



## A Different Perspective to the Early Intervention Applications during Preschool Period: Early Enrichment for Gifted Children \*

Adile Gülşah Saranlı <sup>1</sup>

### Abstract

The goal of this research is to identify the views of preschool teachers with gifted students in their classes on the use of enrichment methods as a tool for early intervention. In this context, differences teachers observed in these gifted children following the application of Renzulli's Type I Enrichment Method to preschool science activities were determined. The study has been conducted using the phenomenological approach as a qualitative research method. The benefits of enrichment methods on the education of gifted children and the need for their use as an early intervention method are well-recognized by the scientific community in this area. On the other hand, there are few research based results on the application of these Type-I Enrichment methods to preschool children. During the early childhood period, awareness related to this topic is particularly important due to both the support needs of parents for their children with special needs as well as the role of teachers in the entire educational-behavioral development process of the children. The study group in this study consists of four preschool teachers from four different classes in a private preschool within the 2015–2016 education year. In the beginning of the study, preschool teachers with gifted children in their classrooms received training courses with applied content on both gifted children and enrichment methods. Teachers who participated in the study subsequently used Renzulli's Type I enrichment methods to modify and enrich science activities within their classrooms throughout an entire semester. The teachers were then asked to evaluate the effects of enrichment activities on the children based on their own observations. The resulting findings were collected by the researcher through semi-structured interviews with these teachers. As a result, it was found that preschool teachers with gifted children in their classrooms indicate that early intervention is necessary for preschool gifted children, that the use of enrichment methods in this period is highly compatible with preschool pedagogy and curriculum and hence promises to be practical and sustainable and that enriched activities, in addition to their benefits for gifted children, may also

### Keywords

Gifted  
Preschool  
Early intervention  
Early enrichment  
Enrichment Triad Model  
Type I Enrichment

### Article Info

Received: 12.26.2016  
Accepted: 04.17.2017  
Online Published: 04.25.2017

DOI: 10.15390/EB.2017.7062

\* A part of this research was presented as an oral presentation at the 2nd International Eurasian Educational Research Congress held on 8-10 June 2015.

<sup>1</sup> TED University, Faculty of Education, Department of Primary Education, Turkey, [gulsah.saranli@tedu.edu.tr](mailto:gulsah.saranli@tedu.edu.tr)

offer benefits for children exhibiting normal development patterns under certain conditions. The results are then discussed in the context of enrichment, parent education, professionalization of teachers and preschool education providing richer benefits that are more sensitive to individual differences.

---

## Introduction

Early childhood years, wherein the foundations of an individual's future traits for adolescent and adult life are formed, correspond to a very important period in being able to reach all types of children, to maximize their developmental potential and to eliminate risks that threaten their developmental progress. Unique attributes and needs of gifted children also necessitate early intervention efforts both for the children and their parents. As a result of numerous issues, including differences in their speed of learning and areas of interest, the risk of educational programs not meeting their needs, incorrect behaviors of teachers and parents, the child's over-excitabilities and asynchronous development, gifted children also have an important need for early intervention. If these problem areas are not addressed in an early and timely manner, gifted children may experience a range of problems including academic underachievement, social-emotional problems and most importantly hiding of existing talent and the inability to realize their full potential in their areas of talent (Saranlı, 2016b, 2017a, 2017b; Saranlı, Er, & Deniz, 2017; Koç & Saranlı, 2017; Silverman, 2002).

One of the ways in which early intervention for gifted children can be implemented in the preschool period is the differentiation of their educational program through enrichment methods. By applying enrichment principles and methods to the content of materials and activities in the educational setting for the gifted as well as the educational processes and the associated end-products, early intervention can be implemented to ensure a healthy and normal development of the gifted child. In this context, many existing studies and resources emphasize the need to begin differentiating the education of gifted children during their early childhood period (Karnes & Johnson, 1991; Kitano & Kirby, 1986). On the other hand, there are very few scientific results on existing applications of these ideas, as well as their effectiveness in achieving desired outcomes (Koç & Saranlı, 2017; Metin, Bencik, Yılmaz, & Çalışandemir, 2007; Saranlı, 2016a).

Our present study is based on this motivation, and presents the application of "Renzulli's Type I Enrichment Method" to develop and use enriched content for science activities within mainstream preschool classes of 6 year-old children, including both gifted children and those exhibiting normal developmental patterns, during a single school semester (4 months). These activities were performed by the teachers of these classes following their training in topics related to both gifted children as well as enrichment methods. Ultimately, this study aims to determine whether early enrichment can be used as an early intervention method for gifted children based on the experiences and resulting views of teachers. We now continue by first emphasizing the importance and the background of our research by reviewing the meaning of early intervention, ways in which gifted children fall in the scope of early intervention, methods of early intervention applicable to gifted children, key definitions and steps related to enrichment methods and the basic questions posed by our research.

Early intervention refers to necessary actions and interventions that can be used to support children and their parents as early as possible in any stage of a child's education (European Agency, 2005). Xu and Filler (2005) observe that the sooner early intervention efforts begin, the higher is the likelihood that the child benefits from the intervention, preventing potential problems during the school period.

Gifted children have as much a need for early exposure to beneficial stimuli and early provision of support as do other children that are considered to be in the scope of early intervention. Gifted children exhibit developmental patterns that deviate from what is considered typical. For this reason, gifted children are also in need of many support services associated with early intervention efforts. Understanding reasons behind these needs can best be accomplished by first studying key attributes and differences associated with gifted children. Giftedness in children, particularly in early ages, often manifests itself as the child having more advanced abilities in one or more developmental or talent areas compared to their peers (Davis, Rimm, & Siegle, 2013; Köseoğlu, Kalın Falakaoğlu, Taşdemir, & Saranlı, 2012). Gifted children are differentiated by many attributes and properties, including early start of talking and walking, early and accelerated development of receptive language, early interest in books and reading, early use of all manners of symbol systems related to language and mathematics, early grasp of abstract concepts such as death, justice and morality, early progression through cognitive stages of development (e.g. into Piaget's concrete operational stage), early and extraordinary information storage and recall (i.e. memory), smiling early, early discovery of the distinction between the mother or the primary caregiver and others, as well as unusual alertness and curiosity (Koopmans-Dayton & Feldhusen, 1987; Louis & Lewis, 1992; Silverman, 1986).

