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STUDY OF THE EFFECTIVENESS OF ROLE MODEL BEHAVIOR IN TEACHINGMUSIC EDUCATIONTO STUDENTS WITH AUTISM SPECTRUM DISORDER

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ABSTRACT

This study was intended to reveal the results of the effectiveness of the behavior of being a role model in music education. The study group consisted of 1 male and 2 female students who were diagnosed with autism spectrum disorder between the ages of 10 and 12. From single-subject research models, the polling phase is designed according to the multi-polling model between behaviors. Research findings were replicated between subjects. Later, the semi-structured interview technique was applied to student parents and teachers. As a data collection tool, three types of data were collected: effectiveness, reliability and social validity. The data was analyzed by graphical analysis method.

The social validity of the research was examined according to the opinions of student parents and teachers. As a result of the research, it was found that individuals with autism spectrum disorders are highly effective in most but not in one individual in the behavior change of individuals, with the behavior of being role models in music therapy education.

Keywords: Autism Spectrum Disorder, Music Education, Role Model Behavior, Semi-Structured Interview.

INTRODUCTION

Autism Spectrum Disorder (ASD) is defined as a group of neurodevelopmental disorders characterized by repetitive and stereotypical behaviors and deficits in communication and social interaction (APA, 2013). An individual with moderate autism is defined as one who requires intensive special education and supportive services due to limitations in social interaction, verbal and nonverbal communication, interests, and activities, while an individual with severe autism is characterized by an even greater need for intensive special education and supportive services because of similar limitations(MEB, 2018). In another definition, autism spectrum disorder can be described as a condition in which an individual experiences difficulty in the areas of communication, behavior, and social interaction (Gold, Wigram &Elefant, 2010).

When addressing deficiencies in social relationships and communication, individual music therapy and role modeling practices are highly significant in supporting skills such as establishing communication, responding to actions, listening, and self-expression (Gökmen, 2010). Music therapy role modeling activities, through which each individual can best express themselves, are undoubtedly crucial for the development of their social, cognitive, and mental skills. For example, activities such as singing together with the practitioner, repeating the performed actions, becoming aware of one's own voice, gaining discipline in cooperation, directing energy positively through independent actions, achieving personal satisfaction, and improving a sense of rhythm and melody all contribute meaningfully. Music can also support the individual's ability to concentrate attention on a specific area and enhance joint attention (Kim, Wigram &Gold, 2008; Eskioğlu, 2003).

In the study conducted by Yılmaz, Topaloğlu, and Akyüzlüler (2014), the effect of group music activities on the social skill levels of children with autism was examined. The study group consisted of four children with autism, selected using a criterion sampling model. The research was carried out using a qualitative design.A semi-structured interview form and a social skills checklist were used as data collection tools. The results of the study indicated that group music activities positively affected the autistic children's ability to initiate and maintain relationships, their ability to manage group work, and their stage skills. It was observed that group music activities enhanced the social skills of children with autism.

In the study conducted by Pektaş (2019), the effectiveness of social story interventions transformed into musical activities in teaching social skills to children with developmental disabilities was examined. The participating children with developmental disabilities were

taught the social skills of “apologizing, taking turns, greeting, and asking for permission” from Hasan Avcıoğlu’s Social Skills Scale for ages 4–6, through social stories adapted into musical forms Among single-subject research models, the multiple probe design across behaviors was employed.A total of three participants, two boys and one girl with autism spectrum disorder and Down syndrome, were included in the developmental disability group aged between 7 and 15. Effectiveness data were collected from baseline sessions, daily probe sessions, teaching sessions, full probe sessions, and follow-up sessions. The graphs obtained from these sessions were analyzed, and separate graphs were drawn for each individual and social skill. It was found that teaching all of the targeted social skills was effective.However, for the participant with developmental disabilities diagnosed with autism spectrum disorder, the intervention was not found to be sufficiently effective and did not lead to a positive change.

In the study conducted by Schmid, Demoss, Scarbrough, Ripple, White, and Dawson (2020), it was stated that students with autism spectrum disorder have explicit deficits in social communication skills that may challenge their ability to participate in academic and social activities. Although music therapy is a popular intervention for children with ASD, the researchers emphasized that methodological limitations restrict the interpretation. The study proposed a new measure, DUACS, to assess outcomes related to the music therapy program Voices Together. The participants consisted of 64 elementary school students and intervention sessions lasted for 16 weeks.Behavioral surveys were used as data collection tools. Positive increases in communication skills were observed in students with ASD. It was further noted that additional research on this program approach may help us better understand its mechanisms and for whom it works best.

