compare and contrast, cause and effect relationships in all lessons. Moreover, the two emphasized that they were successful at doing the assignments.

The Games: The analysis of the mathematical logical dominant students' answers showed that the students stated mathematical logical games as the games they liked. The analysis of the teachers' notes about the characteristics of the mathematical logical dominant students included games. The games were mathematical logical based ones, which were chess, Su Do Ku, number train, logical puzzles, and number crosswords.

The Occupations: The analysis of the mathematical logical students' answers revealed that most of the students stated logical mathematical based occupations. Seven of 15 students stated logical mathematical based occupations, three of them verbal linguistic occupations, two of them doctor, two of them visual spatial based occupations and one of them naturalistic based occupation. The analysis of the teachers' notes implied that the teachers generally did not state occupations in terms of characteristics of the multiple intelligences. However, two teachers said the logical mathematical dominant students wanted to have occupations on the basis of the mathematical logical intelligence. In this respect, one of them said

> I sometimes ask the students to state what they want to be in their future. The mathematical logical dominant students generally state the occupations such as math teacher, engineer, computer engineer, and accountant.

The other teacher stated "The mathematical logical dominant students like occupations like math teacher, engineer, detective and bank employee."

The Environments: The data analysis showed that six of 15 logical mathematical dominant students stated games, four of them logical mathematical, two of them interpersonal, one of them bodily kinesthetic based environments and one of them home as the environment in which they most like to spend time. The analysis of the teachers' comments about the characteristics of the multiple intelligences implied that two teachers touched the environment in which the logical dominant students most liked to spend time. In this regard, the teacher TE stated that,

> You can catch some clues originating from the environment in which the students enjoy and are willingly spend time. However, the points cannot be caught easily because the teacher cannot observe the students everywhere and

all the time. A teacher can observe the students in environments including school, class, laboratories and field trips. The field trips may be key points because they had different aspects from the aspects of a school environment and other places. For example, the science museums where I organized a trip for my students gave me the opportunity to observe my students. I realized that my logical dominant students like it more and enjoy being there more than the other students.

4.2.2.2 Characteristics of Verbal Linguistic Intelligence

The Learning Activities: The focus group included 14 verbal linguistic dominant students. The data analysis showed that all of them stated verbal linguistic activities except two saying playful activities as the learning activities with which they learned most. The analysis of the data gathered through the teachers' open – ended questionnaire showed that the teachers' answers were similar to the verbal linguistic dominant students' answers. The data analysis showed that three teachers emphasized the indispensability of verbal linguistic learning activities in the teaching process. They stated that students were easily observed in terms of verbal linguistic intelligence. In this regard, one of the three teachers stated, "The students read, write, speak and listen well. Moreover, we use writing, reading, speaking and listening activities in all lessons. Therefore, I can easily observe the verbal linguistic dominant students…." (TF). Furthermore, two of the six teachers stated that the verbal – linguistic dominant students spoke fluently and were interested in speaking.

The Assignments: The data analysis showed that 11 of the 14 verbal linguistic dominant students stated verbal linguistic assignments while three of 14 students stated intrapersonal based assignments as their most liked ones. The analysis of the teachers' writings about the characteristics of the verbal linguistics intelligence dominant students revealed that three teachers stated the types of assignments. The teachers expressed that the verbal linguistic students willingly did verbal assignments including writing, reading and preparing verbal presentation.

The Games: The analysis of linguistic verbal dominant students' answers revealed that all of them stated verbal linguistic games as their most liked games. The teachers' notes analysis supported the result that the verbal linguistic dominant students liked and played verbal linguistic based games. The games stated by the teachers were; name-city, taboo, producing words and sentences, word games and

crosswords. In this regard, the teacher TE stated "The students are good at playing the linguistic games including name-city and verbal crosswords."

The Occupations: The analysis of the verbal linguistic dominant students indicated that most of the students wanted to have jobs related with verbal linguistic skills in their future. The data analysis pointed out that nine of 14 students stated verbal linguistics occupation, one of them logical mathematical occupation, two of them visual spatial occupation, one of them naturalistic occupation, and two of them interpersonal and intrapersonal occupations.

The analysis of the teachers' notes about the verbal linguistic dominant student' characteristics revealed that one teacher stated that "I think the verbal linguistic dominant students want to be a teacher, author, poet, and anchor in general. It means that they want to have verbal linguistic occupations."

4.2.2.3 Characteristics of Visual Spatial Intelligence

The Learning Activities: The data analysis of the visual spatial dominant students' answers revealed that all visual spatial dominant students stated the visual spatial learning activities as the learning activities with which they learned most. Moreover, the data analysis displayed that the teachers' opinions related with characteristics of the visual spatial dominant students implied that they were successful and happy when dealing with visual – spatial learning activities. For example, one of them stated that "… the students learn easily when participating in imagination activities …." (TA). The teacher TB said that "I frequently use videos in the life science course and I observe that the visual spatial dominant students are more interested in the videos than the other students." However, one teacher expressed that pictures, drawings and films were liked by all students but the visual spatial dominant intelligence students liked additional visual spatial activities including working on maps and graphs.

The Assignments: The data analysis displayed that all visual spatial dominant students except one stated the visual spatial based assignments. It meant that 10 of 11 stated visual spatial based activities, one of 11 said bodily kinesthetic based assignments as their most liked one. Analysis of the teachers' statements about the visual spatial dominant students indicated that all teachers stated the visual spatial dominant students liked visual spatial assignments including imagination, drawings,

map and graph reading, etc. Moreover, they emphasized that the students became successful at the assignments.

The Games: The data analysis presented that most of the 11 visual spatial intelligence dominant students stated visual spatial games. One of them stated computer games and one of them said bodily kinesthetic games as their most liked games. The analysis of the teachers' answers indicated that the teachers' answers were similar with the students' answers in terms of visual spatial games. The teachers expressed that the visual spatial dominant intelligences liked drawing so drawing on its own is a game for the students. Most of the teachers emphasized that the visual spatial dominant students are good at doing puzzles.

*The Occupation*s: The analysis of the visual spatial dominant students' answers in terms of occupation presented seven of 11 students stated visual spatial occupations, two of them verbal linguistic based occupations, one of them bodily kinesthetic occupation, one of them doctor as the occupation they wanted to have in their future. The analysis of the data gathered through the open-ended questionnaire applied to the teachers revealed that three teachers implied that the visual spatial dominant students had perfect painting abilities and direction finding abilities thus they stated that the students should have occupations requiring those abilities. In this regard, the teacher TC said "On the basis of my observations, the visual spatial dominant students had extremely dominant direction finding abilities so they will be able to be a captain or pilot in their future." The teacher TE stated that "The visual spatial dominant students have drawing and painting abilities like successful painters have. Therefore, they might be painters in their future."

The Out of House and School Activities: The analysis of the visual spatial dominant students' answers indicated that 10 of 11 visual spatial dominant students stated visual spatial activities and one of 11 students stated Child Park games as out of school and house activities they most liked to actualize. The analysis of the teachers' statements about the characteristics of the visual spatial dominant students showed that two teachers expressed the activities actualized by the visual spatial dominant students out of school and house. One of the teachers emphasized that teachers could not observe the students out of school but the teachers could ask the students about their weekend activities. The teacher added that "The visual spatial dominant students mostly state they go to the cinema and the theatre." (TA)

4.2.2.4 Characteristics of Bodily Kinesthetic Intelligence

The Learning Activities: There were 13 bodily kinesthetic dominant students in the focus group. The analysis of the bodily kinesthetic dominant students' answers showed that most of them expressed the bodily kinesthetic learning activities with which they learned most. The analysis also showed that one of 13 students stated playful activities, one of them said visual spatial activity, one of them interpersonal activity and one stated logical mathematical activities as the learning activities with which they learned most. The analysis of the teachers' statements related with the characteristics of bodily kinesthetic dominant students demonstrated that two of the teachers expressed the students' role playing skills were explicitly observable. In this regard, one of them stated "You can realize a student having dominant bodily kinesthetic intelligence when s/he is playing a role successfully" (TE). The other teacher said "The students willingly participate in drama and role playing learning activities. Also they are good at the learning activities" (TD).

Three of the teachers expressed that the students learned well with the learning activities based on handworks, drama, theatric and dance. In this regard, the teacher TC said,

> Bodily kinesthetic dominant students are good at active games and sports. However, bodily kinesthetic dominant students' characteristics are not limited with the games because appropriately all children like the games. The characteristics of them include theatric, dancing and model making learning activities.

One of the teachers emphasized the students' gesturing, mimicking and facial expressions skills as characteristics of bodily kinesthetic intelligence dominant students. The teacher TB said,

> One of the characteristics helping me to determine bodily kinesthetic dominant students is to observe the students' usage of their facial expressions including gesturing, mimicking and body language. Because the bodily kinesthetic dominant students use gesturing, mimicking and body language well and understand one's facial expressions.

The Assignments: The examination of the bodily kinesthetic dominant students' answers showed that 12 of 13 liked and succeeded at the bodily kinesthetic

based assignments. The analysis of the teachers' notes revealed that the teachers did not make any comments about the characteristics of the bodily kinesthetic intelligence dominant students in terms of the assignment aspect.

The Games: According to the data analysis, most of the bodily kinesthetic dominant students liked bodily kinesthetic games as their most liked games. Only one of them stated interpersonal based games. The results of the analysis of the teachers' notes showed that the four teachers emphasized that all sport activities were liked by the bodily kinesthetic dominant students. Two of them also added some other bodily kinesthetic games liked by the students. In this regard, one of the teachers stated that

> The bodily kinesthetic dominant students like active games including hopscotch, puss in the corner, ball games, tennis, walking based games and running based games. Also, they win if the games are played as competition (TC).

Another teacher expressed that "The bodily kinesthetic dominant students play the game "silent film" excellently and role playing was done well by the students" (TE).

The Occupation: The data analysis presented that most of the bodily kinesthetic students stated bodily kinesthetic based occupations such as actor, football player, volleyball player, basketball player, psychical education teacher, athlete, and dancer. 10 of 13 stated bodily kinesthetic based occupations, one of 13 students said verbal linguistic based occupation, one of them visual spatial and one of them naturalistic based occupation as they wanted to be in their future.

Moreover, the data analysis showed that two of the teachers expressed the bodily kinesthetic based occupations in terms of the bodily kinesthetic dominant students' view about their career planning. One of two teachers stated that

> Actually, 1st, 2nd and 3rd grade students may not have realistic views about their future occupation. However, I can catch some signs about their future plans. In this regard, generally bodily kinesthetic dominant students want to have bodily kinesthetic occupations in their future. For example, they can say football, volleyball, basketball players or psychical education teacher (TB).

The Out of House and School Activities: The analysis of 13 bodily kinesthetic dominant students' answers to the question related with the item indicated that all the

students stated bodily kinesthetic based activities. The analysis of the teachers' answers to the question related with the item indicated that three teachers' statements about the bodily kinesthetic dominant students' characteristics were parallel with the students' answers in terms of the out of home and school activities. One of the teachers stated that bodily kinesthetic dominant students spend their leisure time doing bodily kinesthetic activities including football, basketball, volleyball and hopscotch. Another teacher said

> Actually, I cannot observe my students out of the school. However, I have talked to them about the activities actualized by them out of school and house. On the basis of their explanations about their activities on the streets, I can see that the bodily kinesthetic dominant students dealt with the bodily kinesthetic based activities. Most of them stated that they play active games and deal with sportive activities (TB).

*The Environment*s: The data analysis indicated that all bodily kinesthetic dominant students stated bodily kinesthetic based environments except one student who said naturalistic environment as the environment where they most liked to spend time. The analysis of the teachers' statements about the characteristics of bodily kinesthetic dominant students indicated that four teachers addressed the environmental aspect. Two of them expressed that the bodily kinesthetic dominant students liked sportive activities and so they spend most of their time in the sports halls. The other two emphasized that the bodily kinesthetic dominant students most liked to spend time where they could move easily and freely. One of them gave examples like sports hall, garden, football ground and children's park.

4.2.2.5 Characteristics of Musical Rhythmic Intelligence

The Learning Activities: The focus group included nine musical rhythmic dominant students. The data analysis revealed that six of the students stated musical rhythmic activities, three of them said playful activities, and one of them stated visual spatial activities, one of them verbal linguistic activities as the learning activities with which they learned most. The analysis of the teachers' opinions about the characteristics of musical rhythmic intelligence dominant students indicated that the teachers spoke little about the characteristics of the students. Except two, all the teachers focused on their listening and singing songs as learning activities. The two teachers emphasized their observations when conducting musical rhythmic teaching

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activities. One of the two teachers said "I have my students write lyrics related with the subject I try to teach. I observe some students are good at writing the lyrics. The students have linguistic intelligence or musical rhythmic intelligence dominantly" (TD). The other teacher stated, **"**One of my musical rhythmic intelligence based on teaching activities is composing songs related with the subject I teach. The musical rhythmic dominant students are good at composing" (TA).

The Assignments: The data analysis showed that five of nine musical dominant students stated musical rhythmical assignments, one of nine said verbal linguistic based assignments, one of them stated bodily kinesthetic and one of them said visual spatial based assignments as their most liked one. The analysis of the teachers' notes about the characteristics of the musical rhythmic dominant students indicated that two teachers stated musical rhythmic dominant assignments. One of them stated

> I frequently deliver assignment sheets. I try to put exercises or studies related with all intelligences. Writing lyrics about the subject is my favorite musical rhythmic based assignment item. I realized that the musical rhythmic dominant students are more successful at these assignments than the other students (TD).

The other teacher stated that "The musical rhythmic dominant students like the assignments including musical notes, musical topics, rhythmical poems and a musician life" (TA).

The Games: The data analysis of the musical rhythmical dominant students' answers indicated that there was no category labeled musical rhythmical games. The five of the musical rhythmical dominant students stated bodily kinesthetic games, three of them expressed verbal linguistic games, and one of them said computer games as their liked games. However, the analysis of the teachers' notes revealed that teachers expressed that musical rhythmic dominant students liked to play games. In this regard, the teacher TD said that

> The musical rhythmic dominant students play the musical games well. For example, I have my class play a game which requires knowing the name of the song whose melody given. The musical dominant students play well and know the name of the songs by hearing a little from its melody.

Four teachers emphasized that the musical rhythmic students' musical memories were excellent therefore the games requiring musical memories were well

played by the students. In this respect, teacher TE said that "The musical memory was very good in the musical rhythmic dominant students' brain. The students play the games including 'find the sign', 'karaoke'"

*The Occupation*s: The analysis of the data related with the musical rhythmic dominant students indicated that most of them wanted to have musical based occupations for their future. The analysis of their statements showed that five of nine students said musical rhythmic based occupations, three of them stated verbal linguistic based occupations and one of them said engineer. The analysis of the teachers' statements showed that two of the teachers talked about occupations when expressing the characteristics of the musical dominant students. One of them stated the students expressed that they wanted to be a singer in their future. The teacher expressed that most of the musical rhythmic dominant students said they wanted to deal with music in their occupation. The other teacher stated the students mostly stated that they wanted to be a music teacher in their future.

4.2.2.6 Characteristics of Interpersonal Intelligence

The Learning Activities: The focus group included 15 interpersonal dominant students. The analysis of the interpersonal dominant students' answers showed that five of them stated interpersonal activities, three of them stated playful activities, three of them stated visual spatial intelligence, two of them said verbal linguistic activities, and two of them said intrapersonal activities as learning activities.

The analysis of their answers indicated that there was no salient category which the students' answers were loaded on. However, the teachers' opinions on the characteristics of interpersonal dominant students included interpersonal learning activities. The learning activities included group working, paired activities, social problem solving activities and emphatic studies. The following excerpts were taken from the teachers' notes on their open-ended questionnaires. "The bodily kinesthetic dominant students are good at group, team and paired learning activities" (TF). "I frequently use group, team learning activities. Most of my students like to participate in the activities. However, you can easily observe the interpersonal dominant students' success at the learning activities" (TD). The teacher TB stated, "They complete the group work successfully." The teacher TA expressed that "The

interpersonal dominant students learn well with group and team work and, paired studies."

The Assignments: The data analysis indicated that most of the interpersonal dominant students stated interpersonal assignment. Four students expressed intrapersonal based assignment as their most liked one. The analysis of the teachers' notes revealed that four teachers touched the assignment type for the interpersonal students' characteristics. They emphasized that the students liked the group assignment, paired assignment and social problems based assignment. In this regard, the teacher TF stated that

> Not all the students like to do group assignment for various reasons including having intrapersonal characteristics, selfishness or meeting problems. However, the interpersonal dominant students like the group assignments very much. They generally become group leaders. Moreover, they successfully complete the assignment.

The teacher TB expressed that "The students like to deal with the social problems…. one of the characteristics of them is their success in producing solutions to the problems. Moreover, they like the assignment related with social problems."

The Games: The data analysis presented that six of 15 interpersonal dominant students stated interpersonal games, five of them stated bodily kinesthetic games, and two of them stated computer games and two of them said logical mathematical games as their most liked games. The analysis of the teachers' notes indicated that all the teachers thought that the students liked to play group games or paired games. In this regard, the teachers TF said "The interpersonal dominant students like to play group games." The teacher TA stated "Actually, the games played with at least two people are liked by the interpersonal dominant students."

*The Occupation*s: The analysis of interpersonal dominant students' answers to the question related with occupation revealed that four of them stated interpersonal-intrapersonal based occupation while the others stated other intelligences based occupations. Three of them stated verbal linguistic, two of them logical mathematical, one of them bodily kinesthetic and two of them musical rhythmical based occupations. Moreover, two of 15 students stated doctor and one of them nurse for their future occupation.

According to the analysis of the teachers' comments about the characteristics of the interpersonal dominant students indicated that most of the teachers did not

touch the occupation aspect. However, the teacher TB mostly touched the occupation aspect when he was talking about the characteristics of the multiple intelligences. In this regard, he referred to the occupational aspect when explaining the students' characteristics as follows,

> Interpersonal dominant students mostly say interpersonal and intrapersonal based occupations when they are talking about their future. Moreover, I realized that the students want to be an individual who help and listen to others. In this regard, they generally say they want to be a psychologist, doctor, nurse, and counselor.

The Out of House and School Activities: The analysis of 15 interpersonal dominant students' answers to the question related with the item demonstrated that 10 of them stated interpersonal activities and five of them expressed games as activities they most liked to do out of the school and house. The analysis of the teachers' statements about the characteristics of the interpersonal students implied that two teachers touched on the activities actualized by the students out of school and house. The teachers implied that the students mostly spend time with their parents and friends willingly. The following excerpts were taken from their statements. The teacher said "I have talked with the students about their activities in their leisure times. The interpersonal dominant students generally spend their leisure times with the activities actualized with their friends." The teacher TC stated that "The interpersonal students mostly spend their leisure times with their grandparents and their friends."

The Environments: The data analysis showed that there were 15 interpersonal dominant students. 12 of them stated interpersonal, two of them naturalistic and one of them bodily kinesthetic environments in which they most like to spend time. The analysis of the data obtained from the teachers' statements about the characteristics of the interpersonal dominant students indicated that two teachers noted the environment in which the students spend most of their time. One of the teachers said "Interpersonal students liked to spend time everywhere they were with their friends." (TF). Other teacher claimed that interpersonal dominant students were happy everywhere they could be with their friends and parents.

4.2.2.7 Characteristics of Intrapersonal Intelligence

The Learning Activities: Six intrapersonal dominant students were in the focus group. The analysis of the intrapersonal students' answers in terms of the learning activities indicated that the students' answers were loaded on playful activities although there was intrapersonal activities category. The four of six students stated playful activities, one said visual spatial activities, and one student stated intrapersonal activities for the question related with learning activities.

Although the analysis of the students' answers displayed that there was one student who stated intrapersonal activities, the teachers expressed their individual activities as one of the characteristics of the intrapersonal dominant students. Most of them stated that the intrapersonal dominant students were good at individual learning activities. In this regard, the teacher TF said "The students learn well in the individual learning activities." The teacher TC stated "The intrapersonal students generally willingly participate in the individual activities."

Two of the teachers expressed that the students learn with the activities focusing on the word "I." The following excerpt was taken from the teacher TD's notes on the open –ended questionnaire.

> I often use an activity when teaching students. The activity is an intrapersonal activity. The activity wants the students to complete a sentence starting with the word "I." For example, "I like ….", "I learned ….", "I want to learn….", "If I was a word, I would be an adjective" etc. the intrapersonal students complete the sentences very well, very meaningfully.

One of the teachers expressed that the intrapersonal dominant students were good at writing autobiographies. One of the teachers stated the intrapersonal dominant students learned with learning activities requiring the students' expressions about themselves.

The Assignments: The data analysis showed that three of six intrapersonal students stated intrapersonal assignment, one of six said verbal linguistic, one stated bodily kinesthetic assignment as their most liked one. The analysis of the teachers' notes indicated that the teachers did not state any clue about the intrapersonal students' characteristics related with assignment. Only one of them expressed that he

had the students write their autobiographies as assignment and he observed intrapersonal students wrote their autobiographies well.

The Games: The data analysis pointed out that three of six intrapersonal dominant students stated intrapersonal games, three of them expressed computer games as their most liked games. The analysis of the teachers' notes about the intrapersonal students' characteristics showed that three teachers stated that the intrapersonal dominant students liked to play individual games.

*The Occupation*s: The analysis of the intrapersonal students' answers indicated that most of them stated interpersonal − intrapersonal based occupations. Four of them stated interpersonal − intrapersonal based occupations; two of them said verbal linguistic based occupations as what they wanted to have in their future. The analysis of the teachers' views on characteristics of multiple intelligences showed that the teachers did not state anything about the occupation aspect for the intrapersonal intelligence.

4.2.2.8 Characteristics of Naturalistic Intelligence

The Learning Activities: Eight naturalistic dominant students were in the focus group. The analysis of the eight students' answers demonstrated that four of eight students stated naturalistic activities, two said visual spatial activities, one of them expressed verbal linguistic activities, and one stated musical activities as the learning activities with which they learned most.

The analysis of the data gathered through the open − ended questionnaire applied to the teachers indicated that four of the teachers stated learning activities when writing the characteristics of naturalistic dominant students. The four teachers stressed that the students learned well with the learning activities including examples from nature or observing nature. Furthermore one of them emphasized that the naturalistic dominant students learn the subjects related with nature.

The Assignments: The data analysis indicated that five of eight naturalistic dominant students stated the naturalistic based assignment, one of them said intrapersonal assignment, one of them said interpersonal assignment and one of them stated visual spatial based assignment as their most liked one. The analysis of the teachers' notes revealed that the teachers expressed that the naturalistic dominant students liked the naturalistic based assignment for example teacher TF stated "The

naturalistic intelligence dominant students like the assignment related with nature or actualized out of doors." Moreover, the data analysis indicated that the teachers thought that the students did the naturalistic assignment successfully. In this regard, the teacher TB stated, **"**The naturalistic intelligence dominant students like to be in nature. In this regard, they are good at doing homework including gatherings rocks, leaves, soil and observing seasons, the moon, stars and the sun."

The Games: The analysis of the naturalistic dominant students' answers in terms of their most liked games showed that there were various answers. One of the eight naturalistic dominant students stated verbal linguistic games, one of them visual spatial games, two of them bodily kinesthetic games, and two of them intrapersonal games and one of them computer games as their most liked games. The analysis of the teachers' statements about the characteristics of the naturalistic dominant students indicated that the naturalistic dominant students liked to play outdoor games. Two of the teachers stated that the students were interested in animals, flowers, the moon or the sun thus the games including these items were liked by the students.

The Occupations: The analysis of the naturalistic students' answers to the open – ended questionnaire indicated that four of them stated naturalistic occupations including veterinarian and astronaut. Two of them stated bodily kinesthetic based occupations and one of them stated doctor as the occupation they wanted to have in their future. The analysis of the teachers' views about the characteristics of multiple intelligences including naturalistic intelligence showed that some of the teachers stated occupations which would be appropriate for naturalistic intelligence dominant individuals. However, the analysis indicated that the occupations were not stated as characteristics of the naturalistic dominant students. One of the teachers stated "I cannot observe which occupations the naturalistic intelligence dominant students would like to have. However, I think they may be a veterinarian, an astronaut, a florist or a biologist in their future." Another teacher stated "I think naturalistic people should be a biologist like Mendel or Darwin."

The Environments: There were eight naturalistic dominant students. Five of them stated naturalistic, one of them interpersonal, one of them bodily kinesthetic environments and one of them playful environments as the environments in which they most liked to spend time. The analysis of the teachers' explanations about the characteristics of the naturalistic dominant students indicated that there were three

teachers who stated an environmental aspect. They emphasized that the naturalistic dominant students liked to spend time in naturalistic environments including the garden, botanic park, sea side, zoo or farm.

(III) The Visual Aspects

One of the groups emerging from the overall data analysis was "the visual aspects." The group "the visual aspects" emerged from the umbrella items "the colors" and "the geometric shapes" the 1st, 2nd and 3rd grade students most like. The analysis of the focus group students' answers on the categories stated under the umbrella items indicated that there was no match between multiple intelligences and colors.

The data analysis displayed that the order of the colors from the most stated by the students to the least stated by the students were as follows; yellow (31), blue (26), pink (23), orange (20), green (14), purple (12), red (7), white (4), black (3), brown (2). The number of students who stated the colors was expressed in the brackets. The order of the geometric shapes from the most stated by the students to the least stated by the students were round (54), circle (32), rectangular (28), square (18), triangle (9), pentagon (3), hexagon (3). The number of students who stated the geometric shape was presented in the brackets.

In the light of the results, pictures having visual aspects were sought in order to make clear the pictorial aspect 1st, 2nd and 3rd graders' liked. In this regard, the visual questionnaire was prepared. The questionnaire composed of three groups of pictures. The first group included three pictures each one had pair characters. The second group included pictures which had one character and the third group composed of pictures which had groups of characters. The questionnaire asked the students to give number one for expressing the picture they most liked, number two for stating the picture they moderately liked and number three for expressing the picture they liked least. The questionnaire asked the students to make an order for each group of pictures by following the instructions.

The analysis of the students' orders demonstrated that the most liked picture was the third picture in the first line. The picture was the picture of two Smurfs. The data analysis showed that the first picture of the first line was moderately liked by most of the students. The data analysis presented that the second picture of the first group was least stated by most of the students.

Analysis of the students' order of the second group of pictures from the picture they most liked to the picture they least liked showed that the first picture was the most liked by the students, the third picture was moderately liked by most of the students and the second picture of the second group was least liked by the students. Analysis of the students' order of the third group of pictures indicated that most of the students expressed the third picture composing of Smurfs was their most liked picture. The data analysis demonstrated that the first picture composed of the Snow White and seven dwarfs was moderately liked by most of the students and the second picture of the third group again composed of Snow White and seven dwarfs was stated by most of the students as their least liked picture.

4.2.3 Methods and Materials

The results obtained from the needs assessment phase of the study revealed that the methods the 1st, 2nd and 3rd grade teachers use in order to determine students' multiple intelligences profiles were conducting observation, using instrument/inventory, conducting interviews with parents, branch teachers and students, analyzing document and using multiple methods together. The weaknesses and strengths of the methods and also suggestions about them were determined.

In the light of the data analysis of the needs assessment, the purposes and the method of the current program were determined. For determining the content and formats of the current program, the data about the 1st, 2nd and 3rd grade students' interests and characteristics in general and in relation to multiple intelligences were gathered. Actually, the data were gathered and analyzed deductively in terms of determining the content of the materials and methods. Next figure presented the deductive data gathering and analyzing process in which the methods and materials of the current program were developed.

Finally, the materials developed throughout the study were story inventory, film inventory, performance assessment and parent questionnaire.
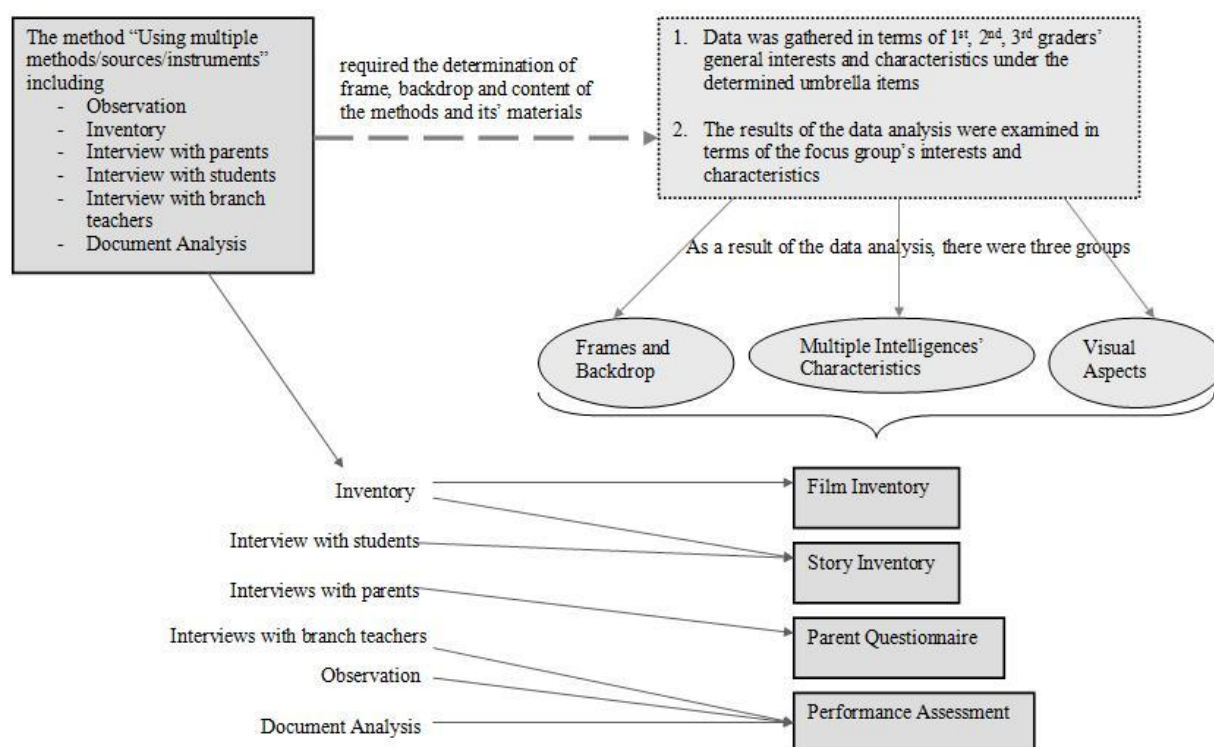
Figure 14 Deductive Data Gathering and Analyzing Process of Program Design

4.2.3.1 Story Inventory

Story inventory was developed to supply the need of inventory for determining the 1st, 2nd and 3rd grade students' multiple intelligences profiles on the basis of the results obtained from the needs assessment and program design phases. There were three types of categories which emerged from the data analysis of the program design. The three types of the categories were (1) the interests and frames, (2) the characteristics of the multiple intelligences, (3) the visual aspects. The category "the interests and frames" emphasized readings especially fairy tales and cartoons. On the basis of the result, the format of the inventory was determined as story inventory. Furthermore, the results presented under the category "the characteristics of the multiple intelligences" constituted the content of the story inventory. Furthermore, the pictures of the story inventory were drawn on the basis of the results under the category "the visual aspects." The details of the formation and the constitution were demonstrated with the help of the following figure.
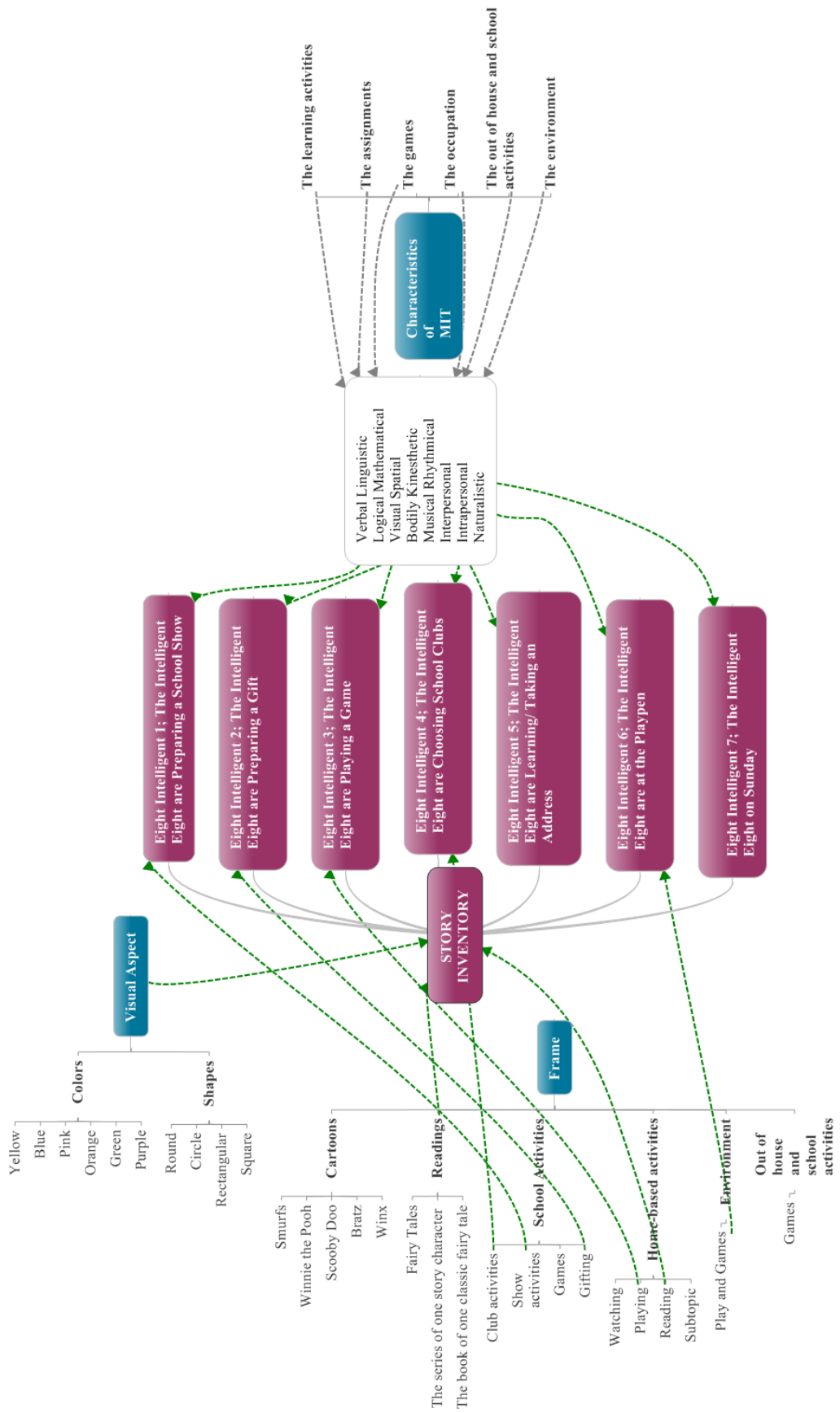
Figure 15 Design of the Story Inventory

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The story inventory was designed to get information from the students. In fact, the story inventory functioned as not only an inventory but also an interview with students to get information from them about their multiple intelligences by using their languages "stories and cartoons."

The material composed of seven story books and eight evaluation sheets. Each book had a story about eight characters. In each book there was an event occurring around the characters "The Intelligent Eight." The teachers applied the story inventory "The Intelligent Eight" to the students by following the instructions explained step by step about the inventory in the program guide document.

There were eight characters. Each character was matched with one intelligence of multiple intelligences. The names and the intelligences matched with them were presented as follows;

Writer Intelligence => Linguistic - Verbal Intelligence

Logical Intelligence => Logical - Mathematical Intelligence

Painter Intelligence => Visual - Spatial Intelligence

Musician Intelligence => Musical – Rhythmical Intelligence

Active Intelligence => Bodily – Kinesthetic Intelligence

Friend Intelligence => Interpersonal Intelligence

Self-reliant Intelligence => Intrapersonal Intelligence

Naturalist Intelligence => Naturalist Intelligence

In each story, the characters behaved / acted on the basis of their specialties matched with multiple intelligences. There were events occurring around the eight characters. The events were designed on the basis of the themes which emerged from the data analysis. The themes of each story were presented below:

Eight Intelligent 1; The Intelligent Eight are Preparing a School Show

Eight Intelligent 2; The Intelligent Eight are Preparing a Gift

Eight Intelligent 3; The Intelligent Eight are Playing a Game

Eight Intelligent 4; The Intelligent Eight are Choosing School Clubs

Eight Intelligent 5; The Intelligent Eight are Learning an Address

Eight Intelligent 6; The Intelligent Eight are at the Playpen

Eight Intelligent 7; The Intelligent Eight on Sunday

Seven evaluation sheets were specifically prepared for the seven story books, one for each. It meant that each story book had its own evaluation sheet including the picture reminding the students of the characters' actions explained in the story book they read. There was one more evaluation sheet, the 8th evaluation sheet even though there were only seven story books. The 8th evaluation sheet was composed of the eight characters' pictures and implemented when students read all stories.

The assessment of the inventory was conducted by the teachers in the light of the program guide document. At the end of the usage of the inventory, for each student, a result emerged. Like the final result which would be presented by the program, each material of the program presented multiple intelligences profiles for each student. In this regard, at the end of the inventory, a teacher achieved the multiple intelligences profiles from dominant to recessive for each student. Furthermore, it should be expressed that the inventory gave some clues and information about the students' final multiple intelligences profiles; however, it could not present the final result about their multiple intelligences profiles. Thus, the inventory and the other materials comprised a meaningful total.

4.3.2.2 Film Inventory

Like the story inventory, the film inventory was developed by taking the needs of an inventory and an interview with students into consideration. Like the story inventory, the film inventory was constructed on the basis of the results related with "the interests and frames."

The film inventory included a film, collages from the film and the evaluation sheet. The film was "Bambi." The film "Bambi" was selected among various films. Firstly, the researcher searched for films to for the inventory. For this reason, the researcher looked for a film including scenes which might be matched with multiple intelligences characteristics resulted from the data analysis of program design.

The results of the examination showed that the film "Bambi" included the scenes which could be matched with each intelligence. Each scene included elements implicating the characteristics or points of one of the intelligences emerged from the data analysis and stated under the category "the characteristics of multiple intelligences." There were totally eight collage parts.

Each collage part was determined on the basis of the results of the program design phase. The following figure presented how the results made a contribution to the film inventory.
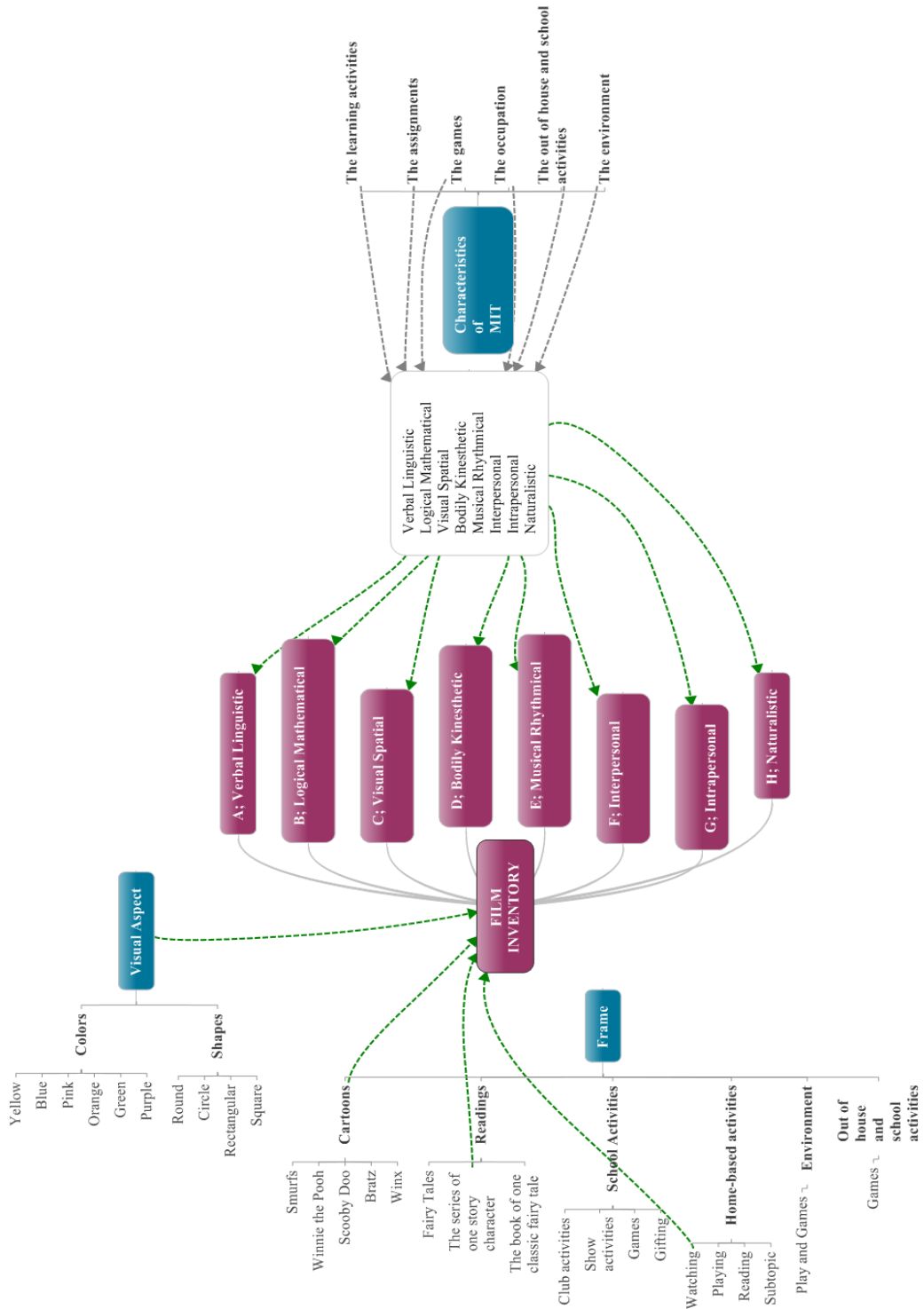
Figure 16 Design of the Film Inventory

With the help of the film inventory, teachers could try to gather information from their students' multiple intelligences via visual and auditory material. The inventory required students to order the parts. For the ordering, firstly the students watched the film right through then they watched the scenes. After that the students could order the scenes in the light of the instructions given to them by their teachers. The assessment and evaluation of the instrument were conducted on the basis of the students' orders of elimination and selections in the light of the instruction presented in the program guide document and given by the teacher.

4.2.3.3 Parent Questionnaire

The parent questionnaire was developed to supply the need of taking information from the parents for determining the 1st, 2nd and 3rd grade students' multiple intelligences profiles. The questionnaire included five main parts. The first four parts of the questionnaire were developed with the aim of taking general information about the student and verifying the student was healthy in order to have eight intelligences. The fifth part of the questionnaire had five sub-categories. The items of the fifth part of the questionnaire were determined on the basis of the results of the data analysis.

The aim of the first part was to get information about the students identity and parents. The second part aimed to determine the students academic information, which helped the teachers when they were constructing their views about their students' multiple intelligences. The 3rd part was designed to gather the students health information. Although that part only attempted to gather students' health information, it could also be related with multiple intelligences. The 4th part aimed to determine the information about the students in terms of social and emotional aspects.

The 5th part was designed to have information from the parents about their children's multiple intelligences via questions including various activities. This part was the one which was more directly and intensively related with the multiple intelligences than the other parts of the questionnaire. The part had four subparts. Under each subpart, there was a question and there were choices specialized according to the multiple intelligences. The questionnaire asked the parents to order the choices according to their children.

Part 5 / 5.1 was designed to get information about the students multiple intelligences from their parents in terms of the play/game aspect. Part 5 / 5.2 was designed to get information about the students multiple intelligences from their parents in terms of the method of being convinced. Part 5 / 5.3 was designed to get information about the students multiple intelligences from their parents in terms of the types of assignment. Part 5 / 5.4 was designed to get information about the students multiple intelligences from their parents in terms of the learning activities. Part 5 / 5.5 was designed to get information about the students' multiple intelligences from their parents in terms of the occupations.

As was stated before, there were three types of categories which emerged from the data analysis of the program design; (1) the interests and frames, (2) the characteristics of the multiple intelligences and (3) the visual aspects. The type "characteristics of the multiple intelligences" included the categories "environment", "out of school and house activities", "assignments", "learning activities", "games" and "home-based activities." The categories frames and the characteristics of the multiple intelligences constituted the content of the 5th part of the parent questionnaire. The details of the formation and the constitution were demonstrated with the help of the following figure.

The parents were supposed to order the choices presented under each question. The evaluation of the parent questionnaire gave information about the students' multiple intelligences from the point of view of their parents. The evaluation of the instrument was conducted by the teachers in the light of the instruction given in the program guide document.
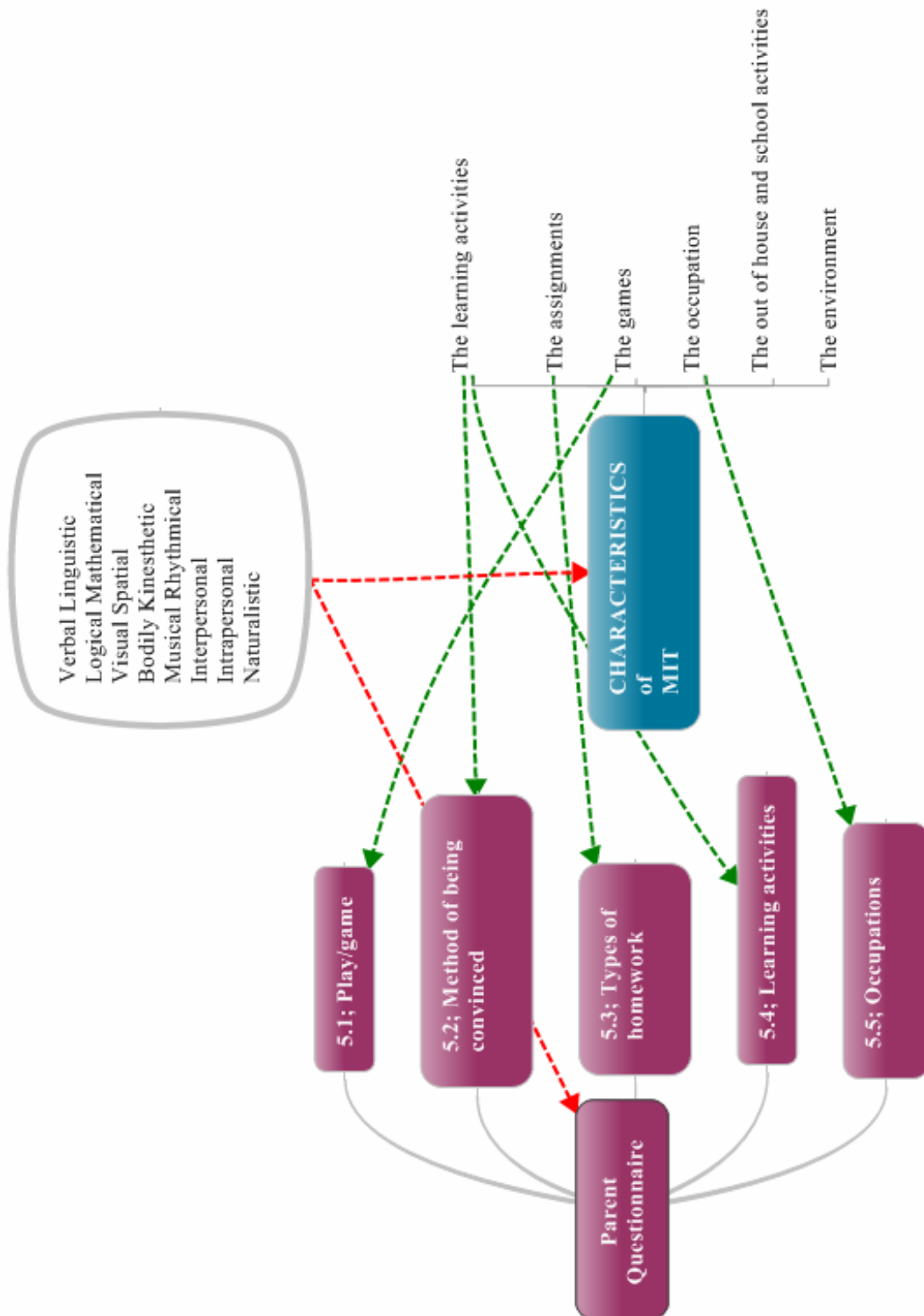
Figure 17 Design of the Parent Questionnaire

4.2.3.4 Performance Assessment

The method of performance assessment originated from the methods namely; observation and teacher views. On the basis of the results of the needs assessment, taking the weaknesses and strengths of the method of conducting observation and suggestions about the methods into consideration, the method of performance assessment including the characteristics of the methods "conducting observation and also taking the teachers' view" was developed.

The instrument "performance assessment" required teacher assessment of the students performances in terms of multiple intelligences. The instrument included four evaluation forms and their instructions. Teachers actualized the performance assessment via three specialized performances and one opinion form on the basis of their informal observation.

There were three specialized performances in the material. The specialized performances were related with the instrument of the story inventory. The first three stories of the story inventory were namely "The Intelligent Eight 1; The Intelligent Eight are Preparing a School Show", "The Intelligent Eight 2; The Intelligent Eight are Preparing a Gift", "The Intelligent Eight 3; The Intelligent Eight are Playing a Game". Each of the three performances was related with one of the stories as content. In this regard, the content of the first performance was parallel with the content of the first story book "Preparing a school show". Therefore, the students were supposed to prepare activities related with the theme "my classroom" as the first performance. The content of the second performance was parallel with the content of the second story book "Preparing a Gift". In this regard, the students were supposed to prepare bookmarks. The content of the third performance was parallel with the content of the third story book "playing a game". In this regard, the content of the third performance was the students' performances when playing games. The last performance form was completed by teachers on the basis of the observations conducted by the teachers until they completed the form. The results of the program design contributed to forming the contents of the performances. Which results contributed to the performances was explained in the following figure 8.