Gifted children exhibiting these developmental properties will naturally experience numerous differences from children exhibiting typical developmental patterns both during their early years as well as throughout their entire lives. On the other hand, if and when they gain access to early intervention services, their developmental differences can be discovered as early as possible, providing opportunities and a roadmap to support their progress towards realizing their true potential (Guilbault, 2012; Henderson & Ebner, 1997). By providing early intervention for gifted children, it may become possible to provide home environments and educational programs suitable for their talents and to inform and educate their parents and teachers. As a consequence, gifted children can be supported to reach their maximal potential in their cognitive, physical, social and emotional development. Another preventative measure to protect the mental balance of gifted children is their early identification and a timely discovery and recognition of their talents (Karnes & Johnson, 1991). Moreover, early identification of giftedness and placement into an appropriate preschool program may prevent them from experiencing academic underachievement later in their educational life (Kitano & Kirby, 1986).

Considering existing literature in early intervention, a number of different methods that can be applied to gifted children can be identified. Many existing early intervention methods including, for example, early identification (Karnes, Shwedel, & Linnemeyer, 1981), the preparation of individualized educational programs (Kitano & Kirby, 1986), cognitive, psychomotor and social-emotional early interventions as well as early interventions related to the education of parents and teachers (Stile & Hudson, 1993), have been suggested for use with gifted children in their early ages. Moreover, existing research in the literature frequently suggests that enriched preschool programs can reveal and develop exceptional talent, while providing opportunities for teachers to support existing areas potential talent (Guilbault, 2012; Henderson & Ebner, 1997; Kitano, 1990; Luna, 2002; Mooij, 1999; Silverman, 1992; Walsh, Hodge, Bowes, & Kemp, 2010).

#### *Theoretical Framework for the Concept of Enrichment*

In this section, once the definition of enrichment, as well as what it means when applied to processes, content and product are explained, details of specific work focusing on enrichment performed in this study will be described. In its shortest form, enrichment can be defined as the deepening of educational content to include higher level and more complex topics, as well as its extension to cover a wider range of topics. When gifted children in their early ages are considered, the enrichment of educational programs is one of the most obvious and contemporary early intervention methods. Enrichment, when used as an early intervention method for gifted children, may help prevent potential future problems such as academic underachievement, while also enabling them to reach their maximal potential. There are many existing studies suggesting that the enrichment of educational programs for gifted children can and should be considered in the scope of early intervention (Guilbault,

2012; Henderson & Ebner, 1997; Luna, 2002; Mooij, 1999; Silverman, 1992; Walsh et al., 2010). On the other hand, there is a considerable gap in the literature on how to perform this enrichment activity and which theories, processes and enrichment methods will support its development. Our study focuses on filling this gap, suggesting the use of a specific enrichment method whose effectiveness has been shown for different age groups, different disciplines and cultures to develop enriched content for school activities involving mixed groups with both gifted and typical developing children.

The “Enrichment Triad”, which is founded on the Schoolwide Enrichment Model (Renzulli & Reis, 1997), which was in turn based on the “Three-Ring Conception of Giftedness”, is one of the most widely accepted current enrichment methods. As suggested by its naming, the enrichment triad consists identified three categories of enrichment methods: “Type-1”, “Type-2” and “Type-3”. In this triad of methods, Type-1 enrichment consists of enrichment activities that are not incorporated into the general curriculum but extend on it. These enriched activities provide all students with opportunities to experience different disciplines, topics, professions, individuals, places and events. Type-2 enrichment encompasses educational methods and materials designed to support the development of thought, research and communication skills of all students. Finally, Type-3 enrichment encourages students to undertake intense, individual research activities and projects. Students who benefit most from Type-3 enrichment are often those who have been very successful in the first two types of enrichment and wish to pursue more advanced studies in specialized topics (Renzulli & Reis, 2008; Renzulli & Reis, 1997; Sak, 2010, pp. 227-228).

A review of existing research and literature on enrichment shows that the “Enrichment Triad Method” is one of the widely adopted enrichment methods particularly in the United States, and has been frequently used for different age ranges and special groups as a result of its scientific basis as well as its practical and sustainable properties (Renzulli & Reis, 2008, 1997; Sak, 2010, pp. 230). There has also been a wide variety of studies to determine the effects of the Schoolwide Enrichment Model on the development of students. These studies present results establishing that enrichment programs based on this model provide successful results (Starko, 1986), the model meets the educational individualization needs of gifted, normally developing and special-need children (Olenchak, 1991), the approach to talent development suggested by the model is also useful for different special and subgroups of children (Reis, Schader, Milne, & Stephens, 2003) and that the enrichment of educational programs leads to an overall increase in academic success (Reis et al., 2005). Apart from these, there is also research suggesting that enrichment methods based on this model increase student attendance and that their long-term application has many positive effects including academic success, increased motivation and an increase in the ability of students to better determine their own interests and talents (Gentry, Reis, & Moran, 1999; Reis, Gentry, & Maxfield, 1998; Reis, Gentry, & Park, 1995; Renzulli, 2012). Furthermore, there is also additional research in the literature related to how different enrichment methods in the model can be adapted to the Turkish culture (Saranlı, 2014a, 2014b; Saranlı & Hernandez Torrano, 2012). Even though the possible utility of the “Enrichment Triad” method (Reis & Renzulli, 2003) within the Schoolwide Enrichment Model has been suggested in the literature as a possible early intervention method for gifted children in the preschool period (Saranlı, 2017b; Sloan & Stedtnitz, 1984), there has been very few scientific studies that explicitly support this idea. Consequently, the study we present in this paper focuses on the application of the Type-1 enrichment method to preschool science activities and the assessment of its effectiveness through the analysis of teacher opinions. Our choice of the Type-1 enrichment method is motivated by its widespread and practical adoption, its suitability for developmental properties of preschool children as well as its indiscriminate applicability to both gifted children and children with typical developmental progress within the same classroom.