Purpose of the Study

The purpose of this study is to reveal the outcomes of the effectiveness of role modeling behavior in teaching music therapy to students with Autism Spectrum Disorder (ASD). In line with this purpose, the following research questions were addressed:

1. Is the practitioner’s role modeling method effective in changing the behavior of students with ASD in music therapy instruction?
2. Is the music learning method presented through role modeling behavior in music therapy effective in ensuring the retention of music in the minds of students with ASD?

3. What are the opinions of the parents and teachers of the participants regarding the study?

METHOD

This section covers the research model, study group, setting, pilot application, data collection, and data analysis.

Research Model

In this study, which aimed to determine the effectiveness of a program designed to teach children with Autism Spectrum Disorder (ASD) the skills of learning, singing, and repeating songs or folk songs through music therapy with role modeling, a single-subject research design was employed. Specifically, the multiple probe design across behaviors was used, and the research findings were replicated across participants. In the literature, there are studies in which the multiple probe design across behaviors has been replicated across participants in teaching functional reading skills (Mechling, Gast &Langone, 2002; Mechling&Gast, 2003).

The multiple probe design across behaviors is a research model in which the effectiveness of one independent variable is examined across three different behaviors. The model consists of two phases: the probe phase (baseline phase) and the intervention phase, which is repeated with at least three behaviors. The baseline phase must consist of three sessions. The selected behaviors must be studied with the same participant in the same setting Furthermore, it is essential that the selected behaviors are functionally similar in nature but independent of one another. In such experimental studies, establishing experimental control is crucial, and it is aimed that the desired changes in each dependent variable occur solely as a result of the application of the independent variable. Therefore, the research must be designed by taking the covariance effect into consideration(Tekin- İftar, 2018).

The covariance effect refers to the occurrence of a desired change in other dependent variables during the baseline phase, even though instruction has not yet begun for those variables, as a result of applying the intervention to one dependent variable. One way to control for the covariance effect is to provide instruction on three dependent variables to the same participant in the same setting, while simultaneously including other participants in the study, with the aim of introducing similar dependent variables to these participants. This approach is referred to as the replication of the multiple probe design across behaviors with participants.The order in which instruction or intervention is delivered for the targeted

dependent variables should also be varied In this way, it can be determined whether the changes in the dependent variables are due to the covariance effect or to the independent variable (Tekin-İftar, 2018).

Among the factors that may affect internal validity in single-subject research are external factors, measurement, participant attrition, variability of data, artificial setting effects, treatment fidelity, and maturation. It is important to determine how to control potential internal validity factors that may affect the research before beginning the study (Tekin- İftar, 2018).

The purpose of a structured interview is to identify similarities and differences among the information provided by the participants and to make comparisons accordingly (Yıldırım&Şimşek, 2005:93).

Semi-structured Interviews: Semi-structured interviews are a variation between structured and unstructured interviews. Semi-structured interviews include a series of open-ended questions based on the area the researcher seeks to clarify (Karasar, 2000:168). In the semi-structured interview technique, the researcher prepares an interview form containing the questions planned in advance and asks the participants systematically, but participants are given enough freedom to delve into the details (Altunışıket al., 2001:193). The most significant advantage of the semi-structured interview technique is that it provides more systematic and comparable information because the interview is conducted in accordance with the pre-prepared interview form (Yıldırım&Şimşek, 2005:95-96 The research data were collected using a semi-structured interview form.For the planned interviews, a literature review of journals, articles, books, and online sources was conducted beforehand. Interview questions were developed after these searches and expert opinions were obtained. In addition, expert consultation was sought for both content validity and face validity. For interviews with students' parents and teachers, appointments were made with school principals, and face-to-face meetings were conducted Teachers’ free class periods or lunch breaks were preferred for the interviews. Parents' and classroom teachers' opinions about teaching through role modeling in music therapy were explored in 25-30-minute interviews to address sub-problems.

Study Group

The study included three volunteer children diagnosed with Autism Spectrum Disorder (ASD), consisting of two boys and one girl, aged between 10 and 12. . In the study, pseudonyms rather than the students' real names were used. During the participant selection process, the researchers met with the principal of an applied school located in the central districts of Konya, which provides education for children with intellectual and developmental disabilities as well as those diagnosed with ASD. Based on prerequisite characteristics aligned with the purpose of the study, three suitable students were identified. The participants were students who attended the institution five days a week.While obtaining parental consent, detailed information about the intervention was provided, and written permission was secured. Necessary information was shared with the families, and the required approvals were obtained.