The performances were designed with detailed instructions because each performance had its own materials and rubrics. Teachers should read each performance document and comprehend it well before implementing it. Each

performance had implementation instructions under the titles; equipment, implementation, rubric. Under title of the equipment, the equipment required for actualizing the performance was presented. The implementation procedure was presented under the title of the implementation and how the evaluation of the students' performances was conducted was presented under the title of the rubric. For each performance assessment, there were eight rubrics each of which was for one intelligence. Teachers had to record the whole class when the students were actualizing the performances to take precautions against missing data. The evaluation of the instrument conducted by the teachers with the help of four evaluation sheets in the light of the instructions was given in the program guide document.
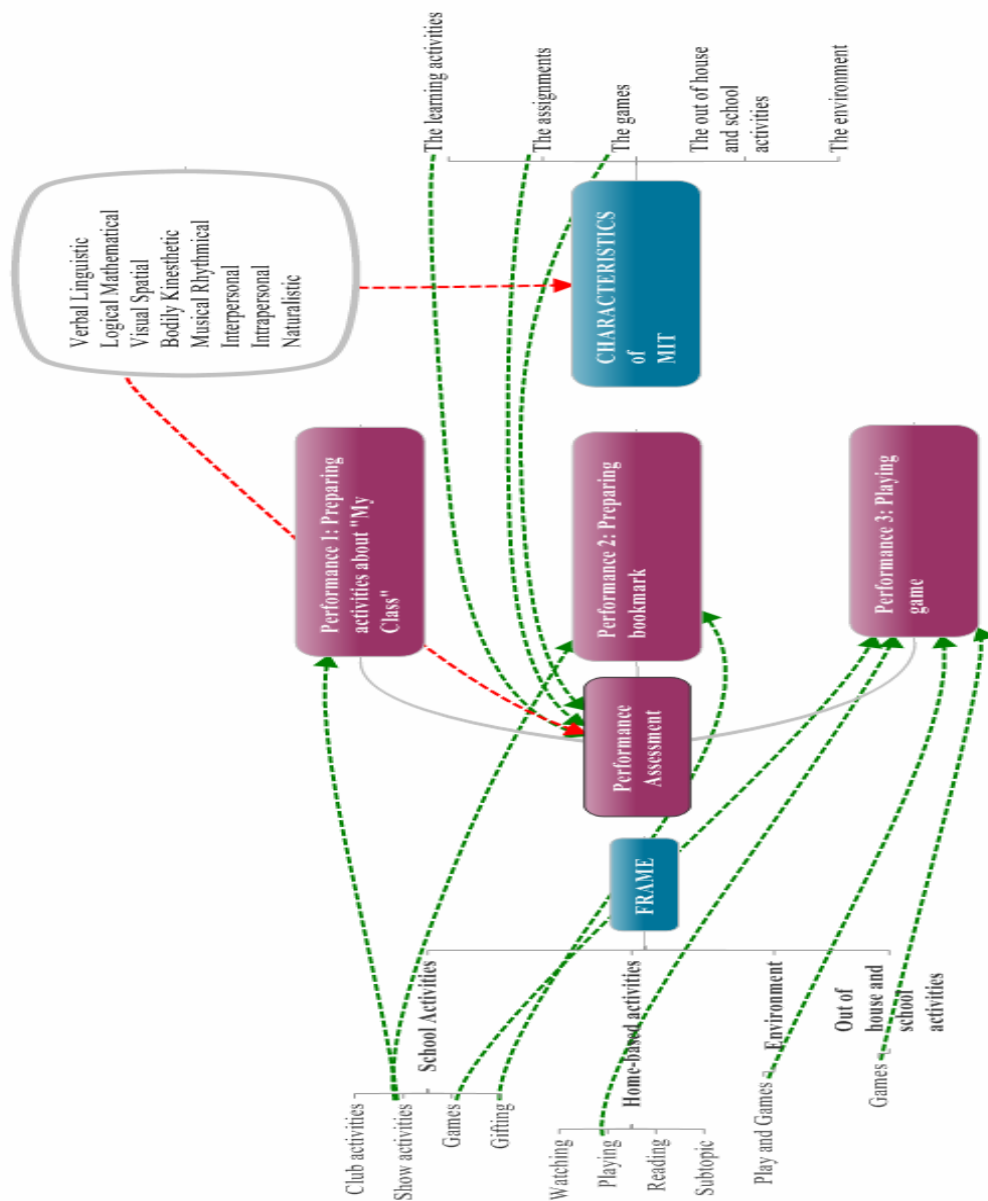
Figure 18 Design of the Performance Assessment

4.3 Results of Program Implementation and Verification Phase

The 5th probe attempted to find out the weaknesses and the strengths of the program during its development process. The probe tried to determine suggestions for improvements to the program. Moreover, the question attempted to point out the effectiveness of the suggestions actualized. The summary of the program implementation and verification phase of the study was displayed in the following figure
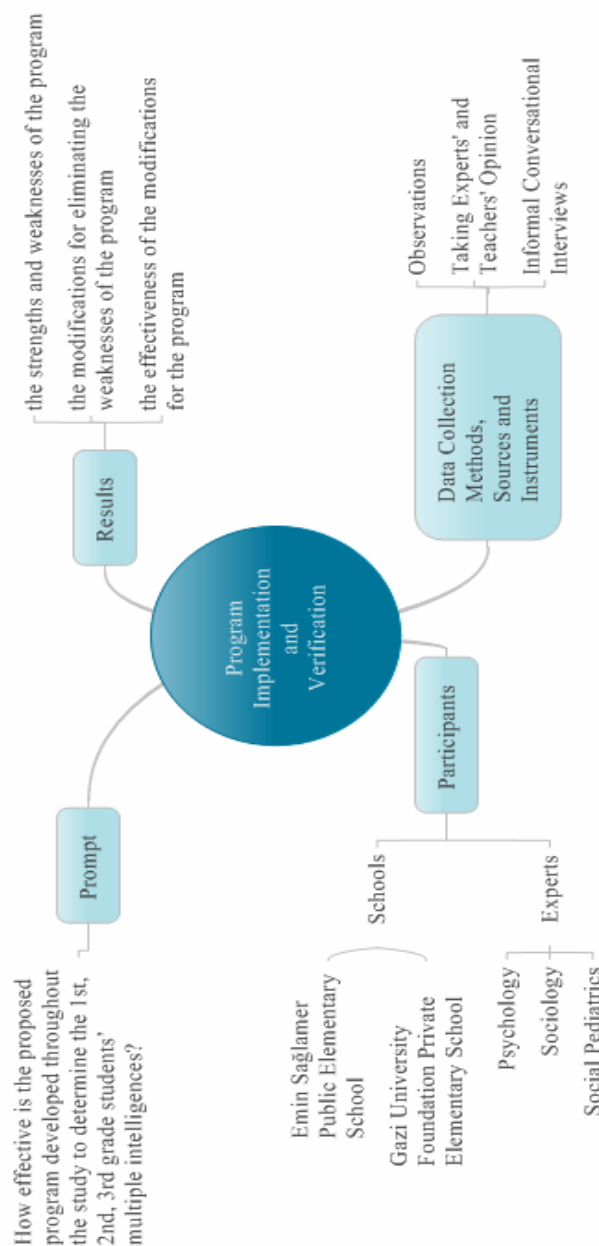
Figure 19 Summary of The Program Implementation and Verification Phase

The function of the phase was formative evaluation. In this regard, the implementation was conducted in two stages. The 1st stage including the 1st implementation was conducted with the 1st, 2nd and 3rd grade students and teachers participating in the previous phase of the study and the experts. The 2nd stage including 2nd implementation was conducted with the 1st, 2nd and 3rd grade students and the teachers who did not participate in the previous phases of the study and the teachers participating in the previous phase and the experts.

Both implementations pointed out the strengths of the program. However, the 1st stage found out the weaknesses and remedial suggestions while the 2nd stage focused on the effectiveness of the suggestions actualized. In this respect, the results of the phase were arranged around the categorizations namely; strengths, weaknesses and modifications made on the basis of the remedial suggestions, effectiveness of the modifications under the titles; program guide document, parent questionnaire, story inventory, film inventory, performance assessment and program evaluation and assessment method. The following figure displayed the results related with the categorizations which emerged from the analysis of the data gained from the two stages.
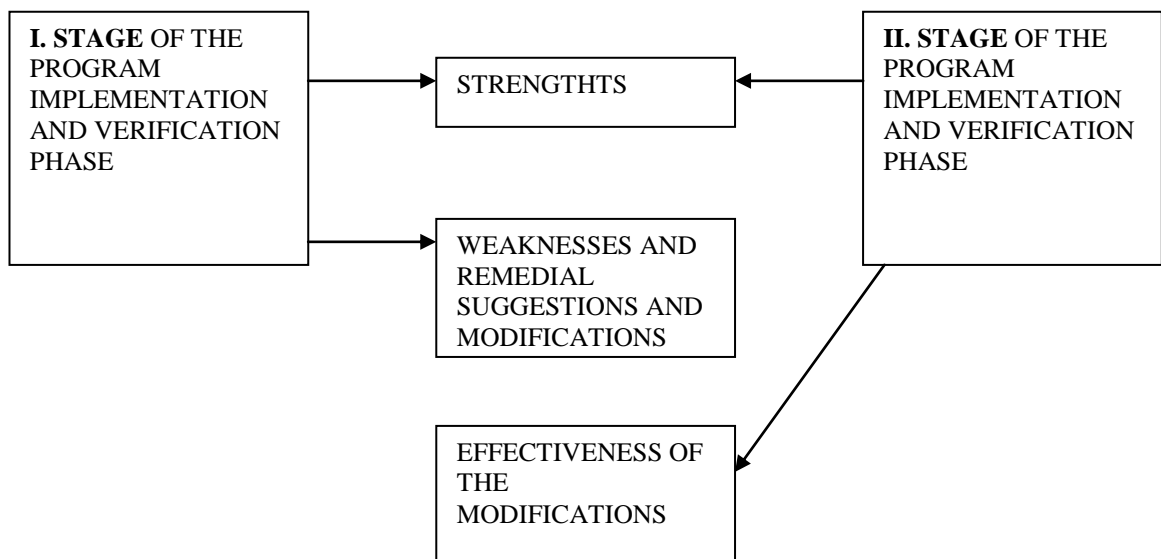
Figure 20 The Results Related With the Categorizations of the Program Implementation and Verification Phase

4.3.1 Results Related With Program Guide Document

The following figure summarized the strengths and weaknesses of the program document and modifications made on the program document and effectiveness of the modifications. After the figure, each item was explained.
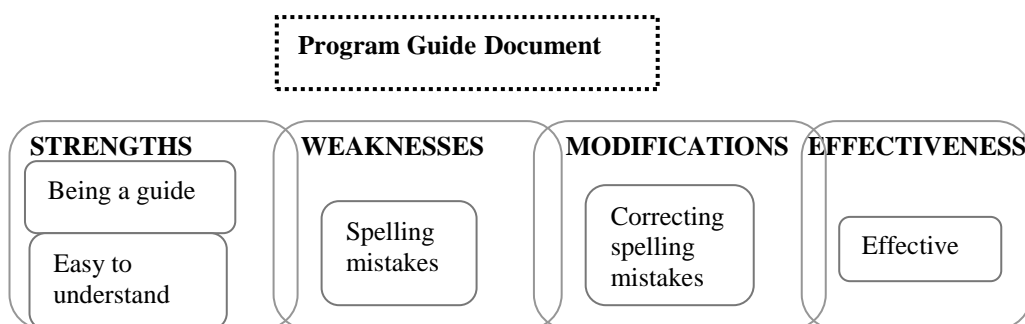
Figure 21 The Results Related With the Program Guide Document in the Program Implementation and Verification Phase

Strengths of the Program Guide Document
Being a Guide

The data analysis indicated that the most stated strength of the program guide document was its being guidance. The analysis of the informal conversational interviews conducted with the teachers displayed that four teachers expressed that it was the first time they had met such a program guide document prepared for determining students' multiple intelligences profiles. In this regard, the teacher TD said,

> I have seen and examined various tests and questionnaires prepared with the purpose of assessment and also I have seen and examined various tests, observation forms and questionnaires prepared in order to determine multiple intelligences. However, none of them have such a document. The document is a guide book for the program in order to determine the multiple intelligences.

Five teachers emphasized that the program document was similar to the instructional programs developed in 2004 in terms of presenting detailed explanations and instructions. In this regard, one of the teachers stated,

I think there are similarities between the program document and the newly developed primary education instructional programs in terms of being a guide. Therefore, the similarity enables me to understand the mentality of the detailed explanations included by the program. Moreover, the program document is a guide book including all the details (TJ).

The teachers TE, TG, TN, TP agreed about the similarity between the program document and primary education curricula and they thought that the characteristic "being a guide" was one of the strengths of the program document. In addition, the psychologists expressed that the similarity and so the guidance of the program guide document was one of the strengths of the program document.

The analysis of the observation notes taken by the researcher when the teachers were using the program document indicated that the program document functioned as a guide and the feature strengthened the teachers' comprehension and implementation of the program. For example, it was observed on 14.10.2008 that the teacher TD read the program guide document before starting the implementation of the program. After that she took notes on the edge of the program document's pages. She did not ask any questions after reading the program document. She stated that the program document seemed to be understandable. Another analysis of the observation notes taken on 07.10.2008 showed that teachers TA and TC started to implement the program, they expressed the program document was enough to direct the teachers in order to implement the program and understand the mentality of the program. Moreover, it was observed that the teachers referred to the program document whenever they needed. In this regard, analysis of the observation conducted on 24.02.2009 showed that the teacher TH read the parent questionnaire before delivering the questionnaire to the students. Then she turned to the program document as if she tried to clarify something. Then the teacher thought aloud "Okay, okay, I see what the questions in the parent questionnaire are trying to reach. "The purposes of each material were written in the program document."

Easy to Understand

The data analysis showed that teachers understood and comprehended the program guide document easily as program's users and implementers. The aspect of the program was one of the strengths of the program guide document. In this regard, eight of eleven teachers explicitly emphasized that they understood the program

easily. In this regard, the teacher TD said "I read and examined the program guide document; I think the program document is very clear. I understood what the aim of the program was easily." The teacher TM expressed that "I can see what the program aims at and how it is used via the program document." Another teacher emphasized the wording of the program was understandable by saying "The wording of the program guide document was well prepared for our easy understanding." Moreover, the psychologists emphasized that the program document was well prepared. One of them stated "I think, the wording and form of the program document are prepared as to be understandable for the users and implementers, I think" (PS2).

Analysis of the observation notes indicated that the teachers easily understood the program guide document when implementing the program. The analysis of the observation notes showed that they mostly referred to the program guide document during their implementations although the researcher was there. In this regard, the following excerpt was taken from one of the observation notes taken by the researcher.

Today, the teacher TN was called by one of the students' parents when the teacher and I were interviewing about the program. The teacher asked the parent to wait for one minute. Then, she opened the program guide document and read the part related with the parent questionnaire and then she turned to the parent saying "You can give the same order number for more than one item of the part." After that she listened to what the parent said and replied "Yes, you can leave a blank for the items you said." After putting down the phone, she said to me that the parent asked some questions related with the parent questionnaire. The teacher referred to the program guide document rather than referring to me.

05.03.2009

Weaknesses, Remedial Suggestions, and Modifications for the Program Guide Document

Spelling Mistakes

The overall data analysis of the program showed that there were spelling mistakes in the program document. Most of the mistakes were expressed by the participants, some of the mistakes were found on the basis of the observations conducted by the researcher. The participants stating the mistakes suggested corrections for them. The data analysis showed that the mistakes related mostly to

missing letters. The participants suggested correction for eliminating the spelling mistakes. The spelling mistakes were corrected in the program document.

The Effectiveness of the Modifications related with Program Guide Document

The spelling mistakes were corrected during the informal conversational interviews conducted with the participants stating the mistakes and making suggestions about them. Therefore, the participants approved the corrections. Moreover, the data analysis of the second stage showed that the participants did not make any criticism about the program document in terms of spelling mistakes.

Moreover, some other modifications were suggested by some of the participants for the program guide document in relation to instruction and explanations of the methods and their materials of the program. However, the modifications were expressed under the title of related methods and materials.

4.3.2 Results Related With Parent Questionnaire

The following figure summarized the strengths and weaknesses of the parent questionnaire and modifications made to the parent questionnaire and effectiveness of the modifications. After the figure, each item was explained.

Strengths of the Parent Questionnaire

The data analysis indicated the parent questionnaire had some strengths. The strengths were explained below.

Questionnaire Format

The data analysis of the study displayed that all the teachers and most of the experts interviewed in the program implementation and verification phase of the study expressed that the questionnaire format was the best choice for taking information from the parents. In this regard, one of the teachers stated that she did not have enough time to get information from the parents via face to face interviews. The teacher explained why she did not have enough time as follows;

> My students' parents like most parents want to talk about the subject that they have determined and chosen. However, the program required focusing on the

multiple intelligences. Thus, it is difficult to channel them through a specific subject. However, the questionnaire enables us to gather information from parents easily and efficiently. (TH)
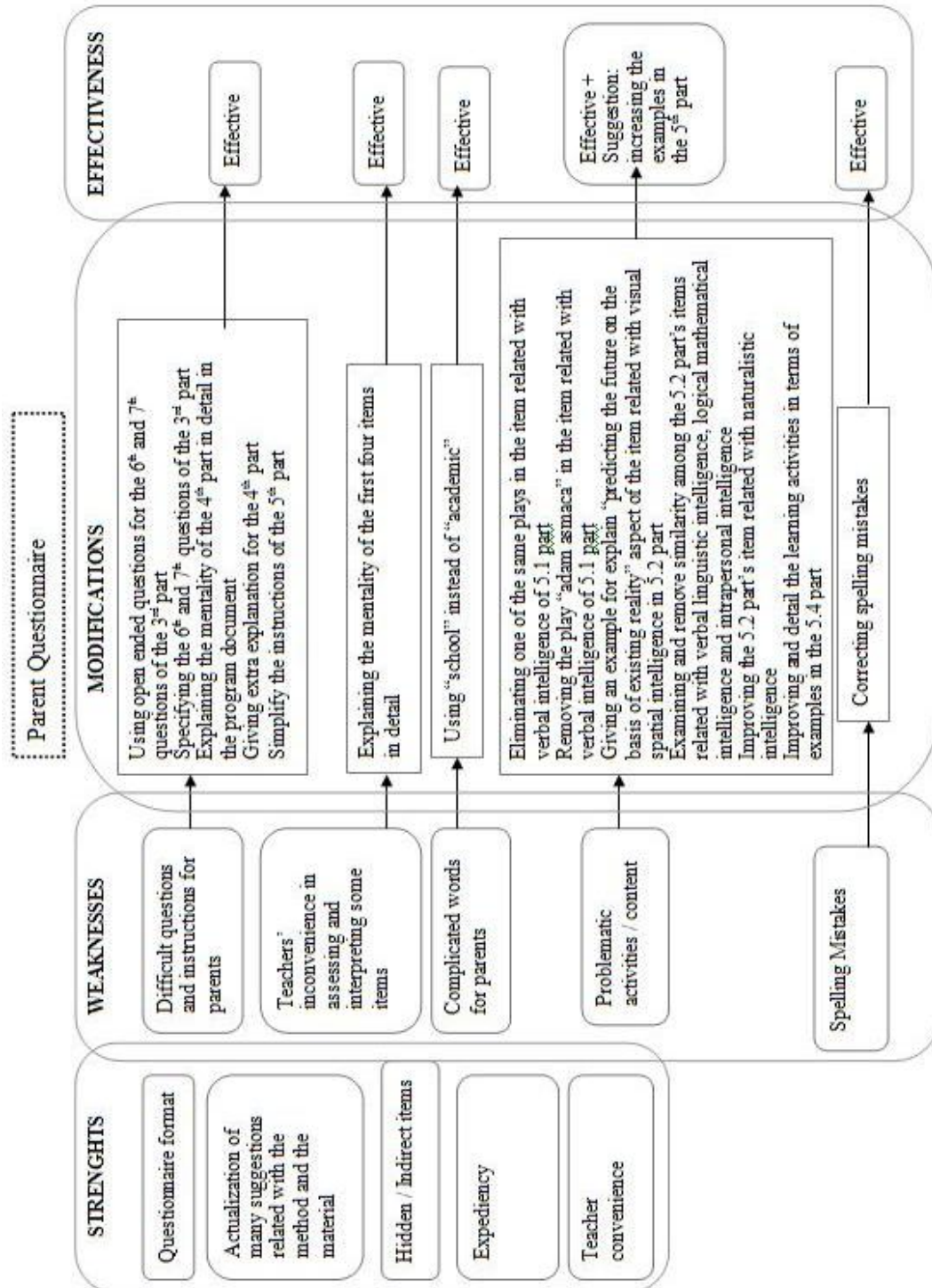
Figure 22 The Results Related With the Parent Questionnaire in the Program Implementation and Verification Phase

Like the teacher TH, the teacher TC stated "I like to get information from my parents about their children, but it is difficult via face to face interview. Therefore, I like the questionnaire format." Finally, the teacher TN expressed her pleasure saying "Ooo, it is a great method for gathering information from the parents. It enables us to have information from parents without any problems such as time limitation, communicative parent etc."

Furthermore, the psychologist PS3 and the sociologist SOI expressed that one of the strengths of the parent questionnaire was that it was a "questionnaire." The psychologist PS3 emphasized that interview was a good method for taking deep information; however, it was not usable if the interviewee was a parent and the interviewer was a teacher. Therefore, she stated that the questionnaire format was one of the strengths. The sociologist SOI like the psychologist PS3 thought the format was one of the strengths of the parent questionnaire; however, she considered the strength from a different angle, the parent view. In this regard, she stated that

> I am a mother. I am frequently faced with various methods of gathering data about my child. The methods are interview, test, and questionnaire. However, I have never met such a parent questionnaire. The questionnaire enables us to answer questions about our children at home, without time limitation.

Moreover, the analysis of the observation notes taken by the researcher indicated that teachers were pleased with the parent questionnaire. The teachers delivered the questionnaires to their students, which were completed by the parents. The parents sent the questionnaires to the teachers within one month via their children. The analysis of the observation notes indicated that the teachers thought the time "one month" was a reasonable time. In this regard, the observation notes indicated that the teachers expressed their views about the time positively. In this regard, the teacher TC completed the process of gathering the parent questionnaire. He said that "One month without giving any deadline was very good to complete such a task." Besides, the analysis of the observation notes taken on 02.10.2008 indicated that the teacher TG said "My parents sent the questionnaires in appropriately three months. I did not give any deadline or warnings. Therefore, I learned that if I do not give any deadline, the parents feel relaxed and free and then complete the task in a reasonable time."

Actualization of Many Suggestions Related With the Method and the Material

The suggestions about the methods and materials in order to determine students' multiple intelligences profiles were determined on the basis of the data analysis of the needs assessment phase. One of the suggestion groups was related with the interview with the parents. Although the format was not interview, but questionnaire, the aim of getting information from the parents was the same for both of them. Therefore, the analysis of the informal conversational interviews with the participants of the study indicated that most of the suggestions made by the participants of the needs assessment were actualized.

Hidden / Indirect items

The data analysis indicated that most of the participants thought that the parent questionnaire's items, especially the items directly related with the multiple intelligences, were the hidden ones. It meant that the items including the instruction did not clearly explain the aim of the item. In this regard, one of the teachers said that

> I think the characteristics of the items strengthened the parent questionnaire because if a parent sees what you want to learn, she tends to answer subjectively. Therefore, the instructions of the parent questionnaire were well prepared. (TG)

Like the teacher TG, the teacher TA emphasized the importance of the hidden items of the parent questionnaire saying,

> The items from 5.1 to 5.5 have instructions hiding the aim of taking information about multiple intelligences. The aspect of the items enables the teachers to get objective information about multiple intelligences of the students as much as possible.

Furthermore, Prof.Dr. Ercan Kiraz, the child neurologist and Prof.Dr. Ziya Selçuk expressed that the aspect of the parent questionnaire in terms of getting objective information from the parents was important and a good choice. Moreover, the psychologist and the sociologist stated the aspect of the parent questionnaire as one of the strengths of the material. In this regard, the sociologist said,

> Generally, interviewees tend to answer the questions of such materials dishonestly. They frequently answer on the basis of what they want to be or want to hear as a result of the material. However, the parent questionnaire does

not give direct and clear cues about the intelligence; on the contrary, it presents items almost all parents can approach objectively and without anxiety.

In this regard, the psychologist stated similar views with the sociologist and she also underlined the importance of the concept "intelligence" especially for parents. She said that "… most of us, especially parents, approach the concept of intelligence with care. In such a matter, it is a very powerful approach that the parent questionnaire hides items related with multiple intelligences." (PS2)

The results of the analysis of the observation notes taken by the researcher were similar with the results of the interviews conducted with the participants. The analysis of the observations notes showed that the teachers thought that the hidden items of the parent questionnaire enabled the teachers to get more objective information from the parents. In this regard, the analysis of the observation notes taken on 02.04.2009 displayed that the teacher TH said that she examined the parent questionnaires completed by their parents and realized that most of the parents made the order more objectively than the parents who have never been honest. The teacher explained how she reached that conclusion by saying "I compared the order I predicted with the one the parents made". Moreover, the analysis of the observation conducted on 26.03.2009 presented that the researcher met one of the parents. The parent and the researcher talked about the parent questionnaire she completed. She wanted to learn what the researcher did with their answers. The researcher summarized the purposes and the study. The parent knew multiple intelligences theory and was an academician. The parent said

> I did not realize the aim of the items especially the fifth item. I knew the study was about multiple intelligences. However, I thought you were gathering information about children's general characteristics.

Expediency

The analysis of the teachers' and the experts' opinions taken via opinion forms indicated that most of them thought the parent questionnaire was agreeable with the purposes of each part of the questionnaire. In the opinion form, there were total 47 parts about which the teachers' and parents' opinions were taken. The participant group was composed of six teachers and six experts. All participants agreed on the appropriateness of the parent questionnaire in terms of the purposes except one

teacher and one expert. One teacher marked one item as partially appropriate. The expert social pediatrics marked four items as partially appropriate. That meant that the participants agreed on 45 items at one hundred percent about the appropriateness of the purposes of the parent questionnaire. On the other hand, agreement of five items of the same material was at eighty three percent.

Teacher Convenience

The analysis of the opinion forms showed that all 12 participants completing the opinion forms thought 20 of 47 items were appropriate. Some of the participants expressed partially appropriate for 27 items. It should be expressed that the opinion forms were applied to twelve participants including six teachers and six experts before the second stage of the program implementation and verification phase of the study. Therefore, it could be said that the results about expediency and clarity for parents emerged from the 1st stage previously aiming to point out the weaknesses.

After the suggestions for eliminating the weaknesses were actualized in the light of the results which emerged from the first stage, most of the participants who had stated partially appropriate for some items in terms of expediency and clarity for parents changed their thoughts from partially to appropriate. As a result, all the participants gave appropriate for all items in terms of expediency and all participants, except one for two items expressed they thought "appropriate" for the items in terms of clarity for parents.

Weaknesses and Remedial Suggestions for the Parent Questionnaire

The parent questionnaire's weaknesses and the remedial suggestions were determined on the basis of the analysis of the data which emerged from the first implementation of the program. The second implementation of the program presented data related with the effectiveness of the suggestions actualized.

Difficult Questions and Instructions for Parents

The data analysis of the first stage of the program implementation and verification phase showed that there were some problematic questions in the parent questionnaire. The data analysis indicated that the problems were related with the third part including questions in relation to the child's health information and the fourth part including questions in relation to the child's social and emotional

information of the questionnaire and the fifth part related with the child's skill information.

The data analysis showed that the sixth and seventh questions of the third part were problematic. In this regard, the social pediatrics expert expressed that the questions were difficult for parents because they asked them to state the date of their children's first steps and words. Moreover, the teacher TC indicated the same problem by saying "Parents generally do not remember the date of their children's first steps and words. Also, they do not like to give such information because they think that it is special."

Like the teacher TC and the social pediatrics, the teachers TG, TK and the psychologists PS2 and PS3 expressed that the parents might not remember such information easily. The social pediatrics expert, underlined another problem related with the sixth and seventh questions of the 3rd part of the questionnaire. The problem was related with the multidimensionality of the concepts "speaking and walking." In this regard, she said

> Speaking and walking are multidimensional skills, so which dimension or dimensions does the parent questionnaire ask? For example, saying one word and making a sentence are different from each others. Therefore, it should be specified in the questionnaire.

The teachers and the experts made some remedial suggestions for neutralization of the weakness. For the sixth and seventh questions of the third part, the social pediatrics expert and the teachers suggested that the questions should be open-ended rather than close-ended. She made the suggestion as follows;

> The 6th question may be "When was the first time your child started to walk?" and the 7th question may be "When was the first time your child started to make a sentence? or When was the first time your child started to say a meaningful word?

Furthermore, she explained why she made the suggestion that,

> To remember the exact date as day, month, and year is very difficult; however, such questions such as I suggested might be answered by the parents easily. Moreover, there may be explanations about the questions or example answers in the parent questionnaire for the parents' understanding. Moreover, such questions may specify the aspects of the walking and speaking. For example,

the first date of making a sentence I used the phrase rather than the word "speaking".

Similarly, the other participants who stated the weakness and made suggestions were the teachers TC, TG, TK and the psychologists PS2, PS3. The participants' suggestions were very similar with the social pediatrics expert. They expressed that the 6th and 7th questions should be asked more flexibly rather than having strict limits "day/month/year. For the fourth part of the parent questionnaire, the data analysis showed that not only the social pediatrics expert expressed problems related with the questions under the fourth part.

Firstly, the social pediatrics expert stated that the part included questions related with child's social and emotional information and all questions she asked were equally related with a child's social and emotional characteristics. In this regard, she gave an example "…For example, one child's nutritional habit and friendship relations are different categorizations, I think." Furthermore, the social pediatrics indicated that some of the questions under the fourth part were not clear for parents. In this regard, she said "One of the questions asks whether the child lives period/s separate from her/his mother and father. I do not understand what the questionnaire asks and want to learn exactly as a parent."

In this regard, the researcher explained that what the questions tried to reach was that the questions examined whether the child had seasonal and temporary problems or had critical points affecting any behaviors the teachers make sense of dominance or recessive in terms of multiple intelligences and then whether it was necessary to forward the child to the school counselor or not. The researcher expressed that the questions enabled the teachers to comprehend the seriousness and complexity of determining students' multiple intelligences profiles. After the researcher's explanation, the social pediatrics expert stated "Okay, I see what you mean. However, the explanation you made for me should be placed in the program document for teachers." Furthermore, the teacher TC stated that all questions in the fourth part required extra explanation for parents' comprehension. He explained "Not all parents are well educated. Thus, if the parent questionnaire wants to take information from parents regardless of their educational level, it should present questions with extra explanations."

The data analysis indicated that there were problems related with the instructions of the fifth part of the parent questionnaire. In this regard, Prof.Dr. Ercan Kiraz, and Prof.Dr. Ziya Selçuk stated that the instructions of the fifth part needed to be simplified. In this regard, Prof.Dr. Ercan Kiraz said that

> The fifth part is the most critical part of the questionnaire. The information gained from the part is very important because the part is more directly related with multiple intelligences. Moreover, the information is taken only from parents. Therefore, the instructions should be comprehended by the parents. I think, the instructions are a bit complicated for parents. Therefore, the instructions should be simpler so the parent can easily understand the instructions and give useful information.

Teachers' Inconvenience in Assessing and Interpreting Some Items

The data analysis of the first stage of the program implementation and verification phase showed that the 1st, 2nd and 3rd and 4th parts of the parent questionnaire required detailed explanations for teachers' assessment and interpretation of the information gained from the parts. In this regard, the analysis of the opinion forms showed that the teacher TC and the social pediatrics expert expressed that the teachers might face difficulty in interpreting and assessing the information obtained from the first four parts of the questionnaire. In this regard, the social pediatrics expert said,

> The first four parts included open-ended questions and so assessing and interpreting the answers to the questions may be difficult for teachers. Also, the style of the first four parts and the fifth part are different from each other. Therefore, the teachers who will use the questionnaire might face difficulties in assessing and interpreting the questionnaire.

> Like the social pediatrics expert, the teacher TC said,

> The 1st, 2nd, 3rd and 4th parts are composed of open-ended questions. Also, the questions seem to not be directly related with the multiple intelligences. Therefore, teachers might not comprehend the mentality of the parts and not appropriately assess and interpret the parts.

The results of the analysis of the observations conducted by the researcher were similar with the results of the analysis of the opinion forms. The observation

analysis showed that three teachers faced difficulty in interpreting some items of the first four parts of the questionnaire. The teacher TH stated that

> I do not understand how the first four parts of the questionnaire are related with the multiple intelligences. Actually, the information obtained from the first four parts enables us to have our students' individual information collectively. I mean that we use the information in some way, but I cannot understand the mentality of the parts in terms of multiple intelligences.

The following excerpt taken from the observation notes supported the result about the first four parts.

> Today, the teacher TA started to interpret and assess the parent questionnaires. Firstly, she read the instructions and information about the parent questionnaire in the program document. Then, she expressed that the fifth part is easily assessed because of the order number. However, she underlined that the third and fourth that could exceed her knowledge. She stated she thought the information could be assessed by psychologists or school counselors.
>
> 27.11.2008

All the participants suggested that the mentality and the assessment and evaluation details of the first four parts should be explained in detail in the program document.

Complicated Words for Parents

The data analysis of the first stage of the program implementation and verification phase of the study showed that there was a word expressed by the social pediatrics expert as complicated for the parents. The word was "academic". In this regard, social pediatrics said that the word might cause misunderstanding for some of the parents. She stated "I think the word "academic" in title of the 2nd part of the parent questionnaire may be difficult for parents' understanding." Moreover, the social pediatrics expert made a suggestion for the weakness. The suggestion was using the word "school" rather than "academic."

Problematic Activities / Content

The analysis of the opinion forms applied at the first stage of the program implementation and verification phase displayed that two experts and some of the

teachers thought there were some problems related with the content of the 5th part of the parent questionnaire. The data analysis showed that item 5.1 having verbal linguistic intelligence based content included different words for expressing the same game in the examples. Three teachers and the social pediatrics stated the issue. All suggested that one of the duplicate plays should be eliminated from the questionnaire.

Moreover, for the same item, the psychologists stated that the name of one game "hangman," was not appropriate for students psychologically. One of the teachers who applied the questionnaire to her students' parents stated that five parents put a question mark on the name of the game. The teacher thought that the parents got annoyed with the word. The teacher suggested that the name of the game should be removed from the parent questionnaire.

The analysis showed that social pediatrics expressed that she wondered if all parents knew the games given as examples for the item related with the logical mathematical intelligence or not. The analysis of the implementation of the parent questionnaire to the parents indicated that there was no problem related with the games given as examples. The teachers expressed that the parents did not say anything or note anything related with the meaning of the names of the games. Also the teachers who implemented the parent questionnaire to their parents expressed that the examples included more than one game; therefore, they could understand what the part stated even if the parents did not know any games in that part.

Analysis of the opinion forms showed that the teacher TC expressed that contemporary life did not give opportunities to actualize the activities, so the observation about the item might be difficult for part 5.1 related with naturalistic intelligence. The analysis of the opinion forms indicated that there were some expressions for part 5.2 related with visual spatial, verbal linguistic, intrapersonal and naturalistic intelligence based contents. The analysis showed that the sociologist and the teachers TG and TA expressed that the item having visual spatial intelligence content included an explanation which was not easy to comprehend and might even cause confusion in parents' minds. The explanation was "predicting or imagining the future on the basis of existing realities." In this regard, the teacher TA said "I do not think my students can understand the meaning of the phrase "predicting the future on the basis of existing reality." The sociologist SO1 said

I have a difficulty in comprehending the content of the first item. Especially the phrase "predicting the future on the basis of existing reality" confuses my mind as a mother." In this regard, the participants suggested that the part might include explanative example for the phrase "predicting the future on the basis of existing reality.

Moreover, the analysis showed that social pediatrics expert expressed that part 5.2's items related with verbal linguistic intelligence, logical mathematical intelligence and intrapersonal intelligence were similar in terms of their contents. She added "… the parents may have difficulty in ordering the items." To neutralizing the weakness, she made a suggestion that was that the items should be examined in detail and the similarities should be sorted out.

The analysis displayed that three teachers stated the item having naturalistic intelligence content should be improved and explained in depth because the parents might have difficulty in comprehending the content. The analysis of the opinion forms indicated that there were problems related with part 5.4's content. For the item having naturalist intelligence content, the analysis showed that the parents had difficulty in understanding the learning activities expressed in the item. In this regard, the teacher TG said "I am not sure about my parents' comprehension of the activities." The teacher TA stated the item needed to include more examples and explanations. Moreover, as a mother, the sociologist SO1 noted that "Are the learning activities actualized? Are they real?" The analysis of the informal conversational interviews conducted with the teachers supported the results obtained from opinion forms in terms of the item. Two teachers stated that they faced some notes taken by the parents on the item in the questionnaire. One of the notes was that "The activities seem to be nice; however, this is the first time I have heard of or seen such activities so I do not have any opinions about my child' behavior in such learning activities."

Moreover, two teachers expressed that the notes indicated most of the parents were amazed with the learning activities and some of them did not understand. In this regard, the participants' suggestions gathered around the same suggestion. The suggestion was that the learning activities should be detailed in terms of examples. One of the teachers stated that "Actually, the items in that part include examples; however, they should be revised in terms of the parents' understanding." Another

teacher said that "The examples might be improved in terms of the parents' understanding."

Furthermore, the analysis of the opinion forms indicated that one of the teachers expressed one criticism for all items in part 5.4. His criticism was that parents generally know only traditional learning activities including writing, reading etc. He also emphasized that most of the parents did not accept other types of learning activities as learning activities. Moreover, he stated that the parents believed that the verbal and mathematical based learning activities were best activities because they only knew these learning activities. Finally, he concluded that he thought that parents might tend to mark the mathematical and verbal intelligence based learning intelligence as appropriate for their children.

Analysis of the opinion forms displayed that the teacher TC expressed that part 5.5 items included job names as examples; however, parents tended to put the items including jobs making more money as appropriate for their children. For the weakness, the suggestions resulted from the analysis of the informal conversational interviews with two teachers. The teachers, TC and TD, suggested that the instructions of the part should include a warning about their possible tendency to the jobs making money.

Spelling Mistakes

The data analysis indicated that there were same spelling mistakes on the parent questionnaire. Most of the mistakes were expressed by the participants, some of the mistakes were found on the basis of the observations conducted by the researcher. The mistakes were as follows; capitalizing proper adjectives and proper nouns (item, 5.1), misusing synonyms, (item, 5.1), letter mistakes (item, 5.4), misspelling (item, 5.3). The participants stating the mistakes suggested their correction.

Modifications in the Parent Questionnaire

Some modifications were made to the parent questionnaire and program document in relation to the parent questionnaire in the light of the suggestions and criticisms which emerged from the data analysis of the first stage of the program implementation and verification phase. Firstly, the mentality of the first four items of the parent questionnaire was explained in detail for the teachers as implementers /

users in the program document. Secondly, the word "school" was used in the title of the 2nd part of the parent questionnaire instead of the word "academic."

One of the modifications made to the parent questionnaire was that the 6th and 7th questions of the 3rd part were converted into open ended questions. Moreover, the questions were made more specific, the 6th question was specified as toddle and the 7th question was specified as making a sentence.

Furthermore, some modifications were made to the 4th part of the parent questionnaire. Firstly, the mentality of the 4th part was explained in detail in the program document for the teachers. Also, explanation was added to the 4th part on the parent questionnaire for the parents' comprehension. The instructions of the 5th part were simplified for the parents' comprehension.

In relation to the 5th part of the parent questionnaire, some modifications were made to the problematic activities and content. Firstly, there were two synonymous words for the same game in the 5.1, one of which was eliminated. Moreover, the same item had included the game "hangman", which was eliminated.

An example was also added to the item related with visual spatial intelligence in part 5.2 in order to explain the "predicting the future on the basis of existing reality" aspect of the item. Part 5.2 was examined and similarities among the items related with verbal linguistic, logical mathematical and intrapersonal intelligence were eliminated. In addition to that, the item reflecting naturalistic intelligence was improved with additions. The learning activities were improved by adding new examples in part 5.4. Furthermore, a warning was added to the instruction of part 5.5 related with the jobs. Finally, spelling mistakes were corrected on the parent questionnaire.

The Effectiveness of the Modifications in Parent Questionnaire

The data analysis of the second stage including the second implementation of the program implementation and verification phase implied that the modifications eliminated the weaknesses of the parent questionnaire. The data analysis did not display any of the weaknesses determined as results of the first stage data analysis.

Actually, the modifications were planned with the participants who expressed the weaknesses and made suggestions, thus, they approved the modifications. The teachers participating in the study after the first stage of the program implementation and verification phase were asked to state their views about the effectiveness of the

modifications. In this regard, the analysis of the informal conversational interviews conducted with the teachers showed that all teachers expressed the modifications were meaningful to be actualized. One of the teachers said,

> I think all the modifications made to the parent questionnaire are meaningful and useful. If the modifications were not actualized, my parents would face most of the difficulties the previous parents faced. For example, my parents could not understand the meaning of the word "academic". (TJ)

Another teacher, TP, underlined the same point by saying,

> The parents, I think, would not comprehend and make the ordering correctly if the instructions of the 5th part were not simplified. However, the parents of my students do not face difficulty in understanding the instructions related with the 5th part as far as I am concerned.

The data gathered throughout the second stage of the program implementation and verification phase were analyzed in depth in terms of the categories emerged from the weaknesses resulted from the first stage of the phase. The categories were namely; (1) difficult questions and instructions for parents, (2) teachers' inconvenience in assessing and interpreting, (3) complicated words for parents, (4) problematic content, (5) spelling mistakes. The data analysis showed that except one category, there were no weaknesses which emerged from the second stage of the phase. The exceptional category was "problematic activities / content." In this regard, two teachers expressed that the 5th part of the parent questionnaire might include much more examples. In this regard, teacher TH said "The part seemed to be enough; however, the examples could be increased in order to help the parents comprehend the items in depth." The other teacher TN said "If the examples are given under the 5th part, it may be better.

Although, the two teachers expressed the examples given under the 5th part might be increased, the data analysis indicated that they made suggestions not stating them as weaknesses because they did not express anything about the insufficiency of the examples. Moreover, there were no results which emerging from the data gathered through other collection sources and method about the insufficiency of the examples.

4.3.3 Results Related With Story Inventory

The following figure summarized the strengths and weaknesses of the story inventory and modifications made to the story inventory and effectiveness of the modifications. After the figure, each item was explained.
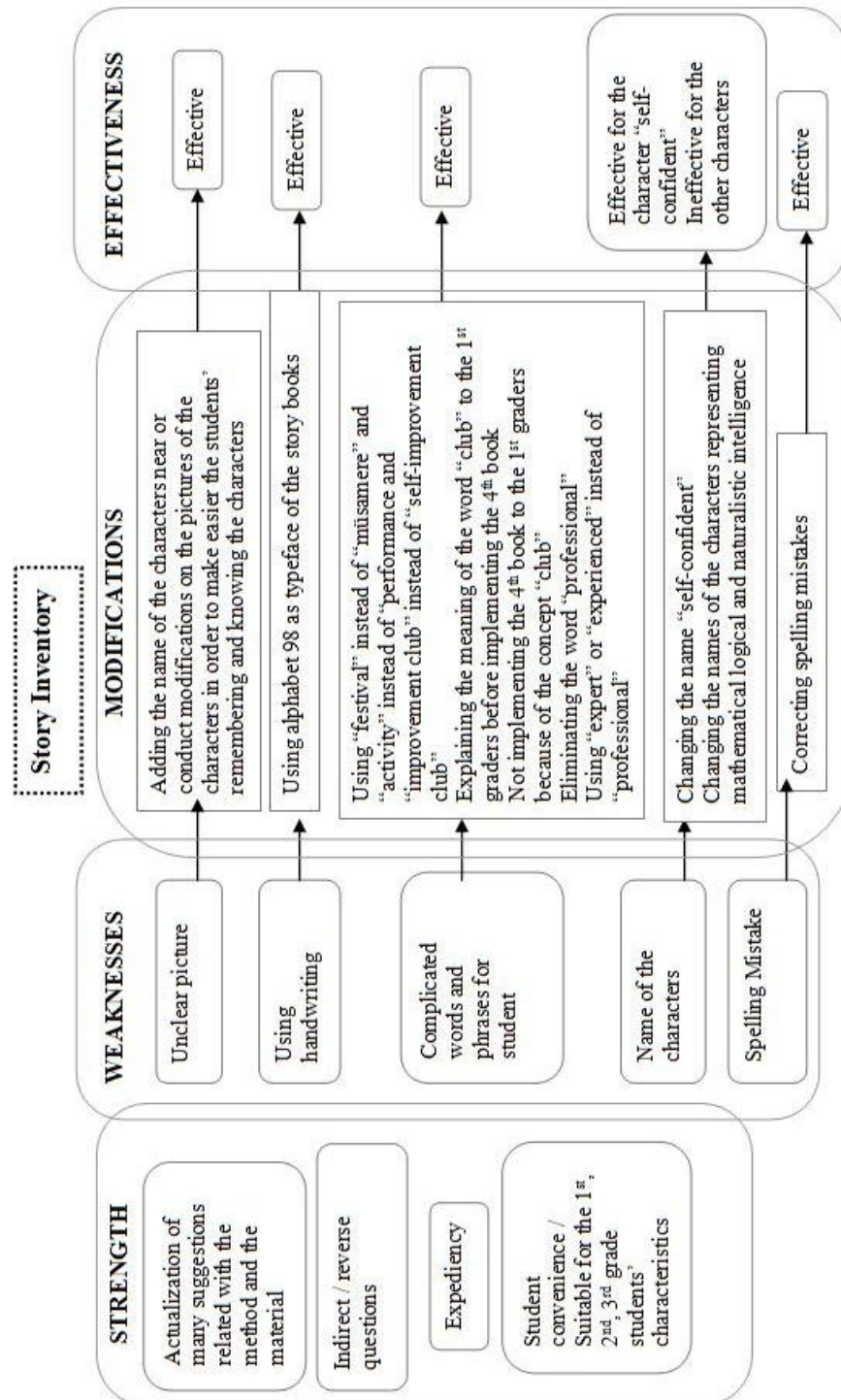
Figure 23 The Results Related With the Story Inventory in the Program Implementation and Verification Phase

Strengths of Story Inventory

Actualization of Many Suggestions Related With the Method and the Material

The story inventory was developed to meet the requirement of not only using inventory, but also interviewing with the students. Therefore, the suggestions made by the participants for the methods were taken into consideration when the story inventory was being developed.

The data analysis indicated that one of the strengths of the story inventory was that the actualization of many suggestions which resulted from the needs assessment for the method of the inventory and the interviews with students. The analysis of the informal conversational interviews conducted with the participants of the study displayed that most of the suggestions made by the participants of the needs assessment were actualized.

Indirect / Reverse questions

The data analysis of the program implementation and verification phase indicated that the reverse questions/instruction having students make order was one of the strengths of the story inventory. The analysis of the informal interviews conducted with the teachers and the experts showed that they thought using the reverse direction / instruction / question was a perceptive implementation. In this regard, the social pediatrics expert expressed that the reverse directions and questions were reasonable for such an instrument because people could think in more depth and detail when answering such questions. Similarly, Prof.Dr. Ziya Selçuk stated that reverse questions and directions were preferred by some studies rather than the classic type open and close ended questions. Also, he stated that literature indicated such questions/ directions could be more successful in terms of taking objective, in depth, realistic answers. He concluded that use of the reverse instruction / questions / directions was a right and reasonable choice.

Furthermore, the teachers TC, TD, TG, TN, TJ, TP agreed on the strength of the program. On this, the teacher TC emphasized that the reverse direction based questions had the children focus on the ordering in depth. Moreover, the teachers TD, TG, TP and TJ emphasized that children would not pay attention if they were faced with an ordinary instruction. They underlined that the instructions and direction of the story inventory did not ask the students to make order in an ordinary

way, so they focused on the ordering. The teacher TG concluded by saying "I think the best aspect of the program is the reverse questions."

Analysis of the observations conducted during the first stage of the phase indicated that the students paid attention when making ordering with the help of the indirect / reverse questions. Some of the students were surprised when taking the direction and instructions. For example, seven 2nd grade students from Emin Sağlamer Public Elementary School gave the following reactions; "What?", "How", "I do not understand how we make order?", "This is not easy, I should think about it."

Moreover, two 3rd grade students from the private school shared their thoughts with the researcher. The following excerpts were taken from the researcher's observation notes.

> Two girls said to me "The stories are very enjoyable. However, the way of making order is interesting. We spent time on the order." The teacher heard their words. The teacher expressed that she also observed the students when they were making order. She continued that she realized that the students spent more time to make decisions and they seemed to be attentive when making them.
>
> 04.12.2008

Moreover, the analysis of the observations conducted during the first stage of the program implementation and verification phase notes indicated that the students were able to follow the reverse direction / question and instruction. Most of the 2nd and 3rd grade students started to make order automatically according to the direction after they experienced the ordering in the light of the reverse instruction / question / direction with the help of the teacher. In this connection, one of the observation notes taken on 16.12.2008 showed that like the 2nd grade, the 3rd grade students got used to making order according to the reverse instructions in Emin Sağlamer Public Elementary School. They also did not lose their attention after they got used it. The students spent similar time to the time they had spent previously and they thought similarly. The only difference was that they did not ask questions about the way of order and responded to the direction such as "How do we make order?", "Please explain again!", "It is interesting! Rather than, when the teacher started to give direction / instruction, they responded to the teacher such as "We know how to make order." "Okay, we learned how to make order." "I completed making order." When

they were saying such sentences, they seemed to be concentrating on the ordering or story because they did not lift their heads.

Correlatively, the analysis of the observations conducted with the 2nd and 3rd graders in the Gazi University Foundation Private Elementary School during the first implementation stage of the phase displayed that the students got used to making order according to the reverse direction / instruction without losing their attention. Moreover, the analysis of the observations conducted during the second implementation stage of the phase in terms of the story inventory indicated that the students got used to making order according to the instruction including reverse questions. The analysis also implied that the students liked and were interested in the reverse questions. In this regard, one of the observation notes taken on 26.03.2009 showed that the 1st, 2nd and 3rd graders of Gazi University Foundation Private Elementary School read the 3rd book of the story inventory. All students read the book in silence. None of them asked how they were going to make order. The students were asked to start to make order. The students explained their ordering. All of them learned the ordering on the basis of their previous reading and ordering.

Expediency

The analysis of the opinion forms applied to the teachers and the experts during the first stage of the program implementation and verification phase showed that all experts and the teachers except one teacher for one item agreed on the story inventory in terms of expediency. The teacher TC expressed that the 8th assessment sheet was partially appropriate in terms of the expediency. He expressed that it included pictures of the characters and the students might have problems to remember the characteristics of each character, so he marked the partially appropriate for the item.

However, the analysis of the informal conversational interview conducted with the teacher TC indicated that he stated that he changed his thought from "partially appropriate" about the 8th assessment sheet to "appropriate" after the modification made on the sheet in the light of the suggestions. The informal conversational interviews conducted with the teachers and the experts throughout the program implementation and verification phase indicated that they thought the story inventory was an appropriate material in terms of its purposes. In this regard, one of the teachers stated "I think the story inventory reached its purposes" (TD). Another

teacher stated "The story inventory was carefully developed in order to reach the well-defined purposes" (TG). The teacher TP expressed that "I think the story inventory is well-developed in order to satisfy the purposes of the study in terms of inventory."

Student Convenience / Suitable for 1ˢᵗ, 2ⁿ and 3ʳᵈ Grade Students' Characteristics

The analysis of the opinion forms completed by the teachers and the experts during the first stage of the program implementation and verification phase indicated that most of the teachers and the experts thought that the story inventory was appropriate in terms of the 1ˢᵗ, 2ⁿᵈ and 3ʳᵈ grade students' characteristics. Some of the teachers and the experts expressed partially appropriate for some items. In this regard, modifications were made to the items in the light of the suggestions. Furthermore, the effectiveness of the modifications was explained under the title of the "The Effectiveness of the Modifications in Story Inventory." Although the effectiveness was explained in depth and detail under the title, it should be stated here that the data analysis in terms of the effectiveness showed all modifications were effective.

Weaknesses, Remedial Suggestions, and Modifications for Story Inventory

The weaknesses of the story inventory and remedial suggestions in order to eliminate them were determined as a result of the data analysis conducted during the first stage of the program implementation and verification phase. In this regard, the weaknesses were presented under the categories; (1) Unclear pictures, (2) Using handwriting, (3) Complicated words and phrases for the students, (4) Name of the characters, (5) Spelling mistakes.

Unclear Pictures

The data analysis indicated that there were some problems related with the pictures of the story inventory. Firstly, the data analysis indicated that the pictures of the characters looked too much like each other. In this regard, Prof.Dr. Ziya Selçuk expressed that the characters looked like each other very much, so the students might have difficulty in making order using the pictures. In addition to this, the social pediatrics pointed out that some of the pictures included backwards facing pictures of

the characters. She added that the backwards facing pictures might be complex for the students, which might cause their wrong ordering.

The observations showed that some students had some difficulty in ordering on the assessment sheets including the characters' pictures because of the reasons expressed by the experts. In this regard, from private school, two 1st grade, two 2nd grade and one 3rd grade students expressed that they could not make clear distinction among the pictures of the characters on the evaluation sheets because of backwards facing pictures. In this regard, one of the 3rd grade students said "I do not understand which picture belongs to which character because of backwards face pictures."

The criticisms came from not only the students of the private school, but also of the public school. Two 1st grade, four 2nd grade and five 3rd grade students explicitly expressed that they had difficulty in knowing the characters on the evaluation sheets because of their backwards facing pictures. For example, from the public school, one 2nd grade student said,

I have difficulty in making order on the evaluation sheets because of the backwards facing pictures of the characters." Another student from the 3rd grade in the public school expressed that "I cannot understand who are in the backwards facing pictures.

To eliminate the problem related with the similarity among the pictures of the characters, Prof.Dr. Ziya Selçuk suggested that some modifications could be made to the pictures of the characters. He gave an example that not all characters had to have speckles. Moreover, he added that the specialties of the characteristics representing multiple intelligences might be made explicit. The analysis of the informal conversational interviews indicated that some of the teachers made another suggestion for the same problem. They expressed that the name of the characters might be written near the pictures on the evaluation sheets in order to remove the problems related with the similarity among the pictures of the characters.

In this regard, the teacher TD said "I think if characters' names are written on their pictures on the evaluation sheets, the students can make order more easily than now." The teacher TA stated, "If there are problems related with similarity among the pictures of the characters, the solution is writing their names on their pictures in the evaluation sheets."

Analysis of the conversational interviews conducted with psychologists and the sociologist indicated that the similarity was a precaution for a possible problem in relation to pictorial effect on the students' ordering. The psychologist PS2 expressed that,

Actually, the similarity was an advantage because the similarity enables the students to focus on activities actualized by the characters rather than their visual appearance. For example, children watch Smurfs and they most like one or two of them. However, they like their specialties not their visual aspects because all of them have the same visual appearance.

Like the psychologist PS1, the sociologist SO1 also thought that the similarity was consciously formed so not to bring out extraneous variables in relation to visual appearance of the characters. In this regard, she said,

As you know well, these extraneous variables and controlling them are important for any scientific studies. Therefore, the similarity controls any possible effect emerging from the visual aspect of the characters…If the similarity causes difficulty in knowing the characters, their names might be placed on the pictures.

Like the SO1 and PS1, the social pediatrics expert suggested that the name of the characters might be added on the pictures or near the pictures to eliminate the problem related with the pictures included the backwards facing pictures of the characters. The analysis of the informal conversational interviews with the experts and the teachers indicated that the teachers and the experts suggested that the name of the characters may be placed on the pictures of the characters in the evaluation sheets. In this regard, Prof.Dr. Ercan Kiraz said that

If the students have difficulty in distinguishing the pictures including backwards facing pictures of the characters, the names of the characters can be written near or on the characters.

The modifications were made and the effectiveness of the modifications was explained under a separate title in the following pages.

Using Handwriting

The stories in the books of the story inventory were typed using handwriting as type face. The analysis of the informal conversational interviews presented that four of six teachers suggested changing the type face "handwriting" with the type face "alphabet 98." In this regard, TC stated that,

> We make the students use handwriting; however, we present reading materials typed without handwriting. Generally, the primary level books were typed with Alphabet 98 and the newspapers were typed with Times New Roman. If I were you, I would prefer to use Alphabet 98 rather than handwriting.

The teacher TD expressed that,

> Actually, our students can read all type faces; however, they have a little bit of difficulty in reading the materials typed with handwriting. Moreover, generally books are written with Alphabet 98 at the primary level. I think it is better to use Alphabet 98 for the material.

The teacher TN said "Students are generally good at handwriting; however, not good at reading a material written in handwriting." The observations showed that some of the students expressed that they did not like to read handwriting. For the 1st book, they expressed their reactions to the materials saying such sentences "Off, again! Handwriting." "Is there the same book typed with normal alphabet?" "Can you change the book with the book typed with normal alphabet?"