In light of the observations summarized above, the general goal of this study is to identify the opinions of preschool teachers with gifted children in their classes on the use of enrichment methods as a tool for early intervention and to determine differences they observe in their gifted students following the implementation of science activities differentiated through Type-1 enrichment methods. The main question in the study is “What are teacher opinions on the use of preschool science activities enhanced

with Renzulli's Type-I Enrichment Methods as an early intervention method and the effects of activities applied based on this method on gifted children?" In light of this main problem, this research aims to provide answers to the following three sub-problems.

1. What are teacher opinions on the use of the Type-1 enrichment method as an early intervention method for gifted children in the preschool period?
2. What are the methods most frequently used by preschool teachers in developing and applying their Type-1 enriched activities?
3. What are differences in the behaviors of gifted children in the preschool period as observed by their teachers following Type-1 enriched science activities used as an early intervention method?

## Method

### *Research Pattern*

In this study, the phenomenological method from among qualitative research patterns was used to identify the perceptions of teachers on the effects of enrichment activities performed on gifted children in the preschool period. The sources of data in research studies using the phenomenological method are individuals or groups who have personally experienced the primary phenomena of interest in the study and can express or externalize their experiences (Yıldırım & Şimşek, 2013). In this research, the teachers of gifted children in the preschool period who have developed and applied Type-1 enriched content were chosen as the primary data source since they were the individuals who have personally experienced the phenomenon of interest.

### *Participants*

In this study, individuals meeting a specific set of criteria (i.e. preschool teachers with gifted children in their classrooms, having received courses on and applied enrichment methods) were used, motivating the use of the criterion sampling method. According to Yıldırım and Şimşek (2013), the number of participants in such a study should not exceed 10 and this is in fact considered normal. Due to both this observation and the scarcity of preschool teachers with identified gifted children in their classrooms who are also knowledgeable and experienced in designing and conducting enriched preschool activities, four preschool teachers meeting all of these criteria were used as the participants in this study.

The study was conducted in four different preschool classes with 6 year-old children in a private primary school. The school in which the study was performed was primarily attended by normally developing children. Nevertheless, there were some attempts at differentiating educational programs as a result of differing needs of students at the school. Prior to the beginning of the study, four classes with gifted children in them were identified through a schoolwide assessment of all preschool classes, determining the four teachers that would participate in the study. These four teachers, together with four 6 year-old gifted preschool children (one in each class) were hence the participants in this study. Three of the four gifted children were boys and one was a girl. Parents of all the children were from upper socio-demographic status. They were all still together, and were all college graduates. Observations, interviews and developmental assessments conducted prior to the beginning of the study revealed that these children were, on average, 2 years ahead of their peers in their mathematical and language development. Their giftedness was also confirmed with the results of Stanford-Binet tests of intelligence administered with the support of the school's psychologist. All teachers participating in the study were female, with ages in the range 21 to 32. All teachers possessed 4-year undergraduate degrees on preschool education with one of them continuing her Masters degree in the same area. Their professional experience varied between 2 to 12 years. Finally, in addition to agreeing to participate in the study, all four teachers also volunteered to participate in teacher training courses on gifted children, enrichment methods and, as well as methods on developing and applying enriched activities organized and taught by the researcher.

### ***Measurement Tools***

Opinions of teachers participating in the study on the application of enriched activities were collected through a semi-structured interview form consisting of three open-ended questions corresponding to the three research questions listed before. In order to ensure the validity and reliability of this form, three expert researchers from the areas of gifted children, child development and early childhood education were consulted in finalizing the questions.

### ***Process***

In the first part of this research, all teachers participating in the study attended training courses taught by the researcher herself, totaling 12 hours over a three week period. The goal of these courses was to increase the awareness of teachers on gifted children, with the topics covered including distinguishing properties and attributes of gifted preschool children, methods for their identification, their developmental differences, educational models, their social-emotional needs and early intervention methods.

In the second stage, following these training courses on gifted children, the same group of teachers attended a 16 hour applied training program taught, once again, by the researcher on the Type-1 enrichment method. The core of this training program consisted of principles and methods within the *Schoolwide Enrichment Model*, which was developed based on the *Three-Ring Conception of Giftedness* (Renzulli & Reis, 1997). As a result of these sessions, teachers participating in the study have received a total of 28 hours of applied training on both gifted children as well as enrichment methods. Before they started the study, these teachers were already developing activities for preschool children using normal methods and applying them in their classrooms. Following their participation in the training sessions, however, they have designed new activities based on the Type-1 enrichment method that they have learned. Subsequently, they have applied these science activities within their preschool classes, including both gifted and normally developing children.

In the third and final stage of this research, in-person interviews were conducted with all teachers that have participated in the study. Through open-ended questions within the semi-structured interview form, the observations of teachers regarding the reactions of both the teachers themselves, and the gifted preschool children in their classrooms related to the enrichment method and the newly developed enriched activities. These interviews lasted between 35 and 45 minutes, and were recorded with consent from, the participants to be studied later by the researcher.

### ***Analysis of Data***

The analysis of data in studies using the phenomenological method seeks to uncover individual experiences and their meanings. Consequently, content analysis focuses on discovering themes that can conceptualize the data and define the phenomena. Results are presented with a descriptive style and direct quotes are often used (Yıldırım & Şimşek, 2013). Based on these observations, the content analysis method was applied to analyze the data in this study obtained through the semi-structured interviews. First, recordings from the interviews were transcribed, yielding a comprehensive dataset of answers, descriptions and observations from all teachers in the study. This data was then studied and split into internally consistent sections, which were then coded accordingly. This coding process was based on concepts identified both before and after the interviews. Subsequently, codes identified in the first step were used to categorize the overall dataset into themes and sub-themes to support the findings in the study.