Furthermore, the analysis of the observations conducted with implementation of the other books (from the 2nd book to the 7th book) indicated that the students accepted the books typed with handwriting. The analysis displayed that they did not object to the type face "handwriting" of the books.

Complicated Words and Phrases for Students

The data analysis of the first stage of the program implementation and verification phase indicated that there were some words the 1st, 2nd and 3rd grade students had difficulty in understanding. The analysis of informal conversational interviews showed that some of the teachers and the experts expressed that because of some words used in the story books, the students might have difficulty in understanding their meanings. The words and phrases were namely; "professional",

"club", "self-improvement club" "performance", "crossword" and "müsamere- in Turkish which is the traditional synonym of the word show."

For the 1st story book, the psychologists, the teachers TC, TA, TG, TD, TE, the social pediatrics expert, Prof.Dr. Ziya Selçuk, Prof.Dr. Ercan Kiraz and the psychologists expressed the word "müsamere-in Turkish", which was the traditional synonym of the word "show", was not used in contemporary life, so the students might not know the meaning of it. Moreover, the teachers and the experts marked the words on the story books when completing the opinion forms about the material. Analysis of the observations conducted by the researcher when the book was implemented showed that most of the students asked the meaning of the word and they expressed that they did not understand its meaning. Instead of the problematic word, most of the teachers and the psychologists suggested the word "festival." In this regard, they expressed that the word "festival" was the generally used in school environments.

For the 3rd story book, the data analysis showed that Prof.Dr. Ziya Selçuk underlined the phrase "crossword" on the page of the book and took note near the phrase "the students might not know the phrase." For the 4th book, the psychologists, the teachers TC, TD, TE, the sociologist emphasized that the word "club" might not be understood by the 1st graders because they did not participate in the school clubs. In this regard, the psychologists suggested that the meaning of the "club" might be explained before the 1st graders started to read the book. Moreover, the psychologist PS2 suggested that the book might not be implemented with the 1st graders.

The social pediatrics expert expressed that she wondered if the 1st, 2nd and 3rd grade students understood the meaning of the phrase "self-improvement club" or not. She emphasized that she thought the students could not comprehend the meaning of the phrase easily. Also, Prof.Dr. Ercan Kiraz expressed the same criticism for the phrase "self-improvement club." As a solution for the criticism, the social pediatrics expert and Prof.Dr.Ercan Kiraz suggested using another name for the club instead of the "self-improvement." The analysis of the informal conversational interviews with the teachers showed that teachers made some suggestions for the name of the club. The teacher TK suggested "improvement club", the teacher TE suggested "individual club", and the teacher TA suggested "the club of I."

Moreover, the social pediatrics expert, teachers TG, TE and Prof.Dr. Ziya Selçuk stated that the words "professional" and "performance" might not be

understood by the students. The results of the observation analysis were similar with the results which emerged from the analysis of the informal conversational interviews in terms of the words "professional" and "performance". The analysis of the observations indicated that most of the students expressed that they could not understand the meanings of these words and asked what they meant. For these words, the teacher TG suggested "The word "professional" may be eliminated because it seems to be unnecessary and the word "activity" can be used instead of the word "performance." The teacher TE suggested using the words "expert" or "experienced" instead of the word "professional".

As a result, the results which emerged from the analysis of the opinion forms, informal conversational interviews and observations indicated the words and phrases were not easily understood by the students.

Names of the Characters

The data analysis showed that there were some problems related with the names of the characters. In this regard, data analysis indicated that the most problematic name was the name of the character representing intrapersonal intelligence. The name was "Self-confident intelligent." For the names, the teacher TC, the social pediatrics expert and Prof.Dr. Ziya Selçuk marked "partially implement" in the opinion form. They expressed the name might look unfamiliar to the 1st, 2nd and 3rd grade students. Moreover, the results which emerged from the observations indicated that the name of the character was found strange by most of the students. The analysis of the observation notes showed that the students expressed some reactions to the name saying at such sentences "What?", "I did not understand the name", "I do not like the name", "I think the names of all characteristics are good except the Self-confident intelligent."

Analysis of the opinion forms indicated that the teacher TC expressed that the names of the characters representing mathematical – logical, intrapersonal and naturalistic intelligences were partially appropriate for the 1st, 2nd and 3rd grade students' level in terms of vocabulary. The participants expressed the names might be changed. Prof.Dr. Ziya Selçuk suggested that the students might be asked to suggest alternative names for the characters. In this regard, the analysis observation notes indicated that some of the students suggested new names for the characters

when the researcher asked them to suggest names. However, their suggestions did not indicate common traits.

Spelling Mistake

The data analysis showed that there were some spelling mistakes on the story inventory's books. Most of the mistakes were expressed by the participants, which were found on the basis of the observations and examinations conducted by the researcher. The participants pointing out the mistakes suggested neutralization of them by correction. The mistakes corrected were expressed as follows:

a) Story Inventory Book I: Misspellings, comma missing, the phrase "burgess eight intelligent" was used as if attributive adjectives because of comma missing (p.2)

b) Story Inventory Book I, II, III, IV, V, VI, VII: Paragraph indentation missing, capitalizing proper adjectives such as Intelligent (Zeki), Writer (Yazar) etc., separation of particles from proper noun

c) Story Inventory Book IV: Comma missing (p. 4, 5, 6, 7, 8)

d) Story Inventory Book V: Misconstrued sentence (p.6)

Modifications in the Story Inventory

Some modifications were made to the story inventory and to the program document in relation to the story inventory on the basis of the suggestions made by the participants. Firstly, names of the characters were added near the pictures of the characters on the evaluation sheets in order to eliminate the difficulty in knowing and ordering the characters.

The typeface "handwriting" used in the story books was changed into the typeface "Alphabet 98." Another modification made to the story books was related with the complicated word. The word "festival" was used instead of the word "müsamere - in Turkish which is the traditional synonym of the word "show"; the word "activity" was used instead of the word "performance"; the word "experienced" was used instead of the word "professional." In addition, the word "professional" was eliminated from the books because its usage was not vital for the book in terms of the meaning and content. Furthermore, the name of the club "self-improvement club" matching with intrapersonal intelligence was turned into "improvement club."

An instruction was added on the program document in relation to the 4th story book. The instruction was about the implementation of the book to the 1st graders

because the concept "club" was determined as unknown for the 1st graders. In this regard, the instruction suggested that the concept might be explained to the 1st graders before implementing the book or the book might be eliminated for the 1st graders.

One modification was made to the name of the character corresponding with the intrapersonal intelligence. In this regard, the name of the character "self-confident" representing intrapersonal intelligence was changed into "self-contained". Finally, the spelling mistakes were corrected.

The Effectiveness of the Modifications in the Story Inventory

The data analysis of the second stage of the program implementation and verification phase showed the effectiveness of the modification related with the story inventory was positive. Firstly, the analysis of the informal conversational interviews with the teachers including both the teachers suggesting the modifications and the teachers participating in the study at the second stage of the program implementation and verification phase thought that the names of the characters added to the pictures eliminated the confusion which originated from the pictures. In this regard, the teacher TP said, "If the confusion about the pictures was not eliminated, my students might have difficulty in knowing the characters on the evaluation sheets. The additions are useful, I think."

The teachers suggesting the additions expressed that the weaknesses were eliminated. In this respect, the teacher TA expressed "The additions eliminated the problem which resulted from the similarities among the pictures that I explained before." The analysis of the observations conducted during the second stage indicated that the students did not have any confusion from the pictures. Furthermore, the analysis of the observation showed that the addition of the characters' names on the evaluation sheets enabled the students to know the characters and remember their actions and so make effective ordering. The following excerpts were taken from the researcher's observation notes.

> Today, the second story book was implemented to the 1st, 2nd and 3rd grade students in the private school. I observed the implementations. The students used the names put on the evaluation sheet when making ordering. For example, most of the students read in a low voice and put their fingers on the names while ordering. Moreover, some of the students said such sentences who "Imm, okay! I remembered the character writing musical notes on bookmarks

was musician intelligent." "I see which character looks like me mostly is active intelligent.

<div align="right">12.03.2009</div>

During the implementation the teacher TP said to me that some of her students asked how they could know which pictures belonged to which characters. She expressed that some other students had answered the questions by saying such sentences "The characters' names are on the pictures." Also, she said she had remembered and indicated the names, and then the students did not ask such questions.

<div align="right">26.03.2009</div>

The analysis of the informal conversational interviews conducted with the teachers and the experts during the second stage of the phase indicated that there were no criticisms about the typeface of the books. Furthermore, the analysis of the observation notes conducted during the second stage including second implementation of the story inventory with the newly participating 1st, 2nd and 3rd graders indicated that using the typeface Alphabet 98 made the students happy. The following excerpts were taken from the students' reactions noted during the implementation of the 1st story book. "Oh be, the book was written with normal letters" (sts2r1). "Okay, it is normal writing" (sts9b1). "Teacher, I like the book because of its' writing style" (sts11r2). "Super! The book was written with normal writing." (sts3r3) "Wonderful! I will be able to read the book easily because I have difficulty in reading handwriting." (sts15b3)

Another modification was made to the complicated words. As was stated under the title of weaknesses and remedial suggestions, the participants suggested some words instead of the complicated words. The data analysis showed that the participants suggesting the changes approved the modifications made to the words. In this regard, the teachers TA, TC, TG, TK, TE expressed that they were satisfied with the actualization of their suggestions. Analysis of the observation notes indicated that the modifications were positively effective. The analysis of the observation notes did not cause any students' questions related with meanings of any word used in the books.

Analysis of the informal conversational interviews conducted with the newly participating teachers during the second stage of the phase showed that the teachers approved the modifications and thought they were useful. In this regard, the teacher TJ stated that, "I agree with the words suggested by previous teachers. The words

"müsamere, professional, self-improvement" are not frequently used words. Already, all the suggestions have been actualized. No problem."

The teacher TM underlined that the word "club" was unfamiliar to the 1st graders because the 1st graders did not participate in school clubs. She added that the explanation about the concept of "club" became more meaningful. Although the modifications made to the complicated words were positively effective, the data analysis showed that the modifications made to the character names were not positive. As it was previously stated under the title of the weaknesses and remedial suggestions, the students suggested some names for the characters. Actually, the students had not demanded such modifications, they suggested the names because they were asked to suggest. Moreover, it had been expressed that there had not been commonality among their suggestions. However, their suggestions were shared with the teachers and the experts including psychologists and sociologists and they were asked to express their views on the names. The analysis of the views indicated that they did not approve such modification except "self-confident intelligent." In this regard, the psychologist PS2 stated that,

> The names suggested by the students mostly originated from cartoons they have watched such as Smurfs and Snow White and Seven Dwarfs. The suggestions and their origins are normal in terms of the ages of the students. However, the names are not appropriate in terms of representing the multiple intelligences.

The psychologist PS3 emphasized that the names suggested by the students might affect the students' ordering, so she did not approve the using of the names suggested by the students. She said,

> If the names of Seven Dwarfs or Smurfs were used, the students would not focus on their characteristics and activities they actualized in the books. The students would focus on characters' specialties presented by the cartoons.

The teacher TC agreed with the psychologists' thoughts by saying, "I oppose using names of the existing characters such as Seven Dwarfs and Smurfs although; I suggested changing the name of the character self-confident intelligent." Moreover, the analysis of the informal conversational interviews conducted with the teachers newly participating in the study at program implementation and verification phase

indicated that they approved changing the name self-confident and disapproved the modifications made to other names. In this respect, the teacher TM expressed that the names suggested by the students originated from the well-known fairy tales, cartoons or the images they liked. She added that the origins were not representing multiple intelligences. The teacher TN also underlined that same aspect by saying,

> The fairy or cartoon names have their own images. Moreover, some names suggested by the students unrelated with a fairy or cartoon do not represent the multiple intelligences. Furthermore, the names emphasized one aspect of one intelligence such as footballer intelligent, player intelligent, basketball player intelligent. The names suggested by the students only represent the sportive activities for bodily kinesthetic intelligent. However, the bodily kinesthetic intelligent is more than sportive activities.

The informal conversational were interviews were conducted with the 1st, 2nd and 3rd graders during the second stage of the 1st book in terms of the suggested names. The analysis of the interviews showed that most of the students did not prefer the suggested names instead of the existing names of the intelligents. The following excerpts were taken from the students' views noted by the researcher. "No, I liked the names (existing names of the characters) because the other names (suggested names) as if they are only for boys" (sts4r1). "Why do you want to change the names? I like them" (sts5r1). "I do not like snow white and the seven dwarfs. Also the intelligent eight are not dwarfs" (sts12b1). "I like the Smurfs, but the names of the intelligents are good. Don't change them" (sts13b2). "There is only one girl in the Smurfs. Don't change the names of the intelligents" (sts7b3). "If I were you, I would not want to change the names. The story of the intelligent eight is a new story, I think" (sts7r3). "The active intelligent is active not only as a footballer or basketball player. I like the name "active." The intelligent is like me" (sts3r3).

Although most of the students did not prefer to change the names of the characters, the analysis of the informal conversational interviews showed that a few students liked the names suggested by the previous students. Furthermore, the data analysis indicated that the students mostly liked the names related with Smurfs. In this regard, they stated they liked Smurfs, so the names of them might be used. Besides, the sociologist underlined that the suggested names indicated another important perception about the character matched with intrapersonal intelligence. She said that,

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I examined the suggested names for the character matched with intrapersonal intelligent. I realized that some of the students perceived the character as alone, single. I think this perception was a problem at that time. I do not think so now. The new name of the character and the modified content representing that character is not alone and single. Therefore, the modifications related with the character are meaningful. However, I did not realize any problem related with the other characters in terms of their names, so their names should be maintained without changing.

Analysis of the observation notes indicated that there were no remarkable problems related with the names. The analysis showed that the students did not give any reaction to the names or suggest changing them. Another modification made to the story inventory was correction of the spelling mistakes. Actually, the corrections were made immediately after the mistakes were found or stated by the participants. The data analysis indicated that there were no new spelling mistakes in the story inventory.

As a result, the data analysis pointed out all modifications except the one planned to be actualized to the character names was useful and positively effective. Although the suggested names were not used in the light of the data analysis, the name of the character representing intrapersonal intelligence had been modified. The modification was thought by the participants as acceptable and meaningful like the other modifications actualized.

4.3.4 Results Related With Film Inventory

The following figure summarized the strengths and weaknesses of the film inventory and modifications made to the film inventory and effectiveness of the modifications. After the figure, each item was explained.
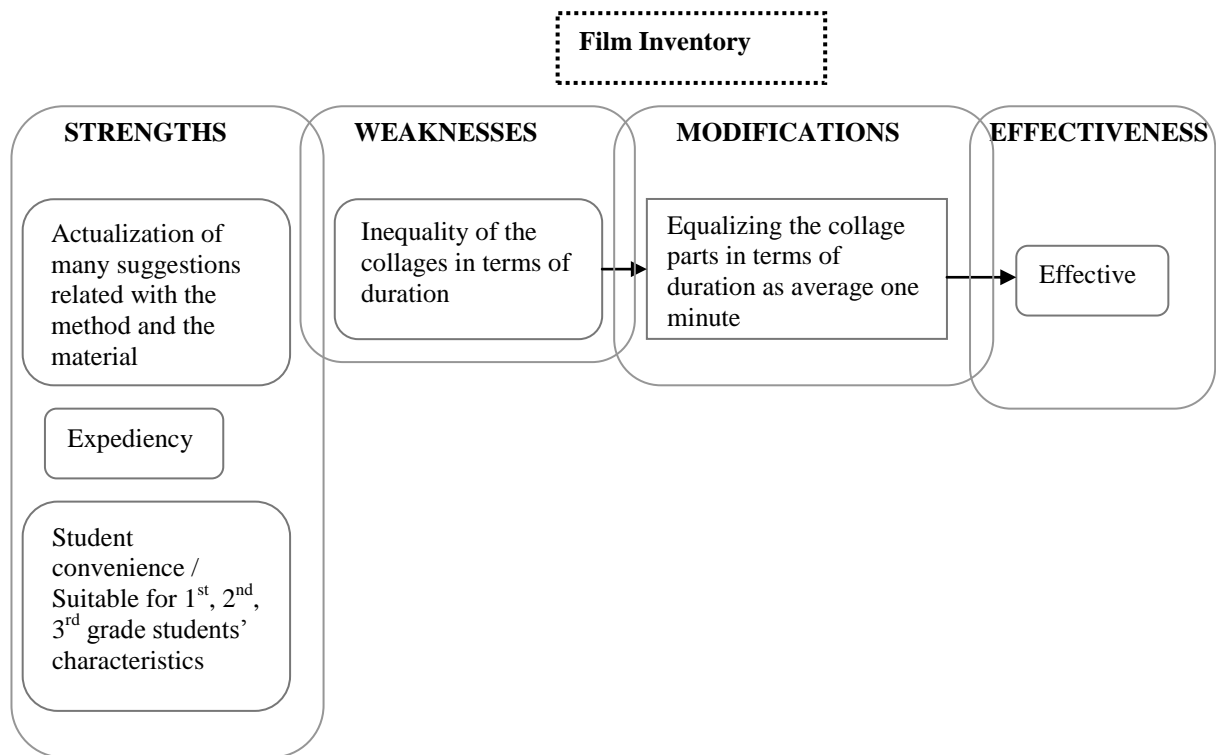
Figure 24 The Results related With the Film Inventory in the Program Implementation and Verification Phase

Strengths of the Film Inventory

Actualization of Many Suggestions Related With the Method and the Material

The data analysis of the program implementation and verification phase of the study indicated that many suggestions for the method inventory were actualized. The data analysis of the informal conversational interviews and the observation notes indicated that most of the suggestions which were made by the participants in relation to the inventory during the needs assessment were actualized.

Expediency

The analysis of the opinion forms conducted with the participants during the first stage of the program implementation and verification phase showed that all experts and the teachers except two of them for two items agreed on the film inventory in terms of expediency. The teacher TC and TG expressed that the parts representing visual spatial intelligence and intrapersonal intelligence were a little bit complex in terms of expediency.

The informal conversational interviews conducted with the teachers and the experts indicated that they thought the film inventory was an appropriate material in terms of its purposes. In this regard, the teacher TN said "It is a good and useful material, which is appropriate in terms of its purposes." Another teacher stated that "I think the program with its materials reached its purposes. In detail, each material reached its purposes. One of them is film inventory."

Student Convenience / Suitable for the 1ˢᵗ, 2ⁿᵈ and 3ʳᵈ Grade Students' Characteristics

The analysis of the opinion forms showed that except two teachers, all the teachers and the experts thought that the film inventory was appropriate in terms of the 1ˢᵗ, 2ⁿᵈ and 3ʳᵈ grade students' characteristics. One of two teachers expressed partially appropriate for two items, the other teacher marked partially appropriate for one item.

Weaknesses and Remedial Suggestions for the Film Inventory
Inequality of the Collages in Terms of Duration

The collage part having the longest duration "4.22 minute" was prepared to represent the bodily kinesthetic intelligence. The collage part having the shortest duration "1.25 minute" was prepared to represent the visual spatial intelligence. The data analysis indicated that there were problems related with the durations of the collages. The durations of the collages were unequal. In this regard, some of the teachers who watched before the students expressed the differences might be a problem. For example, the teacher TC said "I watched the collages. I realized that the durations of the parts are not same. I think that might affect the students' ordering. Thus, the students might not order appropriately." Another teacher expressed,

> The inequality of the collages results in inequality of the students' memory about the parts. Therefore, the students may tend to mark the parts they mostly remember as 1ˢᵗ, 2ⁿᵈ etc. (TN)

The results which emerged from the analysis of the observation notes indicated that some of the students mostly spoke about the collage parts having longer durations. For the part representing bodily kinesthetic, one of the student stated that "I most liked this part because I remembered it" (sts9r1). Another student expressed

that "I chose this part because it is the longest part; I liked to watch it till the end" (sts6r3). For the shortest part representing visual spatial intelligence, one student said "I do not like it because it is very short and I cannot remember" (sts11r1). Another student expressed that "Some of the parts are very short, so I did not like them" (sts21b2).

The analysis showed that the collage part having the longest duration was placed by some of the students in the top three. Correspondingly, the collage part having the shortest duration was placed by some of the students in the last three. The analysis of the observation notes indicated that the students did not like the inequality in the durations of the collages. The analysis of the observation notes showed that the students expressed their dislike with some comments. In this regard, the following excerpts were taken from the observation notes.

> Today, the film inventory was implemented to the 1st, 2nd and 3rd graders of the private the school. I think they did not like the inequality among the durations of the collages. I think like that because when they were watching the collages, they stated some comments indicating their dislike. I noted some of them. For example, "Waaw, the part was long." "Uff, the part was very short." "Why are some parts long and some others short?" Additionally, the inequality affected their choices. The following sentences were stated by the students when they were making ordering. "I have difficulty in remembering the short parts." "The longer parts remained in my mind, so I had difficulty in remembering the other parts."
>
> 15.01.2009

The results which emerged from the analysis of the observation notes taken by the researcher in the public school in terms of implementation of the film inventory were similar to the results reached on the basis of the analysis of the observation notes related with film inventory implementation in the private school. In this respect, the analysis of the observation notes taken on 16.01.2009 showed that during the implementation of the film inventory in the public school, some of the students realized the inequality among the durations. Moreover, the students expressed such sentences "Aaa, this was short", "Ooo, the part was long", "I may not remember short parts." Two teachers expressed that the inequality might cause problems for the students' ordering. Some of the students expressed the inequality affected their ordering when they were making ordering. For example, "The longer parts are in my mind." "I cannot remember some of them.

The analysis of the informal conversational interviews conducted with the participants indicated that four teachers and the experts including one psychologist, one sociologist and the researcher's supervisor suggested that the durations of the parts should be equalized. The teachers TE, TC, TA, TG expressed that the average duration might be one minute. The psychologist PS2, the sociologist SO1 and the thesis supervisor agreed with the average duration suggested by the teachers.

Modifications in the Film Inventory

There was one suggestion made by the participants about the film inventory, which was to equalize the collage parts in terms of duration as one minute and it was actualized. The suggestion was made by the teachers TA, TC, TG, TE and the sociologist SO1, psychologist PS2 and Prof.Dr. Ercan Kiraz.

The Effectiveness of the Modifications in Film Inventory

The data analysis showed that the participants suggesting the equality of the collages' durations were satisfied with the modifications. The analysis of the informal conversational interviews conducted with the teachers participating in the study at the second stage of the program implementation and verification phase thought that the modification was right. In this regard, the teachers TJ and TM expressed that the equality was necessary because of the characteristics of the 1st, 2nd and 3rd grade students. The teacher TJ said,

> I think the modification is meaningful because of two important reasons. The first reason is that the 1st, 2nd and 3rd graders and also 4th and 5th graders most like long duration – cartoons. On the other hand, they have poor attention spans. The inventory includes cartoons and also requires the students' attention. The inequality would create a problem and contradiction if the modification was not actualized.

The analysis of the observations conducted during the second stage indicated that the students did not give any reaction to the durations of the collages.

4.3.5 Results Related With Performance Assessment

The following figure summarized the strengths and weaknesses of the performance assessment and modifications made to the performance assessment and effectiveness of the modifications. After the figure, each item was explained.
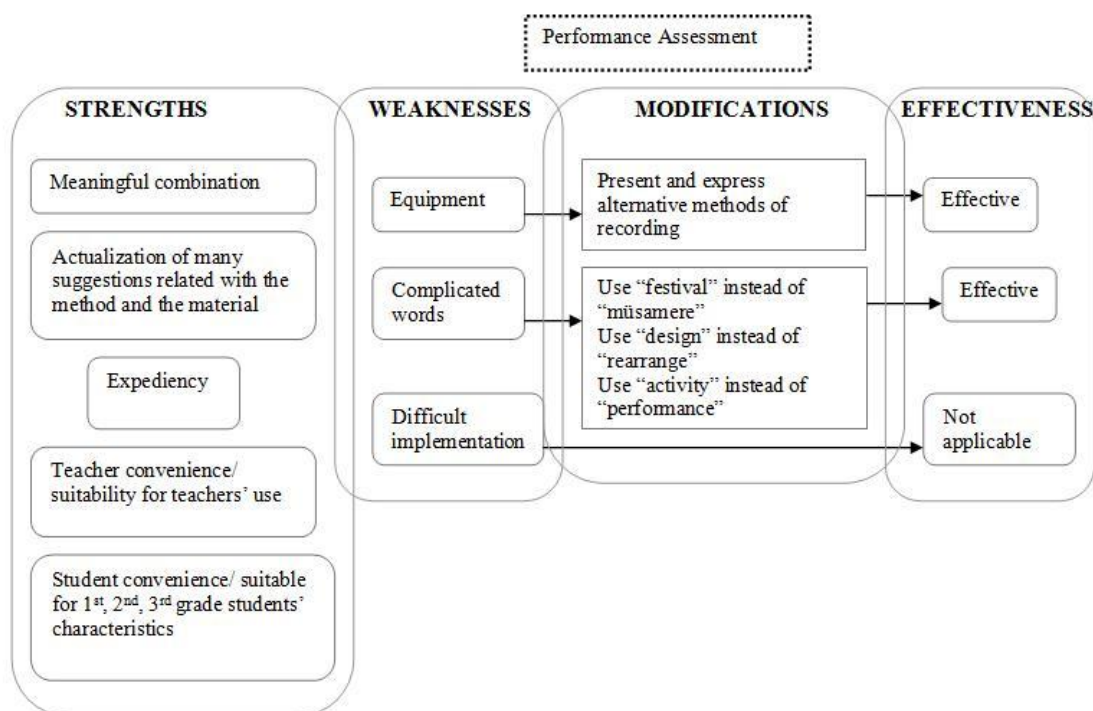
Figure 25 The Results Related With the Performance Assessment in the Program Implementation and Verification Phase

Strengths of the Performance Assessment

The analysis of the data showed that the performance assessment had some strengths explained below.

Meaningful Combination

The analysis of the data indicated that most of the participants stated that the method was a meaningful combination of various methods including observation and document analysis. The analysis of the informal conversational interviews conducted with the teachers showed that the teachers underlined the meaningful combination. For example, the teacher TA said that

The title of the method is performance assessment. The title is good, but I realized that the method was composed of the methods of observation and document analysis. This aspect of the method "performance" assessment is one of its strengths.

Another teacher underlined the combination by saying "The performance assessment is designed as a good combination of observation and product assessment." Besides, the teachers and some of the experts emphasized that the performances were well-determined in terms of being observable, implementable, and assessable. In this regard, the psychologist PS2 said,

I think the performance assessment includes meaningful performances. The meaning of the meaningful performances is that they can be implemented, observed and assessed. Also, the performances were planned as the performances the students like to actualize.

Moreover, the sociologist SOI stated,

I think the performances were well-determined in terms of the characteristics of an ordinary classroom in Turkey. All performances seem to be implementable and observable in an ordinary classroom with average students.

Actualization of Many Suggestions Related With the Method and the Material

The analysis of the informal conversational interviews and the observations showed that the method of the performance assessment fulfilled the most of the suggestions made by the participants about the method of observation at the end of the needs assessment of the study.

Expediency

The analysis of the opinion forms completed by the teachers and the experts during the first stage of program implementation and verification phase displayed that all teachers and experts whose opinions were taken via opinion forms thought that the performance assessment was appropriate in terms of expediency.

Teacher Convenience / Suitability for Teachers' use

The analysis of the opinion forms indicated that most of the teachers and experts thought that the performance assessment was appropriate in terms of teacher convenience as an implementer. The analysis indicated that some of the participants

marked partially appropriate for some items of the opinion form in terms of teacher convenience.

For the item related with the performance assessment form 2, four teachers and sociologist SO1 expressed partially appropriate in terms of teacher convenience. The teachers explained why they marked as partially appropriate because that instruction should be much more detailed. Moreover, they stated that the performances were well defined and prepared; however, the implementation of them seemed to be very difficult. The sociologist stated she marked as partially appropriate because she worried that the students might lose themselves and might mess up the class. The analysis of the observation notes indicated that the sociologist was right about the mess. Although the result which emerged from the observation notes were similar with the sociologist's thoughts in terms of mess, the results which emerged from the observation notes did not support her thoughts related with the students' losing themselves.

Student Convenience / Suitable for the 1ˢᵗ, 2ⁿᵈ and 3ʳᵈ Grade Students' Characteristics

According to the analysis of the opinion forms, except one item, all teachers and experts agreed on all items of the opinion form in terms of appropriateness of the items for the students. The exception item was related with the 1ˢᵗ performance. Five teachers and two psychologists expressed that the item was partially appropriate because of the word "müsamere" in Turkish which is the traditional synonym of the word "show".

Weaknesses and Remedial Suggestions for Performance Assessment

The data analysis also indicated that the performance assessment had some weaknesses. The weaknesses were explained below.

Equipment

The data analysis of the study showed that the equipment required by the performance assessment was reasonable in terms of obtaining and implementing them in an ordinary classroom. However, the equipment was presented as one of the weaknesses because one of the experts expressed it as a weakness. The expert was a social pediatrics expert and she expressed that a camera was very necessary and important for the method of the performance assessment to not miss the data and she

continued that "I do not think all schools have a camera. Do they have a camera?" Then she suggested that alternative recording methods should be presented and expressed in the program guide document for the teachers who did not have a camera. The analysis of the observations displayed that both schools in which the study was conducted had a video camera and the teachers could use them easily when the performances were conducted by the students.

Complicated Words

The data analysis of the study showed that some words used in performance worksheets prepared for the students included complicated words such as "design", "performance" and "müsamere" in Turkish which is the traditional synonym of the word "show." The word "müsamere" was expressed by the psychologists, social pediatrics, Prof. Dr. Ziya Selçuk, Prof.Dr. Ercan Kiraz and most of the teachers as complicated word for the 1st, 2nd and 3rd grade students. The same word had been stated and explained as one of the weaknesses of the story inventory. In this regard, the participants including teachers and the psychologists suggested the word "festival" instead of the word "müsamere."

Moreover, three teachers and the social pediatrics expert expressed the word "design" as complicated for the students. The analysis of the observations indicated that especially 1st graders and some of the 2nd and 3rd graders asked the meaning of "design" when the performances were actualized. In this respect, five 1st grade, three 2nd grade and two 3rd grade students from the private school; seven 1st grade, five second grade and three 3rd grade students from the public school were noted on the observation notes because they asked the meaning of the word "design." The analysis of the informal conversational interviews with the teachers showed that they suggested the "rearrange" for eliminating the weakness related with the word "design."

The word "performance" was expressed by Prof.Dr. Ziya Selçuk, the social pediatrics expert and two teachers as complicated for the students. The analysis of the observation notes indicated that some of the students did not understand the meaning of the word. In this regard, five 1st grade, two 2nd grade and one 3rd grade student from the private school; eight 1st grade, five 2nd grade and one 3rd grade student from the public school asked the meaning of the word. Like the word "müsamere", the word "performance" had also been stated among the problematic

words related with the story inventory. In this regard, the suggestion made by a teacher was acceptable for the performance assessment. The word suggested was "activity."

Difficulty in Implementation

The data analysis showed that the implementation of the performance assessment was problematic in terms of work load and observation. Most of the teachers did not want to implement the performance assessment without the researcher. Actually, the activities of the performance assessment were implemented by the researcher. Therefore, the observations were not properly conducted when the teachers conducted the performance assessment. The teachers did not explicitly state that they did not want to implement the performance assessment. However, they mostly asked the researcher to implement the performance assessment. The analysis of the informal conversational interviews with the teachers indicated that they might not implement the performance assessment if the researcher was not there. For example, one of the teachers stated "Actually, the performance assessment was a good idea; however, its implementation was more complicated." Another teacher said that, "I thought the performance assessment was a good method; however, I see the implementation is not easy to conduct. However, you can conduct it with my students." One of the teachers emphasized the performance assessment might increase their work load and they might not want to implement it, by saying,

> I worry about the performance assessment. I wonder if the teachers who do not know MIT for implement it easily or not. Also, the performance assessment might increase their workload, so they might not willingly implement the performance. Moreover, if they are unwilling to conduct the performance assessment, they will not observe the students' performances and analyze the observations.

The psychologist PS2 agreed with the teachers' thoughts about the implementation problems. She stated that most of teachers did not like such activities and they could not conduct observations properly. She continued that,

> We frequently conduct some activities in terms of various purposes. However, all activities have been conducted by us as school counselors. Actually, some of the activities can be implemented by teachers, but they frequently ask us to

conduct the activities. Therefore, the performance assessment might be difficult for them to conduct.

The analysis of the observations notes of the researcher indicated that most of the teachers did not participate in the implementation of the performance assessment when the researcher was conducting; some of the teachers partially participated in the implementations. The data analysis of the study showed that the performance 3 could not be implemented, so there was no data in relation to the 3rd performance. Although the researcher conducted most of the implementation of the performance assessments in the classes and the modifications that were conducted on the performance assessment, the data analysis indicated that the material did not work well in the real settings with the teachers.

Modifications in the Performance Assessment

Some modifications were made to the performance assessment. One of them was that one instruction was added that alternative methods of recording could be used when the performance assessment was implemented, which were namely taking notes by handwriting, taking photographs and taking help from co-observers.

Another modification was related with the complicated words. In this regard, the word "festival" was preferred rather than the word "müsamere- in Turkish which is the traditional synonym of the word show."; the word "rearrange" was used instead of the word "design" and the word "activity" was used instead of the word "performance."

The Effectiveness of the Modifications in Performance Assessment

The data analysis showed that the modifications were approved by most of the participants. Actually, the modifications had been determined with the participants stating the weaknesses and suggesting the modifications. Therefore, they agreed on the positive effectiveness of the modifications. The analysis of the informal conversational interviews conducted with the teachers participating in the study at the second stage of the program implementation and verification phase showed that the modifications were acceptable and positively effective. However, the data analysis showed that the problem related with the implementation was not eliminated and maintained without any change. The data analysis of the study indicated that the

teachers who participated in the study after the modifications were conducted like the previous teachers did not want to implement the performance assessment although they thought the performance assessment was well-planed and defined. In this regard, one of the teachers stated that,

> The performance assessment is a good method. The students will have fun while dealing with the activities in the performance assessment… Moreover, the items were well-defined. However, I do not have enough time to implement it, you can conduct the performance assessment, and my class is at your service.

Another teacher stated that the researcher could implement the performance assessment professionally, so it was conducted by the researcher. Two teachers expressed that the implementation required much more time, so they might not implement it, but the researcher implemented the activities with their students in their classes. Although the data analysis indicated that the participant teachers were unwilling to implement the performance assessment, they completed the teacher observation form included with the performance assessment. The analysis of the informal conversational interviews indicated that they completed the teacher observation form willingly. In this regard, two teachers expressed that they completed the forms easily and unlimited time enabled them to complete the forms consciously. Another teacher stated that the form enabled her to think about her students' multiple intelligences. She stated that

> Actually, I think I know MIT and its importance in educational settings. However, the program enabled me to examine my students in terms of their multiple intelligences. Especially the observation form let me focus on my students' multiple intelligences. The other materials did not require my special effort or knowledge; however, the observation form did that.

The analysis of the informal conversational interviews with the experts about the results implied that they suggested that the performance assessment might be removed from the program or the material might remain as a proposal in the program. The data analysis also showed that the experts thought that the teacher observation form should continue to be one of the main methods and materials in the program. In this regard, the psychologist PS2 expressed that

I think the performance assessment may be called off and the teacher observation form may continue to be one of the main materials of the program. It is clear that the performance assessment could not be conducted meeting all requirements of the performance assessment.

Like the psychologist PS2, the sociologist suggested that the teacher observation form should remain without change, but the performance assessment tasks might be removed from the program.

4.3.6 The Results Related With the Method of Program Assessment

The following figure summarized the strengths and weaknesses of the method of program assessment and modifications made to the method of program assessment and effectiveness of the modifications. After the figure, each item was explained.
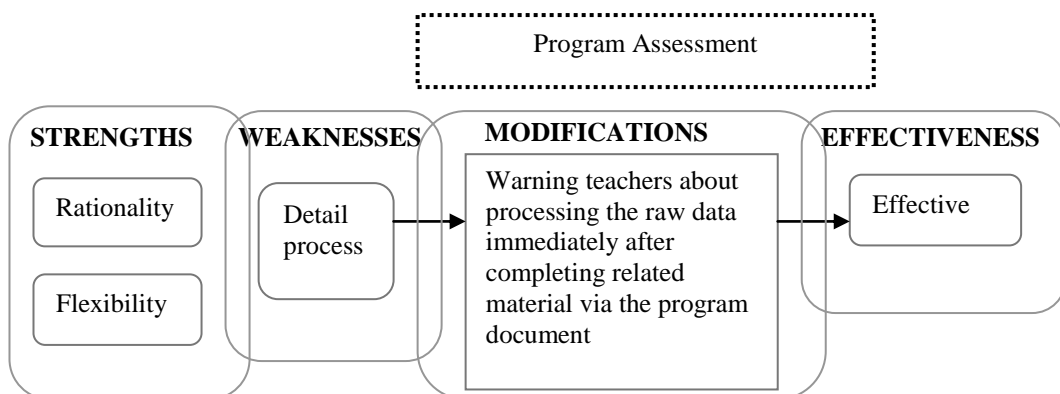
Figure 26 Results Related With the Program Assessment in the Program Implementation and Verification Phase

Strengths of the Method of the Program Assessment

The data analysis showed that the strengths of the program assessment method were as follows; rationality and flexibility.

Rationality

The data analysis indicated that most of the participants including teachers and the experts thought that the method of the program assessment was rational in terms

of MIT. In this regard, the psychologists expressed that MIT gave equal importance to all intelligences and multiple ways of representing them, thus the focus of the method of the program assessment was on arithmetic mean. The psychologist PS3 said

> The assessment of the program depended on arithmetic mean. It means that the program gave equal importance to each performance and action used by the program in order to determine students' multiple intelligences profiles. MIT indicates the probability of multiple performances of the intelligences, does it not? Thus, the program assessment system is parallel with the mentality of MIT.

Furthermore, the sociologist expressed using arithmetic mean was rational in terms of assessment of the data gathered through multiple methods. Moreover, the teachers agreed on the meaningfulness of using arithmetic mean as the heart of the program assessment in terms of giving equal value to the methods included by the program and MIT. In this respect, the teacher TC said that

> I liked the program's choice for assessment. Arithmetic mean is reasonable because it required the sum of all of the orders which resulted from various methods proposed by the program and the sum is divided by the number of orderings in the program. I think it means that all ordering regardless of its origin is important because MIT suggests that multiple intelligences reveal themselves with various situations, environments, and ways.

The teacher TD agreed with the reasoning of the program's assessment system and expressed a different perspective from the other participants. She explained why she thought the reasoning was that an arithmetic mean could be calculated by the teachers easily.

Flexibility

The data analysis indicated that one of the strengths stated by the participants was that the program assessment method enabled the teachers to reach the result "students' multiple intelligences profiles" even if there were missing data resulting from acceptable reasons. In this regard, seven teachers expressed the strength. One of the teachers emphasized that the program was process based, thus it might not be possible to find all students together for every implementation. She continued

> … Some students may not read some of the books of the story inventory. Some of the students may not participate in the implementation of the film inventory. Also, there may not be a chance to implement with the students. However, the students who may not participate in some implementations during the process do not create serious problems about not determining their multiple intelligences profiles because the assessment system offers arithmetic mean (TH).

The sociologist also stated the program evaluation gave an opportunity to reach the results even if there were some missing data. She explained that

> Of course, missing data is a problem which should be solved. However, the program is a process. Therefore, some students may not participate in some of the implementations required by the program for some reasons like sickness, being newly enrolled, etc. The program assessment method presents a reasonable approach to the missing data.

Weaknesses and Remedial Suggestions for the Method of the Program Assessment

Detailed Process

The data analysis showed that the program assessment method included various steps, so the steps made the assessment process detailed. In this regard, the participants including teachers and the experts emphasized that each material had it's own ordering and then at the end of the process, the final assessment was conducted, so the aspect underlined that the program assessment method was a detailed process. The participants did not negatively criticize the aspect of the program assessment method, but they called attention to the aspect and made suggestions about the importance and requirement of being careful to conduct valid and reliable assessment. In this respect, the psychologist PS3 said

> The data of program assessment system come from orderings resulted from each material implementation. Besides, the system was a process. Therefore, the teachers should follow the instructions for reaching the students' orderings at end of each material; they should not wait until all materials are implemented because there is a possibility to face a pile of various raw data originated from the material's implementations.

Moreover, the sociologist underlined the possibility expressed by the psychologist PS3, she expressed that

> If the teachers as implementers and users of the program wait until the end of the program to conduct assessment, they may be buried under the huge raw data hill. They should process raw data gained from the implementations of the materials because of the detailed process.

Two teachers explicitly expressed the same aspect of the program assessment and they suggested that teachers should be warned about processing the raw data immediately after completing the related material. They suggested that this aspect of the program should be underlined in the program guide document and the users of the program should be warned that they should conduct the requirement of each material in terms of assessment immediately after.

Furthermore, the results originated from the analysis of the observation notes were similar to the results gained from the analysis of the informal conversational interviews. In this regard, the results of observation notes analysis implied that some of the teachers tended to put processing the raw data to the end of the program implementation. Because of keeping processing the raw data on the back burner, the teachers worried about processing huge amounts of data and reaching results at the end of the study. In this regard, the observation notes showed two teachers delayed processing raw data and then they asked the researcher to process the data at the end of the study. One of them stated that "How can I process such huge data? I wish I had processed the raw data of each material immediately after implementing the material" (TD, 15.01.2009). The other teacher expressed that

> Actually, I see the assessment title under each material's title in the program guide document. However, I thought I could conduct them all at the end of the study, which was not a good idea, I see. The program guide document should underline that the assessment method of the program is a process and requires processing data step by step. (TK)
>
> 12.02.2009

Modifications in Method of the Program Assessment

The modification related with the method of the program assessment was adding a warning into the program document. In this regard, the teachers were warned about conducting evaluation actions required by each method and material immediately after they were implemented via the program guide document.

The Effectiveness of the Modifications in Method of Program Assessment

The data analysis showed that the modification had a positive effective on the method. The analysis of the informal conversational interviews conducted with the teachers participating in the study at the second stage of the phase showed that they thought it was difficult to word them in terms of the detail process of the method at the beginning of the program via program guide document. In this regard, the teacher TH stated that

> Actually, I was afraid of the assessment method when I first read the program guide document. Then, I underlined the warning about the conducting requirement of each material immediately after completing the current material or method. I think the warning affected me and enabled me to actualize the assessment method of the program easily and correctly.

Another teacher TJ expressed that "The warning about the assessment took my attention as a user. I implemented the warning. I think it is usable." Furthermore, the analysis of the observation notes indicated that all teachers comprehended the method. They did not face any difficulty in understanding and implementing it.

Besides, the data analysis showed that most of the participants made one suggestion for the method of the program assessment at the end of the study. The suggestion was that preparing computer program for the program assessment method. All teachers suggested that the calculation required by the method of the program assessment could be done via software except one teacher. Moreover, they stated that such a computer program could be easily created by a technology expert. Furthermore, some of the experts made the same suggestion however the suggestion could not be actualized because of end of the study and time limitation.

4.4 The Results of the Summative Evaluation Phase

The summative evaluation phase of the study dealt with the last probe, which attempted to find out the total picture of the quality of the produced program in terms of its purposes. Accordingly, the probe attempted to determine the future of the proposed program. For the future of the program, there were three choices; (a) to maintain the program without any change, (b) to improve the program and (c) to terminate the program. The following figure presents the summary about the phase.
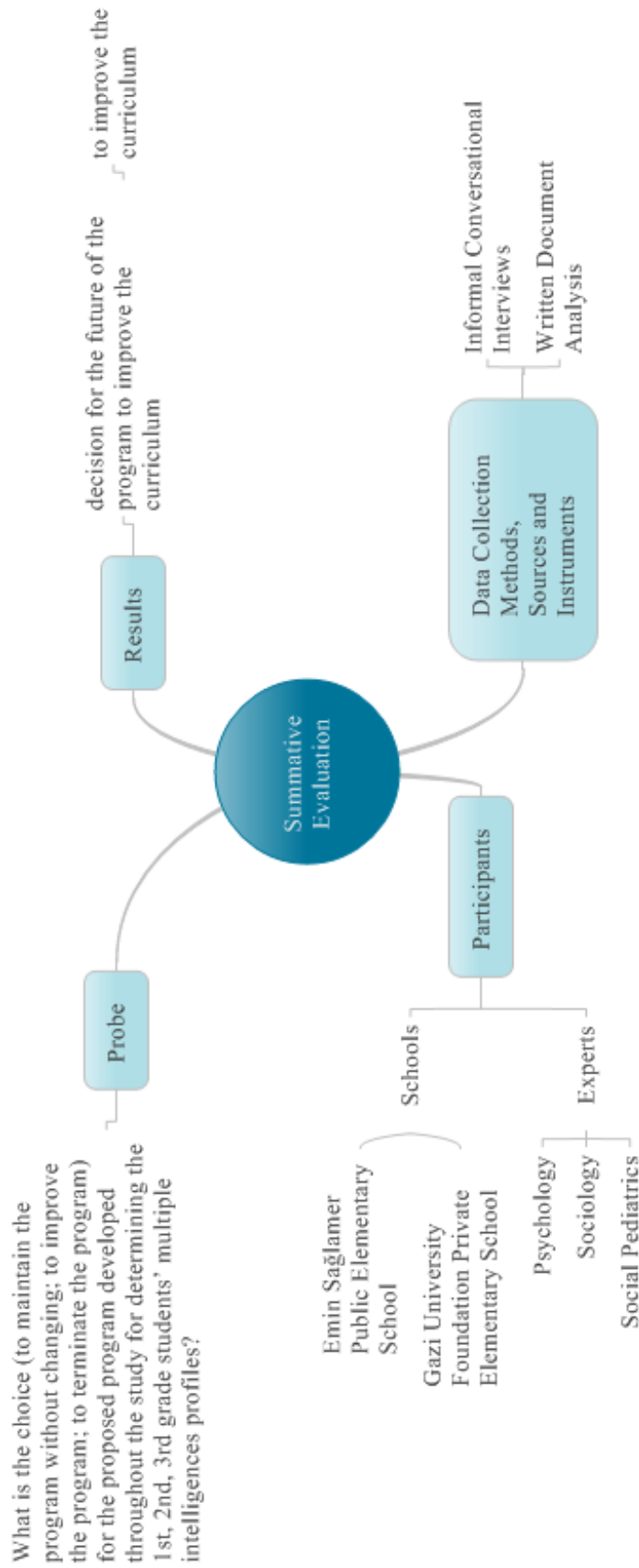
Figure 27 Summary of the Summative Evaluation Phase

To determine whether the proposed program attained its purposes or not and the future of the program, the summative evaluation of the proposed program was actualized on the basis of the results which emerged from the analysis of the data obtained from interviews conducted with teachers and experts, observations and the written documents including the proposed program with its materials. The data analysis of the study showed that most of the purposes were actualized.

One of the purposes was that the program should be scientifically developed. All teachers and experts who completed expert opinion forms and were interviewed about the program thought that the program including the methods and materials was scientifically developed. In this regard, one of the teachers expressed that he testified to the program development process and thought that every step of the process was scientific. Similarly, the teacher TN thought that she had never heard of such a scientific development process for not only a program, but also an instrument in relation to the determination of the multiple intelligences profiles. In this regard, the sociologist emphasized that the most important strength of the program was its scientific development process.

Another purpose was that the program should be process oriented, not product oriented. Eight teachers and most of the experts thought that the program was process oriented and the orientation was one of the strengths of the program. In this respect, the psychologists emphasized that the program was process oriented and the program with this characteristic satisfied the need in the field of assessing and determining multiple intelligences profiles. They also underlined that Gardner indicated such a determining process for multiple intelligences profiles. The analysis of the observation notes indicated that the program was certainly process oriented, which lasted at least one semester.

One of the purposes of the program was that the program should present guide information and an understandable route instruction for implementers. The program had a program guide document. The data analysis of the study indicated that the guide document presented an understandable route for the program including the methods and materials. The analysis of the observation notes showed that most of the teachers comprehended the purposes of the program and MIT; understood the instructions related with the methods and materials and applied them in the light of the instructions presented by the program. The teachers also expressed that the instructions were clear to understand and implement. Most of the teachers expressed

that the program guide document enabled teachers to comprehend the purposes of the program and MIT. In this regard, one of the teachers said,

> I know MIT and the purposes of the program. However, I think the teachers who do not know MIT and the purposes of such a program can easily comprehend what the program wants to do. (TC)

Like teacher TC, sociologist SO1 and the psychologists PS2 and PS3 emphasized that the program had a guide document presenting the core aim and the purposes of the program. They expressed that the guide document was one of the strengths of the program.

The researcher's supervisor stressed the vitality of the guide document for teachers as implementers at the beginning of the study. In this regard, one expert said "The program guide document seems to be qualified." One of the purposes of the study was related with the program's practical usage. For the actualization of the purpose, not all, but most of the teachers and the experts thought that the purpose became real. The psychologist PS3 expressed that the program presented practical and easy usage for the implementers. She also expressed that practical meant reaching results in a short time for teachers, thus teachers could not think the program was not practical. Similarly, the teacher TG emphasized the meaning of the practical and then expressed her view.

> The adjective "practical" means reaching results in a short time for most of us. If I thought so, I said the program was not practical because of its process orientation. However, I do not think so. Therefore, I think the program is practical. The meanings of practical are useful, feasible, workable, efficacious, can be put into use, I think. Therefore, the program is practical.

The analysis of the observation notes also indicated that the program including its methods and materials was practical. The observation notes demonstrated that most of the teachers could use the program throughout the pilot study. The teachers could understand the instructions and follow them step by step.

One of the purposes of the program was presenting understandable results for teachers. The data analysis of the study showed that the teachers thought the results of the program were understandable and useful for them. They also expressed one of

the strengths of the program was its results because they presented information about all intelligences. In this respect, one of the teachers stated

> I think the most important strength of the program is that the program results informed us about our students' multiple intelligences profiles composing of both dominant and recessive intelligences. I think this is great (TA).

Another teacher, like TA, thought the strongest aspect of the program was presenting information about a student's not only dominant, but also recessive intelligences. She emphasized the information was useful as follows,

> I think the strongest characteristic of the program was its result type. The program presents information about both students' dominant and recessive intelligences. Moreover, the program underlined the importance of knowing the intelligence profile composed of both dominant and recessive intelligences. I did not give importance to recessive intelligences before the program. I can see the importance of information about the recessive intelligences (TH).

Furthermore, the analysis of the observations conducted by the researcher displayed that the teachers could understand the results provided by the program. In this regard, some of the teachers' verbal reactions were noted during the observations as follows;

> Yes, yes, I wanted to reach such a result. I mean that I want to learn my students' multiple intelligences profiles from the most dominant to the most recessive because all intelligences are equally important (TN).

> The result sheet was very useful for me as a teacher. For example, I can advise useful and correct activities for the improvement of their recessive intelligences. I can use their dominant intelligences when they face difficulty in learning something. (TP)

The psychologists and the sociologist agreed with the actualization of the purpose related with the results. Moreover, they expressed the results were not only understandable, but also verbally dominant. In other words, the results were not numerically dominant. In this regard, the sociologist stated that "The program does not present numerical results, but it uses numerical calculations at a basic level to reach results. It is a good choice, I think."

Another purpose which was actualized by the program according to the data analysis was that the program should not be boring for implementers. All teachers and most of the experts expressed that the program including the methods and materials was an enjoyable process for program implementers. In this regard, the psychologists emphasized that one of the strengths of the program was its enjoyable aspect for not only students, but also the teachers and even parents. They also expressed the importance of this aspect for implementers as follows;

> The program includes enjoyable methods for students, which is one of the strengths of the program. However, the program is enjoyable for not only students, but also teachers. Teachers are the implementers of the program. If the implementers like the program they are using, the program will be successful (PS2).

> We use lots of inventories, questionnaires and other kinds of assessment and determining materials. If we do not like them or we are bored with their process, we cannot get efficiency. The current program seems to be an enjoyable material for the implementers and teachers. Be sure, that this aspect of the program increases its power (PS3).

Furthermore, the analysis of the observations indicated that teachers as implementers of the program had a good time when implementing it. The analysis of the observation notes displayed that the teachers were excited about the program and willingly implemented each method and material of the program except performance assessment. The analysis of the observation notes also indicated that most of the teachers frequently asked the researcher "what is next?" The following excerpts were taken from the researchers' observation notes.

> When the teacher examined the program to see what the next step was and what they would do, her students started to speak about their excitement and curiosity about the next material of the program. The teacher said "Let's look at the program to learn what the next step is. Be sure I am excited as much as you."
>
> 05. 05. 2009

Another purpose of the program was related with the effectiveness and efficiency of the methods in terms of determining students' multiple intelligences profiles. In this regard, the data analysis of the study indicated that all teachers and experts whose views were thought the purpose was actualized. Most of the teachers

expressed that they faced methods and materials which were better than that they expected. They emphasized that the program's methods with their materials covered all probable methods in order to determine students' multiple intelligences profiles. One of the teachers said,

> We knew the methods of determining multiple intelligences such as inventory, interview, observation etc. However, we did not know how to conduct and organize them into a road. The program offered by you enables us to use all effective methods efficiently (TA).

Similarly, the teacher TN stated

> The program was composed of combining existing methods into one for determining multiple intelligences. Therefore, the program included effective and efficient methods.

Like the teachers, the sociologist and the psychologists thought the program used effective and efficient methods to determine students' multiple intelligences profiles and so it was enough to determine the 1st, 2nd and 3rd graders' multiple intelligences profiles. In this regard, the psychologists emphasized that the program included all effective and probable methods; they did not know of any alternative methods or programs for determining the 1st, 2nd and 3rd graders' multiple intelligences profiles. In this regard, the psychologist PS3 said "I think the program included effective methods aiming to determine the 1st, 2nd and 3rd graders' multiple intelligences profiles. The program is the best you can do." The psychologist PS2 said

> Actually, I did not expect such a perfect combination. The program is a product of a perfect combination of the effective methods in order to determine the 1st, 2nd and 3rd graders' multiple intelligences profiles.

One of the purposes of the program was related with the economic aspect of the program in terms of time and material. Most of the teachers and the experts thought that the program was economic in terms of time and material. In this regard, one of the teachers stated that

The program synthesized the existing methods according to the purposes of the program and proposed functional materials. Therefore, the program limited the methods and its materials on the purposes of the program. Moreover, the purposes included an economic aspect. The program did not include too many forms or papers and it presented four types of materials. The implementers and applicants of the materials were different from each other. Therefore, the program did not saddle teachers with a task composed of forms and documents (TG).

Besides, most of the participants thought that the program might seem to be not economic in terms of time and they underlined the meaning of being economic should be well-comprehended when assessing the program in terms of time aspect. In this respect, the sociologist SO1 said that,

The program is economic in terms of time and materials. However, I think most of teachers may think that the program is not economic in terms of time because their criterion for time being economic is that the program implementation is quick and reaches the results quickly. The meaning of time being economic is using the minimum time and resources for maximum profit and qualified and effective results. In this regard, the purposes of the program can be actualized only with the time proposed by the program. So, the program is economic in terms of not only materials, but also time.

Like the sociologist, Prof.Dr. Ziya Selçuk agreed that the time required by the program was reasonable for the actualization of the purposes. Moreover, Prof.Dr. Ercan Kiraz stated the purposes of the program could be reached with the time proposed by the program. As a result, the overall data analysis showed that the program required reasonable time and materials for the program to be economic.

One of the purposes of the program was providing data triangulation in terms of the methods and materials. The data analysis of the study displayed that the program actualized the data triangulation by offering four types of materials. The analysis of the observation notes also indicated that the results of the materials proved each other's and therefore, the results of the program became strong. Moreover, the psychologists emphasized the providing data triangulation aspect of the program as one of the strengths of the program. In this regard, the psychologist PS3 said

I think such a program should be valid and reliable. The program provides data triangulation and actually the mentality of the program was based on the multiplicity. Therefore, the data triangulation and multiplicity aspects of the

program strengthen the program's validity and reliability. Finally, the data triangulation is one of the strengths of the program.

Prof.Dr. Ercan Kiraz frequently expressed the importance of data triangulation for such a program and underlined that the program provided data triangulation, so the results of the program were strong. He emphasized that one of the strengths of the program was data triangulation.

Another purpose was that the program should be intelligence fair as much as possible. All teachers and most of the experts thought that the purpose was actualized by the program. The teachers especially emphasized that the program presented various determining methods with their materials, so it touched all intelligences as far as possible. In this regard, the following excerpts were taken from their interviews transcripts. "The program includes various methods including visual film inventory, verbal story inventory, etc., so it addresses more than one intelligence" (TE). The Teacher TC stated that

> The program, I think, gives importance to not only traditional intelligences, but also other intelligences. For example, film inventory is visually dominant, story inventory is verbally plus visually dominant, performance assessment includes bodily and musical intelligences.

Like the teachers, the psychologist also expressed this characteristic of the program as strength. One of the psychologists stated

> One of the strong characteristics of the program is that the program addresses all intelligences at a maximum level. The program is based on the multiplicity approach, so it presents more than one method and material. Therefore, it enables teachers to determine their students' multiple intelligences profiles by touching not only verbal and math intelligences, but also other intelligences. (PS2)

Furthermore, the analysis of the observations indicated the program addressed all intelligences to some extent. The analysis of the observations was presented in the following figure.
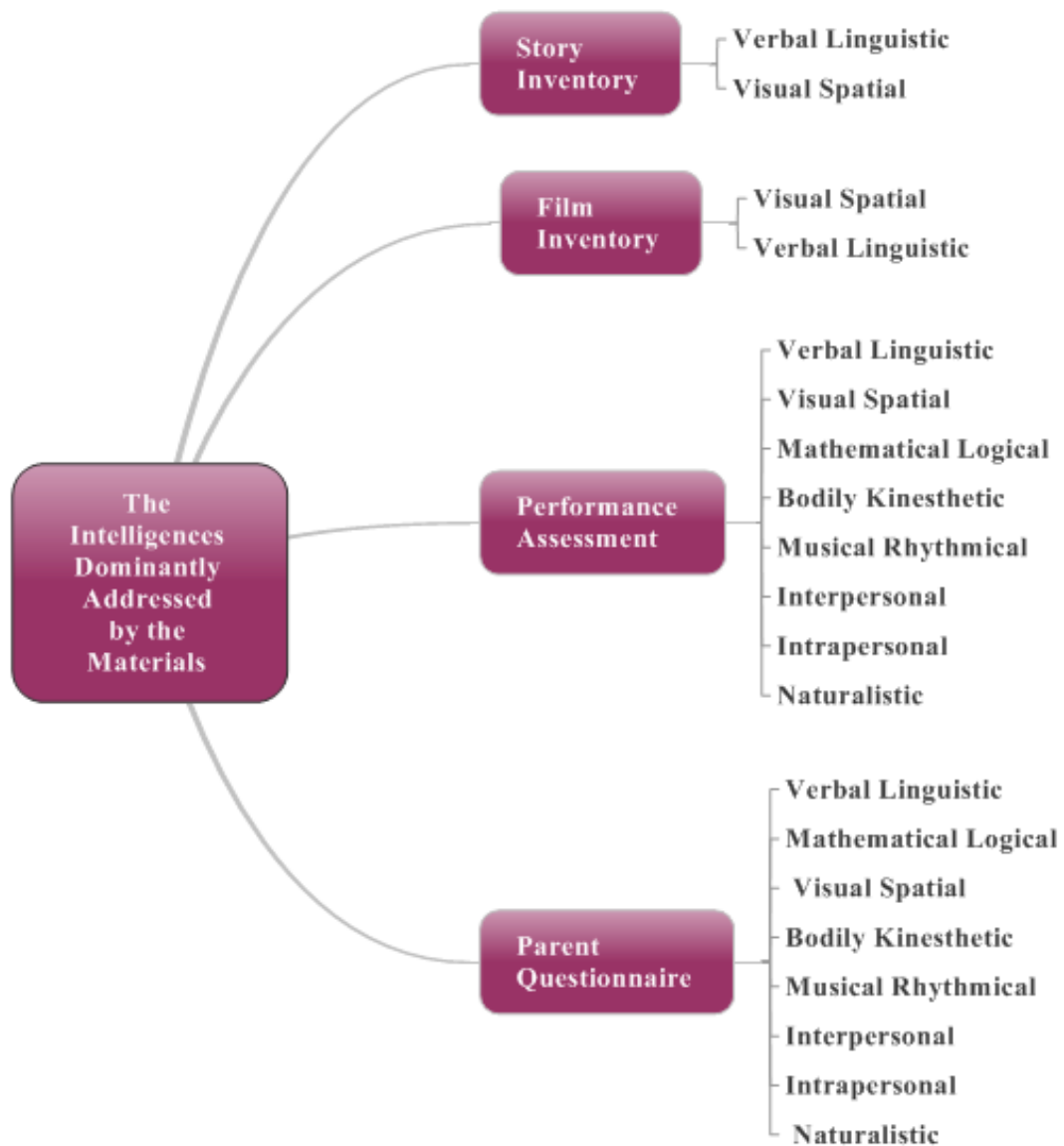
Figure 28 The Intelligences Addressed by the Materials

The data analysis also indicated that parent questionnaire and the performance assessment, especially the last stage of the performance assessment, were different from the inventories in terms of users of the materials. The inventories were implemented directly to the students. However, the performance assessment and the parent questionnaire required observing students by others. In this regard, the teachers and experts interviewed underlined that the two materials also took all intelligences into consideration, but from the others' views. The sociologist stated that

The story inventory and the film inventory directly touch the verbal and visual intelligences of the students because the students are the users of the material. Parent questionnaire is a verbal material, but it is not for students because it is a verbal material for parents. However, the material has the parents observe their children's all intelligences performances, so the material took all intelligences into consideration for students. The performance assessment is also very similar to the parent questionnaire in terms of intelligence fairness. Therefore, all materials in the program make one body, which is the program. It is intelligence fair I think.

Furthermore, the psychologists expressed that the indicator for the intelligence fairness of the program was not limited to the content of the materials. They underlined that the determination procedure and result type of the program also supported the reality of intelligence fairness of the program. In this regard, the psychologist PS3 said

…There is another indicator for the intelligence fairness. The program presents results consisting of not only dominant intelligences, but also recessive, medium intelligences. It means that the program presents information about all intelligences at the end. The program has purposes about not only dominant intelligences, but also weak intelligences. I think this aspect of the program strengthens the program.

One of the purposes of the program was to not create labeling. The data analysis of the study showed that most of the teachers and the experts interviewed during the program implementation and verification phase thought the program did not create labeling and also warned users about labeling. However, the data analysis indicated that the participants believed the labeling was inevitable. In this regard, the psychologist PS2 said "I think the program does not create labeling in its nature. However, if determining multiple intelligences is at issue, the labeling is inevitable." The sociologist explained the inevitability as routine of the users by saying

I think the program does not only avoid labeling, but also warn its users about labeling. However, there is a routine which has originated from existing methods in order to determine multiple intelligences.

The thesis supervisor expressed that the program avoided creating labeling by emphasizing the importance of all multiple intelligences and warning its users about labeling. Another purpose of the program was taking cultural aspects into consideration. The related data analysis of the study indicated that all teachers and

most of the experts directly stated the program took cultural aspects into consideration because of the environment in which the program was developed. In this regard, one of the teachers stated

> Taking cultural aspect into consideration is also strength of the program. I think the purpose is actualized by conducting the study in Turkey with the teachers and students and even parents from Turkey. (TH)

The sociologist also underlined the importance of the environment in which the program was developed in terms of the cultural aspects.

> The cultural aspect is important for developing such a program. Cultural aspects may be searched via document analysis and interviewing people from the culture, etc. However, the best method is developing the program in its native culture. The current program was developed in its native culture, so this aspect of the program is one of strengths of the program.

Another purpose of the program was that the program should not present numerical results. The data analysis showed that all teachers and some of the experts interviewed within the context of the program implementation and verification phase thought the program did not present numerical result like IQ tests. One of the teachers emphasized the program used numeric arithmetic mean; however, the program did not stop with the numerical results about the multiple intelligences. Moreover, the teacher underlined that not presenting numerical results was more important than using arithmetic mean during the process. Furthermore, another teacher said the program presented an order of multiple intelligences without presenting numbers, so this aspect of the program was also a strength. The psychologists emphasized the results presented by the program as one of the strengths of the program. One of them explained the strength as follows;

> We are used to reaching numerical results at the end of tests such as IQ tests, learning styles tests, multiple intelligences tests etc. Especially, most of us think of such results as evidence for proving our intelligence quotation. Such results cause misunderstanding about intelligence, especially about multiple intelligences. Therefore, the result type of the program is very good in terms of comprehension of MIT (PS2).

As a result, the actualized purposes indicated by the overall data analysis were as follows;

a) is scientifically developed

b) is process oriented not product based

c) presents guide information and understandable route instruction for implementers

d) is easy to conduct

e) is used practically

f) presents understandable results for teachers

g) is not be boring for implementers

h) is enough to determine students' multiple intelligences profiles as much as possible

i) is economic in terms of material and time as much as possible

j) does not include too much form to be completed by only teachers

k) puts all effective and efficient ways to determine children's multiple intelligences profiles together

l) provides data triangulation and also complete the weaknesses of each other when strengthen the results of each other

m) focuses not only on dominant intelligences but also on weak intelligences

n) is intelligence fair as much as possible

o) does not present numerical result

p) does not create labeling

q) takes the cultural aspects into consideration

Thus far, the actualization of the purposes of the program was presented. However, the data analysis of the study indicated that one of the weaknesses of the program was that the actualization of the program was a long process. Although the participants knew that the program was developed on the basis of a process oriented approach, some of them stated that a process approach might be a problem for users who wanted to reach results quickly. In this regard, one of the psychologists said

I know and agree with the importance of the process oriented approach for such a program because of the focus of the program "Multiple Intelligences Theory". However, I am worried about the teachers' approach to the long process as the

program users. If they think that the process is long, they will use the program inappropriately (PS3).

Like the psychologist PS3, the sociologist SO2 expressed there was a possible problem related with the process of the program while emphasizing the vitality of the process approach. Moreover, Prof.Dr. Ziya Selçuk and Prof.Dr. Ercan Kiraz emphasized the vitality of the process oriented approach the program had because of the focus of the study "MIT."

The analysis of the observations conducted by the researcher during the implementation of the program showed that the teachers did not have trouble with the process of the program. Furthermore, the analysis of the informal conversational interviews conducted with the teachers throughout the observations displayed that they were aware of the necessity and importance of the process approach. In this regard, the following excerpts were taken from the interviews transcripts. "The process of the program lasted one semester. It might be seen as a long process but people who know the theory comprehend the program" (TE). "The program will last one semester, I think. The time seems to be reasonable for implementing the materials" (TN).

> You and I discussed the methods on the basis of the quick approach for determining multiple intelligences. Then, I comprehended the methods were not usable. Therefore, I am not surprised with the long process. Actually, appropriately one semester is not long for such an attempt (TC).

As a result, the analysis of the observations indicated that the process of the program implementation was not a weakness in terms of time although some of the participants stated the process was a possible problem. Besides all these, the Spearman rank order correlation was calculated to measure the relationship between the orders made by the teachers and the orders presented by the program developed throughout the study for the reliability issue of the program developed throughout the study.

The Spearman rank correlation matrix calculated was displayed by using the following table.

Table 8

The Spearmen Rank Order Correlation Matrix

	PR_VL	PR_LM	PR_VS	PR_MR	PR_BK	PR_IE	PR_IA	PR_NA
T_VL	,513(**)							
T_LM		,728(**)						
T_VS			,455(**)					
T_MR				,670(**)				
T_BK					,732(**)			
T_IE						,589(**)		
T_IA							,591(**)	
T_NA								,526(**)

** Correlation is significant at the 0.01 level (2-tailed).

Spearman's rank correlation coefficients between the teachers' order and the program's order for each intelligence were significant (p< 0.01, Table 9). Moreover, all coefficients were positively correlated. According to Spearman's rho there were high rank correlation between teachers' order and program's order for logical-mathematical intelligence and bodily kinesthetic intelligence whereas mid correlation between teachers' order and program's order for all intelligences.

Moreover, Wilcoxon Signed Rank Test (2-tailed) was calculated to evaluate the pre and post orders for each intelligence in order to prove the reliability of the film inventory which was one of the program materials developed throughout the study. The results were presented by using the following tables.

Table 9
The Results of Wilcoxon Test for Verbal Linguistic Intelligence

		N	Mean Rank	Sum of Ranks	z	P
F2VL – F1VL	Negative Ranks	27(a)	20,74	560,00		
	Positive Ranks	16(b)	24,13	386,00	-1,12	,26
	Ties	92(c)				
	Total	135				

Based on negative ranks.

The Wilcoxon test, which evaluated the difference between the order which resulted from pre and post test for verbal linguistic intelligence, is not significant z = -1,120, p < .05. That is, the results indicated nonsignificant differential concern for pre versus post.

Table 10
The Results of Wilcoxon Test for Logical Mathematical Intelligence

		N	Mean Rank	Sum of Ranks	z	p
F2LM - F1LM	Negative Ranks	28(a)	29,09	814,50		
	Positive Ranks	28(b)	27,91	781,50	-,14	,88
	Ties	79(c)				
	Total	135				

Based on negative ranks.

The Wilcoxon Signed ranks test displayed that there is no significant difference, z = -,144, p < .05. between the orders of the teachers and the program for logical mathematical intelligence.

Table 11
The Results of Wilcoxon Test for Visual Spatial Intelligence

		N	Mean Rank	Sum of Ranks	z	p
F2VS - F1VS	Negative Ranks	47(a)	38,31	1800,50		
	Positive Ranks	23(b)	29,76	684,50	-3,39	,001**
	Ties	65(c)				
	Total	135				

** p < .05
Based on negative ranks.

The Wilcoxon Signed ranks test displayed that there is significant difference, z = -3,398, p < .05. between the orders of the teachers and the program for visual spatial intelligence.

Table 12
The Results of Wilcoxon Test for Musical Rhythmical Intelligence

		N	Mean Rank	Sum of Ranks	z	p
F2MR - F1MR	Negative Ranks	31(a)	29,42	912,00		
	Positive Ranks	26(b)	28,50	741,00	-,71	,47
	Ties	78(c)				
	Total	135				

Based on negative ranks.

The Wilcoxon Signed ranks test displayed that there is no significant difference, $z = -,719$, $p < .05$. between the orders of the teachers and the program for musical rhythmical intelligence.

Table 13
The Results of Wilcoxon Test for Bodily Kinesthetic Intelligence

		N	Mean Rank	Sum of Ranks	z	p
F2BK - F1BK	Negative Ranks	28(a)	27,93	782,00		
	Positive Ranks	31(b)	31,87	988,00	-,80	,41
	Ties	76(c)				
	Total	135				

Based on negative ranks.

The Wilcoxon Signed ranks test displayed that there is no significant difference, $z = -,809$, $p < .05$. between the orders of the teachers and the program for bodily kinesthetic intelligence.

Table 14
The Results of Wilcoxon Test for Interpersonal Intelligence

		N	Mean Rank	Sum of Ranks	z	p
F2IE - F1IE	Negative Ranks	18(a)	23,33	420,00		
	Positive Ranks	36(b)	29,58	1065,00	-2,92	,003**
	Ties	81(c)				
	Total	135				

** p < .05
Based on negative ranks.

The Wilcoxon Signed ranks test displayed that there is significant difference, z = -2,928, p < .05. between the orders of the teachers and the program for interpersonal intelligence.

Table 15
The Results of Wilcoxon Test for Intrapersonal Intelligence

		N	Mean Rank	Sum of Ranks	z	p
F2IA - F1IA	Negative Ranks	29(a)	25,43	737,50		
	Positive Ranks	30(b)	34,42	1032,50	-1,16	,24
	Ties	76(c)				
	Total	135				

Based on negative ranks.

The Wilcoxon Signed ranks test displayed that there is no significant difference, z = -1,166, p < .05. between the orders of the teachers and the program for intrapersonal intelligence.

Table 16
The Results of Wilcoxon Test for Naturalistic Intelligence

		N	Mean Rank	Sum of Ranks	z	P
F2NA - F1NA	Negative Ranks	27(a)	26,22	708,00		
	Positive Ranks	24(b)	25,75	618,00	-,43	,66
	Ties	84(c)				
	Total	135				

Based on negative ranks.

The Wilcoxon Signed ranks test displayed that there is no significant difference, z = -,435, p < .05. between the orders of the teachers and the program for naturalistic intelligence.

Finally, the results of the summative evaluation phase displayed most of the purposes of the study were actualized. However, the results of the study also indicated that there were three points which needed to be improved. The points were as follows;

1. The study indicated that the researcher conducted most of the implementation of the performance assessment because the implementation of the performance assessment was comprehensive and difficult in terms of work load and

requirements of observation aspect. For eliminate the weakness of the performance assessment, any modification could not be conducted in the study.

2. The results indicated that method of the program assessment had strength and weak aspects and modifications were conducted to eliminate the weak aspects and the modifications became effective. However, the participants of the study suggested that technological facilities could be used to ease the method of the program assessment. For example, software could be prepared for calculations assessment required.

3. Although the current study was qualitative research and some statistical analysis were conducted for reliability of the proposed program and film inventory, further statistical analysis could be conducted for reliability issue of the materials of the proposed program.

Therefore, the overall data analysis of the summative evaluation indicated that the choice for the future of the proposed program was to improve the program.

CHAPTER V

DISCUSSION

This chapter provides a summary of the study, discussion of the findings presented in the previous chapter. It follows implications for improving the field of determining multiple intelligences profiles and for further research studies.

5.1 Summary

This study was mainly a qualitative research. The main purpose of the study was to explore a program development process and explain how each component of the process contributes to the overall procedure for determining 1st, 2nd, and 3rd grade students' multiple intelligences profiles taking Gardner's and Shearer's warnings about and prospected perils of the existing methods of determining and assessing multiple intelligences into consideration. In this regard, more specifically, to determine 1st, 2nd and 3rd grade children's multiple intelligences profiles, the study aimed to develop a program which would;

1. be scientifically developed,
2. be process oriented rather than product,
3. present guide information and understandable route instruction for implementers,
4. be easy to conduct,
5. be practical,
6. present understandable results for teachers,
7. be enough to determine multiple intelligences as far as possible,
8. be economic in terms of material and time as far as possible,

9. not include too many forms to be completed by teachers alone,

10. put all effective and efficient methods together to determine Turkish children's multiple intelligences,

11. provide data triangulation in order to reduce the weaknesses of each other while strengthening the results of each other,

12. focus not only on dominant intelligences but also on weak intelligences,

13. be intelligence fair as far as possible,

14. not present numerical results,

15. avoid creating labeling,

16. take the cultural aspects into consideration.

This research lasted two academic years. The study started with needs assessment at the beginning of the 2007 – 2008 academic year and ended with summative evaluation at the end of the 2008 – 2009 academic year. The study was carried out at two schools; Emin Sağlamer Public Elementary School and Gazi University Foundation Private Elementary School.

Purposeful sampling methods (criterion and extreme or deviant) were used to select the participants of the study. Although criterion sampling was dominantly used throughout the study, extreme or deviant sampling was also used. On the basis of the purposeful sampling methods, there were various groups of participants including two elementary schools (one public, one private) with their 1st, 2nd and 3rd grade students, teachers, parents; three branch teachers (art, psychical education and music); instruments developers; experts from the fields of multiple intelligences, psychology, sociology, social pediatrics, neurology, psychiatry and child neurology.

In order to collect data, the methods of interview, observation, written document analysis and questionnaire were used. Moreover, as data collection instruments, interview instruments, observation forms, researcher's notes, existing instruments including TIMI, MI Domains Inventory for Educators, MI Domains Observation Form for Students, Multiple Intelligences Inventory for Adults, Multiple Intelligences Checklist for Students, examination log, open-ended questionnaire for the students, open-ended questionnaire for the parents, open-ended questionnaire for

the teachers, visual questionnaire for the students, expert opinion forms were used to collect data.

Descriptive and content qualitative analyses were used to analyze of the data. The validity and reliability purposes of the materials developed throughout the study required quantitative data and quantitative data analysis. In this regard, quantitative data analysis was also used although the study was mainly a qualitative study. Finally, the results of the study were organized around the phases of the program development process of the study.

Although the argument may continue concerning the program development process for determining the 1st, 2nd and 3rd grade students' multiple intelligences profiles, the various forms of instrumentation provided rich data which enabled the researcher to reach findings about what the existing is, what the existing should be and what the existing could be in relation to determining the 1st, 2nd and 3rd grade students' multiple intelligences profiles under the program development process. The summary of the results of the study were presented under four main headings; needs assessment, program design, program implementation and verification and summative evaluation.

5.1.1 Needs Assessment Phase

The first three probes were answered in the needs assessment phase. The first probe looked for the purposes the 1st, 2nd and 3rd grade teachers had to determine their students' multiple intelligences profiles. The second probe looked for the methods that 1st, 2nd and 3rd grade teachers used to determine students' multiple intelligences profiles and the third probe explored the effectiveness of the methods and the suggestions for the methods.

In this regard, the purposes of the needs assessment were to find out the purposes of the 1st, 2nd and 3rd grade teachers to determine students' multiple intelligences profiles; to explore the existing methods the 1st, 2nd and 3rd grade teachers use to determine students' multiple intelligences profiles; to explore the strengths and weaknesses of the existing methods teachers use to determine their students' multiple intelligences; to determine the suggestions the participants made

in relation to the methods; to determine the most appropriate methods. The participants of the needs assessment comprised of six teachers (two 1st grade, two 2nd grade, two 3rd grade); twenty-six 1st grade students, thirty-one 2nd grade students and twenty-nine 3rd grade students from Emin Sağlamer Public Elementary School; twenty-one 1st grade students, twenty 2nd grade students and nineteen 3rd grade students from Gazi University Foundation Private Elementary School; the instrument developers including Dr. Sue Teele, Dr. Thomas Armstrong, Prof.Dr. Ahmet Saban; the experts from the fields of social pediatrics, neurology, psychiatry, child neurology, psychology, sociology. The data collection methods were interview, observation and the data collection instruments were interview instruments, existing instruments, observation forms, researcher's notes, and examination log. The teachers determine their students' multiple intelligences in order to

(1) know students' characteristics affected by multiple intelligences in depth and detail,

(2) learn students' weaknesses and strengths in terms of multiple intelligences,

(3) assist students by activating their dominant intelligences to handle problems,

(4) inform stakeholders (branch teachers, parents, school counselors etc.) about students' multiple intelligences profiles,

(5) manage class in accordance with students' multiple intelligences profiles,

(6) comprehend principles of MIT,

(7) suggest leisure time activities according to students' dominant intelligences.

Six main methods were used for determining multiple intelligences profiles namely; conducting observations; using instruments/inventories; interviewing parents, branch teachers and students; analyzing document; using multiple methods together. All the methods had both strengths and weaknesses. The data analysis indicated suggestions for all methods in order to make them better.

The methods implied the existing conjuncture related with determining students' multiple intelligences profiles. In this instance, it was stated that the methods which had been used by the teachers and stated by the participants of the

study as existing methods implied what was. According to the results, the methods and their weaknesses and strengths were summarized below.

Conducting Observation: The method of observation was stated by all participant teachers and most of other participants of the study as a strength. They emphasized, it was economic, teachers were used to using the method; it enabled them to gain information about their students' multiple intelligences in real life settings. They stated students did not realize that they were being observed by teachers. As for weaknesses they stated that the observation process took too much time, did not have a route, and focused only on dominant intelligences.

Using Instrument / Inventory: As strengths of using inventory, the participants expressed that inventories provided quick results and enabled users to comprehend MIT. According to participants, the weaknesses of using inventory were not being intelligence fair, not being enough by itself, producing numerical results, causing labeling and not taking cultural aspect into consideration. Also, the results of the needs assessment showed that implementers could give dishonest answers to the questions of inventories. Moreover, the participants stated that the instructions of existing inventories were not enough to implement them appropriately.

Conducting Interviews: Participants of the study approached using interviews in three ways namely; interviews with parents, interviews with branch teachers, and interviews with students. The participants stated the strengths of interviews with parents. The first strength was that parents could provide more information about their children because they could observe their children all the time. The second strength was the information given by the parents functioned as evidence for teachers' process of determining their students' multiple intelligences. The latter strength was also valid for the interviews with branch teachers according to participants of the study. For the interviews with students, the participants stated that students' know themselves well and if students could give information without noticing the teachers purposes, they could give real information about themselves.

For the results of the needs assessment, the disadvantage of interviews with parents was that parents focused on only dominant intelligences of their children and they defined their children in their dreams, not their real children. The results showed that there were weaknesses of interviews with branch teachers, one of which was that

the branch teachers did not like the task and they were not as close to the students as the students' class teachers. Moreover, the results indicated that branch teachers could focus on the children who showed extreme dominant skills in their branch. The disadvantages of interviews with students were that the students could provide superficial information about themselves and could produce labeling based on the multiple intelligences with an emphasis on dominant intelligences.

Analyzing Document: The participants of the study stated that document analysis enabled teachers to get information about students' multiple intelligences by examining students' documents. As an unobtrusive measure, teachers tried to determine their multiple intelligences according to the participants.

The negative aspect of using document analysis in order to determine students' multiple intelligences was that documents might be selected from well-done documents like portfolios including only well-done products. In that case, document analysis focused on only dominant multiple intelligences. In addition, there was no route about how to assess the documents.

Using Multiple Methods Together: Actually, the method of using multiple sources included all the methods stated by the participants. Therefore, the method of using multiple sources had all the strengths of the other methods. Moreover, participants expressed that the method was more reliable than the other methods.

Like the strengths of using multiple sources, its weaknesses were also composed of the ones of the other methods placed in multiple sources. Furthermore, the results of the needs assessment demonstrated that the method of using multiple sources took too much time and there was no route about how it should be conducted.

The participants of the study stated the strengths and weaknesses of the existing methods used by them in order to determine students' multiple intelligences profiles. Moreover, they made suggestions about the methods of determining students' multiple intelligences profile.

Although the results of the needs assessment showed more than one existing method of determining students' multiple intelligences profiles, the existing methods' weaknesses and strengths, and the suggestions made about them, actually there was only one method of determining multiple intelligences profiles. The

method was using multiple sources including all other existing methods stated by the participants of the study. All the participants (teachers, experts, psychologist, sociologist, neurologist, social pediatrics expert, inventory developers, psychiatrist and mathematics educator who determined MIs in her master thesis) of the study except one teacher stated the method of using multiple methods together in order to determine students' multiple intelligences profiles.

5.1.2 Program Design Phase

The fourth probe was answered in the program design phase. The probe sought the characteristics of the program and its materials in order to determine 1st, 2nd and 3rd grade students' multiple intelligences profiles. More specifically, the purposes of the program design phase of the study were to collect data provided to serve as a basis for the content of the materials and to apply the data to design and develop materials of the methods in order to determine 1st, 2nd and 3rd graders' multiple intelligences profiles. The participants of the program design phase comprised of six primary education teachers (two 1st, two 2nd, two 3rd grade), the branch teachers namely; one art education teacher, one music education teacher, one psychical education teacher; twenty-six 6 1st grade students, thirty-one 2nd grade students, twenty-nine 3rd grade students from Emin Sağlamer Public Elementary School participated in the study. Twenty-one 1st grade students, twenty 2nd grade students, nineteen 3rd grade students from Gazi University Foundation Private Elementary School participated in the study; and the experts including school Counselors and sociologists. The main data collection methods of the program design phase were interview and questionnaire. The data collection instruments were interview instruments, open-ended questionnaire for the students, open-ended questionnaire for the parents, open-ended questionnaire for the teachers and visual questionnaire.

The program design phase of the study was constructed on the results of the needs assessment. Thereby, the program design phase focused on designing the method of using multiple methods in order to determine 1st, 2nd and 3rd grade multiple intelligences profiles. In consequence, the first action taken in the program design phase was gathering data which would be used in order to construct the

content and form the materials. The analysis of the data resulted in three categories namely; (1) the interests and backdrops which would be used to construct the frame and backdrop of the materials; (2) the multiple intelligences characteristics composed of the characteristics which differ by multiple intelligences under same themes, (3) the visual aspects composed of geometric shapes and colors which would be used to illustrate the materials. Depth and detail analysis of the data indicated the materials; film inventory, story inventory, parent questionnaire, performance assessment. How the data were used when the materials were being constructed was demonstrated and explained under the Chapter IV. At the end of the program design phase, there were four main materials fulfilling the needs of the methods including inventory, interview, observation and document analysis.

5.1.3 Program Implementation and Verification Phase

The fifth probe was answered in the program implementation and verification phase of the study. The probe looked for the strengths and weaknesses of the program developed throughout the study and the modifications of eliminating the weaknesses and the effectiveness of the modifications. Thereby, the purposes of the program implementation and verification phase were to explore the strengths and weaknesses of the program; to determine and conduct the modifications for eliminating the weaknesses; to determine the effectiveness of the modifications for the program. The participants of the program implementation and verification phase of the study were composed of eleven primary education teachers (three 1st, four 2nd and four 3rd grade); thirty-seven 1st grade students, fifty-four 2nd grade students and sixty 3rd grade students from Emin Sağlamer Public Elementary School participated in the study. Forty-one 1st grade students and thirty-nine 2nd grade students, thirty-nine 3rd grade students; experts from the fields of psychology, sociology, social pediatrics and multiple intelligence theory. The data collection methods were interview, observation and getting opinions. Thus, the data collection instruments of the phase were observation forms and opinion forms.

The results of the program implementation and verification phase indicated that all materials had both strengths and weaknesses. Moreover, the data analysis showed

that there were effective modifications for eradicating the weaknesses. For the film inventory, the data analysis indicated that the strengths of the film inventory were actualization of the many suggestions which result from the needs assessment in order to satisfy the need related with an inventory; expediency; suitability of the film inventory in terms of the 1st, 2nd and 3rd grade students' characteristics. Moreover, the data analysis showed that there was a weakness of the film inventory, which was the inequality of the collages in terms of duration. After determining the weakness, the durations of the collages were equalized. The later data analysis displayed that the equalization served the purpose of eliminating the weakness.

The analysis of the data related with the parent questionnaire showed that taking information from the parents by using a questionnaire was a meaningful method, so the format was one of the strengths of the parent questionnaire. Moreover, the data analysis indicated that the other strengths of the parent questionnaire were actualization of the many suggestions which resulted from the needs assessment about the parent questionnaire; expediency; suitability for the teachers' usage. According to the data analysis, using indirect items was another strength of the parent questionnaire. The data analysis indicated that the weaknesses of the parent questionnaire were determined as difficulty of some questions and instructions for parents; some items the teachers faced were inconvenient to assess and interpret; some problematic activities and complicated words the parents were confused with; some activities; spelling mistakes. After detecting the weaknesses, some modifications were actualized in order to eliminate the weaknesses. For eliminating the difficult questions and instructions, open ended questions were used for the 6th and 7th questions of the 3rd part; the 6th and 7th questions of the 3rd part were specified; the mentality of the 4th part was explained in the program guide document and the instructions of the 5th part were simplified. The spelling mistakes were corrected and complicated words were replaced by more understandable ones. Furthermore, one of the duplicate games in the item related with verbal intelligence of part 5.1 was eliminated; the game "hangman" was removed from the item related with verbal intelligence; an example was given for explaining "predicting the future on the basis of existing reality" aspect of the item related with visual spatial intelligence in part 5.2; the similarity among the part 5.2's items related with verbal

linguistic intelligence, logical mathematical intelligence and intrapersonal intelligence was removed; the part 5.2's item related with naturalistic intelligence and the part 5.4 were improved and warnings were added into the instruction of the part 5.5 about the jobs in order to eliminate the weakness named as problematic activities and content of the parent questionnaire. Analysis of the data related with the effectiveness of the modifications conducted for eliminating the weaknesses showed that the modifications were useful. However, the data analysis showed that there was a suggestion about the 5th part, which was that the part's examples might be increased.

Another material developed throughout the study in order to determine the 1st, 2nd and 3rd grade multiple intelligences profile was story inventory. The data analysis showed that the strengths of the story inventory were actualization of many suggestions which resulted from the needs assessment about the method of inventory; expediency; suitability for the students in terms of the 1st, 2nd and 3rd grade students' characteristics and using indirect/reverse questions with the aim of taking information from the students. Furthermore, the data analysis indicated that there were weaknesses of the story inventory. The weaknesses were using handwriting in the story books of the story inventory; spelling mistakes; the words and phrases the students faced difficulty in understanding; the characters' pictures and the characters' names the students faced difficulty in understanding. After determining the weaknesses, the modifications were conducted in order to eliminate the weaknesses. In this regard, the names of the characters were added near or on the pictures in order to make easier the students' recognizing and recalling the characters; the handwriting typeface was replaced by the typeface "alphabet 98"; the complicated words and phrases were replaced with understandable words and phrases and the spelling mistakes were corrected. The analysis of the data related with the effectiveness of the modifications conducted in order to eliminate the weaknesses showed that the modifications were useful.

Another material was performance assessment. The data analysis indicated that one of the strengths of the performance assessment was that the performance assessment served as a combination of the methods of observation, interviews with branch teachers and document analysis. Moreover, the data analysis showed the other

suggestions were actualization of the suggestions which resulted from the needs assessment about the methods of observation, interview with branch teachers and document analysis; expediency; suitability for the teachers' usage and students. Furthermore, the data analysis showed that the weaknesses of the performance assessment were that necessary equipment for recording the actualization of the performance assessment; the words the students had difficulty in comprehending; difficulty of the implementation of the performance assessment. After detecting the weaknesses, the modifications were made in order to eliminate them. For eliminating the weakness related with the words, the complicated words were replaced by more understandable words. For eliminating the problem related with the equipment, alternative methods of recording were suggested. However, the weakness related with the difficulty of the implementation was not solved because the data analysis showed that there was no other chance to gather information easily from the performances of the students. The analysis of the data related with the effectiveness of the modifications conducted showed that the modifications were useful.

In the program implementation and verification phase of the study, the effectiveness of the program was studied in terms of materials including film inventory, story inventory, performance assessment, parent questionnaire and the program guide document, program evaluation and assessment system. Therefore, the data analysis indicated results related with not only program materials, but also the program guide document and method of evaluation and assessment. In this respect, the data analyses showed that the strength of the program guide document was that it enabled the users to understand and use the program easily. The data analysis also showed spelling mistakes as weakness of the document. The mistakes were corrected and the correction was effective.

The analysis of the data related with the effectiveness of the evaluation and assessment system of the program indicated its rationality and flexibility as strengths. Moreover, the data analysis showed that the evaluation process was detailed and the aspect resulted in some problem as weaknesses. To prevent the occurrence of the problems, warnings about the evaluation and assessment process were added for teachers. The data analysis showed that the warnings were effective.

Finally, the results of the data analysis overall indicated that the program had both strengths and weaknesses at first implementation. Moreover, the results displayed that almost all weaknesses were eliminated by conducting modifications.

5.1.4 Summative Evaluation Phase

The sixth probe was answered in the summative evaluation phase of the study. The question sought to find out the choice (to maintain the program without any change; to improve the program; to terminate the program) for the proposed program developed throughout the study for determining the 1st, 2nd and 3rd grade students' multiple intelligences profiles.

In this manner, the purposes of the summative evaluation phase were to look at the total effect of the program, to make a decision for the future of the program and so to collect and present information needed for summary statements and judgments of the program to determine whether the program attains its goals or not. Actually, the participants of the phase comprised of all participants who participated in the study from the beginning till the end of the study because the phase looked for the total effect of the study and the decision for the future of the program. To sum up, the participants of the summative evaluation phase comprised of eight primary education teachers (two 1st, three 2nd and three 3rd grade), two psychologists and one sociologist. The data collection methods were interview and written document analysis. Thus, the data collection instrument of the phase was the results of the previous phase and the program document with its materials. The data analysis of the study showed that approximately all the purposes of the program developed in the study were actualized. However, there were points to be studied in order to improve the program. The points were summarized as follows;

- The performance assessment should be improved for teacher easy usage.
- Technological facilities could be used to ease the method of the program assessment. For example, software could be prepared for calculations assessment required.

- Further statistical analysis could be conducted for reliability issue of the materials of the proposed program.

Thereby, the choice resulted from the summative evaluation was to improve the program.

5.2 Discussion

Intelligence has been one of the most popular research subjects studied for years. Concordantly, intelligence testing has been a popular research subject since the concept "intelligence" and intelligence theories were first proposed. Thereby, in the literature there have been various intelligence definitions, theories and so forth, intelligence testing methods and approaches.

One of the contemporary intelligence theories is Multiple Intelligences Theory proposed by Howard Gardner in 1983 and also it was placed in the focus of the current study. MIT proposed eight different intelligences accounting for a broader range of human potential while an IQ based approach suggested singular intelligence explained by only g factor. In one of his speeches, Gardner stated that "The "one size fits all" approach rarely works anymore" (2003, p.77). In parallel with Gardner's sentence, the concept "one size" is not valid for the definition and nature of the intelligence anymore. Consequently, there are eight actual intelligences namely; logical mathematical intelligence, linguistic intelligence, spatial intelligence, bodily kinesthetic intelligence, musical intelligence, interpersonal intelligence, intrapersonal intelligence (Gardner, 1983, 1993, 1999; Moran, Kornhaber & Gardner, 2006), naturalist intelligence (Gardner, 1993, 1999; Moran et al., 2006) and one candidate intelligence which is existential intelligence according to Multiple Intelligences Theory. (Gardner, 1983, 1993, 1999; Moran et al., 2006)

It is obvious that Multiple Intelligence Theory supposes IQ tests are not enough to determine and assess the intelligences proposed by Gardner. It does not mean that an individual's intelligence profile is composed of the multiple intelligences that cannot be determined or assessed. In this regard, various tests and methods emerged in both scientific and unscientific literature and mass media.

Moreover, Multiple Intelligence Theory is one of the theories indicating ways in which the theory might be infused into education and school curricula (Sternberg, 1997). Furthermore, Aborn (2006) expressed that Multiple Intelligences Theory has manifested itself in the field of education over two decades. Additionally, Gardner and Moran (2006) emphasized that research studies about the schools implementing MIT-based practices indicated various ways in which the schools and their students had benefited from the implementations. In this regard, on the one hand, Multiple Intelligence Theory is an intelligence theory on human cognition; on the other hand it is the intelligence theory which has had implications, especially positive implications on education. Under these circumstances, the producing of tests and methods aiming to assess and determine multiple intelligences profiles was not late. Then again, the materials including tests, inventories etc. had been used by educators regardless of examining them in terms of being scientific, reliable, and valid. Such demanding actions displayed by educators including teachers without questioning might be defined as interesting and also indicate there has been a need "to determine multiple intelligences profiles".

As a result of the reality, the first probe of the present study was related with the purposes the teachers had for determining students' multiple intelligences profiles. The analysis of the data related with the question showed that there were seven main purposes the teachers had. The purposes were (1) knowing students' characteristics affected by multiple intelligences in detail, (2) learning students' weaknesses and strengths in terms of multiple intelligences, (3) assisting students by activating their dominant intelligences to handle problems, (4) informing stakeholders (branch teachers, parents, school counselors etc.) about students' multiple intelligences profiles, (5) managing class in accordance with students' multiple intelligences profiles, (6) comprehending the principles of MIT, (7) suggesting leisure time activities according to students' dominant intelligences. Moreover, the review of the literature under the broad topic of Multiple Intelligences Theory presents supportive information for the purposes with resulted from the needs assessment. For example, when he was introducing his MI Inventory for Adults, Armstrong (2000) emphasized that educators should grasp the theory and personalize its content before applying it in a classroom environment. Therefore, he suggested

that educators should determine the nature and quality of their own multiple intelligences because that was an important step in implementing multiple intelligences. In this regard, the purpose of comprehending the principles of MIT is meaningful. Furthermore, the content or chapters of the books about MIT have touched the implications and implementations of MIT on education indicating most of the purposes which resulted from the needs assessment of the present study. In this respect, Armstrong's book of "Multiple Intelligences in the Classroom" can be given as an example in terms of its parts namely; MI and Classroom Management; MI and Assessment; MI and Teaching Strategies; MI and Special Education; Career Counseling. Therefore, it is obvious that the literature review directly or indirectly indicated that the purposes are meaningful.

With the purposes in order to determine or assess multiple intelligences profiles, there were various methods and instruments like tests, questionnaires, inventories etc. in media including books, magazines, Internet etc. Armstrong (2002) gave a warning that educators should be skeptical about the computer-scored test that in fifteen minutes could provide a bar graph displaying eight intelligences of each students in class or school saying that "There is no "mega-test" on the market that can provide a comprehensive survey of your students' multiple intelligences" (p. 21), he concluded that the best and most readily available method of assessing students' multiple intelligences for all educators was observation. The second probe of the present study was about the existing methods in order to determine students' multiple intelligences profiles. The related results displayed that there were five main methods including (1) conducting observation, (2) using instrument / inventory, (3) conducting interviews with parents, branch teachers and students, (4) conducting analyzing document, (5) using multiple methods together. Actually, Armstrong (2000) expressed collecting documents, looking at school records, talking with parents, asking students and setting up special activities as methods of determining and assessing students' multiple intelligences although he stressed the method of observation as the best method for this purpose.

Moreover, Armstrong (2000) underlined the method of observation as the best method, the results of the data analysis of the present study revealed that all methods including observation had their own strengths and weaknesses. In addition, the

results indicated the best method of determining and assessing multiple intelligences profiles was the method of using multiple methods together. The method can be called the "multiple method." Actually, Multiple Intelligences Theory on its own supported the result because the theory was based on the multiplicity approach. Firstly, the most popular intelligence definition done by Gardner was "…is the ability or set of abilities that allows a person to solve a problem or a create product that is of value in one or more cultures" (1983, p.x). In this regard, it can be said that intelligence(s) was displayed via various ways because of these lots of ways to solve a problem and create a product. Consequently, the intelligence(s) could not be determined by using one standard method. On the contrary, to say something about intelligence(s), various methods should be used. Secondly, at the proposal presentation of the thesis study, Prof.Dr. Ziya Selçuk asked a question to the researcher of the study. The question was "Is there any relationship between the MIT and the using of multiple methods together order to determine and assess the multiple intelligences in terms of multiplicity approach/process?"

As the emphasis in Selçuk's question, MIT is based on multiplicity not singularity. In this regard, Gardner said,

> Nowadays an increasing number of researchers believe precisely the opposite; that there exists a multitude of intelligences, quite independent of each other; that each intelligence has its own strengths and constraints; that the mind is far from unencumbered at birth; and that it is unexpectedly difficult to teach things that go against early 'naïve' theories or that challenge the natural lines of force within an intelligence and its matching domains (Gardner 1993, xxiii).

Thirdly, Gardner criticized the traditional approach by saying "My goal is not to denigrate these traditional scholastic intelligences, but rather to give equal attention to other intellectual faculties" (2005, p. 8). In other words, Gardner put equal importance on all intelligences and so rejected the IQ test because the test had given importance on only two intelligences; linguistic and logical. Moreover, Gardner stated risky points about approaches aiming to assess and test multiple intelligences even if the developers of them believe in multiple intelligences theory. The risky points were presented under "the problem statement" title of this study. Here, not all the risky points are presented; only the ones implying and supporting

the use of multiple method in order to determine multiple intelligences profiles was presented and discussed. The risky points about conducting multiple intelligences assessment were;

not intelligence-fair—biased towards linguistic abilities

If there were more than one type of method to determine multiple intelligences profiles, the risk of bias might be increased. The multiple method (using multiple methods together) included more than one method and so would activate all intelligences as equally as possible. In this manner, using multiple method to determine multiple intelligences profiles would enable teachers to avoid the risk "bias towards one or two intelligences."

encourages simplistic / superficial understanding of an individual's abilities

Scientific attention to the nature of intelligence began a century ago, with original works of Charles Spearman in Britain and Alfred Binet in France (Gardner, 2004). The short – answer tests, which were called IQ tests, were created by their followers (Gardner, 2004). Gardner (2004) expressed that although physics and biology met revolutions in the 20th century, the view of intelligence in the field of psychology had remained unchanged for 100 years.

While an IQ based view of intelligence was continuing dominantly, people underestimated the huge changes in the conceptualization of intellect that have emerged in recent years from the new fields of cognitive science, neuroscience, and artificial intelligence (Gardner, 2004). Gardner stated,

> These disciplines now recognize a multitude of intellectual capacities, each entailing its own processes and its own neural representation. Developed over the last 25 years, my own theory of multiple intelligences (MI) attempts to incorporate findings from these and other disciplines. It posits a set of eight or more separate intellectual capacities, each of which has at least some independence from the others. The degree of autonomy is difficult to establish because we lack "intelligence-fair" measures: So long as all intelligences are assessed via identical paper-and-pencil formats, there may be an inflated correlation among them (2004, p. 4).

To sum up, on the basis of Gardner's speech and related literature, it can be expressed that MIT was based on a multiplicity approach and, all intelligences could not be identified and assessed via one method, especially paper-pencil test formats. It does not mean that multiple intelligences profiles cannot be determined and assessed. Multiple intelligences profiles can be identified and determined without failing only if several measures for each intelligence were developed and that it is ensured that people are comfortable in dealing with the materials and methods used to measure each intelligence. In this regard, the present study focused on using multiple method to determine multiple intelligences profiles. The multiple method included observation, inventories etc. The eclectic method tried to determine multiple intelligences profiles using various methods, sources and instruments together.

In this manner, this study has tried to develop and present several materials for determining each intelligence as the sentence said in Gardner's speech "several materials for each intelligence". It means that each intelligence would be determined and assessed via various methods.

On the basis of the previous paragraphs, it has been concluded that an eclectic method (using multiple sources and methods together) was the best method to determine multiple intelligences profiles. It is time to state the risky points expressed by Gardner and Shearer and repeatedly stressed throughout the present study before discussing the materials developed throughout the present study. According to Shearer (2005), Gardner thought it could be risky to conduct multiple intelligences assessment, depending on various writings of Gardner in five ways:

1- not intelligence-fair—biased towards linguistic abilities,
2- confounds interest with demonstrated skill,
3- promotes labeling of the individual by self and others,
4- encourages simplistic / superficial understanding of an individual's abilities,
5- facilitates stereotyping of groups of individuals (p. 2).

Moreover, Sharer (2005) added to the list several additional dangers that he had found as follows;

1- creating a superficial and distorted understanding of MI,
2- demeaning and undermines acceptance of MI theory,

3- confusing learning styles and personality with intellectual ability,
4- promoting a "quick fix", short-term approach to instruction, curriculum and school renewal,
5- encouraging a "mindless" and non-serious approach toward MI assessment,
6- discouraging thoughtful investment in self-understanding to be followed with the practical application of the results to important educational, vocational and personal decisions,
7- reinforcing the assumption that IQ related skills are the only "real" intelligence (Shearer, 2005, p, 2).

The risky points had been taken into consideration throughout the current study. Actually, the purposes of the study were determined on the basis of the warnings. In this regard, taking the problems related with existing approaches and Gardner's warnings into consideration, the main purpose of this study was to explore a program development process and explain how each component of the process contributes to overall procedure for determining 1st, 2nd, and 3rd grade students' multiple intelligences profiles. Therefore, a program resulted from the current study. More specifically, the proposed program would

(a) determine the 1st, 2nd and 3rd graders' multiple intelligence profiles,

(b) be appropriate to MIT for example giving equal importance to all intelligences, addressing various performances of all intelligences, not promoting labeling, not confusing interests with skills / abilities/ intelligences,

(c) inform its users of MIT, and prospected perils of using existing methods to determine multiple intelligences,

(d) present a "process approach" not quick-fix, short term approach,

(e) present a "collaborative approach"; collaborate with parents and students themselves.

To reach the purposes, the program design phase was conducted after the needs assessment. In the program design phase, the data were gathered in relation to the content and materials of the methods which would be developed in order to determine the 1st, 2nd and 3rd graders' interests and skills. In this regard, the data was gathered in terms of the 1st, 2nd and 3rd graders' general interests and characteristics under the determined umbrella terms, which were school activities, home-based activities, out of school and house activities, environments, readings, cartoons,

learning activities, assignments, games, occupations, colors and geometric shapes. After analyzing the data, three categories emerged. The first category presents data that would be used to determine frames and backdrop of the materials; the second category reveals the characteristics which can be differentiated according to multiple intelligences and so the characteristics can be used in order to construct the content of the materials; the third category displays and the visual aspects used while the colors and geometric shapes were being determined for the materials.

The data gathering process was taken seriously into consideration because multiple intelligences theory presents a symbolic system rather than the content or process for a material or method. Sternberg (1997) explains the characteristic of MIT by comparing his theory with MIT that triarchic theory and MIT are compatible. However, Gardner's deals with symbolic domains of intelligences (linguistic, musical etc.) while the triarchic theory deals with domains of application processes (analytic, creative, and practical). Moreover, he gave an example that linguistic intelligence as being applied analytically (as in the work of a critic), creatively (as in the work of a poet), or practically (as in the work of an advertising copywriter.). In respect to this, the principle "everybody has all multiple intelligences" of MIT was known by the study, but how and with which content the symbolic domains of intelligences could be observed, asked or determined was unknown before the related data was gathered and analyzed.

After analyzing data and reaching the three categories, the materials were developed. The content of the each material in relation to multiple intelligences on the basis of the second category reveals the characteristics which can be differentiated according to the multiple intelligences. For example, one of the results the category indicated that the assignment types a child most likes/ is most successful at were differentiated according to the child's dominant multiple intelligences. In other words, the results showed that the assignment types the musical rhythmic dominant children like / are most successful at and the assignment types bodily kinesthetic dominant children like/are most successful at are different from each other. Within this framework, the contents of the stories in the story books of the story inventory; the performances of the performance assessment; the items of the parent questionnaire and the collages of the film inventory were prepared on the

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basis of the results of the categories differentiated according to multiple intelligences.

The formats of the materials were determined on the basis of the category called "the interests and frame." For example, one of the results obtained under the category was that children like stories comprising of a group of characters like Smurfs. In this regard, the format of one of the inventories was stories "Intelligent Eight" Another example was that the results revealed that the 1st, 2nd and 3rd grade students like cartoons, thus the format of the other inventory was determined as a cartoon and the "Film inventory" was developed. Moreover, the colors and the geometric shapes which resulted from the category "the visual aspects" were used during the determining the colors and geometric shapes used in the drawings of the story inventory.

As it was stated before, the processes of the symbolic systems of intelligences were focused when the materials of the program were being developed. Moreover, Gardner's and Shearer's warnings about the risky points and the prospected perils about the existing methods of determining / assessing multiple intelligences. With all that and on the basis of the results of the needs assessment and program design, four materials were developed. The program with four materials was implemented in the program implementation and verification phase. The results of the program implementation and verification phase were presented in detail in Chapter IV and also were summarized at the beginning of the current chapter under the title of the "Summary". Herein, the discussions of the results are in question, so especially it should be stated that the results of the program implementation and verification phase indicated that the program was free from the risky points stated above. Moreover, the deficiencies of the IQ tests stated by Sattler (2001) were parallel with the risky points stated and indicated by Gardner and Shearer. In this regard, the program implementation and verification phase showed that the program developed throughout the study was also free from the deficiencies of the IQ tests. The deficiencies were as follows;

1. Intelligence tests limit our understanding of intelligence, and sample only a select number of conditions under which intelligent behavior is revealed.