## Results

In this section, findings are explained and interpreted in the context of themes identified through the analysis of data. The findings are presented in the same order as the main research questions posed in previous sections, and supported with direct quotes from teachers whenever appropriate and useful.

### *Results About the Use of Enrichment for Gifted and Normally Developing Preschool Children*

All preschool teachers attended training sessions on gifted children and enrichment methods, and subsequently used Renzulli's Type-1 Enrichment method to develop and apply enriched science activities in their preschool classes throughout an entire semester. During the semi-structured interviews following this training and application experience, teachers were asked about their opinions on whether enrichment could be used as an educational early intervention method for gifted preschool children, and all four teachers indicated that this method was indeed very effective and useful for this purpose. Frequencies related to teacher opinions on this topic are presented in Table 1.

**Table 1.** Opinions Related to the Use of the Type-1 Enrichment Method as an Early Intervention Method for Gifted Preschool Children

Main Theme	Sub-Themes	Teacher Opinions (frequency)
The use of enrichment methods for the purpose of early intervention in gifted children	Allows differentiation of educational methods specifically for the gifted child	4
	Allows the ability to expose the gifted child to multiple stimuli	3
	Provides the gifted child opportunities to progress in their own pace	4
	Helps ensure that the gifted child feels a sense of belonging towards the class	2

Positive views of all four teachers on the use of enrichment methods as an early intervention method for preschool children were studied. As shown in Table 1, all teachers participating in the study and having gifted children in their classes indicated that this method was able to provide the rich and varied stimuli that is necessary for development in different areas of talent by preparing a foundation for the individualization of the education for gifted children. As a result, they also expressed positive opinions about the early intervention method since it also enabled children to participate socially into the classroom environment. The following quotes show that the Type-1 enrichment method has been an important guide for teachers in their ability to uncover previously unknown interests and talents, an important feature of educational early intervention, and to provide a comfortable developmental environment for gifted children and their existing talents.

*"Previously, when enriching content for gifted children, we would take the material and only increase the amount, that's it. We did not know how to do enrichment in the sense of individualization. After the training sessions, I have seen that there are many ways to do enrichment and individualization, all of which were doable for me. I have realized that there are many ways to differentiate content and that these could allow their true potential to be discovered."*(T3)

*"I thought that the enrichment method was in fact exactly suitable for gifted children because nothing would be sufficient for these children, they would always be hungry for more and varied stimuli. We would always think about what more we could add to the activities that we were doing but did not know specific ways. Enrichment came right on top of this and we have seen how to enrich an activity in a systematic fashion, and how to organize and increase the amount and quality of stimuli."*(T1)

*“Previously, I always felt that I needed to do something extra for the gifted child in my classroom but did not know what to do exactly. I did not know how to provide education for the entire classroom without disregarding the gifted child’s unique properties and speed. I could see from her questions and her attitude towards events that she was full of potential in every sense of the word. After the training sessions, what I could do to develop these properties was much clearer in my mind.”(T2)*

In addition to these observations, three of the teachers indicated that the Type-1 enrichment method could be used not only for gifted children, but also for children exhibiting typical developmental patterns. Frequencies of teacher opinions on this issue are shown in Table 2.

**Table 2.** Opinions Related to the Use of Enrichment Methods on Normally Developing Preschool Children

Main Theme	Sub-Themes	Teacher Opinions (frequency)
The use of enrichment methods to enrich educational activities for typically developing children	Allows revealing the potential talent areas for normally developing children	2
	Enriched educational content provides support to the overall development of the normally developing child	3

During the interviews, some teachers observed that enrichment methods were also beneficial and useful for children exhibiting normal development patterns, and could be applied to all the children at the same time. Main and sub-themes reflecting the views of the teachers are shown in Table 2, and some related, representative quotes from teachers are provided below.

*“I think enrichment is suitable for all ages and groups, not just gifted children, it can be applied to all children. For gifted children, we can increase outcomes, high level concepts and add more things and enrich according to advanced developmental properties. However, we can also do these things for normal children. We can perhaps add smaller things but we can add nevertheless.”(T1)*

*“Every child needs to develop in their own potential, to receive education in varied and rich environments. All children can develop themselves. Having an expert guest in the classroom is an enrichment for this child and so is seeing a new place. This is a period where their perception is very open, and I think at this point, enrichment should be applied to all children at different levels.”(T4)*

#### **Results about the Enrichment Techniques that Teachers Prefer Most in Their Activities**

In this research, we have also asked teachers, who have received specific training on Renzulli’s Type-1 Enrichment, which applications of enrichment techniques and methods they have used in preparing and applying enriched science activities in their classes. Since their answers and examples matched Renzulli’s content, process and end product-based enrichment applications, we have determined sub-themes in this context to be these three enrichment categories. Frequencies for the opinions of teachers for these sub-themes are shown in Table 3.

**Table 3.** Enrichment Techniques Most Preferred by Teachers in Their Enriched Science Activities

Main Theme	Sub-Themes	Teacher Opinions (frequency)
Types of enrichment	Enrichment of content	4
	Enrichment of processes	3
	Enrichment of end-products	3

All of the teachers indicated that they have extensively used content-based enrichment applications more frequently than others (f=4). Specific quotes from teachers who expressed a preference for content-based enrichment techniques are given below.

*"I have conducted science activities and art activities together, I have even incorporated drama activities into science activities sometimes. I believe that, from among different enrichment techniques, I have most used the idea of merging multiple disciplines within the same activity."*(T4)

*"I have tried to bring multiple activities and multiple fields together. Moreover, I also liked to support them with visual components. I have enriched my materials visually since I have noticed that this was more effective in capturing their attention."*(T2)

*"I have most used concept and word enrichment. By adding advanced concepts that are from the real world, I have tried to enrich my science activities. I have established a connection to the real life."*(T1)

*"During activities, I liked to use different and unusual materials. For example, I have used things like a kitchen scale, a barometer and a thermostat to enrich my activities, which I had never thought of before."*(T3)

Half of the teachers who have participated in the study indicated that they have used process-based enrichment techniques (f=2). Some quotes from these teachers are given below.