2. IQs are used to classify children into stereotyped categories, thereby limiting their freedom to choose fields of study.
3. Knowledge of their IQs may inhibit children's level of aspiration and affect their self concept.
4. Intelligence tests generally fail to measure the processes underlying the child's responses and are limited in the extent to which they reveal the cognitive processes needed for successful test performance.
5. IQs are misused as measures of innate capacity.
6. The single IQ does not do justice to the multidimensional nature of intelligence.
7. IQs have limited value in predicting occupational success.
8. IQs are of limited value in predicting nontest or nonacademic intellectual activity; the standard question cannot capture the complexity and immediacy of real life situations.
9. Nonconventional, original, or novel responses are penalized on intelligence tests (Sattler, 2001, p. 176).

The end phase of the study was the summative evaluation phase of the study. The results of the summative evaluation indicated that the program all in all reached approximately all the purposes of the current program development study. Actually, the purposes determined at the beginning of the study defined the characteristics which the program should have. In this respect, the discussion of the results related with the summative evaluation was conducted under the title of each characteristic the program has.

The program is scientifically developed

The present program was scientifically developed at four main stages; needs assessment, program design, program implementation and verification, summative evaluation. First and foremost, Howard Gardner scientifically developed Multiple Intelligences Theory in 1983. He (1999) expressed that he began by looking for the answers to the questions namely; How did the human mind and brain evolve over millions of years? and How can we account for the diversity of skills and capacities that are or have been valued in different communities around the world? (Gardner, 1999). Then, Gardner determined eight criteria of intelligence namely;

1. Potential isolation by brain damage,
2. The existence of idiots savants, prodigies, and other exceptional individuals,
3. An identifiable core operation or set of operations,

4. A distinctive developmental history, along with a definable set of expert "end-state" performances,
5. An evolutionary history and evolutionary plausibility,
6. Support from experimental psychological tasks,
7. Support from psychometric findings,
8. Susceptibility to encoding in a symbol system (Gardner, 1983, pp. 63-66).

Furthermore, the criteria were drawn from several sources namely, psychology, observation of unusual human beings, anthropology, cultural studies and the biological sciences (Gardner, 1998). Gardner was equipped with the questions and the eight criteria and then he concluded that human beings possess at least eight intelligences (Gardner, 1999). As it is clear that MIT is a scientifically developed theory and the program should have been scientifically developed and it was scientifically developed.

Additionally, one of the accelerating problems for the study was that there were non-scientific materials including tests, inventories, checklist, form etc. and they have had too many users. On the basis of the existing materials in the field of determining and assessing multiple intelligences, the risky points were found and expressed by Gardner and Shearer about the methods of assessing and determination of multiple intelligences. Therefore, it can be stated that the risky points were related to non-scientifically developed or created materials with the aim of determining and assessing multiple intelligences. The risky points implied that the materials and the ways aiming to determine and assess multiple intelligences offered by MIT have to be developed in scientific ways.

The program is process oriented not product based, not based on a quick fix, short term approach

Most of the risky points stated by Gardner and Shearer originated from A "quick fix", "short-term" approach. For example, one of the risky points is not being intelligence fair. Most existing materials asserting that they assess multiple intelligences were based on paper and pencil and used in A short limited time. In this regard, they could not address all multiple intelligences because the materials had an urgency to assess multiple intelligences as soon as possible. Therefore, such materials have caused their users to confound their interests with their skills. After

that, their answers have given information about their interests, but did not give enough data relating to their multiple intelligences. The point is another risky point stated by Gardner and Shearer (2005).

Furthermore, Kornhaber (2004) expressed that people knew very little about psychometric models. He continued that the models were based on an assumption. The assumption was the nature of intelligence that can be best understood through the analyses of how people think in highly atypical situations. Kornhaber explained the fact on the basis of an example cited from Willingham. The example was about John Carroll's three-tiered hierarchical model of intellect – with g (general intelligence). The model was developed by Carroll on the basis of the data from 130000 individuals. Kornhaber underlined the three more facts:

> These 130000 individuals were largely sitting in isolated rows frenetically wielding number 2 pencils over small booklets of peculiar puzzles and bubbles –in answer sheets. Nobody invests any sizeable part of his or her intellectual life in such activity (or its contemporary computer-equivalents). Not a single intellectual product of any merit has ever resulted from that setting. Thus, a model of intelligence built on that activity, no matter how large the sample size and how rigorously statistics contributed to its assembly, is, at best, extremely limited. The model may fit the data just beautifully, but the data aren't drawn from the reality of how human beings actually use their minds (Kornhaber, 2004).

Like the psychometric models, most of the existing materials for determining and assessing the multiple intelligences had negative points such as paper-pencil, limited time, numerical results etc. Also, the speech implied that the test was not process based, but it was based on a quick fix approach. As it was stated before, most of the negative aspects originated from a quick and short term approach. In this regard, determining and assessing multiple intelligences should be process oriented. It should not be based on product and quick fixed approach. Therefore, the current program is process – based.

The program does use the word "intelligence" rather than "skill or ability"

There have been various criticisms about Multiple Intelligences Theory since 1983. One of them is that the theory is not an intelligence theory, but it is a talent

study. Gardner explained using the word "intelligence". He (1983, 1993) expressed that human cognitive competence included not only one dimension, but a set of talents, abilities and mental skills called intelligences. Gardner (2003) stated that he used "multiple intelligences" rather than abilities or gifts for defining the set of human faculties.   Moreover, he emphasized that using the phrase "multiple intelligences" could be seen as minor semantic substitution; however, it was very important.

Besides, he expressed that he was quite secure if he had written a book called "Seven Talents" because it would not have taken the attention that Frames of Minds had taken. Furthermore, Gardner explained his thoughts about the term "intelligence" in the part "Reintroducing Frames of Mind" in the book "Frames of Mind" in 1983 as follows,

> Frames has been viewed as a useful study of human talents, but not a valid examination of intelligence. As stated in the book itself, I place no particular premium on the word intelligence, but I do place great importance on the equivalence of various human faculties. If critics were willing to label language and logical thinking as talents as well, and to remove these from the pedestal they currently occupy, then I would be happy to speak of multiple talents. But I strongly resist and attempt to use a contrast between intelligence and talent as a veiled attempt to ignore or minimize the range of critical human abilities (Gardner, 1983, p. xi).

Moreover, Gardner determined eight criteria that have defined what is and what is not an intelligence (Gardner, 2003). The criteria were stated. It means that any talent, ability or skill could not be determined as intelligence without fulfilling the criteria.

Finally, on the basis of Gardner's explanations about the concept of "intelligence" and the rationale of using the term "intelligence"; the process of scientific development of Multiple Intelligence Theory, it can be stated that the mentality of human competence has been changed. According to the mentality, it has redefined what intelligence is. Moreover, intelligence has not been defined any longer as parallel with IQ test and intelligence has been defined on the basis of the intelligence definitions made by MIT. Therefore, people accept the meaning of intelligence as it is according to MIT after accepting such a scientific theory of

intelligence "Multiple Intelligences Theory". As a result of this, using the word "intelligence" everywhere MIT is on the carpet. Eventually, the usage of the word "intelligence" is not a fault in the theory of Multiple Intelligences.

The program has a guidance including information about intelligence and MIT and instruction of how the multiple sources / materials are used together with in which order, and how assessment process would be conducted, etc.

In the literature, there were various guidance booklets and reports prepared for psychological test users. One of them was Report of the "Task Force on Test User Qualifications". The report was prepared by the task force members, Stephen T. DeMers, EdD (Cochair), Samuel M. Turner, PhD (Cochair), Marcia Andberg, PhD, William Foote, PhD, Leaetta Hough, PhD, Robert Ivnik, PhD, Scott Meier, PhD, Kevin Moreland, PhD (deceased) and Celiane M. Rey-Casserly, PhD. The report was approved and published by the American Psychological Association (2000).

The purpose of the report was to develop guidelines informing test users and the general public of qualifications that the APA considers important for the competent and responsible use of psychological tests. Who the test users are? And then, What does the term test user qualification mean? Firstly, the test user was defined as follows;

> The person or persons responsible for the selection, administration, and scoring of tests; for the analysis, interpretation, and communication of test results; and for any decisions or actions that are based, in part, on test scores. Generally, individuals who simply administer tests, score tests and communicate simple or "canned" test results are not test users (APA, 2000, p. 7).

Secondly, the term test user qualification was defined (APA, 2000) as the grouping of knowledge, training, experience, skills, abilities, and, where appropriate, credentials that the APA considers optimal for the psychological test use. Eventually, the report explained test users qualifications which the APA believed would best serve the public.

The aim of the current thesis study was not to produce a psychological test in order to determine multiple intelligences process. The primer purpose of the thesis

was to explore a program development process and explain how each component of the process contributes to overall procedure for determining 1st, 2nd, and 3rd grade students' multiple intelligences profiles. Additionally, a program was proposed aiming to determine students' multiple intelligences profiles. In this regard, the point the researcher arrived at was that there was not only one test in order to actualize the primer purpose of the thesis. There were various methods and their various instruments were developed by taking many sources including the results of the needs assessment, Gardner's warnings about existing materials, and the principles of MIT etc. into consideration. Why was the guideline prepared by the APA about test users qualifications explained in the previous paragraph? It was done because there were important common points between psychological test users and the current program users although there were important differences.

Both users want to reach information obtained from the instruments or materials called whatever the developer wanted to put according to the approach in which the instruments or materials were developed such as test, inventory, and checklist. In this regard, there were points the users should have knowledge of for both approaches. Herein, firstly, an ear should be lent to the American Psychological Association (APA). For the report by APA presented that test users should know the following well.

1. Legal rights of test takers
2. Standardized administration procedures
3. Scoring procedures
4. Confidentiality of test materials and test information
    4.1 Safeguards for protecting test materials
        4.1.1   Protection against copyright infringement
        4.1.2   Protection against unauthorized dissemination of test items/keys/scoring procedures
    4.2 Safeguards for protecting protocols and test results
        4.2.1   Legal issues
        4.2.2   Ethical issues
5. Reporting results to the test taker, caregiver, or others as appropriate
    5.1   Characteristics of meaningful reports

5.2   Amount of information to report

5.3   Legal and ethical issues

Therefore, it was possible to pick out the items from the ones stated above according to the philosophy of the program developed in the thesis study. Finally, all the items passed through the side of the program. Nevertheless, the meanings of the items were different from the meanings defined by the psychometric test approach. For this reason, the meanings of the items for the program were explained below.

Before the meanings of the items for the study, who took the places of test takers and test users should be defined. There were two main groups of people. The first group comprised of the 1st, 2nd and 3rd grade students and the other group was composed of their teachers (1st, 2nd and 3rd grade teachers). The first group was called applicants; the second was called as the users of the program. According to this program, the paraphrased items are as follows;

I. Legal rights of test takers => Legal rights of applicants

The applicants of the materials of the program should know their rights. In addition, the users of the materials know the rights of the applicants as least as well as the applicants know because the users enable the applicants to know their rights.

II. Standardized administration procedures => Well prepared guide

The users should know the administration procedures very well. Actually, the purposes stated previously and necessity of which have been explained in these lines indicated the item. The need assessment results showed that the participants of the study wanted to have a well prepared guide in order to reach the purposes of the program by using it properly.

III. Scoring procedures => Numerical procedure for reaching the result

In fact, the term "scoring" belongs to psychometric tests; conversely in this study it has been talked about for determination of the multiple intelligences not using classical tests presenting scores. However, in this study there is usage of numbers in order to determine students' multiple intelligences profiles. For each method of multiple sources used to reach the ultimate goal "to determine multiple intelligences profiles", numbers are used. This usage is completely different from the usage of scores in ordinary psychometric tests because the usage of numbers and numerical results in this study help the program users reach the final result. There is

a point which should be highlighted. The point is that although the program uses numbers throughout the determination process, the program do not present numerical results, or any score for multiple intelligences. The point is explained under the title of the each material. Finally, the users should know how to figure out the position of multiple intelligences for each student, using numerical calculation.

IV. Confidentiality of test materials and test information => Confidentiality of the program and the program materials

It is vital that program users know and apply the legal and ethical issues related to the release of the program materials, including issues of confidentiality.

V. Reporting results to the test taker, caregiver, or others as appropriate => Reporting results as appropriate to the mentality of the program

The program users should pay attention to the characteristics of meaningful reports, amount of information to report, legal and ethical issues when preparing the report. The program users should be able to explain the results of the program and the program limitations to diverse audiences including parents, students, teachers and other related people such as psychological guidance and counselor and school counselor. If the program user uses written communications, she or he should express the purpose of the program and specifically the program's materials about which the report has been prepared. Moreover, the program user should give information about the setting in which the material is applied. Program users should be aware that the numbers and the results of numerical calculation should be separated from the interpretive report over time. As a result, the program has a guide with the characteristics explained above.

The program focuses not only on dominant intelligences, but also on weak intelligences, being intelligence fair as much as possible

One of the principles of MIT is that all intelligences are equally important. In this regard, the program which has resulted from the program development process of the study on the basis of MIT should be intelligence fair as much as possible and aim to produce results about not only dominant intelligences, but also weak intelligences.

While Gardner was criticizing the psychometric tests, he asked the question "How is it that there are not only capable mathematicians and writers, but also skillful historians, farmers, engineers, actors, teachers, lawyers, dancers, hunters, politicians, and yes, even comedians?" (Kornhaber, 2004). Gardner emphasized that all human abilities, skills, competences or intelligences were equally important for him, for MIT. As it was stressed previously that Gardner stated,

> …I do place great importance on the equivalence of various human faculties. If critics were willing to label language and logical thinking as talents as well, and to remove these from the pedestal they currently occupy, then I would be happy to speak of multiple talents…. (Gardner, 1983, p. xi).

Moreover, there was another question "Who has the authority to decide what intelligence is and therefore the privilege to deem some people intelligent and others not?" Kornhaber answered the question he asked in the following,

> … The emperors of China valued and rewarded men whose minds most eloquently spat back Confucian notions of hierarchy. Francis Galton, an upper –class Englishman, member of the Darwin family, and arguably the first scientific investigator of intelligence, found that upper-class Englishmen from eminent families were inherently best and brightest. The Harvard, Princeton, and Stanford men who devised mass-administered intelligence tests for World War I army recruits asserted that White Anglo-Saxon Protestants with northern European backgrounds outranked Whites with families originating elsewhere in Europe, Jews, and Blacks. Psychometric supremacists argue that their methods entitle them to the privilege of deeming some smart and some not. Not surprisingly, they value those who do well on tests that they themselves design or study. Those with accomplishments or capabilities that don't shake out via the supremacist' puzzles and procedures must be something other than intelligent. Maybe they're merely "talented." Maybe they're even stupid. But here's the rub: Plenty of people who are far from stupid take issue with psychometric views. It must be maddening to the psychometric supremacist, given their refined methods and mighty minds, to find that many talented – and even highly intelligent-people are no longer thoroughly in their thrall. (Kornhaber, 2004)

Therefore, we can state that any method and material aiming to assess and determine multiple intelligences profiles has to be intelligence fair as much as

possible. As a result of this, the program was developed as being intelligence fair as much as possible.

The program does not present numerical results

The numerical results remind us of IQ tests. The program was based on MIT and not an IQ test. Thus, the view of MIT on statistical, numerical approaches is taken into consideration. As it was explained before, MIT is based on various evidences. For analyzing and synthesizing this variety of evidence there is no any statistical technique and Gardner's evidence was not susceptible to meaningful statistical analyses. Thus,

Gardner could not number crunch some data, get a p = .05 and exclaim that there was a statistically significant "finding," and then crunch other data, get a p= .06 and note, alas, that there was not. (The statistically over-committed see this distinction as a "convention" rather than "arbitrary." That they do is but one of many examples illustrating how human judgment actually pervades the work of those purporting to have the "objective" truth about intelligence.) Given that Gardner's evidence was not susceptible to meaningful statistical analyses, he made it plain that his analysis relied on human judgment. He laid out his evidence, criteria, and reasoning (FYI, so did Darwin). It this fashion, Gardner ultimately arrived at eight different intelligences.

Therefore, while a theory has not used statistical methods to prove itself, it may not be right that the material depends on the theory presenting numerical results. Moreover, numbers might be used in the way appropriate to MIT; however, the numbers should not be presented to applicants or their parents because the potential might create a risk. The risk is that if the applicants and their parents are not qualified, they could use the numerical results inappropriately; for example, labeling etc. Numbers have been used in the program; however, the numbers and numerical results are not shared with the applicants and their parents as raw data. The numbers are only used as material, not the aim.

The program does not create labeling

Once again, the "problem statement" part of the study should be referred to in order to explain the inconvenience of creating labeling after and during determining multiple intelligences profiles in detail. In that part of the study, there were risky

points stated by Gardner and Shearer who developed a "process approach" of the multiple intelligences assessment (MIDAS) and researched since 1987. One of the risky points was promoting labels of the individuals by self and others. Thus, the program avoids from labeling procedure.

The program takes the cultural aspects into consideration

Cultural aspects of Turkey are one of the screens of this program. Normally, all the processes should be screened in terms of the cultural aspects. Therefore, the program and its elements including purposes, methods, and materials have been screened by the cultural aspects of Turkey from the view of the participants of the study throughout the study.

Eriş (2008) expressed that intelligence was an abstract notion and its definition was strongly related with a certain social, cultural, political and economic context at a given place and time. In this regard, he gave an example. The example was about a research conducted in Germany. The result of the research was that Turkish children's intelligence level living in Germany is lower than that of German children. For the result, Emrehan Halıcı, president of TZV (Turkish Intelligence Foundation), said that

> Such intelligence tests are closely linked with the dominant culture in one country. There must definitely be some standardization work before and after the administration of such a test in a given country. I believe that the results will be different when the questions are posed to people of a different culture…. (Oğuz, 2005, as cited in Eriş, 2008, p. 84)

Although Halıcı used the concept "intelligence" as synonymous with IQ (Eriş, 2008), it is noteworthy that the emphasis is on the effect of culture on intelligence. As a matter of fact, multiple intelligences theory made the same emphasis on the effects of cultural dimensions on multiple intelligences. Gardner (1983) stated that cultures put importance on some roles and did not on some others. The importance given or not given by the culture affected the improvement of multiple intelligences (Gardner, 1983). As a final point, the purpose of taking cultural aspects into consideration is important for the filter of the principles of Multiple Intelligences Theory. Finally, it is meaningful to end with a criticism and Gardner's response to it.

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For Multiple Intelligences Theory, one of criticisms was that "Is there sufficient empirical evidence to support Howard Gardner's conceptualization?" It meant that there was not an appropriately worked-through set of tests to identify and assess the different intelligences (Gardner, 2004). Gardner's answer to the criticism was that

> I once thought it possible to create a set of tests of each intelligence - an intelligence-fair version to be sure - and then simply to determine the correlation between the scores on the several tests. I now believe that this can only be accomplished if someone developed several measures for each intelligence and then made sure that people were comfortable in dealing with the materials and methods used to measure each intelligence. (Gardner 1999, p. 98, as quoted in Gardner, 2004)

Actually, the program accomplished determining and assessing the multiple intelligences profiles as in Gardner's indication.

5.3 Implications

Based on the results of the study, the implications for improving the field of determining and assessing the multiple intelligences profiles and further research are provided in the following parts.

5.3.1 Implications for Improving the Field of Determining and Assessing Multiple Intelligences

This part presents the implications for improving the field of determining and assessing the multiple intelligences profiles to make it more valid and free from the perils of existing approaches, methods and materials. In this regard, the implications for improving the field of determining and assessing multiple intelligences could be as such:

1. Firstly, the literature review of the study indicated there were risky points of existing methods and materials to determine and assess multiple intelligences. Moreover, the results of the study, especially needs assessment phase, found out the weaknesses and risky points of the existing materials and methods the

teachers use to determine students' multiple intelligences profiles. The current study aimed to explore a program development process and explain how each component of the process contributes to the overall procedure for determining 1st, 2nd, and 3rd grade students' multiple intelligences profiles, avoiding the risky points and weaknesses. As a result, the current study was conducted as an action research study and so it can avoid the risks and weaknesses the existing methods and materials posed. By this way, the study indicated that development of methods and materials with the aim of determining multiple intelligences profiles was comprehensive research-based process. Therefore, every action aiming to determine and assess multiple intelligences profiles should be research-based process otherwise it is easy to face the risky points and prospect perils.

2. The literature indicated that MIT was based on broad evidence including experimental psychology, psychometric psychology (Gardner & Moran, 2006; Kornhaber, 2004), cognitive psychology, developmental psychology, differential psychology (Gardner & Moran, 2006), psychology, neuropsychology, evolutionary biology (Kornhaber, 2004), genetics and anthropology. Besides, Gardner and Moran (2006) emphasized that MIT demanded an interdisciplinary approach. In this regard, the experts from the fields of sociology, psychology, psychiatry, neurology, child neurology, social pediatrics, MIT were among participants of the study. The experts were interviewed and some of them were consulted throughout the study. They made valuable contributions to the study. Therefore, the studies on cognitive, intelligence and especially Multiple Intelligences Theory should be conducted by interdisciplinary groups including scientists from the fields of education, medicine, psychology, sociology and even economy.

3. One of the expert participants of the study was child neurologist. As it was expressed in the result chapter, she expressed that schools send students to child neurologist in order to take reports about the students' intelligences and cognitive aspects. The psychological consultants and guidance services or teachers of the schools send their students to them with this purpose. Furthermore, parents bring their children to them in order to learn about their intelligences. She emphasized that they used IQ tests because they did not have an inventory to determine

multiple intelligences. She said if they had an inventory or a method, they could use in the clinic environment, she and most of her colleagues would use it rather than IQ tests because she catch clues from the children who have low IQ results that they have some strong characteristics which could be explained with Multiple Intelligences Theory when she examined them. Moreover, they expressed that she had to report her thoughts or observations with a test or method. In this regard, MIT should be introduced to other fields including child neurology and programs and materials like the proposed program should be developed in order to determine multiple intelligences profiles in the clinic environment.

4. During the needs assessment phase, for avoiding labeling, one of the suggestions made by two teachers was that using the words "ability, skill, strength, weakness" rather than "intelligences" for multiple intelligences. The teachers also expressed that they used the words instead of the word "intelligence." Although the teachers made the suggestion as a solution for avoiding the labeling, it was interesting because it implied that people did not think to change the perspective toward intelligence. Therefore, the meaning of the intelligence proposed by MIT should be explained and presented when MIT was explained.

5.3.2 Implications for Further Research

For further research that will be conducted about the determining and assessing the multiple intelligences process, the following implications shall be considered:

1. The current study showed that teachers had various purposes to determine students' multiple intelligences profiles and the study proposed a program to determine students' multiple intelligences profiles. However, it is still unknown whether the teachers will use their students' multiple intelligences profiles resulted from the proposed program in the light of the purposes or not. In this regard, the studies should be conducted to explore how the teachers use the results gained from the proposed program.

2. Although the results of the summative evaluation displayed most of the purposes of the study were actualized, the choice for the future of the proposed program was

to improve the program because the results also indicated that there were three points which needed to be improved. The points were related with performance assessment, the method of program assessment and statistical analysis. In this regard, further research studies should be conducted about

a) the improvement of the performance assessment for teacher easy usage,

b) technological facilities which would ease the method of the program assessment for teachers,

c) statistical analysis for the reliability issue of the proposed program's materials.

3. Researchers should investigate the benefits of determining the 1st, 2nd and 3rd grade students' multiple intelligences profiles.

5. The current study explored a program development process and explained how each component of the process contributed to the overall procedure for determining 1st, 2nd, and 3rd grade students' multiple intelligences profiles, avoiding the risky points and weaknesses. Therefore, further researchers should conduct studies aiming to determine individuals' (including 1st, 2nd, and 3rd grade students') multiple intelligences profiles by following the program development process the current study explored and explained in Turkey and in different countries.

6. The current study proposed a program for determining 1st, 2nd, and 3rd grade students' multiple intelligences profiles when exploring a program development process and explaining how each component of the process contributed to the overall procedure for determining 1st, 2nd, and 3rd grade students' multiple intelligences profiles. However, the study was delimited with the participants of the study in Ankara, Turkey. Therefore, the implementation and implications of the proposed program should be investigated on different 1st, 2nd and 3rd graders.

7. Gardner and Moran (2006) emphasized that MIT demanded an interdisciplinary approach, cultural sensitivity and an interactionist-dynamic research methodology. Thus, the research studies related with MIT and especially determining and assessing multiple intelligences profiles should be conducted following an interdisciplinary approach, an interactionist-dynamic research methodology and taking cultural sensitivity into consideration.

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APPENDIX A

INTERVIEW QUESTIONS FOR TEACHERS
(Needs Assessment Phase of the Study)

1. **Ne kadar süredir sınıf öğretmenliği yapıyorsunuz? (A)**
2. **Ne kadar süredir bu okulda öğretmenlik yapıyorsunuz? (A)**
3. **Meslek hayatınız süresince kaç defa bu sınıf seviyesinin öğretmenliğini yaptınız? (A)**
4. **Çoklu Zekâ Kuramını kaç yıldır tanıyorsunuz? (A)**
5. **Çoklu Zekâ Kuramını nasıl tanıdınız? (A)**
   - Hangi sebeple (hizmet içi kurs, meslektaşı sayesinde, kendi araştırarak, internet aracılığıyla vb.)
6. **Çocukların çoklu zekâları belirleme hakkında düşünceleriniz nelerdir? (E)**
   - Gerekli midir? Neden?
   - Çocuklar (1. 2. 3. sınıflar) boyutu
   - Çoklu Zekâ Kuramına göre/ Gardner'ın çoklu zekâların belirlenmesi üzerine görüşleri ve işaret ettikleri hakkında neler düşünüyorsunuz?
7. **Bir öğretmenin öğrencilerinin çoklu zekâlarını belirlemede amaçları nelerdir? (E)**

   (A) Bir öğretmen olarak öğrencilerinizin çoklu zekâlarını hangi amaçlarla belirliyorsunuz?

   (B) Bir öğretmen olarak öğrencilerinizin çoklu zekâlarını neden belirlemeye ihtiyaç duyuyorsunuz?

   (C) Bir öğretmen öğrencilerinin çoklu zekâları hakkında bilgi edinmeye neden ihtiyaç duyar?

8. **Bireylerin çoklu zekâlarını belirme amaçlı mevcut yöntemler hakkında düşünceleriniz nelerdir? (F)**

- ▪ Mevcut yöntemler
- Envanter
- Diğer
- Anket
- Başka bireylerle görüşme
- ▪ Olumlu boyutları
- ▪ Olumsuz boyutları
- ▪ Ulaşma yolları (internet vb.)
- ▪ Yaş, cinsiyet boyutları
- ▪ Kökenleri
  - Yabancı, yerli
  - Kökenlerinden dolayı avantaj ve dezavantaj

9. **Öğrencilerinizin çoklu zekâlarını hangi yollarla belirlemeye çalışıyorsunuz? Neden? (G)**
- ▪ Ulaşma yolları (internet, PDR servisi, kitap, meslektaş vb.)
- ▪ Yaş, cinsiyet boyutları
- ▪ Kökenleri
  - Yabancı, yerli

10. **Öğrencilerinizin çoklu zekâlarını belirleme amaçlı kullandığınız yöntemlerin etkililiği ve verimliliği (olumlu ve olumsuz yönleri) hakkında düşünceleriniz nelerdir? (G)**

(A) Öğrencilerinizin çoklu zekâlarını belirme amacı ile kullandığınız yöntemlerin amacınıza ulaşma yolunda ne kadar etkili ve verimli olduğunu düşünüyorsunuz? Neden?

11. **Öğrencilerinizin çoklu zekâlarını belirleme amaçlı kullandığınız yöntemlerin kökenlerinin ve geliştirilme biçimlerinin etkililik ve verimliliklerine etkisi hakkında düşünceleriniz nelerdir? (G)**

12. **Öğrencilerinizin çoklu zekâlarını belirleme sürecinizi anlatır mısınız? (X)**

13. **Öğrencilerinizin yaşları boyutuyla sahip olduğu özelliklerin çoklu zekâlarını belirleme sürecinize yansımalarını hakkındaki düşünceleriniz nelerdir? (H)**

- Gelişimsel özellikleri (psikolojik, fiziksel, ruhsal)
- Olumlu yansımalar
- Olumsuz yansımalar

14. Öğrencilerinizin çoklu zekâlarını belirleme sürecinde karşılaştığınız problemler/güçlükler neler? (X)

15. Bu çalışma için önerileriniz nelerdir? (I)

- Problemlerin çözümü için öneriler
- Beklenti ve istekler
- Dikkat edilmesi istenilen noktalar

16. Bu konuda belirtmek istediğiniz başka görüş ve önerileriniz var mı? (I)

INTERVIEW QUESTIONS FOR SOCIOLOGISTS
(Needs Assessment Phase of the Study)

1. Ne kadar süredir sosyologsunuz? (A)

2. Hangi kurumda sosyolog olarak hizmet vermektesiniz? (A)

3. Zekâ tarihsel süreç içinde farklı şekillerde tanımlanmıştır. Günümüzde mevcut zekâ anlayışları iki grup altında toplanmaktadır. Birincisi zekânın "g" faktörü denilen tek bir faktörle açıklanabileceğine dayanan anlayış diğeri ise zekânın tek bir faktörle açıklanamayacak kadar çok formu olduğunu savunan düşüncedir.

Bu kapsamda sizin alanınızın (sosyoloji) zekâya yaklaşımını nasıl değerlendirmektesiniz? (B)

- IQ tabanlı yaklaşım

- Çoklu yaklaşım

- Güncel olan yaklaşım

- Olumsuz eleştirilen yaklaşım

4. Çoklu Zekâ Kuramını ne kadar süredir tanıyorsunuz? (A)

5. Çoklu Zekâ Kuramını nasıl tanıdınız? (A)

- Hangi sebeple (ders içinde, meslektaşı sayesinde, kendi araştırarak, internet aracılığıyla vb.)

6. Bir sosyolog olarak Çoklu Zekâ Kuramı hakkında düşünce ve görüşleriniz nelerdir? (A)

- Olumlu

- Olumsuz

7. 19. yüzyılın başlarında Gall'in bireyin zihinsel profilinin güçlü ve zayıf yönlerinin kafatasının biçiminin incelenerek belirlenebileceği fikrini öne sürmesi, IQ testlerinin varlığı ve çoklu zekâları belirleme yönünde mevcut envanterlerin varlığı ile geçmişten günümüze zekânın ölçülmesine, belirlenmesine açık ve net bir eğilim olduğundan bahsedilebilir.

Bu eğilimi sosyolojik açıdan nasıl değerlendirmektesiniz? (C)

- Sebepleri

- Sonuçları (olumlu ve olumsuz)
- Ölçülebilirlik boyutu
- Yöntemler ve doğrulukları

8. Çoklu zekâları belirleme girişimlerini ve eğilimini sosyolojik açıdan nasıl değerlendirmektesiniz? (D)

- Sebepleri
- Sonuçları
- Belirlenebilirliği
- Gerekliliği
- Gardner'ın çoklu zekâların belirlenmesi üzerine görüşleri ve işaret ettikleri

9. Bir sosyolog olarak 1., 2., 3. sınıf çocuklarının çoklu zekâlarını belirleme hakkında görüşleriniz nelerdir? (E)

- Sebepleri
- Sonuçları
- Belirlenebilirliği
- Gerekliliği

10. Bir sosyolog olarak bireylerin çoklu zekâlarını belirme amaçlı mevcut yöntemler hakkında düşünceleriniz nelerdir? (F)

(A) Bireylerin çoklu zekâlarını belirleme amacıyla kullanılan mevcut yolların / yöntemlerin olumlu ve olumsuz yönleri hakkında neler söyleyebilirsiniz?

- Mevcut yöntemler
  - Envanter
  - Anket
  - Başka bireylerle görüşme
  - Gözlem
- Avantajlar
- Dezavantajlar
- Soruyu alt soruları ile birlikte 1. 2. 3. sınıf öğrencilerinin çoklu zekâlarını belirleme biçiminde özelleştirirsek? (G)

11. Bir sosyolog olarak çoklu zekâları belirleme amaçlı yolların kökenlerinin bu belirleme sürecine etkilerini nasıl değerlendirmektesiniz?

(A) Bir sosyolog olarak çoklu zekâları belirlemek amaçlı yolların kullanılacağı ülke ya da yurtdışı kaynaklı olmasının belirleme sürecine etkilerini nasıl değerlendirmektesiniz?

- Avantajlar
- Dezavantajlar

12. İlköğretim 1.2.3. sınıf öğrencilerinin yaşları itibariyle sahip olduğu özelliklerin ve bulundukları çevrenin çoklu zekâlarını belirleme sürecine yansımalarını sosyoloji çerçevesinde nasıl değerlendirirsiniz? (H)

- Olumlu yansımalar
- Olumsuz yansımalar

13. 1., 2., 3. sınıf çocukların çoklu zekâlarını belirleme amaçlı bir program geliştirirken geliştirilmesi muhtemel olan materyallerde sosyolojik açıdan dikkate alınması gereken noktalar hakkında neler söylemek istersiniz? (I)

14. Bu çalışma için önerileriniz ve beklentileriniz nelerdir? (I)

- görünüş
- içerik
- diğer

15. Bu konuda belirtmek istediğiniz başka görüş ve önerileriniz var mı? (I)

INTERVIEW QUESTIONS FOR PSYCHIATRIST

(Needs Assessment Phase of the Study)

1. Ne kadar süredir tıp alanında çalışmaktasınız? (A)

2. Zekâ tarihsel süreç içinde farklı şekillerde tanımlanmıştır. Günümüzde mevcut zekâ anlayışları iki grup altında toplanmaktadır. Birincisi zekânın "g" faktörü denilen tek bir faktörle açıklanabileceğine dayanan anlayış diğeri ise zekânın tek bir faktörle açıklanamayacak kadar çok formu olduğunu savunan düşüncedir.

Bu kapsamda sizin alanınızın zekâya yaklaşımını nasıl değerlendirmektesiniz? (B)

- IQ tabanlı yaklaşım

- Çoklu yaklaşım

- Güncel olan yaklaşım

- Olumsuz eleştirilen yaklaşım

3. Çoklu Zekâ Kuramını ne kadar süredir tanıyorsunuz? (A)

4. Çoklu Zekâ Kuramını nasıl tanıdınız? (A)

- Hangi sebeple (ders içinde, meslektaşı sayesinde, kendi araştırarak, internet aracılığıyla vb.)

5. Bir psikiyatr olarak Çoklu Zekâ Kuramı hakkında düşünce ve görüşleriniz nelerdir? (A)

- Olumlu

- Olumsuz

6. 19. yüzyılın başlarında Gall'in bireyin zihinsel profilinin güçlü ve zayıf yönlerinin kafatasının biçiminin incelenerek belirlenebileceği fikrini öne sürmesi, IQ testlerin varlığı ve çoklu zekâları belirleme yönünde mevcut envanterlerin varlığı ile geçmişten günümüze zekânın ölçülmesine, belirlenmesine açık ve net bir eğilim olduğundan bahsedilebilir.

Bu eğilimi psikiyatrik açıdan nasıl değerlendirmektesiniz? (C)

- Ölçülebilirlik boyutu

- Nedenleri

- ▪ Sonuçları
- ▪ Gerekliliği
- ▪ Yöntemler ve doğrulukları

7. Bir psikiyatr olarak çoklu zekâları belirleme girişimlerini ve eğilimini nasıl değerlendirmektesiniz? (D)

- ▪ Sebepleri
- ▪ Sonuçları
- ▪ Belirlenebilirliği
- ▪ Gerekliliği
- ▪ Gardner'ın çoklu zekâların belirlenmesi üzerine görüşleri ve işaret ettikleri

8. 1., 2., 3. sınıf çocuklarının çoklu zekâlarını belirleme hakkında görüşleriniz nelerdir? (E)

- ▪ Sebepleri
- ▪ Sonuçları
- ▪ Belirlenebilirliği
- ▪ Gerekliliği
- ▪ Mevcut yollar/yöntemler
- Envanter
- Anket
- Başka bireylerle görüşme
- Gözlem
  - ▪ Olumlu boyutları
  - ▪ Olumsuz boyutları
  - ▪ Kökenleri
    - Yabancı, yerli
    - Kökenlerinden dolayı avantaj ve dezavantaj

9. İlköğretim 1.2.3. sınıf öğrencilerinin yaşları itibariyle sahip olduğu özelliklerin çoklu zekâlarını belirleme sürecine yansımalarını psikiyatri çerçevesinde nasıl değerlendirirsiniz? (H)

- ▪ Gelişimsel özellikleri (bilişsel, fiziksel, ruhsal)
- ▪ Beyinsel gelişimleri

- Davranışsal gelişimleri

10. İlköğretim 1.2.3. sınıf öğrencilerinin çoklu zekâlarını belirlemede kullanılacak yöntem ya da yöntemler önerebilir misiniz? (I)

11. Bu çalışma için önerileriniz beklentileriniz nelerdir? (I)

- görünüş
- içerik
- diğer

12. Bu konuda belirtmek istediğiniz başka görüş ve önerileriniz var mı?

INTERVIEW QUESTIONS FOR NEUROLOGISTS AND SOCIAL PEDIATRICS

1. **Ne kadar süredir tıp alanında çalışmaktasınız? (A)**

2. Zekâ tarihsel süreç içinde farklı şekillerde tanımlanmıştır. Günümüzde mevcut zekâ anlayışları iki grup altında toplanmaktadır. Birincisi zekânın "g" faktörü denilen tek bir faktörle açıklanabileceğine dayanan anlayış diğeri ise zekânın tek bir faktörle açıklanamayacak kadar çok formu olduğunu savunan düşüncedir.

Bu kapsamda sizin alanınızın zekâya yaklaşımını nasıl değerlendirmektesiniz? (B)

- IQ tabanlı yaklaşım

- Çoklu yaklaşım

- Güncel olan yaklaşım

- Olumsuz eleştirilen yaklaşım

3. **Çoklu Zekâ Kuramını ne kadar süredir tanıyorsunuz? (A)**

4. **Çoklu Zekâ Kuramını nasıl tanıdınız? (A)**

- Hangi sebeple (ders içinde, meslektaşı sayesinde, kendi araştırarak, internet aracılığıyla vb.)

5. **Bir nörolog / sosyal pediatrist olarak Çoklu Zekâ Kuramı hakkında düşünce ve görüşleriniz nelerdir? (A)**

- Olumlu

- Olumsuz

6. 19. yüzyılın başlarında Gall'in bireyin zihinsel profilinin güçlü ve zayıf yönlerinin kafatasının biçiminin incelenerek belirlenebileceği fikrini öne sürmesi, IQ testlerin varlığı ve çoklu zekâları belirleme yönünde mevcut envanterlerin varlığı ile geçmişten günümüze zekânın ölçülmesine, belirlenmesine açık ve net bir eğilim olduğundan bahsedilebilir.

Bu eğilimi nörolojik / sosyal pediatri açıdan nasıl değerlendirmektesiniz? (C)

- Ölçülebilirlik boyutu
- Yöntemler ve doğrulukları

7. **Bir nörolog / sosyal pediatrist olarak çoklu zekâları belirleme girişimlerini ve eğilimini nasıl değerlendirmektesiniz? (D)**

- Sebepleri
- Sonuçları
- Belirlenebilirliği
- Gerekliliği
- Gardner'ın çoklu zekâların belirlenmesi üzerine görüşleri ve işaret ettikleri

8. **Bir nörolog / sosyal pediatrist olarak 1., 2., 3. sınıf çocuklarının çoklu zekâlarını belirleme hakkında görüşleriniz nelerdir? (E)**

- Sebepleri
- Sonuçları
- Belirlenebilirliği
- Gerekliliği

9. Bir nörolog / sosyal pediatrist olarak bireylerin çoklu zekâlarını belirme amaçlı mevcut yöntemler hakkında düşünceleriniz nelerdir? (F)

(A) Bireylerin çoklu zekâlarını belirleme amacıyla kullanılan mevcut yöntemlerin olumlu ve olumsuz yönleri hakkında neler söyleyebilirsiniz?

- Mevcut yöntemler
- Envanter
- Anket
- Başka bireylerle görüşme
- Gözlem
- Avantajlar
- Dezavantajlar
- Kökenleri
    - Yabancı, yerli
    - Kökenlerinden dolayı avantaj ve dezavantaj
- Soruyu alt soruları ile birlikte 1. 2. 3. sınıf öğrencilerinin çoklu zekâlarını belirleme biçiminde özelleştirirsek? (G)

10. İlköğretim 1.2.3. sınıf öğrencilerinin yaşları itibariyle sahip olduğu özelliklerin çoklu zekâlarını belirleme sürecine yansımalarını nöroloji / sosyal pediatri çerçevesinde nasıl değerlendirirsiniz? (H)

- Olumlu yansımalar
- Olumsuz yansımalar
- Gelişimsel özellikleri (bilişsel, fiziksel, ruhsal)
- Beyinsel gelişimleri

11. İlköğretim 1.2.3. sınıf öğrencilerinin çoklu zekâlarını belirlemede kullanılacak yöntem ya da yöntemler önerebilir misiniz? (I)

12. Bu çalışma için önerileriniz ve beklentileriniz nelerdir?

- görünüş
- içerik
- diğer

13. Bu konuda belirtmek istediğiniz başka görüş ve önerileriniz var mı? (I)

INTERVIEW QUESTIONS FOR PSYCHOLOGISTS

(Needs Assessment Phase of the Study)

1. Ne kadar süredir psikologsunuz? (A)

2. Hangi kurumda psikolog olarak hizmet vermektesiniz? (A)

3. Zekâ tarihsel süreç içinde farklı şekillerde tanımlanmıştır. Günümüzde mevcut zekâ anlayışları iki grup altında toplanmaktadır. Birincisi zekânın "g" faktörü denilen tek bir faktörle açıklanabileceğine dayanan anlayış diğeri ise zekânın tek bir faktörle açıklanamayacak kadar çok formu olduğunu savunan düşüncedir.

Sizin alanınızda şuanda zekâ tanımı nedir ve bu tanımınızı belirttiğim anlayışlardan hangisi içinde ya da nasıl bir konumda değerlendiriyorsunuz? Neden? (X)

(A) Kısacası psikoloji alanı içinde zekâ tanımı nedir? Uç noktalarını IQ tabanlı yaklaşım ve Çoklu yaklaşımın oluşturduğu bir doğru parçası üzerinde alanınızın zekâ tanımını ve zekâya yaklaşımını nasıl değerlendirirsiniz?

4. Çoklu Zekâ Kuramını ne kadar süredir tanıyorsunuz? (A)

5. Çoklu Zekâ Kuramını nasıl tanıdınız? (A)

Hangi sebeple (ders içinde, meslektaşı sayesinde, kendi araştırarak, internet aracılığıyla vb.)

6. 19. yüzyılın başlarında Gall'in bireyin zihinsel profilinin güçlü ve zayıf yönlerinin kafatasının biçiminin incelenerek belirlenebileceği fikrini öne sürmesi, IQ testlerin varlığı ve çoklu zekâları belirleme yönünde mevcut envanterlerin varlığı ile geçmişten günümüze zekânın ölçülmesine, belirlenmesine açık ve net bir eğilim olduğundan bahsedilebilir.

Bu eğilimi psikolojik açıdan nasıl değerlendirmektesiniz? (C)

- Öğretmenler açısından
- Veliler açısından
- Psikologlar açısından

7. Psikolojik açıdan zekânın ölçülmesi/ belirlenmesi mümkün müdür? Neden?

- Psikolojik açıdan zekânın ölçülmesi/ belirlenmesi mümkün ise nasıldır?
- Hangi yöntemleri doğru buluyor ya da öneriyorsunuz?
- Zekânın ölçülmesi ya da belirlenmesinin olumlu ve olumsuz çıktıları nelerdir?

8. Bir psikolog olarak çoklu zekâları belirleme hakkında düşünceleriniz nelerdir? (B)

- Sizce bireyin/ kişinin çoklu zekâlarını belirlemek mümkün müdür? Nasıl?
- Sizce bireyin/ kişinin çoklu zekâlarını belirlemek gerekli midir? Neden?
- Çoklu Zekâ Kuramına göre/ Gardner'ın çoklu zekâların belirlenmesi üzerine görüşleri ve işaret ettikleri hakkında neler düşünüyorsunuz?

9. Bir psikolog olarak çocukların (1., 2., 3. sınıflar) çoklu zekâlarını belirleme hakkında görüşleriniz nelerdir? (B1)

- Gerekliliği?
- Mümkünlüğü?

10. Öğretmenler ve öğrenciler açısından öğrencilerin çoklu zekâları hakkında bilgi edinilmesini psikolojik açıdan nasıl değerlendirirsiniz?

11. Günümüzde internet de, kitaplarda kolaylıkla ulaşılabilen psikolojik testler içinde çoklu zekâ belirleme envanter ve anketlerini de görmek mümkündür. Bu durumu nasıl değerlendiriyorsunuz?

- Bilimsellik
- Edinme kolaylığı
- Kaynak

12. Bir psikolog olarak bireylerin çoklu zekâlarını belirme amaçlı mevcut yöntemler hakkında düşünceleriniz nelerdir? (B)

(A) Bireylerin çoklu zekâlarını belirleme amacıyla kullanılan mevcut yöntemlerin olumlu ve olumsuz yönleri hakkında neler söyleyebilirsiniz? (C + C1 + C2)

- Mevcut yöntemler
- Envanter
- Diğer
- Anket

- Başka bireylerle görüşme
  - Avantajlar
  - Dezavantajlar
  - Kökenleri
    - Yabancı, yerli
    - Kökenlerinden dolayı avantaj ve dezavantaj
  - Soruyu alt soruları ile birlikte 1. 2. 3. sınıf öğrencilerinin çoklu zekâlarını belirleme biçiminde özelleştirirsek? (G)

13. **En sık kullanılan envanterler arasında TIMI, Armstrong, MIDAS envanterleri var. Bunları tanıyorsanız, nasıl değerlendirmektesiniz?**

14. **İlköğretim 1.2.3. sınıf öğrencilerinin yaşları itibariyle sahip olduğu psikolojik özelliklerin çoklu zekâlarını belirleme sürecine yansımalarını nasıl değerlendirirsiniz? (C1 + C2)**
    - Olumlu yansımalar
    - Olumsuz yansımalar

15. **Bir psikolog olarak ilköğretim 1.2.3. sınıf öğrencilerinin çoklu zekâlarını belirlemede kullanılacak yöntem ya da yöntemler önerebilir misiniz? (F)**

16. **1.,2., 3. sınıf çocuklarının çoklu zekâlarını belirleme amaçlı bir program geliştirirken geliştirilmesi muhtemel olan materyallerde psikolojik açıdan dikkate alınması gereken noktalar hakkında neler söylemek istersiniz? (E1 + E2 + E3)**
    - İlgilerle zekâların karıştırılması konusu
    - Olanın değil olması gerekenin ya da olması istenilenin işaretlenmesi
    - Etiketleme çıktısı

17. **Bir psikolog olarak bu çalışma için önerileriniz ve beklentileriniz nelerdir? (F)**
    - Beklentiler ve istekler

    İçerik, görünüş, diğer unsurlar açısından (E1 + E2 + E3)
    - Dikkat edilmesi istenilen noktalar

18. **Bu konuda belirtmek istediğiniz başka görüş ve önerileriniz var mı? (F)**

INTERVIEW QUESTIONS FOR RESEARCHER

(Needs Assessment Phase of the Study)

1. Akademik geçmişinizi özetler misiniz? (A)

2. Mesleğiniz nedir? Ne kadar süredir bu mesleği gerçekleştiriyorsunuz?

3. Çoklu Zekâ Kuramını ne kadar süredir biliyorsunuz?

- Hangi sebeple?

- Ne kadar süreyle üzerinde çalıştınız?

4. Çoklu Zekâ Kuramı hakkında düşünceleriniz nelerdir?

- Olumlu boyutları?

- Olumsuz boyutları?

5. Çoklu Zekâ Kuramı ile ilgili olarak gerçekleştirdiğiniz araştırma ve çalışmalarınızın adlarını, yıllarını, basıldıysa basıldıkları yeri belirtiniz?

6. Hangi çalışmanızda ya da çalışmalarınızda katılımcılarınızın çoklu zekâları belirlediniz?

- Hangi amaçla?

7. Çalışmalarınızda çoklu zekâları hangi yöntemlerle belirlediniz? Neden?

8. Çoklu zekâları belirlemede kullandığınız yöntem ya da yöntemler hakkında neler söylemek istersiniz?

- Kullanım avantajları

- Kullanım dezavantajları

- Ulaşma yolları (internet vb.)

- Yaş, cinsiyet boyutları

- Kökenleri

  - Yabancı, yerli

  - Kökenlerinden dolayı avantaj ve dezavantaj

9. Çoklu zekâları belirleme hakkında belirtilen riskler bulunmaktadır. Bu riskler hakkında bilginiz var mı? Kısaca belirtmemi ister misiniz?

9.1 Belirtilen bu riskler hakkında neler düşünüyorsunuz?

9.2 Kendi araştırma(ları)nızda çoklu zekâları belirleme amaçlı kullandığınız yöntemlerin bu riskler açısından değerlendirdiğinizde neler söylemek istersiniz?

9.3 Araştırma(ları)nızda kullanmış olduğunuz çoklu zekâları belirleme yöntemlerinin bu riskleri aşmış olduğunu düşünüyor musunuz? Neden? Nasıl?

10. Çoklu zekâlarını belirlemeyi kendi çalışma kapsamında deneyimlemiş birisi olarak;

10.1 Çocukların (1. 2. 3. sınıf öğrencileri) çoklu zekâlarını belirleme hakkında düşünceleriniz nelerdir?

10.2 Çocuklarının (1. 2. 3. sınıf öğrencileri) çoklu zekâlarını belirlemede hangi yöntemlerin kullanılmasının uygun olduğunu düşünüyorsunuz? Neden?

11. Bu çalışma için görüşleriniz ve önerileriniz nelerdir? (I)

- Beklentiler ve istekler
- Dikkat edilmesi istenilen noktalar

12. Bu konuda belirtmek istediğiniz başka görüş ve önerileriniz var mı? (I)

INTERVIEW QUESTIONS FOR INSTRUMENT DEVELOPERS

(Needs Assessment Phase of the Study)

1. Could you summarize your background? (A)

2. What is/are your special study field/s? (A)

3. Although there are various intelligence definitions, Paik (1998) affirmed that there are two major schools of thought on the nature of intelligence. The first group is based on the premise of one type of intelligence which is genetic in nature and thus fixed throughout life. On the other hand, the second group claims that there are different forms of intelligence rather than one general factor.

3.1 Related to the information stated above, how do you interpret the popular view of intelligence today? Why? (B)

3.2 What is / are your own definition/s of intelligence? (A)

3.3 In which approach do you place your own definition? (A)

4. How long have you known Multiple Intelligences Theory? (A)

5. How long have you been studying on Multiple Intelligences Theory? (A)

6. What do you think about Multiple Intelligences Theory? (A)

- Positive aspects?

- Negative aspects?

7. There has been a clear tendency to evaluate and assess intelligence from past to now. There has been lots of evidence for the clear tendency such as the idea proposed by Gall that an expert can determine the strengths and weaknesses of an individual's mental profile by carefully examining the skull configurations of the individual. Other ones are IQ tests and inventories for determining multiple intelligences.

7.1 How do you think about the tendency to evaluate and measure intelligence? (C)

- Reasons?

- Possibility of measurement?

- Methods?

- Results?

8. How do you interpret the enterprises and tendencies to determine multiple intelligences? (D)

- Reasons?

- Results?

- Necessity?

- Possibility to determine?

9. How do you make decision to determine multiple intelligences? (E)

10. How do you develop your inventory to determine multiple intelligences? (F)

- Developing process?

11. Shearer (2005) who have created "process approach" of the multiple intelligences assessment (MIDAS) and researched since 1987 summarized why Gardner thought it can be risky to conduct multiple intelligences assessment, depending on various writing of Gardner in five ways:

- *not intelligence-fair—biased towards linguistic abilities,*

- *confounds interest with demonstrated skill,*

- *promotes labeling of the individual by self and others,*

- *encourages simplistic / superficial understanding of an individual's abilities,*

- *facilitates stereotyping of groups of individuals.*

Moreover, Sharer added to this list several additional dangers that he has found and are associated with brief MI checklists:

- *creates a superficial and distorted understanding of MI,*

- *demeans and undermines acceptance of MI theory,*

- *confuses learning styles and personality with intellectual ability,*

- *promotes a "quick fix", short-term approach to instruction, curriculum and school renewal,*

- *encourages a "mindless" and non-serious approach toward MI assessment,*

- *discourages thoughtful investment in self-understanding to be followed with the practical application of the results to important educational, vocational and personal decisions,*

- *reinforces the assumption that IQ related skills are the only "real" intelligence.*

11.1 What do you think about the risky points stated above? (G)

11.2 How did you overcome the risky points when developing your inventory? (G)

12. What do you think about the ways to determine multiple intelligences? Which one do you prefer mostly? Why? (H)

Advantages and disadvantages of the ways;

- Inventory
- Questionnaire
- Observation
- Interview with others
- Checklist
- Others

13. What do you think about the origin (cultural aspect) of a way to determine multiple intelligences? (H)

- Is it an important aspect or not?
- Can a way be international for the purpose of determining multiple intelligences? Why?