*"I have primarily used the process of actively performing experiments and having them actively participate in the experiments. I have also used concept enrichment. I liked to use higher level concepts when appropriate, and getting feedback from all of my students. I used these in my own way."*(T4)

*"I personally thought that I could perform better enrichment by doing and experiencing certain things since that has always been the way I have learned things myself. By including them in the process, -- this could be preparing a salad, measuring the sizes of peppers we have planted in the garden or making our own soap --, I have seen that I have better been able to differentiate and enrich my activities."*(T3)

Some of the teachers have also indicated that they have used endproduct-based enrichment methods even though this was not as commonly preferred as the other methods (f=2). A quote from one of the teachers who have used this method is presented below.

*"Before, I had never thought of producing something like an endproduct at the end of my science activities. Consequently, this part of Type-1 enrichment was most interesting to me. This time, we have tried to create an endproduct that was written, visual or somehow involving media in most, if not all of activities I have done with the children."*(T3)

#### **Results about the Differences Observed in the Behaviors of Gifted Preschool Children during Science Activities Enriched as an Early Intervention Method**

In this research, we have also tried to assess whether there were any observable differences in the behaviors of gifted preschool children during the application of enriched activities based on the opinions of their teachers. Based on questions directed to teachers for this purpose, it was seen that there were substantial differences in the children's answers to enriched questions posed during activities, their use of creativity during these activities as well as their levels of attention and participation compared to the beginning of the semester. The main and sub-themes identified based on teacher interviews are presented in Table 4 together with specific frequencies of occurrence for each.

**Table 4.** Differences observed in the behaviors of gifted preschool children during the application of enriched science activities as a means for early intervention

Main Theme	Sub-Themes	Teacher Opinions (frequency)
Differences in the behaviors of gifted children observed during enriched activities	Different reactions to questions asked during the activity	3
	The use of creativity during the activity	2
	The level of attention during the activity	2
	The level of participation in the activity	3

Three of the teachers participating in the study indicated that the gifted children in their class were more alert, more attentive and interested in response to questions they were asked during the activities prepared using enrichment methods. They indicated that students have shown a more participative attitude, answering the teacher's enriched questions with their own questions without getting bored with the activity. Some of the observations from teachers are directly quoted below.

*"When I asked a normal evaluation question, I could not attract the attention of the gifted child in my class, he would get bored or did not want to do it, I could feel that the question I asked was too simple for him. However, when I asked a question using the Scamper method we learned as part of enrichment methods, this got the children thinking a lot. Afterwards, all hands were up in the air, all children saying the answer should be this way or that way."(T3)*

*"They all wanted to say something, not just the gifted one. For my gifted student, I have noticed that when the content of the question I asked was enriched, I could attract his attention more and that he would ask me other questions in return. I thought that I had also won him over."(T4)*

*"When I asked enriched questions, everybody wanted to answer, saying "me, me..." Nevertheless, I have also seen that when I started asking my questions in this fashion, my gifted student became much more focused and involved in terms of both interest and sustained attention."(T2)*

Two of the teachers participating in the study indicated that the gifted children in their classrooms have been able to more actively use their creative thinking skills during enriched science activities. The same teachers also indicated that these enriched activities created a challenging environment, which is a very important and essential concept for gifted children, and that their students discovered their creative skills. Some views from these teachers are given below in the form of direct quotes.

*"Especially the question asking what they would invent if they were a scientist engaged all of their creativity. Both my gifted student and others were challenged quite a bit, they thought a lot. My gifted student in particular, kept coming up with more and more answers. For example, she invented new houses, different cell phones, said that she would invent a time machine. Afterwards, a typical developing girl said that she would invent a device to help understand tourists speaking a different language. It would be mounted in the ear and when a button is pressed, it would translate to Turkish even if the other person speaks in German, she defined and described it very well."(T4)*

*"He gave very creative answers that I had not thought of during science activities. For example, during the activity, I asked which materials would sink and which ones would not, and what could be the reasons, I received different answers. Afterwards, I passed onto the lifting power of water and when I asked why ships did not sink in sea, I received an answer indicating that the reason was the saltiness of the sea water."(T3)*

Two of the teachers participating in the study observed that the gifted student in their preschool class had a much higher level of attention, kept more eye contact, continued longer with the activity, and were more intensely involved in the activity during the application of the enriched science activities. Some of the related quotes from teachers are given below.

*"She was listening very carefully. I understood this from her increased eye contact and her increased participation in the activity. She was quite focused and I was very happy that day."*(T2)

*"Especially when I conducted experiments during enrichment, I have seen that he was better at giving his attention and he was more interested when I involved him more actively in the experiment. He was able to continue the activity longer without getting distracted."*(T3)

Three of the teachers participating in the study indicated that the level of participation from their gifted students in enriched science activities in the classroom was positively different from activities that were conducted without explicit enrichment. They indicated that both gifted and normally developing children participate more actively in enriched activities, and that the entire classroom is more active and engaged when they are expected to contribute something from themselves. Some of the observations from these teachers are shown in the quotes below.

*"In the days that I were doing enriched activities, I felt that I was doing something truly different because there was a lot of demand, both from gifted and normally developing children. There were many that indicated they wanted to say and do things. I guess there was also a difference in participation since the content of the activity was different from what we were doing before."*(T1)

*"Almost all of our enriched science activities had very active participation. I could understand from their curiosity, their questions and their attentive listening. For example, when I asked questions, they thought more carefully, pondering what different reasons could be. Not just the gifted one, they all thought about the answer to the question. It was very different for them."*(T3)

*"Normally, they would already participate in most activities, I would distribute masks to all of them and they all would play. After I started enriching the activities, for example in planting seeds, there was an increase in the number of children wanting to actively participate and do the activity, accompanied by comments such as "let me mix the dirt first, then you can do it". I have seen that especially my gifted student used his previous knowledge and shared it with his friends and was very satisfied doing it, which increased his participation further. It was as if he felt a better sense of belonging in the class."*(T4)

### **Discussion, Conclusion and Suggestions**

Giftedness, particularly in the preschool period, manifests itself as a child having more advanced abilities in one or more developmental or talent areas compared to their peers. While these more advanced traits and behaviors create a sense of admiration in parents and teachers, it also causes confusion as to how to best take care of very young gifted children possessing such advanced abilities. Gifted children in the preschool period are generally enrolled in institutions with general educational programs, often together with their normally developing peers and participate in the same activities due to the fact that their development is still ongoing and that it is necessary to avoid their early labeling. On the other hand, this may potentially lead to future social-emotional problems and academic underachievement issues. In order to prevent these negative effects, the necessity of applying early intervention to gifted preschool children can no longer be overlooked. Scientific results on the effectiveness of early intervention methods for gifted preschool children should be established as soon as possible to complete existing gaps in the literature (Guilbault, 2012; Henderson & Ebner, 1997; Luna, 2002; Mooij, 1999; Silverman, 1992).

In this study, early enrichment, which is one of the early intervention methods, was applied on gifted preschool children participating in mixed classes in the context of enriched science activities using the Type-1 Enrichment method of Enrichment Triad approach (Reis & Renzulli, 2003). Teachers of such gifted children were given training courses on the different developmental properties of gifted children as well as enrichment methods and were asked to observe their students during an entire semester in which they developed and applied enriched science activities.

When the findings in this study are considered, it can be concluded that preschool teachers have found the Type-1 enrichment method to be a practical and usable early intervention method for gifted preschool children in their classes attended by both gifted and typical developing children. This result, obtained through an evaluation of teacher opinions, is important in establishing that enrichment methods, which are widely communicated in the related literature to be effective for different age groups (Renzulli & Reis, 2008, 1997; Sak, 2010 Starko, 1986; Olenchak, 1991; Reis et al., 2003; Reis et al., 2005; Gentry et al., 1999; Reis et al., 1998; Reis et al., 1995; Renzulli, 2012), are also effective for gifted preschool children.

Despite the presence of existing literature and research emphasizing that enrichment methods can be as effective for gifted preschool children as they have been for other age groups (Kitano, 1990; Walsh et al., 2010), the absence of experimental data, particularly related to the application of Renzulli's Type-I enrichment method to this age group, supported by applied scientific studies in this area makes it difficult to have a clear idea on the real-world consequences of this idea. The fact that all of the teachers with gifted preschool children who have participated in the study observed this enrichment method to very useful when used as an early intervention method for gifted preschool children while being practical and sustainable since it is compatible with preschool pedagogy and the existing curriculum, can be interpreted as concrete evidence in support of the effectiveness of these methods. When the use of enrichment as an early intervention method, and the associated perceptions, experiences and understanding of teachers are more deeply investigated, it has been observed that they believe in the effectiveness, flexibility and practicality of this method as a result of their subsequent ability to use it to better respond to the needs of gifted preschool children and be more informed in how to differentiate education in this direction. Even though differentiation has previously been proposed by Stile and Hudson (1993) as a possible method for early intervention applicable to gifted preschool children, the present research established that in an applied setting, teachers also perceive it to be truly a useful, facilitating and guiding method in educating gifted preschool children.

In addition to these benefits, teachers have also observed that enrichment allows gifted children to progress at their own pace rather than the general, average speed of the classroom. Teachers, having thus seen that they can relatively easily meet the needs of gifted children even within a mixed classroom environment, have formed even more positive opinions related to the utility of these methods. This opinion brought up by the teachers in fact falls in the category of educational early intervention, which is among other early intervention methods for gifted children. Kitano and Kirby (1986), claim that "Individualized Education Programs", which is an example of educational early intervention methods, are among the best early intervention services for gifted children and that such programs can help children continue their development comfortably and at their own paces. Moreover, the benefits related to classroom management that are revealed by teacher application and observations become new tools for teacher development that result from the enrichment method. In addition to these benefits for the teachers, these methods also have additional psycho-social benefits such as making the student gain a better sense of belonging to the class (Saranlı & Metin, 2012).

It was also seen that Renzulli's Type-I Enrichment method provides a suitable example for preparing the necessary environment for social-emotional early intervention related to how gifted preschool children can better express themselves during enriched preschool activities. Similarly, when the gifted child shares their thoughts and experiences during enriched activities and those are subsequently accepted and encouraged by their peers, this helps them feel as an integral part of the class, providing another means of social-emotional intervention. As noted by Kitano (1990), enriched educational programs can and do reveal the potential and strength areas of young children. When their existing potential and talents are accepted by the class, this helps them achieve a better integration with their social environment, eliminating future risks for these students to become isolated from the class, providing an important and useful option for early intervention.

In our study, teacher opinions also confirmed that Renzulli's Type-I Enrichment methods were found to have substantial benefits for normally developing children as much as they do for gifted children. Teachers have indicated their belief that the Type-1 enrichment method revealed different talents in children they believed to exhibit otherwise normal developmental patterns. Moreover, teachers participating in the study have also stressed the importance and necessity of implementing proper differentiation components suitable for the needs and learning styles of individual students regardless of whether they have hidden talents or not. All these teacher opinions are also supported by the views of existing researchers observing that enrichment methods can provide many beneficial developmental opportunities for typically developing children as much as they do for gifted children (Reis et al., 1995; Reis & Renzulli, 2003; Renzulli & Reis, 2008).