14. What do you think about the ways to determine multiple intelligences in terms of age, sex, and nationality of the user? (H)

15. How do you evaluate existing ways that are easily available via Internet, books and other ways? (H)

16. Could you make suggestions for determining multiple intelligences of children (1st-2nd-3rd graders)? (I)

17. What are your expectations from this study aiming to determine children's (1st-2nd-3rd graders) multiple intelligences? (I)

- Appearance aspect?
- Content aspect?
- Other aspects?
- Important issues to be taken into consideration?

18. Do you have any comments or suggestions for the study? If yes, please state. (I)

APPENDIX H

OBSERVATION FORM I

(Needs Assessment Phase of the Study)

DATE: DURATION:	OBSER. NOTES	SPECIAL NOTES
PHYSICAL ENVIRONMENT		
Physical appearance (in terms of implementation of the instruments) - Illumination - Heating - Structure of desks - Population - Space for movement - Technology (computer, DVD, TV etc.)		
IMPLEMENTATION PROCESS		

The type of the instrument
    - inventory
    - questionnaire
    - observation form
    - test
    - interview etc.
Instruction
- teacher instruction
- students' implementation of the teacher's instruction
- students' questions about the instruction
- requirement of extra explanation
- intelligibility of the instruction
Teacher's role
- asking questions
- reader of the questions of the questionnaires
- marker of the students' answers
- etc.
Students' role
- answerer
- marker
- chooser
- etc.
Materials and documents
- materials students use
- materials teacher use
- inventory requirements
- worksheet
- answer sheet
- paper
- pencil
- answer sheet
- technology (TV, DVD, projector, overhead projector, tape etc.)
- booklet
- visual materials
 - auditory materials
Communication and interaction patterns
    - teacher-students
    - students-students
Evaluation and assessment
- evaluation and assessment the teacher conducts
- evaluation and assessment the students conduct		

EXAMINATION LOG

(Needs Assessment Phase of the Study)

Title of the inventory: …………………………………………………………………..

Developer: …………………………………………………………………………………

Origin (country): …………………………………………………………………………..

Implementer (teacher, student etc.): ………………………………………………………

Evaluator or Assessor (teacher, student, center etc.): ……………………………………..

Implementation Time: ……………………………………………………………………..

Materials: …………………………………………………………………………………..

Examination notes in terms of the principles of Multiple Intelligences.

…………………………………………………………………………………………………

…………………………………………………………………………………………………

Examination notes in terms of the risky points expressed by Gardner and Shearer.

…………………………………………………………………………………………………

…………………………………………………………………………………………………

Examination notes in terms of the 1st, 2nd, 3rd grade students characteristics.

…………………………………………………………………………………………………

…………………………………………………………………………………………………

Examination notes in terms of cultural aspects.

…………………………………………………………………………………………………

…………………………………………………………………………………………………

INTERVIEW QUESTIONS FOR BRANCH TEACHERS
(Program Design Phase of the Study)

1. **Ne kadar süredir müzik / resim / beden eğitimi dersi öğretmenliği yapıyorsunuz? (A)**

2. **Çoklu Zekâ Kuramını kaç yıldır tanıyorsunuz? (A)**

3. **Bir öğretmenin öğrencilerinin çoklu zekâlarını belirlemede amaçları nelerdir? (E)**

(A) Bir öğretmen olarak öğrencilerinizin çoklu zekâlarını hangi amaçlarla belirliyorsunuz?

(B) Bir öğretmen olarak öğrencilerinizin çoklu zekâlarını neden belirlemeye ihtiyaç duyuyorsunuz?

(C) Bir öğretmen öğrencilerinin çoklu zekâları hakkında bilgi edinmeye neden ihtiyaç duyar?

4. **Bir müzik / resim / beden eğitimi dersi öğretmeni olarak 1. 2. 3. sınıf öğrencilerinizin çoklu zekâlarını belirliyor musunuz? Evetse hangi yolları kullanarak belirliyorsunuz?**

5. **Bir sınıf öğretmeninin 1. 2. 3. sınıf öğrencilerinin çoklu zekâlarını belirleme yollarından birisi de branş derslerine giren öğretmenlerin görüşlerini almak. Bu konuda ne düşünmektesiniz?**
   - Görüş alma yolları (anket, yüzyüze görüşme vb.)
   - Sürece katkının değerlendirilmesi
   - Sizin görüşünüzün alınması yanında başka hangi yolların aynı süreçte bulunması hakkındaki düşünceleriniz

6. **Bu çalışma için önerileriniz ve beklentileriniz nelerdir? (I)**

İçeriği, görünüşü ve diğer unsurları açısından

Dikkat edilmesi istenilen noktalar

7. **Bu konuda belirtmek istediğiniz başka görüş ve önerileriniz var mı? (I)**

OPEN ENDED QUESTIONNARIE QUESTIONS FOR STUDENTS

(Program Design Phase of the Study)

Adı: **Soyadı:**   **Yaşı:**   **Cinsiyeti:**   **Sınıfı:**

1. <u>Evde</u> oynamayı en sevdiğin <u>oyun</u>lar neler? (En fazla üç tane yazabilirsin)
2. <u>Okulda</u> oynamayı en sevdiğin <u>oyun</u>lar neler?
3. <u>Dışarıda</u> oynamayı en sevdiğin <u>oyun</u>lar neler?
4. Oynamayı en sevdiğin <u>bilgisayar oyun</u>ları neler?
5. <u>En başarılı</u> olduğun <u>ders</u> ya da dersler hangileri? (En fazla üç tane yazabilirsin.)
6. <u>En sevdiğin ders</u> ya da dersler hangileri? Neden?
7. En sevdiğin <u>renk</u> ya da renkler neler? Neden? (En fazla üç tane yazabilirsin.)
8. Hangi <u>geometrik şekil</u> ya da şekilleri seviyorsun? Neden?
9. Derslerde <u>en iyi nasıl anlarsın</u>? (Yani öğretmenin konuyu nasıl açıkladığında en iyi anlarsın?)
10. Hangi <u>mesleğe</u> sahip olmak istiyorsun? (Yani büyüyünce ne olmak istiyorsun?) Neden?
11. <u>Evde</u> en çok ne yapmaktan hoşlanırsın?
12. <u>Okulda</u> en çok ne yapmaktan hoşlanırsın?
13. <u>Ev ve okul dışında</u> hangi <u>mekân</u>larda zaman geçirmekten hoşlanırsın? Yani ev ve okul dışında başka nerelerde olmaktan hoşlanırsın?
14. Ev ve okul dışında zaman geçirmekten hoşlandığın mekânlarda neler <u>yapmak</u>tan hoşlanırsın?
15. Seni neler <u>mutlu</u> ediyor? Yani hangi durumlarda kendini mutlu hissediyorsun?
16. En sevdiğin <u>çizgi film</u> hangisi?

VISUAL QUESTIONNARIE FOR STUDENTS

(Program Design Phase of the Study)

Adı: **Soyadı:**   **Yaşı:**   **Cinsiyeti:**   **Sınıfı:**

Ben Nida Temiz. Bir araştırma yapmaktayım. Bu araştırmamda aşağıdaki yönerge doğrultusunda senin sıralamalarına var. Yönerge doğrultusunda kendi sıralamalarını yapmanı istiyorum. Teşekkür ederim.

Aşağıdaki yan yana olan her üçlü resim grubuna bakınız. En çok beğendiğiniz resme 1, en az beğendiğiniz resme 3, orta derecede beğendiğiniz resme 2 vererek beğeninizi sıralayınız. Verdiğiniz puanları resimlerin altındaki kutucuklara yazınız.
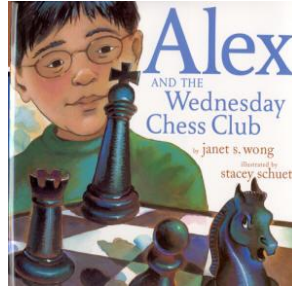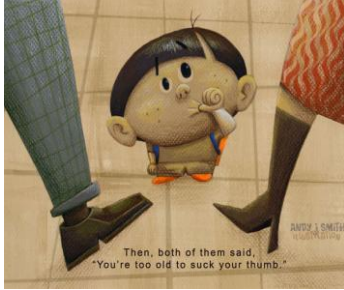
APPENDIX M

OPEN ENDED QUESTIONNARIE QUESTIONS FOR PARENTS
(Program Design Phase of the Study)

- Çocuğunuzun Adı Soyadı:
- Çocuğunuzun daha önce devam ettiği **okullar** varsa yazınız.
- Çocuğunuzun daha önce gittiği ya da aldığı **kurslar** varsa sonuçları ile yazınız.
- Çocuğunuzun **en sevdiği** ve **en başarılı** olduğu **ders**leri yazınız.
- Çocuğunuzun yaparken **en çok hoşlandığı** ve **en başarılı** olduğu **ödev**leri açıklayınız.
- Çocuğunuzun yapmaktan hiç **hoşlanmadığı** ve yaparken **zorlandığı ödev**leri açıklayınız.
- Çocuğunuzun nasıl **en iyi öğrendiği** düşünüyorsunuz? Yani hangi tür **öğrenme etkinlikleri** ile daha iyi öğrenmektedir? Sizce neden?
- **<u>Evde</u>** gerçekleştirmekten çok **hoşlandığı etkinlikler** neler? Yani evde neler yapmaktan hoşlanır?
- **<u>Okul ve ev dışında</u>** neler yapmaktan hoşlanır?
- Çocuğunuzun en severek izlediği **televizyon programlarını** yazınız.
- Çocuğunuzun en severek izlediği **çizgi filmleri** yazınız.
- Çocuğunuzun **en sevdiği oyunlar** hangileridir?
- Çocuğunuzun oynadığı **bilgisayar oyunları** varsa hangileri?
- Çocuğunuzun okumaktan çok **hoşlandığı kitaplar, gazeteler ya da dergiler** varsa yazınız.
- **<u>Ev ve okul dışında</u>** çocuğunuz hangi **mekânlarda** hoşlanarak zaman geçirir?
- Çocuğunuz **<u>ev ve okul dışında</u>** hoşlanarak zaman geçirdiği **mekânlarda** neler yapmaktadır?
- **Diğer çocuklarla** ilişkileri (paylaşma, yardımlaşma, işbirliğine yatkınlık, grup kurallarına uyma vb.) sizce nasıl?
- Çocuğunuzun **ilgi alanları** nelerdir?
- Çocuğunuzun **mutlu** olduğu durumlar nelerdir?
- Çocuğunuz gelecekte hangi **mesleği** seçmek istiyor yani ilerde ne olmak istiyor?
- Siz ailesi olarak çocuğunuzun ilerde ne olmasını istiyorsunuz yani hangi **mesleği s**eçmesini istiyorsunuz? Neden?
- **Çocuğunuzun sözel dilsel zekâsı hakkında gözlemlerinizi belirtiniz.**
- **Çocuğunuzun matematiksel mantıksal zekâsı hakkında gözlemlerinizi belirtiniz.**
- **Çocuğunuzun görsel uzamsal zekâsı hakkında gözlemlerinizi belirtiniz.**
- **Çocuğunuzun müziksel ritmik zekâsı hakkında gözlemlerinizi belirtiniz.**
- **Çocuğunuzun bedensel kinestetik zekâsı hakkında gözlemlerinizi belirtiniz.**
- **Çocuğunuzun kişilerarası zekâsı hakkında gözlemlerinizi belirtiniz.**
- **Çocuğunuzun içsel zekâsı hakkında gözlemlerinizi belirtiniz.**
- **Çocuğunuzun doğasal zekâsı hakkında gözlemlerinizi belirtiniz.**

Buraya kadar size sunulan bilgiler ve gözlemleriniz doğrultusunda çocuğunuzu çoklu zekâları bakımından değerlendiriniz. Değerlendirme sonucunuzu belirtmek için aşağıdaki tabloda anlamları verilen harfleri kullanınız.

Unutmayınız ki bu bir zekâ testi değildir. Çocuğunuzu sizin gözlemleriniz doğrultusunda

Zekâların Durum Tanımı	Harf Değeri	ANLAMI
Çok belirgin	**Ç**	Söz konusu zekânın çocuğumda **baskın** olduğunu düşünüyorum.
Belirgin	**B**	Söz konusu zekânın çocuğumda baskın olmasa da **belirgin** olduğunu düşünüyorum.
Yeterli	**Y**	Söz konusu zekânın çocuğumda **normal** düzeyde olduğunu düşünüyorum.
Geliştirilebilir	**G**	Söz konusu zekânın çocuğumda **zayıf** düzeyde olduğunu düşünüyorum.

tanımaya ve size tanıtmaya yönelik bir girişimdir.

ÇOKLU ZEKÂLAR	DURUMU (Harf değeri olarak belirtiniz)
Sözel Dilsel zekâ	
Matematiksel Mantıksal zekâ	
Görsel Uzamsal zekâ	
Müziksel Ritmik zekâ	
Bedensel Kinestetik zekâ	
Kişilerarası zekâ	
İçsel zekâ	
Doğasal zekâ	

OPEN ENDED QUESTIONNARIE FOR TEACHERS

(Program Design Phase of the Study)

Adı Soyadı:

Okulu: **Sınıfı:**

Değerli Öğretmenlerim,
Öğrencilerinizin çoklu zekâlarını belirleme amaçlı yaptığınız gözlemlerinize
dayanarak her bir zekânın kendini nasıl gösterdiğini açıklayınız. Dilerseniz
maddeler halinde de yazabilirsiniz.

Örneğin: Bir çocuğun sözel dilsel zekâsı hakkında bilgi edinmek için onun
kitaplara karşı ilgisini, yazdığı kompozisyonlardaki başarısını ya da Türkçe
dersindeki performansını değerlendirmek gibi.

Doğasal zekâ hakkında bilgi edinmek için hayvan besleyip beslemediğine
bakılması gibi.

(Verilen örnekler de dâhil olmak üzere Çoklu Zekâ Kuramı ile ilgili çoğu kitapta her
bir zekâ için belirli gözlenebilir davranışlar belirtilmektedir. Ancak daha çok
bunların dışında sizin bir öğretmen olarak gözlemlerinizde dikkate aldığınız davranış
ya da işaretlerin neler olduğunu paylaşırsanız çalışmaya anlamlı katkısı olacaktır.)

Sekiz zekâ alt alta belirtilmiştir. Sizleri sınırlandırmamak için yazı alanı özellikle
belirtilmemiştir sınırlandırılmamıştır. Dilediğiniz zekâdan başlayarak dilediğiniz
kadar yazabilirsiniz.

Verdiğiniz bilgiler için teşekkür ederim.
Nida Temiz

Sözel Dilsel Zekâ
Matematiksel Mantıksal Zekâ
Görsel Uzamsal Zekâ
Müziksel Ritmik Zekâ
Bedensel Kinestetik Zekâ
Kişilerarası Zekâ
İçsel Zekâ
Doğasal Zekâ

OBSERVATION FORM II
(Program Implementation and Verification Phase of the Study)

DATE: DURATION:	OBSER. NOTES	SPECIAL NOTES
PHYSICAL ENVIRONMENT		
Physical appearance (in terms of implementation of the inventories) - Illumination - Heating - Structure of desks - Population - Space for movement - Technology (computer, DVD, TV etc.)		
IMPLEMENTATION PROCESS		

The material
    - Film inventory
    - Story inventory
    - Performance Assessment
    - Parent questionnaire
Instruction
- teacher instruction
- students' implementation of the teacher's instruction
- students' questions about the instruction
- requirement of extra explanation
- intelligibility of the instruction
Teacher's role
- asking questions
- reader of the questions of the questionnaires
- marker of the students' answers
- etc.
Students' role
- answerer
- marker
- chooser etc.
Materials and documents
- materials students use
- materials teacher use
- inventory requirements
- worksheet, - answer sheet
- paper, - pencil, - answer sheet
- technology (TV, DVD, projector, overhead projector, tape etc.)
- booklet
- visual materials, auditory materials
Communication and interaction patterns
teacher-students, students-students
Evaluation and assessment
- evaluation and assessment the teacher conducts
- evaluation and assessment the students conduct		

APPENDIX P

THE APPROVALS FROM MONE AND METU HUMAN RESEARCH ETHICAL COMMISION

T.C.
ANKARA VALİLİĞİ
Milli Eğitim Müdürlüğü

BÖLÜM : Strateji Geliştirme
SAYI : B B.08.4.MEM.4.06.00.04-312/ *1031*   *12/11*.../.../2007
KONU : Nida TEMİZ (araştırma izni)

VALİLİK MAKAMINA

İLGİ : a) M.E.B. Bağlı Okul ve Kurumlarda Yapılacak Araştırma ve Araştırma Desteğine Yönelik
İzin ve Uygulama Yönergesi.
b) ODTÜ Öğrenci İşleri Dairesinin 31.10.2007 tarih ve 400-8553/015975 sayılı yazısı.

ODTÜ Eğitim Bilimleri Ana Bilim Dalı Doktora programı öğrencisi Nida TEMİZ'in "**Türk Çocuklarının (1.2.3. sınıflar) Çoklu Zekalarını Belirlemek İçin Bir Program Geliştirme Çalışması** " konulu tezi ile ilgili, ek listede adı geçen İlimiz, Okullarında anketlerini yapabilme isteği ilgi (a) yönerge doğrultusunda Müdürlüğümüz Değerlendirme Komisyonu tarafından incelenmiş olup, (Öğretmenlerle Yapılacak Görüşme Formu (19 soru,), Açık uçlu Veli Anketi , Eğitimciler İçin Çoklu Zeka Alanları Envanteri (3 sayfa,), Eğitimciler İçin Çoklu Zeka Alanları Profili (2 sayfa), Öğrencilere Yönelik Çoklu Zeka Alanları Gözlem Formu, Öğrencilere Yönelik Çoklu Zeka Alanları Profilinden oluşan) anketlerin gönüllülük esasına dayalı olarak uygulanması Müdürlüğümüzce uygun görülmüştür.

Makamlarınızca da uygun görüldüğü takdirde Olurlarınıza arz ederim.

Murat Bey BALTA
Milli Eğitim Müdürü

O L U R
...3.1.../.../2007
Mehmet K...
Vali
Vali Yardımcısı

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T.C.
ÇANKAYA KAYMAKAMLIĞI
İlçe Milli Eğitim Müdürlüğü

BÖLÜM : Strateji Geliştirme
SAYI : B.08.4.MEM.4.06.02.11.312 /   20.11.2007 * 68287
KONU : Nida TEMİZ Araştırma İzni

.... 6 Ocak .... MÜDÜRLÜĞÜNE

İlgi : a) Ankara Valiliği Milli Eğitim Müdürlüğünün 15/11/2007 tarihli ve 1041/4663 sayılı yazısı.
b) 12/11/2007 tarihli ve 1029 sayılı Valilik Onayı.

Orta Doğu Teknik Üniversitesi Eğitim Bilimleri Eğitim Bilimleri Ana Bilim Dalı doktora öğrencisi Nida TEMİZ'in "Türk Çocuklarının (1.2.,3.Sınıflar) Çoklu Zekalarını Belirlemek İçin Bir Program Geliştirme Çalışması" konulu tez çalışması ile ilgili anketi okullarımızda uygulaya bilmesine gönüllülük esasına göre izin verildiğine ilişkin ilgi (b) Valilik Onayı ekte gönderilmiştir.

Mühürlü anket örneği araştırmacıya İl Milli Eğitim Müdürlüğünce ulaştırılmış olup, uygulama yapılacak sayıda tarafından çoğaltılarak, araştırmanın gönüllülük esasına dayalı olarak yönerge esasları çerçevesinde uygulattırılması hususunda gereğini rica ederim.

Yaşar KOÇAK
Müdür a.
Şube Müdürü

Ek : 1 Valilik Onayı

<u>Adres :</u>
3.Cadde Kumrular Sokak No: 7/B   Tel : 418 68 75 – 418 84 58   Web : http://www.cankaya-meb.gov.tr
Kızılay / ANKARA   Faks : 419 27 84 – 85   e-posta : cankaya@cankaya-meb.gov.tr

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Orta Doğu Teknik Üniversitesi
Middle East Technical University

Fen Bilimleri Enstitüsü
Graduate School of
Natural and Applied Sciences

06531 Ankara, Türkiye
Phone: +90 (312) 2102292
Fax: +90 (312) 2107959
www.fbe.metu.edu.tr

Sayı: B.30.2.ODT.0.AH.00.00/ UEAM/08/ 47—1294

17 Ekim 2008

Gönderilen: Doç.Dr. Ercan Kiraz
             Eğitim Bilimleri Bölümü
Gönderen :   Prof. Dr. Canan Özgen
             IAK Başkan Yardımcısı
İlgi   :   Etik Onayı

"A Program Development Study for Determining Multiple
Intelligences of Turkish Children (1st-2nd-3rd Graders)"
başlığıyla yürüttüğünüz çalışmanız "İnsan Araştırmaları
Etik Komitesi" tarafından uygun görülerek
gerekli onay verilmiştir.

Bilgilerinize saygılarımla sunarım.

Saygılarımla.

Etik Komite Onayı

Uygundur

17/10/2008

Prof. Dr. Canan ÖZGEN
Uygulamalı Etik Araştırma Merkezi
(UEAM) Başkanı
ODTÜ 06531 ANKARA

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APPENDIX Q

SAMPLE PAGE OF TEELE INVENTORY FOR MULTIPLE INTELLIGENCE (TIMI)

Teele Inventory for Multiple Intelligences (TIMI)

17A

17B

18A

18B

I feel good about who I am and know my strengths.

SAMPLE PAGES OF MULTIPLE INTELLIGENCE DOMAINS
OBSERVATION FORM FOR STUDENTS

Çizelge 2.4: Öğrencilere Yönelik Çoklu Zeka Alanları Profili

Öğrencinin Adı ve Soyadı: Sınıfı:

Öğrencinin Numarası: Cinsiyeti:

ZEKA ALANI	MADDELER/ÖNERMELER										TOPLAM PUAN
	1	2	3	4	5	6	7	8	9	10	
Sözel-Dil											
Mantıksal-Matematiksel											
Görsel-Uzaysal											
Müziksel-Ritmik											
Bedensel-Kinestetik											
Sosyal											
İçsel											
Doğacı											

ZEKA ALANLARINI BELİRLEME ÖLÇEĞİ		ZEKA ALANINDAKİ TOPLAM PUAN	ZEKA ALANINDAKİ GELİŞMİŞLİK DÜZEYİ
Öğrenciye Tamamen Uygun	4	32-40 Arası	Çok Gelişmiş
Öğrenciye Oldukça Uygun	3	24-31 Arası	Gelişmiş
Öğrenciye Kısmen Uygun	2	16-23 Arası	Orta Düzeyde Gelişmiş
Öğrenciye Çok Az Uygun	1	8-15 Arası	Biraz Gelişmiş
Öğrenciye Hiç Uygun Değil	0	0-7 Arası	Gelişmiş Değil

Çizelge 2.3: Öğrencilere Yönelik Çoklu Zeka Alanları Gözlem Formu

Değerli Öğretmen:

Lütfen gözlem formundaki her önermenin sınıfınızdaki her öğrenciye ne derecede uygun olup olmadığını aşağıdaki beşli dereceleme ölçeğine göre belirtiniz.

0 = Öğrenciye Hiç Uygun Değil   1 = Öğrenciye Çok Az Uygun
2 = Öğrenciye Kısmen Uygun   3 = Öğrenciye Oldukça Uygun
4 = Öğrenciye Tamamen Uygun

BÖLÜM 1: SÖZEL-DİL ZEKA ALANI

1	Normal öğrencilerden daha iyi yazar.	0 1 2 3 4
2	Uzun hikayeler ve fıkralar anlatır.	0 1 2 3 4
3	İsimler, yerler ve tarihler hakkında hafızası güçlüdür.	0 1 2 3 4
4	Yaşına uygun kelimeleri doğru bir şekilde telaffuz eder.	0 1 2 3 4
5	Yaşına göre iyi bir kelime hazinesine sahiptir.	0 1 2 3 4
6	Başkaları ile yüksek düzeyde sözel iletişime girer ve sözel tartışmalarda başarılıdır.	0 1 2 3 4
7	Tekerlemeleri ve kelime oyunlarını çok sever.	0 1 2 3 4
8	Kitap okumayı çok sever.	0 1 2 3 4
9	Öğrendiği yeni kelimeleri anlamlarına uygun olarak konuşma veya yazı dilinde kullanır.	0 1 2 3 4
10	Dinleyerek öğrenmeyi sever.	0 1 2 3 4

BÖLÜM 2: MANTIKSAL-MATEMATİKSEL ZEKA ALANI

1	Olayların oluşumu ve işleyişi hakkında çok soru sorar.	0 1 2 3 4
2	Sayılarla çalışmayı ve hesaplama yapmayı çok sever.	0 1 2 3 4
3	Matematik dersini çok sever.	0 1 2 3 4
4	Mantıksal bulmacaları çözmeyi ve satranç veya dama gibi stratejik oyunları oynamayı çok sever.	0 1 2 3 4
5	Nesneleri kategorilere ayırmayı veya olayları belli bir mantıksal ilişki içinde düzenlemeyi sever.	0 1 2 3 4
6	Matematiksel hesaplama oyunlarını çok sever.	0 1 2 3 4
7	Bilgisayar oyunlarını ilginç bulur.	0 1 2 3 4
8	Fen Bilgisi dersinde deney yapmayı ve yeni şeyler denemeyi sever.	0 1 2 3 4
9	Yaptıklarına kıyasla soyut düşünebilme veya sebep-sonuç ilişkisi kurabilme kabiliyetleri çok iyi gelişmiştir.	0 1 2 3 4
10	Makinelerin nasıl çalıştığına dair çok soru sorar.	0 1 2 3 4

APPENDIX S

SAMPLE PAGES OF THE MULTIPLE INTELLIGENCE DOMAINS INVENTORY FOR EDUCATORS

SAMPLE PAGES OF ARMSTRONG'S MI INVENTORY FOR ADULTS

FIGURE 3.2—continued

CHECKLIST FOR ASSESSING STUDENTS' MULTIPLE INTELLIGENCES

Spatial Intelligence
___ reports clear visual images
___ reads maps, charts, and diagrams more easily than text (or if preschool, enjoys looking at more than text)
___ daydreams a lot
___ enjoys art activities
___ good at drawings
___ likes to view movies, slides, or other visual presentations
___ enjoys doing puzzles, mazes, or similar visual activities
___ builds interesting three-dimensional constructions (e.g., LEGO buildings)
___ gets more out of pictures than words while reading
___ doodles on workbooks, worksheets, or other materials

Other Spatial Abilities:

Bodily-Kinesthetic Intelligence
___ excels in one or more sports (or if preschool, shows physical prowess advanced for age)
___ moves, twitches, taps, or fidgets while seated for a long time in one spot
___ cleverly mimics other people's gestures or mannerisms
___ loves to take things apart and put them back together again
___ puts his/her hands all over something he/she's just seen
___ enjoys running, jumping, wrestling, or similar activities (or if older, will show these interests in a more "restrained" way—e.g., running to class, jumping over a chair)
___ shows skill in a craft (e.g., woodworking, sewing, mechanics) or good fine-motor coordination in other ways
___ has a dramatic way of expressing herself/himself
___ reports different physical sensations while thinking or working
___ enjoys working with clay or other tactile experiences (e.g., fingerpainting)

Other Bodily-Kinesthetic Abilities:

FIGURE 3.2

CHECKLIST FOR ASSESSING STUDENTS' MULTIPLE INTELLIGENCES

Name of Student: _____

Check items that apply:

Linguistic Intelligence
___ writes better than average for age
___ spins tall tales or tells jokes and stories
___ has a good memory for names, places, dates, or trivia
___ enjoys word games
___ enjoys reading books
___ spells words accurately (or if preschool, does developmental spelling that is advanced for age)
___ appreciates nonsense rhymes, puns, tongue twisters
___ enjoys listening to the spoken word (stories, commentary on the radio, talking books)
___ has a good vocabulary for age
___ communicates to others in a highly verbal way

Other Linguistic Abilities:

Logical-Mathematical Intelligence
___ asks a lot of questions about how things work
___ enjoys working or playing with numbers
___ enjoys math class (or if preschool, enjoys counting and doing other things with numbers)
___ finds math and computer games interesting (or if no exposure to computers, enjoys other math or science games)
___ enjoys playing chess, checkers, or other strategy games
___ enjoys working on logic puzzles or brainteasers (or if preschool, enjoys hearing logical nonsense)
___ enjoys putting things in categories, hierarchies, or other logical patterns
___ likes to do experiments in science class or in free play
___ shows interest in science-related subjects
___ does well on Piagetian-type assessments of logical thinking

Other Logical-Mathematical Abilities:

SAMPLE PAGES OF ARMSTRONG'S CHECKLIST FOR ASSESSING STUDENTS' MULTIPLE INTELLIGENCES

Figure 2.1—continued
An MI Inventory for Adults

Musical Intelligence
- I have a pleasant singing voice.
- I can tell when a musical note is off-key.
- I frequently listen to music on radio, records, cassettes, or compact discs.
- I play a musical instrument.
- My life would be poorer if there were no music in it.
- I sometimes catch myself walking down the street with a television jingle or other tune running through my mind.
- I can easily keep time to a piece of music with a simple percussion instrument.
- I know the tunes to many different songs or musical pieces.
- If I hear a musical selection once or twice, I am usually able to sing it back fairly accurately.
- I often make tapping sounds or sing little melodies while working, studying, or learning something new.

Other Musical Abilities:

Interpersonal Intelligence
- I'm the sort of person that people come to for advice and counsel at work or in my neighborhood.
- I prefer group sports like badminton, volleyball, or softball to solo sports such as swimming and jogging.
- When I have a problem, I'm more likely to seek out another person for help than attempt to work it out on my own.
- I have at least three close friends.
- I favor social pastimes such as Monopoly or bridge over individual recreations such as video games and solitaire.
- I enjoy the challenge of teaching another person, or groups of people, what I know how to do.
- I consider myself a leader (or others have called me that).
- I feel comfortable in the midst of a crowd.
- I like to get involved in social activities connected with my work, church, or community.
- I would rather spend my evenings at a lively party than stay at home alone.

Other Interpersonal Abilities:

Figure 2.1—continued
An MI Inventory for Adults

Spatial Intelligence
- I often see clear visual images when I close my eyes.
- I'm sensitive to color.
- I frequently use a camera or camcorder to record what I see around me.
- I enjoy doing jigsaw puzzles, mazes, and other visual puzzles.
- I have vivid dreams at night.
- I can generally find my way around unfamiliar territory.
- I like to draw or doodle.
- Geometry was easier for me than algebra in school.
- I can comfortably imagine how something might appear if it were looked down on from directly above in a bird's-eye view.
- I prefer looking at reading material that is heavily illustrated.

Other Spatial Abilities:

Bodily-Kinesthetic Intelligence
- I engage in at least one sport or physical activity on a regular basis.
- I find it difficult to sit still for long periods of time.
- I like working with my hands at concrete activities such as sewing, weaving, carving, carpentry, or model building.
- My best ideas often come to me when I'm out for a long walk or a jog, or when I'm engaging in some other kind of physical activity.
- I often like to spend my free time outdoors.
- I frequently use hand gestures or other forms of body language when conversing with someone.
- I need to touch things in order to learn more about them.
- I enjoy daredevil amusement rides or similar thrilling physical experiences.
- I would describe myself as well coordinated.
- I need to practice a new skill rather than simply reading about it or seeing a video that describes it.

Other Bodily-Kinesthetic Abilities:

APPENDIX V

DATA COLLECTION PROCEDURE OF THE NEEDS ASSESSMENT PHASE OF THE STUDY

DATE	STUDY
Wed, 18 Jul 2007	Submitting the interview instruments prepared for interviewing with the experts and the instrument developers to the researcher's supervisor and another expert to take their critics on the instruments.
Tue, 7 Jul. 2007	Submitting interview instruments prepared for interviewing the teachers, the researchers to the researcher's supervisor and another expert to take their critics on the instruments.
Sat, 11 Jul. 2007	Piloting interview instruments prepared for interviewing with the experts, the instrument developers, the researchers and the teachers.
Thu, 15 Jul. 2007	Interviewing with neurologist (Prof.Dr. Mehmet Demirci)
Tue, 25 Jul. 2007	Interviewing with social pediatrician (Prof.Dr. Elif Özmert)
Tue, 25 Jul. 2007	Interviewing with psychiatrist (Prof. Dr. Başaran Demir)
Sat, 01 Sep. 2007	Interviewing with child neurologist (Prof.Dr. Füsun Alehan)
Sun, 16 Sep. 2007	Sending the interview instrument to Dr. Thomas Armstrong (instrument developer) via internet
Wed, 26 Sep 2007	Sending the interview instrument to Assoc. Prof. Dr. Ahmet Saban (instrument developer) via internet
Sun, 07 Oct 2007	Sending the interview instrument to Dr. Sue Teele (instrument developer) via internet
Wed, 10 Oct 2007	Application to METU Human Research Ethical Commission for permission
Wed, 17 Oct 2007	Taking Assoc. Prof. Dr. Ahmet Saban's (instrument developer) answers to the interview questions
Tue, 23 Oct. 2007	Taking permission from METU Human Research Ethical Commission
Wed, 24 Oct. 2007	Application to Ministry of National Education for permission
Wed, 14 Nov 2007	Piloting interview instruments prepared for the teachers
Mon. 19 Nov 2007	Sending interview instrument to Emel Uysal (researcher) via internet
Tue, 30 Nov. 2007	Taking the permission from Ministry of National Education
Tue, 31 Nov 2007	Meeting at Emin Sağlamer Public Elementary School
Tue, 31 Nov 2007	Taking the "voluntary participation letter" from teachers in Emin Sağlamer Public Elementary School
Thu, 04 Dec 2007	Delivering the "parent acknowledgment form" to the students in Emin Sağlamer Public Primary School
Tue, 18 Dec 2007	Gathering the "parent acknowledgment form" from the students in Emin Sağlamer Public Primary School
Tue, 18 Dec 2007	Determining the parents saying "yes" to participate in the study from Emin Sağlamer Public Primary School
Sun, 23 Dec 2007	Taking Emel Uysal's (researcher) answers to the interview questions
Mon, 24 Dec 2007	Meeting at Gazi University Foundation Private Elementary School

Mon, 24 Dec 2007	Taking the "voluntary participation letter" from teachers in Gazi University Foundation Private Elementary School
Mon, 31 Dec 2007	Delivering the "parent acknowledgment form" to the students in Gazi University Foundation Private Elementary School
Tue, 1 Jan 2008	Sending the interview instrument to Dr. Branton Shearer (instrument developer) via internet
Tue, 07 Jan 2008	Gathering the "parent acknowledgment form" from the students in Gazi University Foundation Private Elementary School
Tue, 07 Jan 2008	Determining the parents saying "yes" to participate in the study from Gazi University Foundation Private Elementary School
Mon, 07 Jan 2008	Taking Dr. Sue Teele's (inventory developer) answers to the interview questions
Tue, 08 Jan. 2008	Submitting the observation form to the researcher's supervisor
Thu, 10 Jan. 2008	Piloting the observation form
Mon, 14 Jan 2008	Administering TIMI to the 1st, 2nd, 3rd graders at Emin Sağlamer Public Elementary School
Mon, 14 Jan 2008	Sending inventory to parents to complete it for their child in Emin Sağlamer Public Elementary Schools
Mon, 14 Jan 2008	Interviewing with teacher A
Mon, 14 Jan 2008	Interviewing with teacher B
Mon, 14 Jan 2008	Administering TIMI to the 1st, 2nd, 3rd graders at Gazi University Foundation Private Elementary School
Mon, 14 Jan 2008	Giving the inventory to the 1st, 2nd, 3rd grader teachers and ask them to complete it for their students at Emin Sağlamer Public Elementary School
Mon, 14 Jan 2008	Sending inventory to parents to complete it for their child in Gazi University Foundation Private Elementary School
Wed, 16 Jan 2008	Taking Dr. Thomas Armstrong's (instrument developer) answers to the interview questions
Thu, 17 Jan 2008	Interviewing with teacher C
Fri, 18 Jan 2008	Taking Dr. Branton Shearer's (instrument developer) respond to the interview
Mon, 21 Jan 2008	Interviewing with teacher D
Mon, 21 Jan 2008	Interviewing with teacher E
Mon, 21 Jan 2008	Interviewing with teacher F
Thu, 24 Jan 2008	Gathering the observation form prepared by Saban completed by teachers for their students in Gazi University Foundation Private Elementary School
Thu, 24 Jan. 2008	Interviewing with school counselors (Aslıhan Fırat Erk and Pınar Yazıcı)
Thu, 24 Jan 2008	Gathering the inventory completed by teachers for their students in Emin Sağlamer Public Elementary School
Wed, 13 Feb. 2008	Submitting the examination form to the teachers in Emin Sağlamer Public Elementary School
Thu, 14 Feb. 2008	Submitting the examination form to the teachers in Gazi University Foundation Private Elementary School
Tue, 18 Feb. 2008	Gathering the examination form completed by the teachers in Emin Sağlamer Public Elementary School
Tue, 19 Feb 2008	Interviewing with sociologist (Hasibe Yıldırım) and the sociologist X
Tue, 19 Feb 2008	Interviewing with psychologist Y
Wed. 20 Feb. 2008	Gathering the examination form completed by the teachers in Gazi University Foundation Private Elementary School
	Informal conversational interviews with teachers

DATA COLLECTION PROCEDURE OF THE STUDY AFTER NEEDS ASSESSMENT PHASE

DATE	PROGRAM DESIGN PHASE
Mon, 03 Mar 2008	Submitting the interview instrument prepared for interviewing with the branch teachers to the expert to take their critics on the instruments
Thu, 06 Mar 2008	Piloting the interview instruments prepared for interviewing with the branch teachers
Tue, 11 Mar 2008	Interviewing with the music education teacher
Wed, 12 Mar 2008	Interviewing with the psychical education teacher
Fri, 14 Mar 2008	Interviewing with the art education teacher
Tue, 18 Mar 2008	Submitting the open ended questionnaires to the researcher's supervisor in order to take his opinion and critics on the instruments.
Thu, 20 Mar 2008	Submitting the open – ended questionnaires to two teachers in order to take their opinions and critics on the instrument in Public School
Tue, 25 Mar 2008	Submitting the open – ended questionnaires to two teachers in order to take their opinions and critics on the instrument in Private School
Tue, 25 Mar 2008	Piloting the open – ended questionnaire prepared for applying the students in Public School
Thu, 27 Mar 2008	Piloting the open – ended questionnaire prepared for applying the students in Private School
Mon, 31 Mar 2008	Piloting the open – ended questionnaire prepared for applying the parents
Thu, 03 Apr 2008	Applying the open – ended questionnaire to the 1st, 2nd, 3rd grade students in Public School
Thu, 03 Apr 2008	Delivering the open – ended parent questionnaire to the 1st, 2nd, 3rd grade teachers and they send the questionnaires to the parents with their students in Public School
Thu, 10 Apr 2008	Applying the open – ended questionnaire to the 1st, 2nd, 3rd grade students in Private School
Thu, 10 Apr 2008	Delivering the open – ended parent questionnaire to the 1st, 2nd, 3rd grade teachers and they send the questionnaires to the parents with their students in Private School
Thu, 18 Apr 2008	Gathering the open – ended parent questionnaire from Public School
Thu, 18 Apr 2008	Gathering the open – ended parent questionnaire from Private School
Tue, 29 Apr 2008	Taking Prof.Dr. Ziya Selçuk's critics and opinions about the open – ended questionnaires and visual questionnaire
Tue, 05 May 2008	Submitting the visual questionnaire prepared for applying the students to the researcher's supervisor and another expert in order to take his opinion and critics on the instruments.
Tue, 13 May 2008	Piloting the open – ended questionnaire prepared for applying the teachers with one teacher in Public School
Tue, 13 May 2008	Submitting the visual questionnaire prepared for applying the students to two teachers in order to take their opinions and critics on the instrument in Public School
Thu, 15 May 2008	Submitting the visual questionnaire prepared for applying the students to one teacher in order to take their opinions and critics on the instrument in Private School
Thu, 15 May 2008	Piloting the visual questionnaire prepared for applying the 1st, 2nd 3rd students in Gazi University Foundation Private Elementary School
Thu, 15 May 2008	Piloting the open-ended questionnaire prepared for applying teachers with one teacher in Gazi University Foundation Private Elementary School
Thu, 22 May 2008	Giving the open – ended questionnaire to the 1st, 2nd, 3rd grade teachers in Emin Sağlamer Public Elementary School
Thu, 22 May 2008	Applying the visual student questionnaire to the 1st, 2nd, 3rd grade students in Emin Sağlamer Public Elementary School
Thu, 29 May 2008	Giving the open – ended questionnaire to the 1st, 2nd, 3rd grade teachers in Gazi University Foundation Private Elementary School
Thu, 29 May 2008	Applying the visual student questionnaire to the 1st, 2nd, 3rd grade students in Gazi University Foundation Private Elementary School
	Informal interview conducted with the participants and the experts of the study

DATE	PROGRAM IMPLEMENTATION AND VERIFICATION PHASE
Thu, 18 Sep 2008	Submitting the observation form to the experts in order to take their critics and suggestions
Thu, 18 Sep 2008	Submitting the opinion forms to the researcher's supervisor to take his critics and suggestions
Tue, 23 Sep 2008	Submitting the opinion forms to Assoc.Prof.Dr.Şener Büyüköztürk as the expert from the field of measurement and evaluation in order to take his critics and suggestions on the opinion forms
Thu, 25 Sep 2008	Piloting the opinion forms
Tue, 07 Oct 2008	Presenting the opinion forms to 1st grade, 2nd grade and 3rd grade teachers in Public School by asking them to examine the program's materials
Tue, 07 Oct 2008	Delivering one of the materials of the program "parent questionnaire" to the 2nd, 3rd grade parents via the students in Public School
Tue, 07 Oct 2008	Implementing one of the materials of the program "story inventory 1" to the 2nd and 3rd grade students in Public School
Thu, 09 Oct 2008	Presenting the opinion forms to 1st grade, 2nd grade and 3rd grade teachers in Private School by asking them to examine the program's material
Thu, 09 Oct 2008	Delivering one of the materials of the program "parent questionnaire" to the 1st, 2nd, 3rd grade parents via the students in Private School
Thu, 09 Oct 2008	Implementing one of the materials of the program "story inventory 1" to the 1st, 2nd and 3rd grade students in Private School
Mon, 20 Oct 2008	Presenting the opinion forms to the researcher's supervisor by asking him to examine the program's materials
Wed, 22 Oct 2008	Presenting the opinion forms to the sociologist Hasibe Yıldırım by asking them to examine the program's materials
Wed, 22 Oct 2008	Presenting the opinion forms to the psychologist by asking her to examine the program's materials
Thu, 30 Oct 2008	Presenting the opinion forms to Prof.Dr. Elif Özmert by asking her to examine the program's materials
Thu, 06 Nov 2008	Gathering the parent questionnaires from Public School
Thu, 06 Nov 2008	Implementing one of the materials of the program "story inventory 2" to the 2nd and 3rd grade students in Public School
Wed, 12 Nov 2008	Presenting the opinion forms to two school counselors, Aslıhan Fırat Erk and Pınar Yazıcı by asking them to examine the program's materials
Wed, 12 Nov 2008	Gathering the parent questionnaires from Private School
Wed, 12 Nov 2008	Taking the opinion forms completed by the teachers and interviewing with them in Private School
Wed, 12 Nov 2008	Implementing one of the materials of the program "story inventory 2" to the 1st, 2nd and 3rd grade students in Private School
Tue, 18 Nov 2008	Presenting the opinion forms to Prof.Dr. Ziya Selçuk by asking him to examine the program's materials
Thu, 20 Nov 2008	Taking the opinion forms completed by Prof.Dr. Elif Özmert and interviewing with her
Thu, 27 Nov 2008	Implementing one of the materials of the program "performance assessment 1" on the 2nd and 3rd grade students in Public School
Thu, 27 Nov 2008	Taking the opinion forms completed by the teachers and interviewing with them in Public School
Thu, 27 Nov 2008	Implementing one of the materials of the program "story inventory 3" to the 2nd and 3rd grade students in Public School
Thu, 04 Dec 2008	Implementing one of the materials of the program "performance assessment 1" on the 2nd and 3rd grade students in Private School
Thu, 04 Dec 2008	Implementing one of the materials of the program "story inventory 3" to the 1st, 2nd and 3rd grade students in Private School

Tue, 16 Dec 2008	Implementing one of the materials of the program "performance assessment 2" on the 2nd and 3rd grade students in Public School
Tue, 16 Dec 2008	Implementing one of the materials of the program "story inventory 4 and 5" to the 2nd and 3rd grade students in Public School
Thu, 18 Dec 2008	Implementing one of the materials of the program "performance assessment 2" on the 2nd and 3rd grade students in Private School
Thu, 18 Dec 2008	Implementing one of the materials of the program "story inventory 4 and 5" to the 1st, 2nd and 3rd grade students in Private School
Tue, 23 Dec 2008	Taking the opinion forms completed by the researcher's supervisor and interviewing with him
Wed, 24 Dec 2008	Taking the opinion forms completed by the sociologist Hasibe Yıldırım and interviewing with her
Tue, 30 Dec 2008	Implementing one of the materials of the program "story inventory 6 and 7" and 8th worksheet of the story inventory to the 2nd and 3rd grade students in Public School
Thu, 08 Jan 2009	Gathering one of the materials of the program "teacher observation form" (performance assessment 4) from the teachers in Private School
Thu, 08 Jan 2009	Implementing one of the materials of the program "story inventory 6 and 7" and 8th worksheet of the story inventory to the 1st, 2nd and 3rd grade students Private School
Thu, 15 Jan 2009	Implementing one of the materials of the program "Film Inventory" to the 1st, 2nd, 3rd grade students in Private School
Fri, 16 Jan 2009	Implementing one of the materials of the program "Film Inventory" to the 2nd, 3rd grade students in Public School
Fri, 16 Jan 2009	Gathering one of the materials of the program "teacher observation form" (performance assessment 4) from the teachers in Public School
Mon, 16 Feb 2009	Taking the opinion forms completed by Prof.Dr. Ziya Selçuk and interviewing with him
Tue, 24 Feb 2009	Delivering one of the materials of the program "parent questionnaire" to the 1st, 2nd, 3rd grade parents via the students in Public School
Tue, 24 Feb 2009	Implementing one of the materials of the program "story inventory 1" to the 1st, 2nd and 3rd grade students in Public School
Tue, 24 Feb 2009	Implementing one of the materials of the program "performance assessment 1" on the 1st, 2nd and 3rd grade students in Public School
Thu, 26 Feb 2009	Delivering one of the materials of the program "parent questionnaire" to the 1st, 2nd, 3rd grade parents via the students in Private School
Thu, 26 Feb 2009	Implementing one of the materials of the program "performance assessment 1" on the 1st, 2nd and 3rd grade students in Private School
Thu, 26 Feb 2009	Implementing one of the materials of the program "story inventory 1" to the 1st, 2nd and 3rd grade students in Private School
Thu, 05 Mar 2009	Implementing one of the materials of the program "story inventory 2" to the 1st, 2nd and 3rd grade students in Public School
Thu, 05 Mar 2009	Implementing one of the materials of the program "performance assessment 2" on the 1st, 2nd and 3rd grade students in Public School
Thu, 12 Mar 2009	Implementing one of the materials of the program "story inventory 2" to the 1st, 2nd and 3rd grade students in Private School
Thu, 12 Mar 2009	Implementing one of the materials of the program "performance assessment 2" on the 1st, 2nd and 3rd grade students in Private School
Tue, 24 Mar 2009	Implementing one of the materials of the program "story inventory 3 and 4" to the 1st, 2nd and 3rd grade students in Public School
Tue, 24 Mar 2009	Gathering the parent questionnaires from Public School
Thu, 26 Mar 2009	Implementing one of the materials of the program "story inventory 3" to the 1st, 2nd and 3rd grade students in Private School
Thu, 26 Mar 2009	Gathering the parent questionnaires from Private School
Thu, 02 Apr 2009	Implementing one of the materials of the program "Film Inventory" to the 1st, 2nd, 3rd grade students in Public School

Thu, 02 Apr 2009	Implementing one of the materials of the program "story inventory 5 and 6" to the 1st, 2nd and 3rd grade students in Public School
Thu, 09 Apr 2009	Implementing one of the materials of the program "story inventory 4" to the 1st, 2nd and 3rd grade students in Private School
Thu, 09 Apr 2009	Implementing one of the materials of the program "Film Inventory" to the 1st, 2nd, 3rd grade students in Private School
Thu, 16 Apr 2009	Implementing one of the materials of the program "story inventory 7 and 8" to the 1st, 2nd and 3rd grade students in Public School
Thu, 30 Apr 2009	Re-implementing one of the materials of the program "Film Inventory" to the 1st, 2nd, 3rd grade students in Public School
Thu, 30 Apr 2009	Gathering one of the materials of the program "teacher observation form" (performance assessment 4) from the teachers in Public School
Tue, 05 May 2009	Re-implementing one of the materials of the program "Film Inventory" to the 1st, 2nd, 3rd grade students in Private School
Wed, 06 May 2009	Implementing one of the materials of the program "story inventory 5 and 6" to the 1st, 2nd and 3rd grade students in Private School
Thu, 07 May 2009	Implementing one of the materials of the program "story inventory 7" and 8th worksheet to the 1st, 2nd and 3rd grade students in Private School
Thu, 07 May 2009	Gathering one of the materials of the program "teacher observation form" (performance assessment 4) from the teachers in Private School

DATE	SUMMATIVE EVALUATION PHASE
Mon, 01 Jun, 2009 – end of the study	Written document analysis
Mon, 16 Feb 2009 – 05 Jun 2009	Taking teachers' opinion on their students' multiple intelligences and order of each student's multiple intelligences from the most dominant to the most recessive
	Interviews with the experts and the teachers throughout the summative evaluation phase
	Informal conversational interviews with the experts and the teachers throughout the study

APPENDIX X
THE SCHOOL ACTIVITIES 1ST, 2ND, 3RD GRADE STUDENTS MOST LIKE

	Grade	1st				2nd				3rd			
	Type of school	Private		Public		Private		Public		Private		Public	
	Gender												
Categories	Themes	F	M	F	M	F	M	F	M	F	M	F	M
School club activities	Art club activities			1	1	2	1	2		1	1	2	1
	Music club activities		1	1	1	2	1	1	1		1		1
	To participate in the club activities								1			2	1
	Library club activities	2	3	2	2	1	2	3	1	2	3	2	3
	Book donation activities in our club						1			2			
	Collecting book donation activities	1				1							
	Chess club activities	1	2										2
	Sport club activities		1		3	1	1	1	3		1		2
	Total	**4**	**7**	**4**	**6**	**7**	**6**	**7**	**6**	**5**	**6**	**6**	**10**
School show activities	School day activities	2	1			2	2			2	1		
	Reading Bairam			3	2								
	School parties activities							2	1			1	2	
	School or class exhibition activities							1					3
	Celebratory ceremonies activities			1				2	3				
	Total	**2**	**1**	**3**	**2**	**2**	**2**	**5**	**4**	**2**	**1**	**2**	**3**
Gifting	New year activities and gifts	1				1							
	Gift lotteries					1							
	Total												
Games	Games			2	1			1				1	1
	Chess		1							1			
	Hopscotch			3				2					
	Football				2		1		3		2		2
	Group activities	1											
	Total												
Others	Break time activities							1				1	
	Competitions we or I win								1				
	Total												
Empty	**Total**	**1**		**1**					**1**	**1**		**2**	

APPENDIX Y

THE COURSES THE 1ST, 2ND, 3RD GRADE STUDENTS MOST LIKE FROM THE POINT OF THE STUDENTS' VIEW

Grade	1st				2nd				3rd				
Type of school	Private		Public		Private		Public		Private		Public		Total
Gender													
Courses	F	M	F	M	F	M	F	M	F	M	F	M	
Turkish	4	4	6	4	2	1	6	4	2	2	3	4	**42**
Visual Arts	1	1	2	1	2	2	2	1	1	1	2	2	**18**
Drama	1				2	1			1	1			**6**
Foreign Language	2	1	2	1			1	1	1				**9**
Music	1	1	2	1		1	2	1	1	1	2	2	**8**
Physical Education		2		3	1	2	2	4	1	2	2	3	**22**
Life Science			1	1	1		1	1			1		**6**
Mathematics		1	1	1	1	1	1	1	1	1	2	3	**14**
Computer	1	1			2	1	1	2	1	2		1	**13**

APPENDIX Z

THE COURSES THE 1ST, 2ND, 3RD GRADE STUDENTS MOST LIKE FROM THE POINT OF THE PARENTS' VIEW

	Number of parents												
Grade	1st				2nd				3rd				
Type of school	Private		Public		Private		Public		Private		Public		Total
Gender													
Courses	F	M	F	M	F	M	F	M	F	M	F	M	
Turkish	1	2	1		2	1	1	2	1	1	3	2	16
Visual Arts	1		1		2	1	3		2		1	1	12
Drama						1			1	2			4
Foreign Language	1		1	1	1								4
Music	1		2		1		1		1			1	7
Physical Education	1	3		4		3	1	4	2	3		8	29
Life Science	2		2		1		2			1	3		10
Mathematics	3	3	6	3	4	3	5	6	2	3	3	4	41
Computer	1	1	1	2									5
Empty				2			3	1			2	1	10