In this research, it was also observed that teachers are capable of using all of the approaches underlying Renzulli's different enrichment methods, with the most commonly adopted being content enrichment approach, in addition to the less common but equally useful the process enrichment and end product enrichment approaches. It was also observed that the flexible nature of preschool educational programs and their suitability for such enrichment applications was a facilitating factor in the teachers' adoption of content, process and end product enrichment approaches.

When the behaviors of gifted preschool children during enriched science activities are observed and analyzed, it can also be said that the differences observed by the teachers in comparison to activities prior to the use of enriched content can be attributed to the use of enrichment methods as an early intervention tool. The ability of gifted preschool children to use their creativity in better ways, follow activities more carefully, demonstrate more active participation, and exhibit increased desire and motivation to answer enriched questions during enriched activities support the claim that enrichment methods have positive effects on enabling gifted children to preserve and better develop their existing talents. The results of this research not only show that subjecting children to enriched educational activities helps them preserve and develop their mental balance (Karnes & Johnson, 1991), but it also suggests the potential benefits of revealing previously unknown potential talent areas in gifted preschool children, helping prevent academic underachievement that might have otherwise been observed in the future (Kitano, 1990; Kitano & Kirby, 1986; Walsh et al., 2010).

In conclusion, through this research study, we have established and presented positive teacher opinions on the utility of Type-1 enrichment methods, which have previously been very successfully applied for groups possessing different properties, in mixed preschool classroom environments having both gifted and normally developing children. The relative scarcity of scientific studies on the applications of Type-I Enrichment methods to develop talents of gifted preschool children that manifest themselves in early years without involuntarily suppressing them is an important issue that is often brought up in the literature. In this context, the opinions of teachers, who spend perhaps the largest amount of time and effort for the education these children, obtained through the present study revealed that Renzulli's Type-I Enrichment methods can be considered as flexible, practical and pedagogically valid early intervention tools that are suitable to help gifted preschool children develop to reach their maximal potential. One of the limitations of this study is that it was conducted with a small number of teachers and gifted children. Moreover, it could be suggested that similar future studies could include observations and control lists in addition to the views of teachers. Possible future work to follow this study include the design of research studies characterizing the effects of integrating enrichment methods into the entire preschool educational curriculum by consistent and longer term observations of children. In particular, studies on the effects of Type-2 and Type-3 methods, which are the remaining two enrichment methods in Renzulli's model, on gifted preschool children will also provide results that would be useful for both researchers and educators. Another possible direction for future research includes the study of the design, application and effects of enrichment methods used for classes attended by both special-need and typically developing children.

### **Acknowledgement**

This research was supported by TUBITAK 3001 project 115K814 titled "The Effects of Enrichment Methods Based on the Schoolwide Enrichment Model on Primary School Children" and TED University BAP Project 14A103 titled "Enrichment Triad Method on Gifted Education".

## References

- Davis, G. A., Rimm, S. B., & Siegle, D. (2013). *Education of the Gifted and Talented: Pearson New International Edition*. USA: Pearson Publishing Company.
- European Agency for Development in Special Needs Education. (2005). *Early Childhood Intervention Analysis of Situations in Europe Key Aspects and Recommendations Summary Report*. Retrieved from [http://www.european-agency.org/publications/ereports/early-childhood-intervention/eci\\_en.pdf/view](http://www.european-agency.org/publications/ereports/early-childhood-intervention/eci_en.pdf/view)
- Gentry, M., Reis, S. M., & Moran, C. (1999). Expanding Program Opportunities to All Students: The Story of One School. *Gifted Child Today*, 2(4), 36-48.
- Guilbault, K. (2012). *Early enrichment for young gifted children*. Retrieved from <http://mcgate.org/early-enrichment-for-young-gifted-children/>
- Henderson, L. M., & Ebner, F. F. (1997). The biological basis for early intervention with gifted children. *Peabody Journal of Education*, 72(3-4), 59-80.
- Karnes, M. B., & Johnson, L. J. (1991). The preschool/primary gifted child. *Journal for the Education of the Gifted*, 14(3), 267-283.
- Karnes, M. B., Shwedel, A. M., & Linnemeyer, S. A. (1981). Survey of programs for the gifted. Unpublished manuscript. University of Illinois Publishing.
- Kitano, M. K. (1990). A developmental model for identifying and serving young gifted children. *Early Childhood Development and Care*, 6(3), 19-31.
- Kitano, M. K., & Kirby, D. F. (1986). *Gifted education: A comprehensive view*. Boston: Little, Brown.
- Koç, F., & Saranlı, A. G. (2017). Erken çocukluk dönemindeki üstün yetenekli çocuklara ilişkin Türkiye’de gerçekleştirilen lisansüstü çalışmaların çok boyutlu analizi. *Mehmet Akif Ersoy Üniversitesi Eğitim Fakültesi Dergisi*, 41, 163-183.
- Koopmans-Dayton, J., & Feldhusen, J. F. (1987). A resource guide for parents of gifted preschoolers. *Gifted Child Today*, (11-12), 2-7.
- Köseoğlu, S., Kalın Falakaoğlu, Ş., Taşdemir, Ö. M., & Saranlı, A. G. (2012). *Üstün Yetenekli Çocuk Aile El Kitabı*. Ankara: Yasemin Karakaya Bilim ve Sanat Merkezi Yayınları, Ayrıntı Basımevi.
- Louis, B., & Lewis, M. (1992). Parental beliefs about giftedness in young children and their relation to actual ability level. *Gifted Child Quarterly*, 36, 27-31.
- Luna, T. (2002). *Gifted and Talented Primary-age Students: Recommendations for Identification and Service*. Idaho State Department of Education Publishing.
- Metin, N., Bencik, S., Yılmaz, G., & Çalışandemir, F. (2007). Gifted and Talented Children In Turkey: In Chronological Review of the Literature. In E. Polyzoi & C. F. Klassen (Eds.), *Reaching Gifted and Talented Children: Global Initiatives* (pp. 95-100). University of Warwick, England.
- Mooij, T. (1999). Integrating gifted children into kindergarten by improving educational processes. *Gifted Child Quarterly*, 43(2), 63-74.
- Olenchak, F. R. (1991). Assessing program effects for gifted/learning disabled students. R. Swassing ve A. Robinson (Ed.), *NAGC 1991 Research Briefs*. Washington, DC: National Association for Gifted Children.
- Reis, S. M., & Renzulli, J. S. (2003). Research related to the schoolwide enrichment triad model. *Gifted Education International*, 18(1), 15-39.
- Reis, S. M., Eckert, R. D., Schreiber, F. J., Jacobs, J. K. Coyne, M. K., & Richards, S. (2005). *The Schoolwide Enrichment Reading Model*. Storrs, CT: National Research Center on the Gifted and Talented.