APPENDIX AA

THE LEARNING ACTIVITIES WITH WHICH THE 1ST, 2ND, 3RD GRADE STUDENTS LEARN MOST

	Grade	1st				2nd				3rd			
	Type of school	Private		Public		Private		Public		Private		Public	
	Gender												
Categories	Themes	F	M	F	M	F	M	F	M	F	M	F	M
Playful Activities	Playful activities			4	2	2				1			
	Joyful activities						1					1	
	Plays and games	2	3			2		3	2	2	1	2	2
	Enjoyable activities										1	1	
	Comic activities		1										
	Total	**2**	**4**	**5**	**2**	**2**	**2**	**4**	**2**	**3**	**2**	**4**	**2**
VS Activities	Pictorial	1							1		2		
	Puzzle			2	2			1					1
	Visual activities					1				2		2	
	Maps									**1**			
	Videos										2	1	
	Films	1	1	1		2	1						2
	Graphs								1				
	Posters								1				
	Imagination			1				1					
	Photographs				**1**								
	Total	**2**	**1**	**4**	**3**	**3**	**1**	**2**	**3**	**3**	**4**	**3**	**4**
VL Activities	Teacher's telling			2	1			1	1			2	
	Reading						1			1	2		
	Writing												
	Slogan producing								1				
	Square crossword												1

VL Activities	Stories	2	3			1				1		1	3
	Presentation												
	Listening											1	
	Total	**2**	**3**	**2**	**1**	**1**	**1**	**1**	**2**	**2**	**2**	**4**	**4**
IE Activities	Group activities								1				1
	Paired activities				2								
	Activities with friends								1				1
	Total				**2**				**2**				**2**
BK Activities	Active											1	
	Running and walking						1		1				
	Handworks			1				2					
	Dancing	1			1								
	Role playing	1	1						1				1
	Drama					1			1				
	Total	**2**	**1**	**1**	**1**	**1**	**1**	**2**	**3**			**1**	**1**
LM Activities	Mathematics				1	1							
	Logic puzzle			1				1					
	Problem solving							1					
	Compare-contrast		1				2		1				1
	Total		**1**	**1**	**1**	**1**	**2**	**2**	**1**				**1**
MR Activities	Musical activities	2				1		2			1		1
	Total	**2**				**1**		**2**			**1**		**1**
IA Activities	Individual activities				2		1	1	1	1			1
	Total				**2**		**1**	**1**	**1**	**1**			**1**
N Activities	Out of school activities		1					1					
	Garden activities			1					1				
	Trip					2		1					
	Nature activities						1				1		
	Total		**1**	**1**		**2**	**1**	**2**	**1**		**1**		

APPENDIX AB

THE ASSIGNMENTS THE 1ST, 2ND, 3RD GRADE STUDENTS MOST LIKE

Assignment Categories	Themes	1st				2nd				3rd			
	Type of school	Private		Public		Private		Public		Private		Public	
	Gender	F	M	F	M	F	M	F	M	F	M	F	M
Verbal Linguistic	Reading and writing	2	2	4	3	1	1	2	2	2	3	1	3
	Preparing verbal presentation							1					
	Total	**2**	**2**	**4**	**3**	**1**	**1**	**3**	**2**	**2**	**3**	**1**	**3**
Mathematical Logical	Cause-effect					2		1					
	Compare-contrast						1						
	Test			1	2	1	1		1	1	2		
	Problem solving	1	1			1		1		1	1		
	Logical puzzles							2				2	1
	Total	**1**	**1**	**1**	**2**	**4**	**2**	**4**	**1**	**2**	**3**	**2**	**1**
Intrapersonal	Autobiography								1	1			
	Diary				1							1	
	Individual						2		2				
	Memories			2									1
	Related with me	1				1		1					
	Total	**1**		**2**	**1**	**1**	**2**	**1**	**3**	**1**		**1**	**1**
Interpersonal	Group homework		2		1							2	2
	Related with family	1		1							2		
	Related with others					**1**			**1**				
	Related with society							2				2	
	Total	**1**	**2**	**1**	**1**	**1**		**2**	**1**		**2**	**4**	**2**
Bodily Kinesthetic	Related with sport		1			1	2	1	3				4
	Handworks			1						2		1	
	Play dough	2	1		2								1
	Total	**2**	**2**	**1**	**2**	**1**	**2**	**1**	**3**	**2**		**1**	**5**
Musical Rhythmical	Music			1		1		1	1				
	Poem					1			1			1	
	Total			**1**		**2**		**1**	**2**			**1**	
Naturalistic	Collecting natural objectives	2		1	1								
	Observing the nature		2			1		1					
	Total	**2**	**2**	**1**	**1**	**1**		**1**					
Visual Spatial	Pictorial							1	2			2	1
	Visual		2					2					2
	Drawings	1		4	2								
	Maps								1	1	1		
	Graphics									1	1		1
	Imagination								1				1
	Total	**1**	**2**	**4**	**2**			**3**	**4**	**2**	**2**	**2**	**5**

THE HOME-BASED ACTIVITIES THE 1ST, 2ND, 3RD GRADE STUDENTS MOST LIKE TO DO

	Grade	1st				2nd				3rd			
	Type of school	Private		Public		Private		Public		Private		Public	
	Gender												
Categories	**Themes**	F	M	F	M	F	M	F	M	F	M	F	M
Playing	Playing	2	3	3	5	2	2	3	4	2	1	2	4
	Computer games	1	2	4	2		3	2	2			1	2
	Total	**3**	**5**	**7**	**7**	**2**	**5**	**5**	**6**	**2**	**1**	**3**	**6**
Naturalistic activities	Dealing with dog		1			1							
	Dealing with bird										2		
	Dealing with flowers							1				1	
	Dealing with cat					1							
	Total		**1**			**2**		**1**			**2**	**1**	
Watching	Watching TV		1			1		2	3	2		3	2
	Watching films	1	2								1	1	1
	Watching videos												
	Watching cartoons	4	2	5	4	3	2	4	4	2	2	3	5
	Total	**5**	**5**	**5**	**4**	**4**	**2**	**6**	**7**	**5**	**3**	**7**	**8**
Playing musical instrument	Listen to music						2				1		
	Playing piano					**1**							
	Playing violin			1									
	Playing flute									1			
	Total			**1**		**1**	**2**			**1**	**1**		
Reading	Reading book					1					1		1
	Reading novel										1		
	Reading stories	2		1	1	1		4	1		1	1	2
	Reading newspaper								1				
	Reading magazine									1			
	Total	**2**		**1**	**1**	**2**		**4**	**2**	**1**	**3**	**1**	**3**

THE GAMES THE 1ST, 2ND, 3RD GRADE STUDENTS MOST LIKE TO PLAY

	Grade	1st				2nd				3rd			
	Type of school	Private		Public		Private		Public		Private		Public	
	Gender												
	Themes	F	M	F	M	F	M	F	M	F	M	F	M
VS	Name – city	2	1	3	2	1				1		1	
	Verbal crosswords			2			1	2	1				2
	Taboo							1	2				
	Word games	1	1		1	1					1		
	Producing words	2						2				1	
	Total	**5**	**2**	**5**	**3**	**2**	**1**	**5**	**3**	**1**	**1**	**2**	**2**
LM	Chess		1		1	2	2	1	1	1	1	1	2
	Puzzle			1		1		1		1	1	2	1
	Su Do Ku					1	1	1				1	1
	Number train	1	2						1				
	Backgammon								1		1		6
	Total	**1**	**3**	**1**	**1**	**4**	**3**	**3**	**3**	**2**	**3**	**4**	**6**
VS	Drawings			2		1						1	
	Visual games		1	1	1		1	2		1			1
	Total		**1**	**3**	**1**	**1**	**1**	**2**		**1**			**1**
BK	Volleyball					1		2					
	Basketball		1			1				1	2		2
	Sports								1		1		
	Tennis	1				1				1			1
	Ball games						2		2				
	Puss in the corner	1						1				1	
	Football		2		3		2		2	1	2		2
	Total	**2**	**3**		**3**		**4**	**1**	**5**	**3**	**4**	**2**	**5**
IE	Group games			1				1					1
	Team plays						1						
	Competition				1							1	
	Paired games			2						1			
	Total			**3**	**1**		**1**	**1**		**1**			**2**
IA	Individual games	1		1				1	1	1	1	1	
	Total	**1**		**1**				**1**	**1**	**1**	**1**	**1**	
Comp. Games	Computer games	1	2	1	3	1		1	2		1	2	1
	Total	**1**	**2**	**1**	**3**	**1**		**1**	**2**		**1**	**2**	**1**

Number of students in terms of grades and gender

TV CARTOONS THE 1ST, 2ND, 3RD GRADE STUDENTS MOST LIKE TO WATCH

Cartoons	Number of students in terms of grades and gender												
Grade	**1st**				**2nd**				**3rd**				
Type of school	**Private**		**Public**		**Private**		**Public**		**Private**		**Public**		**Total**
Gender **Themes**	**F**	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**	**M**	
Smurfs	2	2	3	4	1	2	3	3	1	2	2	3	**28**
Winx	2		2		2		2		2		3		**13**
Scooby Doo	1	2		2	1	2	1	2		1	1	4	**17**
Bratz	1		2		3		3		2		3	1	**15**
Winnie the Pooh		2	2	2	1	1	1	2		2	2	3	**18**
Kids Next Door					2	3			2	2		1	**10**
Filestones		2	1	1			1	2		1		1	**9**
Rugrats								1	1				**2**
Cedric	1									1			**2**
Dora	1				1		1		1		1		**5**
Tom & Jerry		1	1	2			1			1		1	**7**
Spiderman				2		1		3				1	**7**
Casper			2				1	1					**4**
Hey Arnold		1										1	**2**
Donald Duck	1												**1**
Tsubasa		1											**1**
Barbie			1				2						**3**
Mask								1					**1**

APPENDIX AF
THE READING THE 1ST, 2ND, 3RD GRADE STUDENTS MOST LIKE TO READ

		Number of students in terms of grades and gender												
	Grade	**1st**				**2nd**				**3rd**				
	Type of school	**Private**		**Public**		**Private**		**Public**		**Private**		**Public**		**Total**
	Gender													
Categories	**Themes**	**F**	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**	**M**	
Fairy Tales	Fairy Tales	4	5	6	6	4	5	4	5	4	5	7	5	**60**
The book including various classic fairy tales	Her Güne Bir Masal					1						1	1	**3**
	Masal Evi 7 Masalcı 365		1					1						**2**
	Andersen, Grim ve Perrault Masalları						1	1	2					**4**
	Anadolu Masalları				1									**1**
	Masal Perisi			1										**1**
	Uykudan Önce Masallar	1						1						**2**
The book of one classic fairy tale	Snow White	1		1				2	2			1	1	**8**
	Cindrella	1		1										**2**
	Peter Pan				1				1					**2**
	Little Red Riding Hood							1					1	**3**
	Smart Dressmaker		1					1						**2**
	Shepherd of Ida					1								**1**
	Golden Goose					1								**1**
The series of one story character	Keloğlan	1	1	1	2	2	2	2	3		1		2	**17**
	Küçük Ayşegül	2	2	2						1				**7**
	Hababam Sınıfı									2	2	2	3	**9**
	Narnia Günlükleri									2	2	1	3	**8**
The book of one Fairy tale	Bir Yılbaşı Masalı					1		1						**2**
	Küskün Ayıcık			1										**1**
	Nasreddin Hoca			1	1	1			2					**5**
	Çocukların Ormanı						1	1						**2**
	Hayri Potur Harry Pottur'a Karşı							1					1	**2**

OUT OF SCHOOL AND HOME ACTIVITIES STATED BY THE STUDENTS

	Grade	1st				2nd				3rd				
	Type of school	Private		Public		Private		Public		Private		Public		Total
Categories	Themes	F	M	F	M	F	M	F	M	F	M	F	M	
Bodily Kinesthetic Activities	Football		2		4		2		2		3		3	
	Volleyball					2		2			1	1	1	
	Basketball	1	1				1		1		1	2	2	
	Dance	1						1				1		
	Tennis	1				1			1	1	2	1		
	Total	**3**	**3**		**4**	**3**	**3**	**3**	**4**	**1**	**7**	**5**	**6**	**42**
Games	Games	2		4	1	2	2	2	2			2		
	Computer games		**2**		**1**			**2**	**1**					
	Child Park	2	1	2	4	3	2	4	2	3	3	2	2	
	Lunapark								1	1			4	
	Total	**4**	**3**	**6**	**6**	**5**	**4**	**9**	**5**	**4**	**3**	**4**	**6**	**59**
Visual Arts Activities	Cinema	1	1	2	2	1	1	1	2				2	
	Theatre		1							1		1	1	
	Total	**1**	**2**	**2**	**2**	**1**	**1**	**1**	**2**	**1**		**1**	**3**	**17**
Interpersonal Activities	Grandparent visiting	1		1				1		1				
	Friend visiting		1	2		1			1			2	2	
	Total	**1**	**1**	**3**		**1**		**1**	**1**	**1**		**2**	**2**	**13**
Vacation Activities	Vacation								1					
	Sea									1				
	Sea sight	1												
	Going village							1		1				
	Total	**1**						**1**	**1**	**2**				**5**
Shopping	Shopping		2	2		1		1	2					
	Total		**2**	**2**		**1**		**1**	**2**					**8**

THE ENVIRONMENTS WHERE 1ST, 2ND, 3RD GRADE STUDENTS MOST LIKE TO SPEND TIME

		Number of students in terms of grades and gender											
	Grade	1st				2nd				3rd			
	Type of school	Private		Public		Private		Public		Private		Public	
	Gender												
Categories	Themes	F	M	F	M	F	M	F	M	F	M	F	M
Home	Saloon			1			1	1		1			
	Room	1		2		1			2				
	Living room											3	2
	Home		1					2	1	1	1		1
	Total	**1**	**1**	**3**		**1**	**1**	**3**	**3**	**2**	**1**	**3**	**3**
Inter personal	Everywhere with friends			4	3		2		2				3
	Visiting friends		2			2		2		2		2	
	Visiting grandparent				2								1
	Total		**2**	**4**	**5**	**2**	**2**	**2**	**2**	**2**		**2**	**4**
Bodily Kinesthetic	Sport saloon	2			2		3	1	3	1	2	1	3
	Football ground		3		3		2		5		2		5
	Total	**2**	**3**		**5**		**5**	**1**	**8**	**1**	**4**	**1**	**8**
Naturalistic	Zoo	1				1					1		
	Farm						1	1					
	Garden		1	2	2						1		1
	Pool					1			1			1	
	Sandbox	1				1				1			
	Sea sight	2	1					2		1			
	Total	**4**	**2**	**2**	**2**	**3**	**1**	**3**	**1**	**2**	**2**	**1**	**1**
Logical Mathematic	Science museum									1	1		
	Science park					1		1					
	Total					**1**		**1**		**1**	**1**		
Plays and Games	Child park	2	1	5		4		3	1	1	2	2	1
	Luna park	1						2				1	
	Enjoy environment											1	
	Joyful environment											1	
	Playful environment							1					
	Total	**3**	**1**	**5**		**4**		**6**	**1**	**1**	**2**	**5**	**1**

APPENDIX AI

THE COLORS THE 1ST, 2ND, 3RD GRADE STUDENTS MOST LIKE

	Number of students in terms of grades and gender												Total
Grade	**1st**				**2nd**				**3rd**				
Type of school	**Private**		**Public**		**Private**		**Public**		**Private**		**Public**		
Gender													
Themes	**F**	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**	**M**	
Yellow	3	4	3	3	2	2	4	4	2	2	3	4	**31**
Orange	2	2	2	1	2	1	2	1	2	1	2	2	**20**
Purple			2	1	1	1	2		2	2		1	**12**
Blue	1	4		4		3		6		3		5	**26**
Green	1		1	2	2	1	2	2		1		2	**14**
Pink	3		5		4		4		3	1	3		**23**
Black		1		1								1	**3**
Brown								1				1	**2**
White			1					1			1	1	**4**
Red				1		1	2				3		**7**

APPENDIX AJ

THE GEOMETRIC SHAPES THE 1ST, 2ND, 3RD GRADE STUDENTS MOST LIKE

	Number of students in terms of grades and gender												Total
Grade	1st				2nd				3rd				
Type of school	Private		Public		Private		Public		Private		Public		Total
Gender													
Themes	F	M	F	M	F	M	F	M	F	M	F	M	
Circle	2	4	3	1	2	3	3	6	2	2	2	2	32
Round	5	4	4	7	6	5	4	1	3	3	5	7	54
Rectangular	1	1	4	4	3	1	3	1	2	2	3	3	28
Square	2	1	3				3	3	1	1	1	3	18
Triangle		1					2	3		1	1	1	9
Pentagon								1		1		1	3
Hexagon									1	1	1		3

APPENDIX AK
OCCUPATIONS THE 1ST, 2ND, 3RD GRADE STUDENTS WOULD MOST LIKE TO HAVE

	Grade	1st				2nd				3rd			
	Type of school	Private		Public		Private		Public		Private		Public	
	Gender	F	M	F	M	F	M	F	M	F	M	F	M
Categories	**Themes**												
Verbal Linguistics	Teacher	3	4	3	1	2	1	2	3	1		2	2
	Anchor								1				
	Poet							1			1		
	Author	1			1					1			
	Total	**4**	**4**	**3**	**2**	**2**	**1**	**3**	**4**	**2**	**1**	**2**	**1**
Logical Mathematical	Engineer		2				1	1			2		
	Computer engineer						2		2				
	Computer teacher				2				1				2
	Total		**2**		**2**		**3**	**1**	**3**		**2**		**2**
Visual Spatial	Architecture		2			1	1			2	1	1	1
	Painter			2		1		1	1				
	Photographer							1		1			
	Total		**2**	**2**		**2**	**1**	**2**	**1**	**3**	**1**	**1**	**1**
Bodily Kinesthetic	Actor						1					1	2
	Football player		1		3				3		2		3
	Volleyball player					1			1				
	Basketball player	**1**				**1**	**1**						**2**
	Psychical education teacher				2					1		2	
	Athlete								1				
	Dancer					1		1					
	Total	**1**	**1**		**5**	**3**	**2**	**1**	**5**	**1**	**2**	**3**	**7**
Musical	Singer	1				1						1	
	Music teacher			2						2			1
	Guitarist												
	Pianist												
	Virtuosi		1										
	Total	**1**	**1**	**2**		**1**			**1**	**2**		**1**	**1**
Naturalist	Veterinarian	1		2	1			1			1		
	Florist											1	
	Astronaut				1		1				1		2
	Total	**1**		**2**	**2**		**1**	**1**			**2**	**1**	**2**
Inter personal Intra persona	Principal	2						2					
	Leader				1								
	Politician											2	
	School counselor			2				2					1
	Total	**2**		**2**	**1**			**4**				**2**	**1**
Others	Doctor	1	1	2		3	1	2	1	1			
	Nurse			1				2					
	Scientist										2	2	
	Total	**1**	**1**	**3**		**3**	**1**	**4**	**1**	**1**	**2**	**2**	

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TURKISH SUMMARY

1., 2., ve 3. SINIFLARIN ÇOKLU ZEKÂLARINI BELİRLEMEK İÇİN PROGRAM GELİŞTİRME SÜRECİ ÜZERİNE BİR EYLEM ARAŞTIRMASI

GİRİŞ

Geçmişten günümüze zekâ anlayışları iki başlık altında özetlenebilir (Paik, 1993). Bunlardan ilki; zekâyı tekil gören ve '*g*' faktörü ile açıklanabileceğini düşünen yaygın yaklaşım diğeri ise bu yaklaşımın aksine zekânın tek bir faktörle açıklanamayacak kadar çoklu yetenekleri ve faktörleri kapsadığını öne süren yaklaşım.

Bu yaklaşımlardan '*g*' faktörünün savunucularına göre zekâ sayısal olarak hesaplanabilir. Bu inançları doğrultusunda IQ testleri kullanmaktadırlar. Oysa çoklu zekâ kuramının da içinde yer aldığı zekâya çoklu boyuttan bakan yaklaşım ise zekânın sayısal olarak hesaplanamayacağını ileri sürerek IQ testlerini birçok sebepten dolayı olumsuz yönde eleştirmektedir. Bu eleştiriler içerisinde bu testlerin içeriğini matematiksel mantıksal, sözel dilsel (Gardner, 1983) ve kısmen görsel uzamsal zekâlara seslenen soruların oluşturması ve bireyden bu soruları belirli bir zaman dilimi içinde çözmesinin istenmesi baş sıradadır.

Ancak, günümüzde medyada özellikle internet sitelerinde başta olmak üzere çoklu zekâ kuramı üzerine yazılmış çeşitli kaynaklarda da çoklu zekâların test edilmesi ve ölçülmesi ile ilgili yöntemlere rastlanmaktadır. Bunun yanı sıra, çoklu zekâlar hakkında bilgi edinilebileceğini savunan ve çoklu zekâları belirleme amaçlı hazırlanan anketler, envanterler, gözlem formları gibi araçlar da mevcuttur. Ancak, ne var ki, bu araçlar da (Dr. Armstrong tarafından geliştirilen çoklu zekâlar envanteri, Dr. Teele tarafından geliştirilmiş olan TIMI, Dr. Shearer tarafından geliştirilmiş olan MIDAS bunlardandır ve ülkemizde sık kullanılanlar arasındadırlar) yurt dışı kökenlidir. Gardner'ın popüler zekâ tanımına – "Bir ya da birden fazla kültürde değer bulan bir ürün ortaya koyabilme yeteneğidir. (Gardner, 1983, p. x)" – bakıldığında zekânın kültürle olan sıkı ilişkisine dikkat çekildiği açıktır. Buna göre,

yurt dışı kökenli araçların Türk insanının çoklu zekâları hakkında gerçekçi bilgiye ulaşma amaçlı kullanımının doğruluğu tartışılabilir.

Ayrıca, çoklu zekâ kuramının sahibi Howard Gardner çoklu zekâları değerlendirmenin riskli olabileceğini belirtmektedir. Shearer (2005, p. 2), Gardner'ın çeşitli yazılarını dayanak alarak neden böyle düşündüğünü beş maddede özetlemiştir;

1. zekâ açısından adil olmamaları – dilsel yeteneklere eğilimli olmaları,
2. sergilenen beceriler ile ilgileri karıştırmaları,
3. bireyin kendisi ve diğerleri tarafından etiketleme üretmeleri,
4. bireyin yeteneklerinin basit ve yüzeysel anlaşılmasını körüklemeleri,
5. bireylerin klişe gruplandırmalarını kolaylaştırması.

MIDAS kısaltması ile tanınan çoklu zekâları değerlendirmek için süreç yaklaşımının geliştiricisi Sherar Gardner'ın envanter ve testlerle ilgili belirttiği risklere şunları eklemektedir (2005, p.2);

1. çoklu zekâların yüzeysel anlaşılmasına ve saptırılmasına yol açmaları,
2. çoklu zekâ kuramının kabulünü baltalamaları,
3. öğrenme stillerini ve kişiliği entelektüel yetenek ile karıştırmaları,
4. çoklu zekâların değerlendirilmesine dikkatsizce hazırlanan ve ciddi olmayan yaklaşımları cesaretlendiriyor olmaları.

Problemlerin varlığına rağmen alternatif belirleme ya da değerlendirme araçlarının eksikliği ya da yokluğu sebebiyle mevcut riskli araçlar kullanmaktadır. Bu kapsamda, bu çalışma, 1., 2. ve 3. sınıf öğrencilerinin çoklu zekâ profillerini belirlemek için program geliştirme sürecini ortaya koymayı ve program geliştirme sürecinin bileşenlerinin tüm sürece nasıl katkıda bulunduğunu açıklamayı amaçlamaktadır. Özelleştirerek ifade edilirse, geliştirilecek olan programın

a. ilköğretim 1., 2. ve 3. sınıf çocuklarının çoklu zekâlarından oluşan zekâ profillerini doğru belirleyebilecek,

b. Çoklu Zekâ Kuramına uygun, (örneğin; tüm zekâları eşdeğerde önemseyen, tüm zekâların çeşitli performanslarına seslenen, etiketleme üretmeyen, ilgilerle zekâları / yetenekleri / becerileri karıştırmayan),

c. kullanıcılarını Çoklu Zekâ Kuramı ve çoklu zekâları belirleme, değerlendirme amaçlı mevcut metotların riskleri hakkında bilgilendiren,

d. hızlı ve kısa süreli yaklaşım yerine süreç yaklaşımı sunan,

e. ailelerle ve öğrencilerle işbirliği yapmayı sağlayan, işbirlikçi yaklaşım sunacak özelliklere sahip olması amaçlanmaktadır.

Bu amaca ulaşmak için, araştırma program geliştirmenin (1) ihtiyaç analizi, (2) program tasarımı, (3) program uygulama ve gerçekleme, ve (4) sonuç değerlendirme basamakları uygulanarak bir eylem araştırması olarak gerçekleştirilmiştir.

Çalışmanın bir ana araştırma sorusu ve soru şeklinde sondaları bulunmaktadır.

1. 1., 2. ve 3. sınıf öğrencilerinin çoklu zekâ profillerini belirlemek için program geliştirme süreci ne olmalıdır?

- 1., 2. ve 3. sınıf öğretmenleri öğrencilerinin çoklu zekâ profillerini niçin belirlemektedir?

- 1., 2. ve 3. sınıf öğretmenlerinin öğrencilerinin çoklu zekâ profillerini belirlemek için kullandıkları mevcut metotlar nelerdir?

- 1., 2. ve 3. sınıf öğretmenleri tarafından öğrencilerinin çoklu zekâ profillerini belirlemek için kullandıkları mevcut metotların etkililiği nasıldır?

- 1., 2. ve 3. sınıf öğrencilerinin çoklu zekâlarını belirleme amaçlı olarak önerilen bir programın içerik ve metotların materyallerine ilişkin özellikleri ne olmalıdır?

- Çalışma boyunca 1., 2. ve 3. sınıf öğrencilerin çoklu zekâlarını belirlemek amaçlı geliştirilen programın etkililiği nasıldır?

- Çalışma boyunca geliştirilen, 1., 2. ve 3. sınıf öğrencilerin çoklu zekâlarını belirlemek için çalışma boyunca geliştirilen program için seçenek (hiçbir değişiklik yapmadan uygulanmaya devam edilmesi; geliştirilmesi; uygulanmaması) nedir?

Çalışmanın Önemi

Çalışmanın hem Türkiye hem de diğer ülkeler için aşağıda yer alan boyutlar bakımından önemli olacağı düşünülmüştür:

a) çalışmanın 1., 2. ve 3. sınıf öğrencilerinin çoklu zekâlarını belirlemek amaçlı bir programın materyalleri ile birlikte nasıl geliştirileceğini göstermesi,

b) 1., 2. ve 3. sınıf öğrencilerinin çoklu zekâ profillerinin, Gardner'ın uyarılarını dikkate alarak geliştirilmiş bir program yoluyla belirlenebileceğini desteklemesi,

c) çoklu zekâ profilleri hakkında karar vermenin kolay olmadığına dikkat çekmesi,

d) çoklu zekâ profillerini belirlemede ilgiyi hızlı ve kısa süreli yaklaşımlardan süreç yaklaşımına taşıması,

e) gelecekteki aynı ya da benzer amaçlı gerçekleştirilecek çalışmalara rehber olması,

f) çoklu zekâ profillerini belirleme için kullanılan mevcut yöntemlerin, güçlü ve zayıf özelliklerinin neler olduğu, yöntem ve araçların nasıl tasarlanabileceği, geliştirilebileceği ve değerlendirilebileceği ve neden çoklu yöntemin kullanılmasının gerekliliği boyutlarından alanyazına katkıda bulunması beklenmektedir.

ALANYAZIN TARAMASI

Bu çalışmanın alanyazın taraması aşağıda belirtilen başlıklar altında yapılmıştır;

1. Zekânın Tarihsel Geçmişi

2. Çoklu Zekâ Kuramı

3. Zekâ Testlerine ve Çoklu Zekâları Belirlemeye Yönelik Metodolojik Perspektifler

4. Çoklu Zekâ Kuramının Farklı Alanlarda ve Eğitim Seviyelerinde Çeşitli Kullanımı Üzerine Araştırma Çalışmaları

YÖNTEM

Araştırmanın Yöntem ve Modeli

Nitel araştırma yöntemleri araştırmacının seçtiği sorun, durum ya da olay üzerine derinlemesine çalışmasını sağlamaktadır (Patton, 1987). Bu çalışma odaklanılan problem ve amaç doğrultusunda nitel araştırma türlerinden birisi olarak eylem araştırmasıdır. Bu çalışma, 1., 2. ve 3. sınıf öğrencilerinin çoklu zekâ profillerini belirlemek için program geliştirme sürecini ortaya koymayı ve program geliştirme sürecinin bileşenlerinin tüm sürece nasıl katkıda bulunduğunu açıklamayı amaçlamaktadır. Bu sebeple, araştırmanın yönteminin açıklandığı bu bölümde sunulması gereken diğer bir unsurda takip edilen program geliştirme süreci modelidir.

Bu çalışmada kullanılan program geliştirme modeli Posner (1995) tarafından sunulan "Yansıtıcı Eklektik – Reflective Eclecticism" yaklaşımına dayanan eklektik bir modeldir. Bu kapsamda bu çalışma da takip edilen program geliştirme süreci çeşitli program geliştirme ve tasarım modellerinin temel karakterlerinin kompozisyonu olan eklektik bir modele temellendirilmiştir. Bu çalışmada kullanılan program geliştirme modelinin temel bileşenleri Figür 1 de gösterilmektedir.

Çalışmanın Katılımcıları

Bu çalışma araştırma sorusunu cevaplayabilmek için doğrudan alıntılar kullanılarak; durumlar, kişiler, etkileşimler ve davranışlar dikkatlice tanımlanarak ve betimlenerek edinilebilecek derinlemesine ve detaylı bilgi sağlayacak nitel veri gerektirmektedir. Amaçlı örneklemenin gücü derinlemesine çalışabilmek için zengin bilgi içeren ve sağlayan katılımcılardan gelmektedir (Patton, 1987). Bu sebeple, bu çalışmanın katılımcıları belirlenirken amaçlı örnekleme metotları kullanılmıştır. Detaya bakıldığında çalışmanın katılımcıları belirlenirken *"Amaçlı örnekleme"* yöntemlerinden *"ölçüt örnekleme"* ve *"aşırı veya aykırı durum örneklemesi"* kullanılmıştır.

Okullar

Katılımcı okulların seçilmesinde kullanılan ölçütler şunlardır:

1. Okullar Çoklu Zekâ Kuramını en az üç yıldır biliyor olması.

2. Okullar Çoklu Zekâ Kuramını en az üç yıldır deneyimliyor olması.

Belirtilen kriterleri sağlayan okullar arasından Gazi Üniversitesi Vakfi Özel İlköğretim Okulu ve Emin Sağlamer İlköğretim Okulları seçilmiştir.

Öğretmenler

Katılımcı okullardan katılımcı öğretmenler şu ölçütlere göre belirlenmiştir;

1. Öğretmenler Çoklu Zekâ Kuramını en az üç yıldır biliyor olmalıdır.

2. Öğretmenler Çoklu Zekâ Kuramını en az üç yıldır deneyimliyor olmalıdır.

3. Öğretmenler çalışmaya katılmaya gönüllü olmalıdır.

4. Öğretmenler öğrencileri ve velileri ile iyi ilişkiye sahip olmalıdır.

Bu ölçütleri temel alarak, her bir okuldan üç öğretmen çalışmaya katılmıştır. Bu öğretmenlerin bilgileri Tablo 1 de verilmiştir.
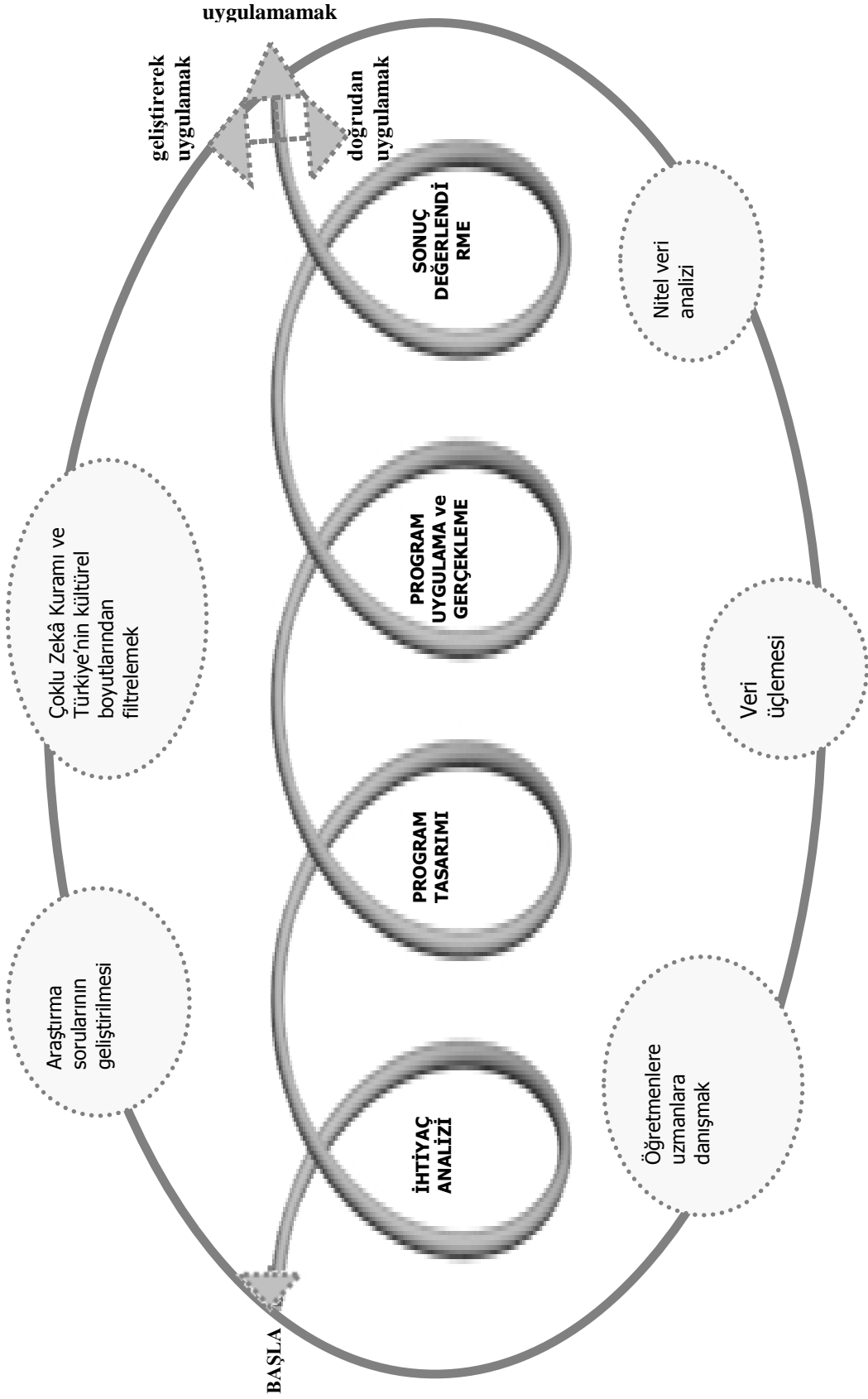
Figür 1 Program Geliştirme Süreci İçin Eylem Araştırma Modeli

Tablo 1

İhtiyaç Analizi ve Program Tasarımındaki Öğretmenlerin Deneyim Yılları ve Cinsiyetleri

Öğretmen	Cinsiyet	Seviye	Okul	Öğretmenlik deneyimi	Okuttuğu sınıf seviyesindeki deneyimi	Çoklu Zekâ Kuramı deneyimi
1	K	1	Emin S.	10	1	5
2	E	2	Emin S.	8	1	8
3	E	3	Emin S.	21	4	5
4	K	1	Gazi Unv.	36	16	10
5	K	2	Gazi Unv.	32	6	10
6	K	3	Gazi Unv.	32	6	5

Not. K: Bayan, E: Erkek

Bunun yanı sıra, ihtiyaç analizine katılmamış olan ancak program tasarım aşamasına katılmış olan üç branş öğretmeni de çalışmanın katılımcıları arasındadır. Birisi resim, birisi beden eğitimi ve birisi de müzik öğretmenidir. Ayrıca, iki sınıf öğretmeni ihtiyaç analizinde ve program tasarım aşamalarında 3. sınıfken sonraki aşamalara bir yeni akademik yılda devam edilirken 4. sınıf olduklarından katılamamışlardır. Buna rağmen, araştırmacı fırsat olduğunda bu öğretmenlerle informal görüşmeler yapmaya çalışmıştır. Bunun yanı sıra, program uygulama ve gerçekleme aşamasına önceki aşamalara katılmamış olan yedi sınıf öğretmeni çalışmanın katılımcılarından olmuşlardır. Bu öğretmenlerde belirtilen ölçütlere uygun olarak belirlenmişlerdir. Program uygulama ve doğrulama aşamasından itibaren bir önceki aşamalara katılan ve bu aşamadan itibaren katılan tüm öğretmenlerin bilgileri aşağıdaki Tablo 2 de özetlenmiştir.

Tablo 2

Program Uygulama ve Gerçeklemedeki Öğretmenlerin Deneyim Yılları ve Cinsiyetleri

Öğretmen	Cinsiyet	Seviye	Okul	Öğretmenlik deneyimi	Okuttuğu sınıf seviyesindeki deneyimi	Çoklu Zekâ Kuramı deneyimi
1	K	2	Emin S.	11	1	6
2	E	3	Emin S.	9	1	9
4	K	2	Gazi Unv	37	16	11
5	K	3	Gazi Unv	33	6	11
7	K	1	Emin S.	14	4	6
8	K	2	Emin S.	13	4	3
9	K	3	Emin S.	9	2	5
10	K	1	Gazi Unv.	6	4	6
11	K	1	Gazi Unv.	8	2	9
12	K	2	Gazi Unv.	30	6	7
13	K	3	Gazi Unv.	27	7	7

Not. K: Bayan, E: Erkek

Öğrenciler

Çalışmanın katılımcı öğrencileri seçilen okullardan, seçilen öğretmenlerin sınıflarından veli izin formu ile çalışmaya katılımlarına izin verilen 1., 2. ve 3. sınıf öğrencileridir. İhtiyaç analizine katılan öğrenciler program tasarımı aşamasına da katılmışlardır. Ancak bir farklılık vardır. Bu farklılık öğrencilerden iki grup oluşturulmasıdır. Birinci grup tüm öğrencilerden, ikinci grup ise belirli öğrencilerden oluşturulmuş ve odak grup adı verilmiştir. Odak grup öğrencileri bir ölçüte göre belirlenmiştir. Bu ölçüt; öğrencinin çoklu zekâlarından birine diğer zekâlarına göre aşırı baskın olarak sahip olmasıdır. Bu kapsamda, odak grupta yer alan öğrenciler velilerden ve öğretmenlerden toplanan verilerin analiz sonucuna göre ölçütü sağlayanlardır. Bu durumda, aşırı veya aykırı durum örneklemesi söz konusudur.

Odak grupta bulunan öğrencilerden veri toplanması önemlidir çünkü her bir zekânın özelliklerinin 1., 2. ve 3. sınıf öğrencileri açısından belirlenmesi program tasarımı aşamasında gerekmiştir. Araştırmanın bu aşamasında örneğin şöyle sorular belirmiştir; "Bedensel kinestetik baskın 1., 2. ve 3. sınıf öğrencileri sıklıkla nerede zaman geçirirler?", "Görsel uzamsal baskın 1., 2. ve 3. sınıf öğrencileri hangi

oyunları oynamada başarılılar?" gibi. İhtiyaç analizi ve program tasarımı aşamalarındaki katılımcı öğrencilere ait bilgiler Tablo 3 te özetlenmiştir.

Bu seviyedeki öğrencilerin her bir zekâda gösterdikleri, sergiledikleri, sahip oldukları özellikleri belirlemek amacıyla bu ve benzeri soruların cevaplarını alabilmek için çoklu zekâlarından birine diğerlerine nazaran aşırı baskın olarak sahip çocuklara odaklanmak gerekmiştir. Dolayısıyla, bu örneklemi oluştururken bu çocuklara odaklanmak aşırı veya aykırı durum örneklemesi stratejisi içinde açıklanmıştır. Tablo 4 odak grup öğrenciler hakkında özet bilgi sunmaktadır.

Tablo 3

İhtiyaç Analizi ve Program Tasarımındaki Katılımcı Öğrencilerin Okulları, Sınıf Seviyeleri, Cinsiyetleri

Okul	Sınıf	Seviye	Öğrenciler		Toplam
			Kız	Erkek	
Emin S.	CA	1	14	12	26
Emin S.	CC	2	16	15	31
Emin S.	CB	3	11	17	29
Gazi Unv	CE	1	10	11	21
Gazi Unv	CD	2	11	9	20
Gazi Unv	CF	3	9	10	19
Toplam			71	74	145

Not. CA, CB, CC, CD, CE, CF: Sınıf Kodları

Program uygulama ve doğrulama aşamasına gelindiğinde, öğretmenlerde olan değişiklikler gibi öğrencilerde de olmuştur. Yani yeni sınıflar katılırken bir önceki aşamalarda 3. sınıf olanlar 4. sınıf olduklarından çalışmanın devamına katılmamışlardır. Bu kapsamda Tablo 5 önceki aşamalara katılan ve katılmaya devam eden öğrencilerin güncellenmiş bilgilerini ve bu aşamada çalışmaya katılan öğrencilerin bilgilerini özetlemektedir.

Tablo 4

Odak Grup Öğrencileri Okul Türü, Sınıf Seviyesi ve Cinsiyetleri

| Seviye | 1 Özel | | Devlet | | 2 Özel | | Devlet | | 3 Özel | | Devlet | | Toplam |
| Okul türü | | | | | | | | | | | | | |
Cinsiyet	K	E	K	E	K	E	K	E	K	E	K	E	
Zekâlar													
Matematiksel Mantıksal	1	2	1	1	1	1	1	2	1	2	1	1	15
Sözel Dilsel	1	1	1	2	1	1	2	1	1	1	1	1	14
Görsel Uzamsal	1	-	2	1	1	-	2	1	1	-	1	1	11
Bedensel Kinestetik	1	2	1	2	-	1	1	2	-	1	-	2	13
Müziksel Ritmik	1	-	1	-	1	1	1	1	1	-	1	1	9
Kişilerarası	2	1	2	1	1	1	2	1	1	1	1	1	15
İçsel	-	1	1	1	-	-	1	1	-	-	-	1	6
Doğasal	1	-	1	1	1	-	1	1	1	-	1	-	8
Toplam	8	7	10	8	6	5	11	10	6	5	6	8	91

Not. K: Kız, E: Erkek

Tablo 5

Program Uygulama ve Gerçeklemedeki Katılımcı Öğrencilerin Okulları, Sınıf Seviyeleri, Cinsiyetleri

| Okul | Sınıf | Grade | Öğrenciler | | Toplam |
			Kız	Erkek	
Emin S.	CG	1st	20	17	37
Emin S.	CA	2nd	14	13	27
Emin S.	CH	2nd	11	16	27
Emin S.	CC	3rd	16	15	31
Emin S.	CJ	3rd	16	13	29
Gazi Unv	CK	1st	10	9	19
Gazi Unv.	CM	1st	10	12	22
Gazi Unv	CE	2nd	10	11	21
Gazi Unv.	CN	2nd	8	10	18
Gazi Unv	CD	3rd	11	9	20
Gazi Unv.	CP	3rd	13	6	19
Total		139	131		270

Note. CG, CA, CH, CC, CJ, CK, CM, CE, CN, CD, CP: Class Codes

Araç Geliştiriciler

Çoklu zekâları belirlemek ve değerlendirmek için araç geliştirmiş olan katılımcıların belirlenmesi için kullanılan ölçütler şunlardır;

1. Araç geliştirici çoklu zekâları belirlemek ve değerlendirmek amacıyla geliştirdiği aracı bilimsel bir tavırla, kişilikle geliştirmiş olmalıdır.
2. Geliştirdiği araç Türkiye'de kullanılmakta olmalıdır.

Bu ölçütlere uyan araç geliştiricilerden çalışmaya katılmayı kabul eden katılımcılar, Dr. Sue Teele, Dr. Thomas Armstrong ve Prof.Dr. Ahmet Saban'dır.

Uzmanlar

Diğer katılımcıların belirlenme sürecinde olduğu gibi uzman katılımcıların belirlenmesi için de öncelikle ölçüt belirlenmiştir. Ölçüt çalışmaya katılacak olan uzmanların Çoklu Zekâ Kuramı ile ya da Çoklu Zekâ Kuramına temel teşkil eden alanlardan (sosyoloji, psikoloji, nöroloji, psikiyatri, antropoloji gibi.) biri ile doğrudan ilgileniyor ya da çalışıyor olmasıdır. Bu kapsamda, Sosyal Pediatri alanından Prof. Dr. Elif Nursel Özmert, Nöroloji alanından Prof. Dr. Mehmet Demirci, Psikiyatri alanından Prof. Dr. Başaran Demir, Çocuk Nörolojisi alanından Prof. Dr. Füsun Alehan, Psikoloji alanından Pınar Yazıcı ve Aslıhan Fırat Erk, Sosyoloji alanından Hasibe Yıldırım katılmışlardır. Bunun yanı sıra isimlerinin belirtilmesini istemeyen bir psikolog ve bir sosyolog da çalışmaya katılmışlardır. Ayrıca yüksek lisans tez çalışmasında katılımcılarının çoklu zekâlarını belirlemiş olan araştırmacı Emel Uysal'da çalışmaya katılmıştır.

Veri Toplama Yöntem ve Araçları

Nitel bir araştırmada, üç çeşit temel veri toplama yöntemi vardır, bunlar; görüşmeler, gözlemler ve yazılı doküman analizidir (Patton, 1987; Yıldırım & Şimşek, 2003). Bu çalışmada bu üç temel yöntemde kullanılmıştır. Bunun yanı sıra, çoklu zekâları belirlemek için geliştirilmiş mevcut araçlardan sıkça kullanılanlar kullanılmıştır.

Veri toplama yöntemleri olarak görüşme, gözlem, doküman analizi ve anket kullanılmıştır. Ayrıca, veri toplama araçları olarak görüşme formları, gözlem formları, araştırmacının notları, mevcut araçlar, inceleme formları, açık uçlu anketler, resimli anket ve uzman görüş formları kullanılmıştır.

Veri Toplama Süreci

Bu araştırma iki akademik yılda gerçekleştirilmiştir. 2007 – 2008 akademik yılın başında ihtiyaç analizi ile başlamış ve 2008 – 2009 akademik yılı sonunda sonuç değerlendirme ile tamamlanmıştır.

Veri Analizi

Bu çalışma nitel bir eylem araştırmasıdır. Çalışmada geliştirilen program materyalleri ile birlikte bu kapsamda gerçekleştirilmiştir. Çalışmanın ihtiyaç analizi olan ilk aşamasından sonuç değerlendirme olan son aşamasına kadar nitel veri analizi yapılmıştır. Ayrıca geliştirilen materyallerin geçerlilik ve güvenirliği için veriler büyük ölçüde nitel çalışmaya olanak tanımıştır ancak bir kısım veri nicel veri analizine de imkân tanımıştır. Bu kapsamda çalışmanın bir kısmında nicel veri analizi yapılmıştır.

Çalışmanın Nitel Veri Analizi

Nitel veri analizi dört aşamada gerçekleştirilmiştir; (1) verilerin kodlanması, (2) kategorilerin oluşturulması, (3) verilerin kod ve kategoriler ile tanımlanması ve organize edilmesi ve (4) bulgulardan sonuçlara ve yorumlara ulaşılması.

Verilerin Kodlanması

Araştırmacı öncelikle ön kodlar bulmuştur. Sonrasında, veriyi incelemiş, gruplamış ve belirlediği ön kodlara göre analiz etmiştir. Daha sonra, araştırmacı yeni kodlara ulaşmış, mevcut kodlar ile yeni kodlardan yeni bir kod listesi oluşturmuştur. Oluşturulan yeni kod listesi ile veri yeniden analiz edilmiştir. Örneğin; Araştırmacının, öğretmenlerin öğrencilerinin çoklu zekâ profillerini belirleme ve değerlendirme amaçlarını ortaya çıkarmak amacı ile topladığı verileri analiz ederken belirlediği ön kodlardan bazıları şunlardır; "öğrenme zorluğu yaşayan öğrencilere yardım etmek", "çoklu zekâları temelli etkinlik hazırlamak", "zayıflıklarını geliştirmek" kodlar belirlediği ön kodlardan bazılarıdır. Ön kodlarla yapılan analiz sırasında ortaya çıkan yeni kodlardan bazıları ise şöyledir; "aileleri bilgilendirmek", "etkili ve verimli sınıf yönetimi."

Kategorilerin oluşturulması

Araştırmacı oluşturduğu son kod listesi ile veriyi analiz etmiş ve ortak özellikler bulmuş, belirlemiştir. Buna göre kategoriler oluşturmuştur. Şemsiye kategoriler oluşturularak analiz edilen veri sistemli bir şekilde düzenlenmiştir.

Örneğin; Tema 3: Öğrenme sürecinde problemle karşılaşan öğrencilere baskın zekâlarına seslenerek yardım etmek, Tema 4: Başkalarını bilgilendirmek.

Verilerin kod ve kategoriler ile tanımlanması ve organize edilmesi

Kodları ve kategorileri oluşan verilerin kategorileri ve kodları ile bunlar altında sistemli bir şekilde düzenlenmesi ve bulgular olarak sunulması bu aşamada gerçekleştirilmiştir.

Bulgulardan sonuçlara ve yorumlara ulaşılması

Bu basamakta, bulgular sayesinde ilişkiler kurulmuş sonuç ve yorumlara ulaşılmıştır.

Çalışmanın Nicel Veri Analizi

Geliştirilen programın güvenirliği için programın sonuç olarak her bir öğrenci için sunduğu çoklu zekâ profilini oluşturan zekâlarının sıralaması ile öğretmenlerin her bir öğrencisinin çoklu zekâ profilini oluşturan sıralamaları arasındaki ilişki Spearman Sıra Farkları Korelasyon Katsayısı ile hesaplanmıştır. Bu istatistiksel analiz SPSS 11.5 versiyonu kullanılarak yapılmıştır.

Bunun yanı sıra film envanterinin güvenirliği için öğrencilerin her bir zekâlarına ilişkin olarak film envanterinin sunduğu test ve re-test sıralamaları arasındaki farkın anlamlılığı Wilcoxon İşaretli Sıralar Testi ile test edilmiştir. Analiz SPSS 11.5 versiyonu ile gerçekleştirilmiştir.

Çalışmanın Geçerliliği ve Güvenirliği

Bu çalışma nitel bir araştırmadır. Nitel araştırmada geçerlilik ve güvenirlik konusu tartışılan konular arasında olsa da nitel araştırmalarda da geçerlilik ve güvenirlik olmalıdır. Ancak nicel araştırmalarda kullanılan yöntemlerden farklı yöntemler kullanılmaktadır. Nitel araştırmalarda geçerlilik ve güvenirliğin sağlanması için alınabilecek önlemler vardır (Yıldırım & Şimşek, 2003). Bu kapsamda bu çalışmada da geçerlilik ve güvenirliğin sağlanması için çalışılmıştır ve önlemler alınmıştır.

Dış güvenirlik için özellikle çalışma raporunun üçüncü bölümü olan yöntem bölümü derinlemesine ve detaylı olarak hazırlanmıştır. Katılımcılar çalışmanın her bir aşamasına katılımları bakımından, özellikleri bakımından tanımlanmıştır, çalışmanın yürütüldüğü okullar özellikleri bakımından açıklanmıştır, veri toplama yöntemleri, süreci, analizi detaylı olarak sunulmuştur. Ayrıca tablo ve figürlerle

okuyucuların ve gelecekteki araştırmacıların bu araştırmayı kavramalarına katkıda bulunulmaya çalışılmıştır. Bunun yanı sıra, bu gibi önlemler sadece üçüncü bölümde değil bulgular ve tartışma bölümleri de dâhil olmak üzere diğer bölümlerde de gerçekleştirilmiştir. Ancak, belirtmek gerekir ki, özellikle üçüncü bölüm olan yöntem bölümü sunduğu bilgilerle daha direkt olarak dış güvenirlik için alınan önlemlerin gerektirdiklerini karşılamaktadır.

İç güvenirlik için çalışmanın sonuçları yorum yapılmadan doğrudan ve dolaylı alıntılarla detaylı olarak bölüm dört olan bulgularda sunulmuştur. Bunun yanında, çalışmanın katılımcıları arasında psikoloji, sosyoloji, nöroloji, sosyal pediatri, psikiyatri, eğitim programları ve öğretim alanlarından uzmanlar bulunmaktadır. Bu uzmanlar çalışmanın veri kaynağı olmanın yanı sıra çalışmaya danışmanlıkta sağlamışlardır. Bu kapsamda, çalışma boyunca verilerin toplanması, analizi ve sonuçlar mümkün olduğunca uzmanlarla paylaşılmıştır. Ayrıca, araştırmacı bazı uygulamaları katılımcı öğretmenlerle birlikte gerçekleştirmiştir. Örneğin, hikâye kitaplarının en az birisinin uygulanması, film envanterinin uygulanması, performans değerlendirme kapsamındaki performanslardan en az birinin uygulanmasını birlikte gerçekleştirmişlerdir. Böylece, değerlendirmeleri de birlikte yaptıklarında veri analizinde birden fazla araştırmacının bulunması önlemi bir ölçüde de olsa gerçekleştirilmiştir.

Geçerlilik için araştırmacı araştırma sürecinde formal görüşme formlarına yeni sorular eklemiştir ve informal görüşmelerde kendiliğinden gelişen sorularla gerçekleştirilmiştir. Ayrıca araştırmacı araştırma sürecinde ne zaman yeni veri toplama yöntemlerine ihtiyacı olduysa eklemiştir. Örneğin, öğrenciler için resimli anket araştırmanın başında planlanmadığı halde açık uçlu öğrenci ve veli anketlerinin uygulanması ve sonuçlarının işaret etmesi ile geliştirilmiş ve uygulanmıştır. Diğer bir örnek öğrencilere hikâye envanterindeki karakterler için yeni isimler önermelerinin sorulmasıdır. Bu sorunun sorulması hikâye envanteri için uzman görüşü aldıktan sonra görüşlerinin analizi ile öğrencilerden yeni isim önerileri alma ihtiyacı ortaya çıkmıştır. Bunun yanı sıra araştırmacı ne zaman gerekli olmuşsa o zaman çalışma alanı olan okullara dönebilmiş ve veri toplayabilmiştir. Bunlara ek olarak, veri, veri analizi ve sonuçlar araştırma raporunun yöntem ve bulgular bölümünde net olarak açıklanmıştır.

Bütün bunların yanında, bu çalışmada nitel araştırmada geçerlilik ve güvenirliğin sağlanmasında önemli bir boyut olan üçleme de gerçekleştirilmiştir.

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Çalışmada aynı soruların cevapları çeşitli katılımcılardan veri toplanarak; benzer katılımcılardan farklı zamanlarda veri toplanarak (program uygulama ve gerçekleme aşamasında iki okuldan iki akademik dönem süresince farklı 1., 2. ve 3. sınıflardan aynı verilerin toplanması gibi) gerçekleştirilmiştir. Buna ek olarak, aynı katılımcılardan farklı yöntemlerle veri toplanmıştır, örneğin; görüşmeler, informal görüşmeler, gözlemler, anketler, doküman analizi gibi. Bu boyutu ile bu çalışma yöntembilimsel üçlemeyi de sağlamaktadır. Ayrıca, çalışmanın uzman katılımcıları hem veri kaynağı hem de danışman olarak çalışmada yer almışlardır. Dolayısıyla, veri analizi sonuçları mümkün olduğunca onlarla paylaşılmıştır. Uzmanlar gibi çalışma sürecinde öğretmenlerde mümkün olduğunca hem veri kaynağı hem de araştırmacı gibi rol almışlardır. Sonuç olarak, bu çalışma nitel araştırma ile ilgili alanyazın ışığında geçerlilik ve güvenirliği sağlamaya çalışmıştır.

Ayrıca, programın materyallerinin geçerlilik ve güvenirlik için uzman görüşleri alınmıştır. Uzman görüşleri materyallerin görünüş geçerliliği, içerik geçerliliği ve yapı geçerliliği için kullanılmıştır. Formlar iki 1. sınıf, iki 2. sınıf ve iki 3. sınıf öğretmeni olmak üzere altı öğretmene, Prof.Dr. Ercan Kiraz, Prof.Dr. Ziya Selçuk'a, Prof.Dr. Elif Özmert'e, iki PDR öğretmenine ve bir sosyologa olmak üzere toplam 12 kişiye sunulmuştur. Programı ve materyallerini uzman görüş formlarını kullanarak incelemişler ve değerlendirmişlerdir.

Ayrıca geliştirilen programın güvenirliği için programın sonuç olarak her bir öğrenci için sunduğu çoklu zekâ profilini oluşturan zekâlarının sıralaması ile öğretmenlerin her bir öğrencisinin çoklu zekâ profilini oluşturan sıralamaları arasındaki ilişki Spearman Sıra Farkları Korelasyon Katsayısı ile hesaplanmıştır. Bunun yanı sıra film envanterinin güvenirliği için öğrencilerin her bir zekâlarına ilişkin olarak film envanterinin sunduğu test ve tekrar test sıralamaları arasındaki farkın anlamlılığı Wilcoxon işaretli sıralar testi ile test edilmiştir.

Varsayımlar

Çalışmanın katılımcılarının çalışma süresince dürüst ve doğru bilgi sağladıkları ve bilgilerin araştırmacı tarafından doğru olarak kaydedilerek, özetlendiği varsayılmaktadır.

Sınırlamalar

Bu çalışma biri özel biri devlet olmak üzere iki ilköğretim okulu 1., 2. ve 3. sınıf öğrencileri, öğretmenleri ve velileri; resim, müzik ve beden eğitimi branşlarından olmak üzere üç branş öğretmeni; araç geliştiriciler; Çoklu Zekâ Kuramı, psikoloji, sosyoloji, sosyal pediatri, nöroloji, psikiyatri ve çocuk nöroloji alanlarından uzmanları içeren farklı katılımcı grupları ile sınırlanmıştır.

Sınırlılıklar

Çalışma iki okulda gerçekleştirilmiştir ve katılımcılar amaçlı örneklem yöntemleri ile belirlenmiştir. Bu nedenle çalışmanın bulguları genellenememektedir. Dolayısıyla bu durum çalışmanın güvenirliğini kısmen tehdit etmektedir. Araştırmacı araştırmada katılımcı gözlemci rolüne sahiptir. Öğrenciler bu duruma kısa sürede alışmış ve araştırmacıyı branş öğretmenlerinden birisi gibi kabullenmişseler de araştırmacının muhtemel etkileri söz konusu edilebilir. Bu durumda çalışmanın iç geçerliliğine bir ölçüde tehdit oluşturmaktadır.

Araştırmacının gözlemlerinin geçerliliği için sınıf öğretmenleri dışında bir başka gözlemcinin olmaması çalışmanın önemli bir diğer sınırlılığıdır. Ayrıca çalışma süresi açısından uzunca bir çalışma özelliği göstermektedir bu nedenle çalışma sürecinde bazı uygulamalarda katılımcıların bulunamaması çalışmada bazı problemlere yol açmıştır.

Bunların yanı sıra, sınırlılıklardan birisi de muhtemel bazı istatistiksel, niceliksel verilerin toplanamamış ve analiz edilememiş olmasıdır. Bu kapsamda, programın dört materyali arasında korelasyonun hesaplanması ile eş zamanlı geçerliliğe bakılabileceği çalışma sürecinde gündeme gelmiştir. Ancak her bir materyal her bir zekânın farklı bir boyutunu değerlendirmeye yönelik hazırlandığından aralarındaki korelasyonun varlığı ya da yokluğu ya da derecesi bir sonucun ve dolayısıyla yorumun temelini oluşturamayacağından bu gerçekleştirilememiştir. Yani materyaller her bir zekânın farklı bir boyutunu değerlendirmeye ve değerlendirdiği boyutta bilgi sağlamaya yönelik geliştirilmiştir. Dolayısıyla aralarındaki korelasyon materyallerin geçerliliğine yönelik bir bilgi sunamayacaktır. Aslında bu her ne kadar sınırlılık olarak ifade edilmekte olsa da programın geliştirilmesinde ve buna bağlı olarak materyallerin geliştirilmesinde bir zekânın farklı boyutlarının varlığı ve farklı sergilenmeleri gerçeğinden yola çıkılarak

hazırlanmıştır. Bunun yanı sıra çok daha net ifade edilebilecek bir sınırlılık mevcuttur. Bu sınırlılık bu programın eş değeri bir programın olmayışıdır. Dolayısıyla ölçüt bağımlı geçerliliğe yönelik bir analiz gerçekleştirilememiştir.

Güvenirlik amaçlı olarak test tekrar test sadece film envanteri için gerçekleştirilebilmiştir. Her bir materyal için gerçekleştirilememiştir. Bunun en önemli sebebi materyallerin uygulamalarının uzun zaman alması diğer bir ifade ile zaman sınırlılığı. Bu çalışma kapsamındaki uygulamalar çalışmanın yürütüldüğü sınıflardaki eğitim ve öğretim faaliyetlerini engellemeyecek zamanlarda gerçekleştirilmiştir. Dolayısıyla test tekrar test uygulamak faaliyetlerini aksatabileceğinden uygulanabilir olamamıştır. Ayrıca, materyallerin özellikleri de uygulanacak grup olan öğrenciler açısından yeniden uygulanmaya elverişli gözükmemiştir. Şöyle ki, hikâye envanteri yedi kitaptan oluşmaktadır. Öğrenciler her sınıf seviyesinde ortalama ikinci kitaptan itibaren hikaye envanterinde kullanılan karakterleri tanımış ve bu karakterlerin çevresinde yeni bir içerikle karşılarına çıkacak sıradaki kitabı bekler duruma gelmişlerdir. Aynı öğrencilere aynı hikayeleri yeniden okutmak ve uygulamak bu sebeple de uygun olmamıştır. Benzer şekilde performans değerlendirme yönteminde de üç farklı performans etkinliği bulunmaktadır. Öğrenciler her etkinlik gerçekleştireceklerinde yeni ve farklı bir etkinlik yapacakları beklentisinde olmuşlardır ve istekleri de performans değerlendirmenin yapısı gereği yeni ve farklı etkinlik sunularak karşılanmıştır. Dolayısıyla aynı performans etkinliklerinin aynı öğrencilerce ikinci kez gerçekleştirilmesi yine uygun görülmemiştir. Veli anketi ise oldukça uzun ve velilerin zamanını alan bir materyaldir. Velilerden aynı anketi ikinci kez doldurmalarının istenmesi çok sağlıklı olmayacağından uygulanmamıştır. Bunun yanı sıra, güvenirlik için performans değerlendirme yönteminin güvenirliği için gözlemciler arası test etme yapılabileceği gündeme gelmiş ancak çoğu kez araştırmacı performans değerlendirme etkinliklerini tek başına uygulamak ve değerlendirmek durumunda kalmıştır. Performans değerlendirmelerin uygulama ve değerlendirme süreçlerinde öğretmenlerden genelde sözel olarak informal katkı sağlanabilmiştir. Bu nedenle gözlemciler arası test etme gerçekleştirilememiştir.

BULGULAR

Bu çalışmanın bulguları program geliştirme süreci aşamalarını takip ederek ve organize edilmiştir.

İhtiyaç Analizi

Veri analizi öğretmenlerin öğrencilerinin çoklu zekâ profillerini belirlemek için yedi temel amaçlarının bulunduğunu göstermiştir. Bunlar;

1. öğrencileri çoklu zekâlarından oluşan çoklu zekâ profillerinin etkilediği, yansıdığı özelliklerini detaylı ve derinlemesine tanımak,

2. öğrencilerinin güçlü ve zayıf yetenekleri hakkında bilgi sahibi olmak,

3. öğrenme sürecinde problem yaşayan, zorlukla karşılaşan öğrencilere baskın zekâlarına seslenerek yardım etmek,

4. branş öğretmenlerini, ailelerini, öğrencilerin kendilerini, rehberlik ve psikolojik danışmanlarını ve bu kapsamda diğer ilgili kişileri gerektiğinde öğrencinin çoklu zekâlarından oluşan zekâ profili hakkında bilgilendirmek,

5. öğrencilerin çoklu zekâ profillerine göre sınıfı etkili ve verimli yönetmek,

6. öğrencilere boş zaman aktiviteleri önermek,

7. Çoklu Zekâ Kuramını kavramak.

Ayrıca, ihtiyaç analizinde öğretmenlerin öğrencilerinin çoklu zekâlarını belirlemek için kullandıkları yöntemler belirlenmiş, bu yöntemlerin güçlü ve zayıf yönleri ortaya koyularak geliştirecek programa yönelik öneriler ortaya çıkarılmıştır. Veri analizi öğretmenlerin öğrencilerinin çoklu zekâlarını belirlemeye amacıyla kullandığı beş yöntemi ortaya koymuştur. Bunlar; (1) gözlem yapmak, (2) araç/envanter kullanmak, (3) velilerle, branş öğretmenleri ile ve öğrencilerle görüşmeler yapmak, (4) doküman analizi ve (5) çoklu yöntem kullanmaktır. Ayrıca, veri analizi her bir yöntemin güçlü ve zayıf yönleri olduğunu da ortaya koymuştur. Bunun yanı sıra ihtiyaç analizi sonuçları en uygun ve doğru yöntemin çoklu yöntem kullanımının olduğunu işaret etmektedir. Buna ek olarak veri analizi her bir yöntem için katılımcıların önerilerini sunmaktadır.

Program Tasarımı

Program tasarımı aşaması geliştirilecek programın materyalleri ile birlikte özelliklerinin neler olmasının gerektiğini araştırmakta ve ulaşacağı sonuçlarla programı materyalleri ile birlikte geliştirmeyi amaçlamaktadır. Daha özelleştirilerek ifade edilirse, program tasarım aşamasında geliştirilecek programın içeriğine ve özelliklerine yönelik veri toplanmış, analiz edilmiş, elde edilen sonuçlarla program oluşturulmuştur.

Program tasarım aşaması ihtiyaç analizinin sonuçları üzerine yapılandırılmış dolayısıyla çoklu zekâları belirleme ve değerlendirmek için belirlenen amaçlara hizmet edecek en doğru metodun çoklu yöntem kullanımı olmasından yola çıkarak öncelikle programı oluşturacak olan metotların içerik ve özelliklerini oluşturacak veri elde edilmeye çalışılmıştır. Bu kapsamda öncelikle katılımcı bütün 1., 2. ve 3. sınıf öğrencilerinden ve diğer katılımcılardan bu yaş çocuklarının özellikleri hakkında veri toplanmıştır. Bu veriler, bu çocukların, okulda ve evde gerçekleştirdikleri etkinlikler, izledikleri TV programları, okudukları kitaplar, zaman geçirdikleri mekânlar, öğrenme etkinlikleri, ödevleri, oynadıkları oyunlar, gelecekteki meslekleri gibi belirlenen kategoriler altında geniş bir bakış açısı ile toplanmıştır. Toplanan veriler ikinci kez ve bu defa odak grup öğrencileri açısından yeniden analiz edilmiştir. Veri analizi, üç ana kategoride sonuç sunmuştur; (1) İlgiler ve Çerçeve, (2) Çoklu Zekâların Özellikleri, (3) Görsel Boyutlar. Bu kategorilerin anlamları şöyledir; ilgiler ve çerçeve kategorisi 1., 2. ve 3. sınıf çocuklarının genel olarak hoşlandıkları, ilgilendikleri temaları, unsurları ve dolayısıyla programa ve materyallere arka plan / fon, çerçeve oluşturabilecek özellikleri ortaya koymuştur. Bu kategorideki sonuçlar çoklu zekâlara göre ayrışmamış genel bir eğilimi ortaya koymuştur. Örneğin; 1., 2. ve 3. sınıf öğrencilerinin çizgi film izlemekten hoşlandıkları, çizgi filmlerde genelde Şirinler gibi karakter topluluklarının çevresinde gerçekleşen olayları izlemekten hoşlandıkları, okumalarının ağırlıklı masallardan oluştuğu gibi. İkinci kategori ise özellikle toplanan verilerde odak grubu oluşturan öğrencilere dair olanların belirgin farklılık gösterdiğini ortaya koyan unsurları sunmaktadır. Örneğin; en iyi öğrendikleri öğrenme etkinlilerinin, başarılı olduğu ev ödevlerinin, zaman geçirdiği mekânların baskın zekâsına göre farklılaşması gibi. Üçüncü kategori olan görsel boyutlar ise 1., 2. ve 3. sınıf öğrencilerinin hoşlandıkları, sevdikleri renkler ve geometrik şekilleri ortaya koymaktadır. İşte bu üç kategoriden elde edilen sonuçlar temel alınarak özellikle çoklu zekâların özelliklerinin odakta ve içeriği oluşturduğu program materyalleri geliştirme süreci bu aşamada gerçekleştirilmiştir. Veri analizi çoklu zekâların özelliklerinin içeriği oluşturabileceği çerçevesini ve görsel boyutunu da diğer kategorilerin oluşturabileceği, dört materyal geliştirmeyi işaret etmiştir. Bu kapsamda, geliştirilen materyaller ve özellikleri şöyledir;

Veli Bilgi Anketi

Veli Bilgi Anketinin amacı öğrencilerin çoklu zekâlarını velilerin bakış açısından, görüşünden yararlanarak değerlendirmektir. Anket beş bölümden oluşmaktadır. Birinci bölüm, öğrencinin kimlik ve aile bilgilerini belirlemeye yöneliktir. İkinci bölüm, öğrencinin daha önce devam ettiği okul ve kurslar hakkında bilgi almaya yöneliktir. Bu bölümdeki bilgiler öğrencinin çoklu zekâları hakkında öğretmenin bireysel görüşünü bildirirken kullanabileceği bilgilerdir. Yani, öğrencinin yetenekleri doğrultusunda çıkarım yapabileceği okul ve kurs bilgileri varsa onları edinmesine yöneliktir. Üçüncü bölüm, öğrencilerin sağlık bilgilerini belirlemeye yöneliktir. Ancak, edinilecek olan sağlık bilgileri çoklu zekâ kuramı ile kısmen ilişkili olabilecekleri kapsamaktadır. Dördüncü bölüm, öğrencinin sosyal ve duygusal bilgilerinin belirlenmesine yöneliktir.

Bölüm beş, öğrencilerin çoklu zekâları hakkında fonda farklı etkinliklerin bulunduğu sorularla aileden bilgi edinmeye yöneliktir. Bu bölümde veli bilgi anketinin çoklu zekâlarla ilişkisinin en yoğun ve en doğrudan olduğu bölümdür. Bu bölümün dört alt bölümü bulunmaktadır. Her alt bölümde bir durum vardır ve o durumda öğrencinin çoklu zekâları ile özelleşmiş seçenekler bulunmaktadır. Veliden çocuğuna uygun olarak bu seçenekleri sıralamaları istenmektedir.

Film Envanteri

"Film Envanteri" öğrencilerin izleyecekleri bir film sonrasında filmin karelerinden oluşturulmuş kolajları kapsamaktadır. Filmden her bir zekânın özelliklerini içeren ya da çağrıştıran karelerden kolaj yapılmıştır. Toplamda sekiz kare vardır. Bu envanterle görsel ve işitsel bir araçla da öğrencinin çoklu zekâları hakkında öğrencinin verilen yönerge doğrultusunda yapacağı kendi sıralamalarına dayanarak bilgi edinilmeye çalışmaktadır.

Hikâye Envanteri

"Sekiz Zekiler Hikâye Envanteri" 7 hikâye kitabından ve sekiz resimli değerlendirme yaprağından oluşmaktadır. Envanterde sekiz zekiler adında her biri bir zekâ ile eşleşmiş sekiz karakter bulunmaktadır. Her bir hikâye kitabı öğrenci tarafından okunmaktadır. Okunan her bir hikâye kitabı sonrasında öğretmen tarafından kendilerine ilgili hikâyeye ilişkin resimli bir değerlendirme yaprağı verilmektedir. Bu yaprakta sekiz kahramanın ilgili hikâyede gerçekleştirdiği

eylemleri hatırlatan ve hikâyede de kullanılan resim ya da resimler bulunmaktadır. "Sekiz Zekiler Hikâye" envanterinin son basamağında resimli bir değerlendirme yaprağı daha vardır. Bu yaprak tüm hikâyeler okunduktan sonra uygulanabilir bir değerlendirme yaprağıdır. Sekiz kahramanın resmini içermekte ve öğrencilerden son bir sıralama yaprağı istenmektedir.

Performans Değerlendirme

Performans değerlendirme öğrencinin performansının öğretmen tarafından çoklu zekâları açısından değerlendirmesini kapsamaktadır. Bu değerlendirmenin içeriğinde dört değerlendirme formu ve yönergeleri bulunmaktadır. Öğretmen bu değerlendirmeleri öğrencinin gerçekleştireceği üç özelleşmiş performans ve bir de o güne kadar kendi gözlemleri doğrultusunda oluşan kanaati ile yapacaktır. Özelleşmiş olan üç performans "Sekiz Zekiler Hikâye Seti"ndeki ilk üç hikâye ile ilişkilidir. 1 Sekiz Zekiler Şenlik Hazırlıyor, 2 Sekiz Zekiler Hediye Hazırlıyor ve 3 Sekiz Zekiler Oyun Oynuyor adlı hikâyelerdeki içerik bu üç performansın içeriğini oluşturmaktadır.

Program Uygulama ve Gerçekleme

Bu aşamada programın güçlü ve zayıf yönlerinin tespiti ile güçlü yönlerinin korunarak zayıf yönlerinin giderilmesine yönelik değişikliklerin yapılması ve yapılan değişikliklerin etkililiğinin ortaya konulması amaçlanmaktadır. Veri analizi programın her bir unsuru ile ilgili güçlü ve zayıf yönleri ve zayıf yönlerin giderilmesi için değişiklikler ortaya çıkarmıştır. Ayrıca veri analizi işe koşulan değişikliklerin etkililiğini ortaya koyarak çoğunluğunun etkili olduğunu işaret etmektedir. Programın her bir unsuruna ilişkin sonuçlar aşağıdaki figürlerle özetlenmiştir.

Figür 2Program Uygulama ve Gerçekleme Aşamasında Program Kılavuzuna İlişkin Sonuçlar
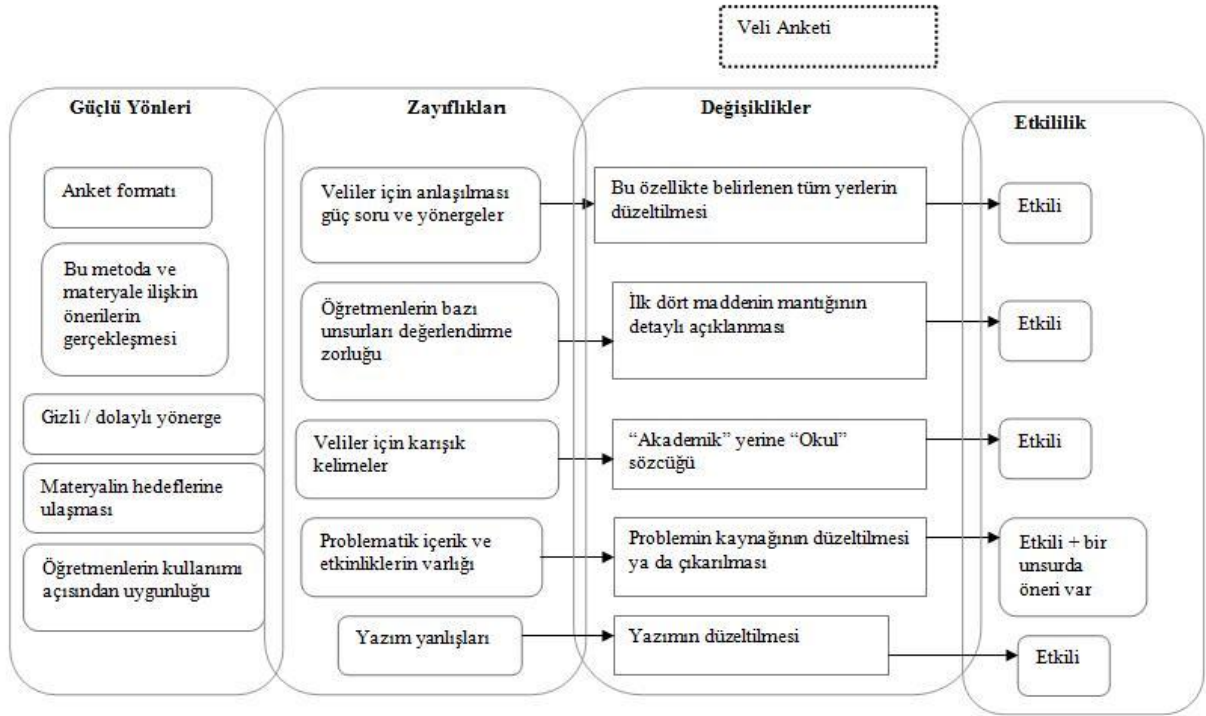
Figür 3Program Uygulama ve Gerçekleme Aşamasında Veli Anketine İlişkin Sonuçlar

Figüre 4 Program Uygulama ve Gerçekleme Aşamasında Hikâye Envanterine İlişkin Sonuçlar

Güçlü Yönleri

Anlamlı kombinasyon

Bu metoda ve materyale ilişkin önerilerin gerçekleşmesi

Amaca uygunluk

Öğretmen kullanımına uygunluğu

1., 2., 3. sınıf öğrencilerinin özelliklerine uygun

Zayıflıkları

Materyal

Karışık sözcükler

Uygulama güçlüğü

Değişiklikler

Kayıt için alternatif yöntemler önerilmesi

Müsamere yerine şenlik
Dizayn yerine yeniden düzen
Performans yerine etkinlik

Etkililiği

Etkili

Etkili

Değişim yapılamadı

Figür 5 Program Uygulama ve Gerçekleme Aşamasında Performans Değerlendirmeye İlişkin Sonuçlar

Film Envanteri

Güçlü Yönleri

Bu metoda ve materyale ilişkin önerilerin gerçekleşmesi

Materyalin hedeflerine ulaşması

1., 2., 3. sınıf öğrencileri açısından uygunluğu

Zayıflıkları

Kolaj parçalarının sürelerinin eşitsizliği

Değişiklikler

Kolaj parçalarının sürelerinin yaklaşık birer dakikada eşitlenmesi

Etkililiği

Etkili
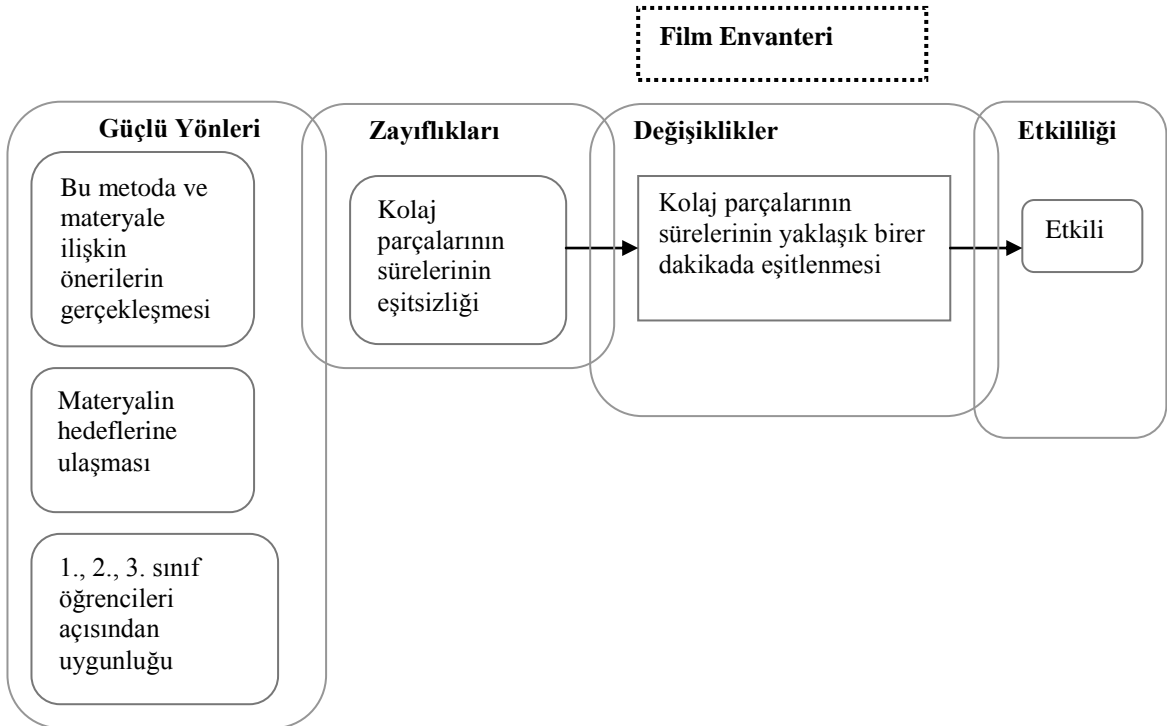
Figür 6 Program Uygulama ve Gerçekleme Aşamasında Hikaye Envanterine İlişkin Sonuçlar
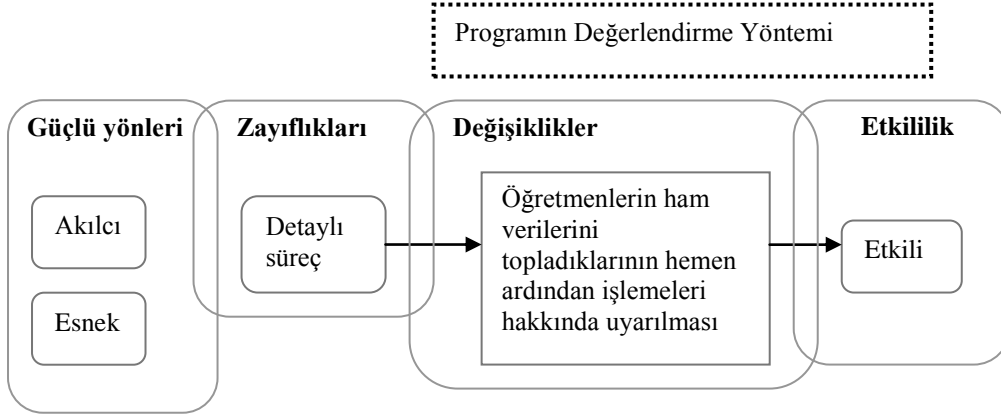
Figür 7 Program Uygulama ve Gerçekleme Aşamasında Programın Değerlendirme Yöntemine İlişkin Sonuçlar

Sonuç Değerlendirme

Sonuç değerlendirme aşamasında programın geleceğine ilişkin üç seçenekten birinde karar verme amaçlanmıştır. Bu seçenekler; (1) programda hiçbir değişiklik yapılmadan uygulanması ve uygulamaya devam edilmesi, (2) programda geliştirici değişiklikler yapı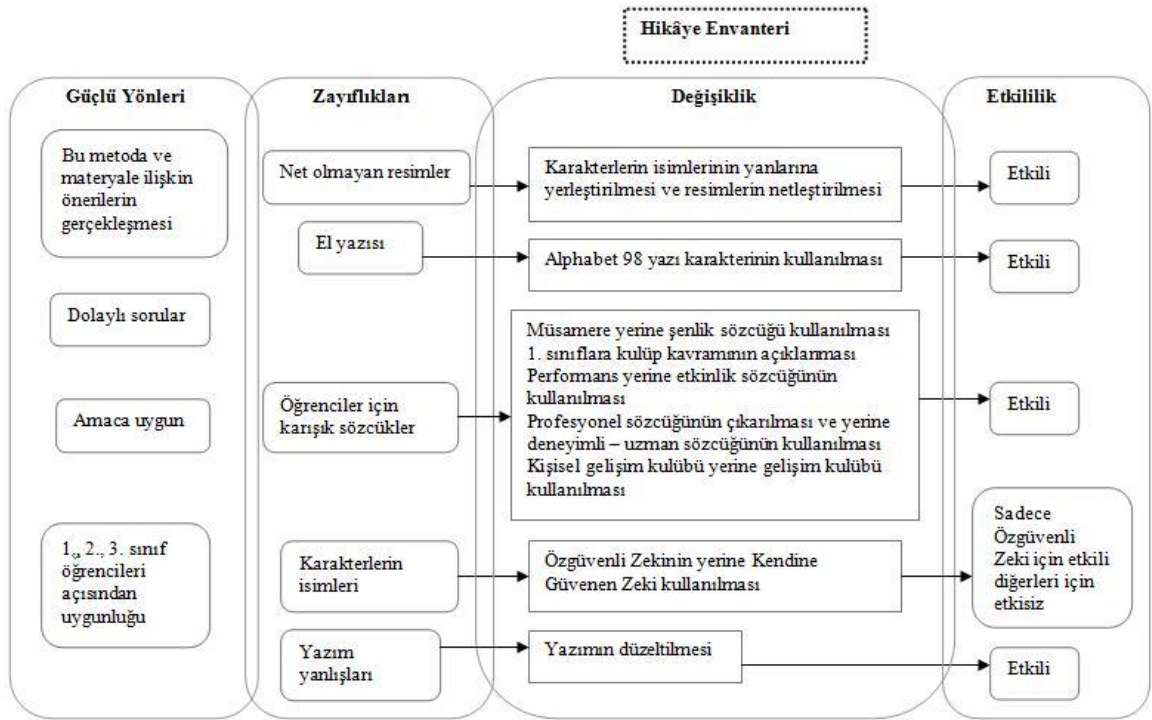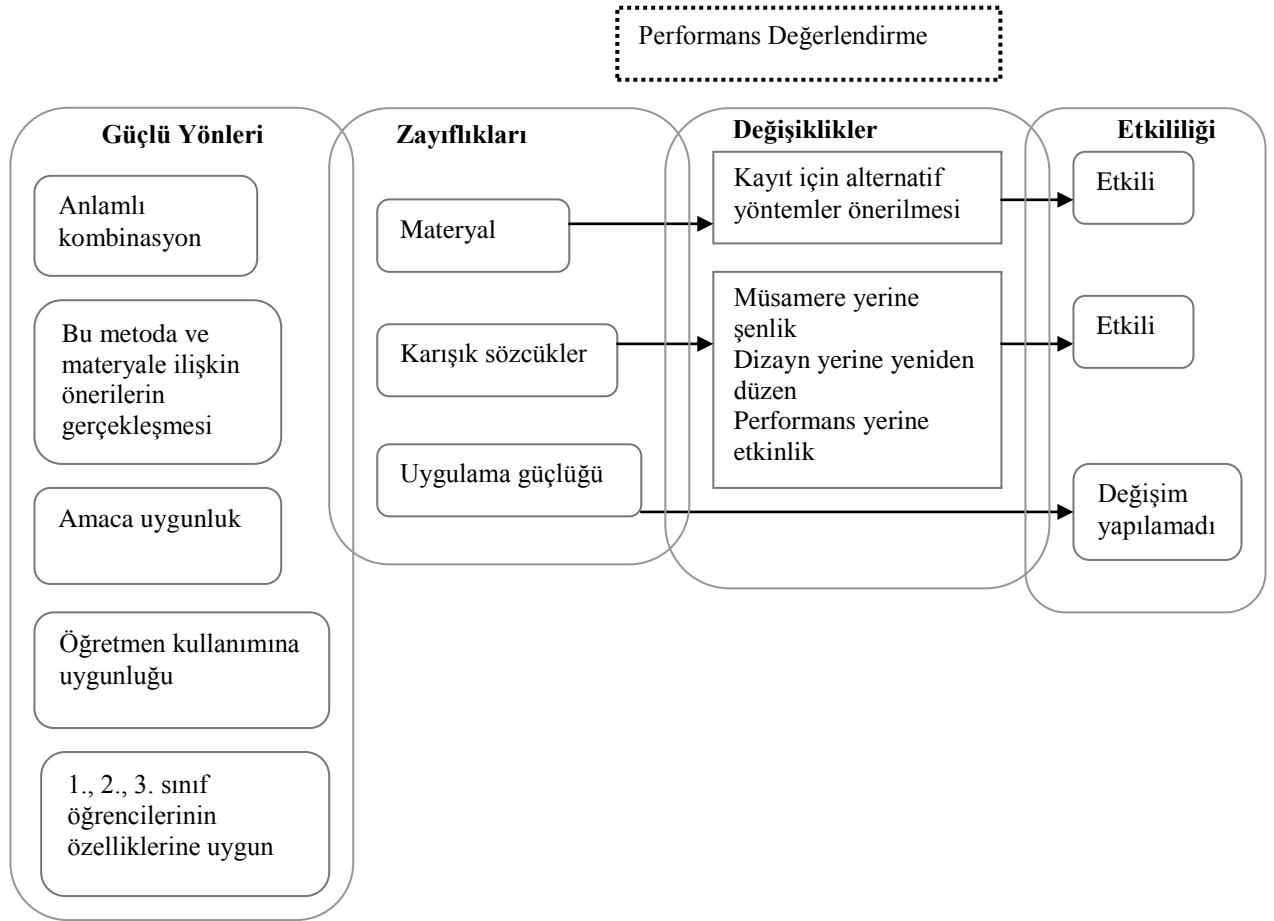larak uygulanmaya devam edilmesi, (3) programın uygulanmamasıdır. Sonuç değerlendirme aşamasına ilişkin veri analizi bu araştırmanın başında amaçlanan hedeflerin çoğuna büyük ölçüde ulaşıldığını işaret etmektedir. Katılımcıların programın amaçlanan hedeflerinden büyük ölçüde gerçekleştiğini işaret ettikleri şunlardır;

a) Bilimsel geliştirilmesi

b) Sonuç yaklaşımı odaklı değil süreç odaklı yaklaşıma sahip olması

c) Uygulayıcılar için rehber bilgi ve anlaşılır rota yönergesi sunması

d) Uygulamasının kolay olması

e) Uygulamasının pratik olması

f) Öğretmenler için anlaşılır sonuçlar sunması

g) Uygulayıcılar için sıkıcı olmaması

h) Öğrencilerin çoklu zekâ profillerini belirlemek için olabildiğince yeterli olması

ı) Materyal ve zaman açısından ekonomik olması

i) Sadece öğretmenler tarafından doldurulacak çok fazla form içermemesi

j) Çocukların çoklu zekâlarını belirlemek için etkili ve verimli yolları bir araya getirmesi

k) Veri üçlemesi sunması ve böylece birbirinin sonuçlarını güçlendirmesi ve zayıflıklarını gidermesi

l) Sadece baskın zekâlara değil aynı zamanda zayıf zekâlara da odaklanması,

m) Olabildiğince zekâlara eşdeğerde önem vermesi

n) Sayısal sonuçlar sunmaması

o) Etiketleme üretmemesi

ö) Kültürel boyutları dikkate alması

Bunun yanı sıra, veri analizi programın geleceğine ilişkin kararın programda geliştirici değişiklikler yapılarak devam edilmesi ve uygulanması olduğunu işaret etmektedir.

Ayrıca, geliştirilen programın güvenirliği için programın sonuç olarak her bir öğrenci için sunduğu çoklu zekâ profilini oluşturan zekâlarının sıralaması ile öğretmenlerin her bir öğrencisinin çoklu zekâ profilini oluşturan sıralamaları arasındaki ilişki Spearman Sıra Farkları Korelasyon Katsayısı ile hesaplanmıştır. Analize göre programın sonuç olarak her bir öğrenci için sunduğu çoklu zekâ profilini oluşturan zekâlarının sıralaması ile öğretmenlerin her bir öğrencisinin çoklu zekâ profilini oluşturan sıralamaları arasındaki ilişki Spearman Sıra Farkları Korelasyon Katsayısına göre anlamlıdır ($p < 0.01$). Bunun yanı sıra Spearman rho matematiksel mantıksal ve bedensel kinestetik zekâlar için öğretmen sıralaması ile programın sıralaması arasında korelasyonun yüksek diğer zekâlar içinse orta olduğunu göstermektedir.

SONUÇ

Zekâ yıllardan beri üzerinde çalışılan popüler araştırma konularından biridir. Buna paralel olarak zekâ testleri, zekâ ölçümleri de zekâ kavramının ve zekâ kuramlarının ilk öne sürüldüğünden beri popüler araştırma konularından biri olagelmiştir. Bunun yanı sıra alanyazında çeşitli zekâ tanımları, kuramları ve yaklaşımları ile birlikte bir o kadarda zekânın ölçme ve test edilmesine ilişkin yöntem ve yaklaşım bulunmaktadır.

Çağdaş bilişsel zekâ kuramlarından birisi de bu çalışmanın odağında olan ve çalışmanın temelini oluşturan 1983 yılında Howard Gardner tarafından geliştirilmiş olan Çoklu Zekâ Kuramı'dır. Tekil bir zekâdan bahseden ve bu tekil zekâyı da g faktörü ile açıklayan IQ temelli yaklaşımın aksine Çoklu Zekâ Kuramı sekiz zekâ ileri sürmektedir. Çoklu Zekâ Kuramının kuramcısı Gardner'ın bu konudaki birçok açıklamasına alanyazında ulaşmak mümkündür ancak 2008'de şu cümleyi ifade etmiştir; "Bir beden herkese uyar, yaklaşımı artık nadiren işlemektedir." (2008, s. 77). Aslında bu ifadesi ile Çoklu Zekâ Kuramına dair çıkarımlar yapılabilir ve zekâyı tekil gören yaklaşımlara bir cümle ile özet bir eleştiri yapılmış olarak değerlendirilebilir. Ancak bu cümle sadece bunları değil aynı zamanda içinde yaşadığımız zamanın bilim ve teknolojideki değişimi, gelişimi, sonuçları ve bunların hayatımıza yansımalarını da işaret etmektedir. Bilim ve teknolojideki ilerlemeler doğrultusundaki yansımalarla yeniden bilimde çalışmalar yapılmakta ve onların sonuçlarının yeniden yansıması ile sonsuz bir döngü içinde gelişim ve ilerleme devam etmektedir. Zekânın tekil olmadığı sonucu da bu döngünün bir ürünüdür aslında. İşte Gardner'ın cümlesindeki "bir bedenin herkese uyması" tabiri zekânın doğası ve tanımı içinde geçerliliğini yitirmiştir. Sonuç olarak Gardner'ın Çoklu Zekâ Kuramı da sekiz zekâ ileri sürmektedir; sözel dilsel zekâ, matematiksel mantıksal zekâ, görsel uzamsal zekâ, bedensel kinestetik zekâ, müziksel ritmik zekâ, kişilerarası zekâ, içsel zekâ (Gardner, 1983, 1993, 1999; Moran, Kornhaber & Gardner, 2006), doğasal zekâ (Gardner, 1993, 1999; Moran, Kornhaber & Gardner, 2006) ve aday zekâ olarak tanımlanan varoluşsal zekâ (Gardner, 1983, 1993, 1999; Moran, Kornhaber & Gardner, 2006).

Böylesine bir kuramın IQ testleri ile zekânın ölçülebileceğini, değerlendirilebileceğini kabul etmesi de söz konusu değildir elbette. Ancak, bu durum bireyin çoklu zekâlarından oluşan zekâ profilinin belirlenemeyeceği, değerlendirilemeyeceği anlamına gelmemektedir. Bu kapsamda bilimsel olan ve olmayan alanyazında ve medyada çoklu zekâları değerlendirmek, belirlemek amacıyla çeşitli yöntemlere rastlamak mümkündür. Bunun yanı sıra Çoklu Zekâ Kuramının eğitimde yansımalarının sunulması ile birlikte bu belirleme metotlarına eğitimciler de diğer ilgilenen bireyler gibi ilgi göstermektedir. Ancak şüphe ile yaklaşmadan!

Bu konuda Armstrong (2002) çoklu zekâları değerlendirmek amaçlı çeşitli yöntemlerin ve test, anket gibi araçların kitaplarda, dergilerde, internetlerde bulunabileceğini belirtirken bir de uyarıda bulunmaktadır "Piyasada öğrencilerinizin çoklu zekâları için kapsamlı bir mega test yok" (s.21) ve eğitimcilerin her öğrencinin sekiz zekâsını bar grafikleri ile 15 dakika içinde gösteren internet ortamlı testlere karşı şüpheci olmaları gerektiğini eklemektedir. İşte bu kapsamda, üstelik bilimsel yöntemlerle ve bilimsel sorumlulukla geliştirilmiş olan Çoklu Zekâ Kuramının ileri sürdüğü sekiz zekâ başta bilimsel olmayan ve bunun yanı sıra birçok riski de beraberinde getiren, bulunduran yöntemlerin, materyallerin varlığı ve talep görmesi bir problemdir. Bu durum bir gerçeğe de işaret etmektedir ki bu çalışmanın bulguları da bu gerçeği destekler niteliktedir. O da şudur; öğretmenlerin öğrencilerinin çoklu zekâlarını belirleme amaçları vardır ve dolayısıyla ihtiyaçları vardır. Bu ihtiyaçlarını bu riskleri taşıyan mevcut materyallerle karşılamaya çalışmaktadırlar.

Çoklu Zekâ Kuramı çoklu yaklaşım temellidir. Bunu Gardner'ın popüler zekâ tanımlarından birinde de açıkça görmek mümkündür; "… bir ya da birden fazla kültürde değer bulan bir ürün ortaya koyabilme ya da kişinin problem çözmesini sağlayan yetenek ya da yetenekler setidir" (1983, p.x). Bu kapsamda, problem çözmenin ve bir ürün ortaya koymanın birden fazla yolu olduğuna göre zekâ çeşitli yollarla sergilenebilir sonucuna varmak mümkündür. Bu zekâ/larda tek bir standart yöntemle belirlenemez ve değerlendirilemez. Bu çalışmanın sonuçlarından birisi de birden fazla yöntemin varlığı ve en iyisinin de çoklu yöntem yani çeşitli yöntemlerin birlikte işe koşulması olduğudur. Bu çalışmada nasıl birlikte işe koşulacağı da araştırılmıştır. Özellikle içerik ve yöntemlerin özellikleri üzerine durulmuştur çünkü her bir zekânın farklı ve çeşitli şekillerde sergilenmeleri mümkündür.

Sternberg (1997) Çoklu Zekâ Kuramının özellikleri ile kendi triarşik kuramını karşılaştırırken Gardner'ın zekâların sembolik domainleri (sözel, müziksel gibi) ile ilgilendiğini, kendi triarşik kuramının (analitik, yaratıcı, pratik) ise bu domainlerin uygulama süreçleri ile ilgilendiğini belirtmiştir. Bu konuda örnekte vermiştir; sözel dilsel zekâ bir eleştiri yazısı yazarken analitiksel uygulanabilir; şiir yazarken yaratıcı uygulanabilir; ya da bir reklam metni hazırlanırken pratiksel olabilir.

Bu kapsamda, Çoklu Zekâ Kuramının tüm bireylerin çoklu zekâlara sahip olduğu ilkesi bu çalışma tarafından bilinirken nasıl ve hangi içerikle zekâların

domainleri gözlenebilir, belirlenebilir sorularının cevapları bu çalışma için belirsizken verilerin analizi ile belirlenmiştir. Sonuç olarak bu çalışmada Gardner'ın ve alanyazının çoklu zekâları belirleme amaçlı mevcut yöntem ve araçlarla ilgili uyarıları dikkate alınarak, çoklu zekâları değerlendirme amaçlı bir program geliştirme süreci ortaya koyulmuştur. Bu çalışma Gardner'ın çeşitli ifadelerinde belirttiği zekâlara eşdeğerde önem veren, her bir zekânın birden fazla materyalle ve yöntemle değerlendirilebileceği inancını karşılayan bir program ortaya koymuştur. Ancak programlarda canlıdır ve dolayısıyla süreklilik gösteren aktif gelişim göstermelidir, bu nedenle programın geleceği hakkındaki seçenek geliştirilerek uygulanmaya devam edilmesidir.

ÖNERİLER

Bu çalışmanın sonuçları temel alınarak çoklu zekâları belirleme ve değerlendirme alanının gelişimi için ve ileride yapılacak araştırmalar için öneriler yapılmıştır. Bu öneriler aşağıda özetlenmektedir.

Çoklu Zekâları Belirleme ve Değerlendirme Alanına Yönelik Öneriler

1. Çalışmanın alanyazın taraması çoklu zekâları belirleme ve değerlendirme amacı ile kullanılan mevcut yolların riskleri bulunduğunu göstermektedir. Bunun yanı sıra bu çalışmanın ihtiyaç analizi de benzer şekilde mevcut yöntemlerin risklerini ve zayıf boyutlarını ortaya koymuştur. Ayrıca bu araştırma bir eylem araştırması olarak gerçekleştirilerek 1., 2. ve 3. sınıf öğrencilerinin çoklu zekâ profillerini belirlemek için bir program geliştirme sürecini ve bu sürece program geliştirmenin her bir aşamasının nasıl katkıda bulunduğunu ortaya koymuştur. Böylece mevcut zayıflıklardan ve risklerden kaçınabilmiştir. Dolayısıyla, çoklu zekâ profillerini belirlemeyi amaç edinmiş yöntem ve materyallerin geliştirilmesi araştırma temelli süreç olmalıdır, diğer türlü riskli boyutlarla ve muhtemel risklerle karşılaşılabilir.

2. Çalışmanın alanyazın taraması göstermektedir ki Çoklu Zekâ Kuramı deneyimsel psikoloji, bilişsel psikoloji, gelişimsel psikoloji, nöroloji, antropoloji, genetik gibi alanları içine alan geniş bir kanıta dayanmaktadır. Bu kapsamda, Gardner ve Moran (2006) Çoklu Zekâ Kuramının disiplinlerarası yaklaşımı

gerektirdiğini de belirtmiştir. Bu çalışmanın da katılımcıları arasında psikoloji, sosyoloji, nöroloji, sosyal pediatri, psikiyatri alanlarından katılımcılar bulunmuştur. Bu katılımcılarla görüşmeler yapılmış ve bazılarından çalışma süresince danışmanlık alınmıştır. Bu katılımcıların çalışmaya değerli katkıları olmuştur. Bu kapsamda, biliş, zekâ ve özellikle Çoklu Zekâ Kuramı üzerine yapılacak çalışmalar disiplinlerarası gruplarla gerçekleştirilmelidir. Bu grupların içinde psikoloji, sosyoloji, tıp alanından bilim adamları olmalıdır.

3. Çalışmanın uzman katılımcılarından birisi de çocuk nöroloğudur. Çalışmanın bulguları arasında da yer verildiği gibi çocuk nöroloğu uzman kendinin ve meslektaşlarının Çoklu Zekâ Kuramını kabul ettikleri halde halen IQ testleri kullanmak durumunda olduklarını belirmiştir. Okullardan, rehberlik merkezlerinden bazı öğrencilerin zekâları hakkında rapor için kendilerine gönderildiklerini ve raporlayabilmek adına da bir test kullanma gerekliliği ile IQ testlerini kullandıklarını belirtmektedir. Bu kapsamda kullandıkları testlerle öğrencilerin Çoklu Zekâ Kuramı ile açıklanabilecek güçlü özellikleri hakkında ipuçları görseler de geçerli, güvenilir bir materyal ya da program olmadığından bunu raporlayamadıklarını belirtmişlerdir. Bu kapsamda Çoklu Zekâ Kuramı çocuk nörolojisi dâhil olmak üzere diğer alanlara da tanıştırılmalı ve bu çalışmada önerilen program gibi çocuk nörolojisi alanındaki ihtiyacı karşılayacak şekilde benzer program ve materyal geliştirme çalışmaları yapılmalıdır.

4. İhtiyaç analizi aşamasında etiketlemeden kaçınılması adına iki öğretmen tarafından yapılan bir öneri çoklu zekâlar için zekâ kelimesinin yerine beceri, yetenek, güçlü özellik ya da zayıf özellik gibi kelimelerin kullanılmasıdır. Öğretmenler bu öneriyi etiketlemeyi engellemek adına önermiş olsalar da kişilerin zekâya, zekâ kavramına ilişkin yaklaşımı değiştirmeyi düşünmüyor olmalarını ima etmesi açısından ilginçtir. Bu nedenle Çoklu Zekâ Kuramı tarafından önerilen zekâ anlamı Çoklu Zekâ Kuramı açıklanırken açıklanmalıdır.

İleride Gerçekleştirilecek Araştırmalara Yönelik Öneriler

1. Çalışma öğretmenlerin öğrencilerinin çoklu zekâlarını belirlemek için çeşitli amaçları olduğunu göstermektedir. Ancak öğretmenlerin çalışmanın önerdiği programın sonucunda elde ettikleri öğrencilerinin çoklu zekâ profillerini bu amaçları

doğrultusunda kullanıp kullanmayacakları bilinmemektedir. Bu sebeple, öğretmenlerin edindikleri bu profilleri nasıl kullanacaklarını ortaya çıkaracak çalışmalar yapılmalıdır.

2. Çalışmanın sonuç değerlendirme aşamasının sonuçları araştırmanın amaçlarına büyük ölçüde ulaştığını göstermekle birlikte önerilen programın bazı boyutlarının geliştirilmesi gerektiğini de işaret etmektedir. Bu boyutlar, performans değerlendirme, programın değerlendirme sistemi ve istatistiksel analizlere ilişkindir. Bu kapsamda, aşağıdaki konularda gelecek çalışmalar yapılmalıdır:

a. performans değerlendirmenin öğretmenlerin kolay kullanımı açısından geliştirilmesi,

b. programın değerlendirme metodunun kullanımının kolaylaştırılması adına teknolojik olanakların işe koşulaşarak geliştirilmesi,

c. önerilen programın güvenirliğine ilişkin istatistiksel analizlerin yapılması.

3. 1., 2. ve 3. sınıf öğrencilerinin çoklu zekâ profillerinin belirlenmesinin faydaları araştırılmalıdır.

4. Bu çalışma 1., 2. ve 3. sınıf öğrencilerinin çoklu zekâ profillerini belirlemek için bir program geliştirme süreci ve program geliştirmenin her bir aşamasının tüm sürece nasıl katkıda bulunduğunu mevcut risklerden kaçınarak ortaya koymuştur. Dolayısıyla, Türkiye'de ve diğer ülkelerde, 1., 2. ve 3. sınıf öğrencileri dahil olmak üzere bireylerin çoklu zekâ profillerini belirlemek amaçlı çalışmalar bu çalışma ile ortaya koyulan program geliştirme süreci takip edilerek yapılabilir.

5. Çoklu Zekâ ile özellikle çoklu zekâ profillerini belirleme ve değerlendirme ile ilgili araştırmalar etkileşimli-dinamik araştırma yöntembilimini ve disiplinlerarası yaklaşımı takip ederek, kültürel duyarlılığı dikkate alarak gerçekleştirilmelidir.

CURRICULUM VITAE

PERSONAL INFORMATION

Surname, Name: Temiz, Nida
Nationality: Turkish (TC)
Date and Place of Birth: 24 July 1979, Avanos
Phone: +90 312 234 10 10
email: nidatemiz@yahoo.com

EDUCATION

Degree	Institution	Year of Graduation
MS	METU Educational Sciences	2004
BS	GAZİ UNV. Primary Education	2001

WORK EXPERIENCE

Year	Place	Enrollment
2003- Present	Başkent University, Faculty of Education	Research Assistant
1997-2003	Gazi University Foundation Private Elementary School	Primary Education Teacher

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English

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