- Reis, S. M., Gentry, M., & Maxfield, L. R. (1998). The application of enrichment clusters to teachers' classroom practices. *Journal for Education of the Gifted*, 21, 310-324.
- Reis, S. M., Gentry, M., & Park, S. (1995). Extending the Pedagogy of Gifted Education to All Students. Research Monograph No: 95118.
- Reis, S. M., Schader, R., Milne, H., & Stephens, R. (2003). Music and Minds: Using a talent development approach for young adults with Williams syndrome. *Exceptional Children*, 69, 293-314.
- Renzulli, J. S. (2012). Re-examining the role of gifted education and talent development for the 21st century: A four-part theoretical approach. *Gifted Child Quarterly*, 56(3), 150-159.
- Renzulli, J. S., & Reis, S. M. (2008). *Enriching Curriculum for All Students*. Thousand Oaks: Corwin Press.
- Renzulli, J., & Reis, S. (1997). *The Schoolwide Enrichment Model: A How to Guide for Educational Excellence*. Creative Learning Press.
- Sak, U. (2010). *Üstün Zekâlılar: Özellikleri, Tanılanmaları, Eğitimleri*. Ankara: Maya Akademi.
- Saranlı, A. G. (2014a, 13-18 July). *The adaptation journey of Schoolwide Enrichment Model to the Turkish core curriculum*. Paper presented at 37th Confratute Teachers Summer Conference, University of Connecticut, Connecticut, USA.
- Saranlı, A. G. (2014b, 13-18 July). *Gifted Education in Turkey and how SEM can help?*. Paper presented at 37th Confratute Teachers Summer Conference, University of Connecticut, Connecticut, USA.
- Saranlı, A. G. (2016a, 10-15 July). *Implementing Type 1 enrichment in early childhood settings*. Paper presented at 39th Confratute Teachers Summer Conference, University of Connecticut, Connecticut, USA.
- Saranlı, A. G. (2016b). A Neglected Group for Early Intervention: Gifted and Talented Young Children. In R. Efe, I. Koleva, E. Atasoy, & İ. Cürebal (Eds.), *Developments in Educational Sciences* (pp. 696-708). Sofia, St. Kliment Ohridski University Press.
- Saranlı, A. G. (2017a). The effectiveness of a single test approach in identifying potentially gifted young children. *Strategies for Policy in Science and Education*, 25(1), 20-33.
- Saranlı, A. G. (2017b). Eş zamanlı olmayan gelişimin üstün yetenekli çocuklardaki görünümünü üzerine bir örnek olay çalışması. *Ankara Üniversitesi Eğitim Bilimleri Fakültesi Özel Eğitim Dergisi*, 18(1), 89-108.
- Saranlı, A. G., & Hernandez Torrano, D. (2012). *Schoolwide Enrichment Model Around The World: A crosscultural perspective on SEM*. Paper presented at 35th Confratute Teachers Summer Conference, University of Connecticut, Connecticut, USA.
- Saranlı, A. G., & Metin, E. N. (2012). Üstün yetenekli çocuklarda gözlenen sosyal-duygusal sorunlar. *Ankara Üniversitesi Eğitim Bilimleri Fakültesi Dergisi*, 45(1), 139-163.
- Saranlı, A. G., Er, S., & Deniz, K. Z. (2017). Okul öncesi dönemdeki üstün yetenekli çocukların dil gelişimlerinin analizi. *Yaşadıkça Eğitim* (in-press).
- Silverman, L. K. (1986). Parenting young gifted children. In J. R. Whitmore (Ed.), *Intellectual Giftedness in Young Children: Recognition and Development* (pp. 73-87). New York: Haworth.
- Silverman, L. K. (1992). The importance of early identification of gifted. *Highly Gifted Children*, 5-16.
- Silverman, L. K. (2002). Asynchronous development. M. Neihart, S. M. Reis, N. M. Robinson, & S. Moon (Eds.), *The social and emotional development of gifted children: What do we know?*. Texas: Prufrock Press.
- Sloan, C., & Stednitz, U. (1984). The enrichment triad model for the very young gifted. *Roeper Review*, 6(4), 204-206.

- Starko, A. (1986). *It's About Time: Inservice Strategies for Curriculum Compacting*. Mansfield Center, CT: Creative Learning Press.
- Stile, S., & Hudson, B. (1993). Early Intervention with children who are gifted. In *DEC Recommended practices: Indicators of Quality in Programs for Infants and Young Children with Special Needs and Their Families* (pp. 127-139). Pittsburgh, PA: Division of Early Childhood, Council for Exceptional Children.
- Walsh, R. L., Hodge, K. A., Bowes, J. M., & Kemp, C. R. (2010). Same age, different page: Catering for young gifted children in prior to school settings. *International Journal of Early Childhood*, 42, 43-58.
- Xu, Y., & Filler, J. W. (2005). Linking assessment and intervention for developmental/functional outcomes of premature, low-birth-weight children. *Early Childhood Education Journal*, 32, 6-13.
- Yıldırım, A., & Şimşek, H. (2013). *Sosyal Bilimlerde Nitel Araştırma Yöntemleri*. Ankara: Seçkin Yayınevi.