For participation in the study, the following prerequisites were required: having an approved report of an Autism Spectrum Disorder (ASD) diagnosis issued by the Department of Child and Adolescent Psychiatry of a fully equipped university or state hospital, not having previously received instruction related to the targeted behavior, and being non-literate.

Setting

The research was conducted in the classroom where the subjects received individual instruction at the institution they attended. The classroom in which the research was carried out contained a study desk, a cabinet for instructional materials, a bookshelf, and a smart board.Generalization sessions were conducted in another classroom within the same institution. The room used for evaluation contained two cabinets for materials, two study desks of the same size, and a chalkboard. The floors of all classrooms in the institution were covered with plastic flooring material.

Pilot Implementation

A pilot study was conducted in order to identify potential problems that might arise during the experimental process and to make the necessary adjustments beforehand. n the pilot study, an 8-year-old male student diagnosed with Autism Spectrum Disorder (ASD), who met the prerequisite characteristics, was included. The program, which was prepared

using learning activities presented through music therapy role modeling and instructional practices, was implemented with the selected participant before the implementation phase for at least three sessions. The family of the participant was informed about the pilot study, and the necessary consent was obtained.

The pilot implementation of the study was conducted in the evaluation room of the institution where the participant was enrolled, on three weekdays between 1:00 PM and 2:00 PM. The evaluation room was equipped with a table, a cabinet, and a bookshelf. At the specified time, the student participated in a music therapy session combined with role-modeling activities. The session was simultaneously recorded using a camera.

Prior to the pilot implementation, the reinforcers identified for the participant, a tablet computer, and the data collection form were prepared on the table, and a camera was set up in the environment to record the session. Before the pilot session began, the participant was informed that he would receive a reward if he successfully imitated the movements I demonstrated while music was playing and worked in a coordinated manner. With the participant's consent, the pilot implementation was initiated The activities to be performed with music therapy were explained. . Baseline data were organized for a minimum of three sessions. The participant's responses to the music therapy role modeling behavior were marked on the baseline data form Once stable data were obtained over at least three sessions, the study progressed to the instructional sessions presented through music therapy combined with singing and role-modeling.During the instructional sessions, each step of the designed program was practiced over a minimum of three sessions.

Data Collection

In this study, three types of data were collected: effectiveness, reliability, and social validity. The functional reading skills probe session and the reliability data collection form were employed. For the generalization sessions, the “singing songs and folk tunes and response skills generalization session and reliability data collection form” was used, while for the follow-up sessions, the “humming and singing the song or folk tune skills follow-up session and reliability data collection form” was utilized.

Intervention Process

The experimental process consisted of baseline probe, instructional, follow-up, and generalization sessions. All sessions, except for the generalization sessions, were conducted by the researchers.

Baseline Probe Sessions

The tasks to be performed by the participants were explained by the practitioner across different sessions. The practitioner demonstrated the movements along with pre-recorded songs on the computer, and participants observed the practitioner in separate sessions. Subsequently, the participant and the practitioner sang together to the music and performed movements corresponding to the song. To ensure the permanence of this behavior, the session was repeated at least three times.

Instruction Sessions

At this stage, the practitioner started the music on the computer, and the participant began performing the learned movements independently. This session was repeated at least three times. Any incorrect movements were demonstrated by the practitioner, and the participant attempted to perform them correctly.

Follow-up Sessions

The same song was played from the computer, and the practitioner observed the participant’s movements without intervening. Participants practiced separately in the same environment. Both vocal and silent repetition of the song by the participant was observed.

Generalization Sessions

In this session, the activities were conducted with a different song in a different environment.

Data Analysis

The study included the analysis of effectiveness, reliability, and social validity data. Findings regarding whether the instructional procedures presented by the practitioner were effective in enabling participants to acquire the target behavior were analyzed graphically.

During the implementation process, the number of correct responses by the participants was recorded on the data collection forms. . The data was transferred to the graphical analysis as follows: the total number of correct behaviors each participant was required to demonstrate in each of the four operational skills was determined, and the number of correct behaviors per session was converted to a percentage system and transferred to the graphical analysis.

In the graphical analysis, the data were first analyzed according to the multiple baseline across behaviors design, and then the findings were replicated across participants. In the graphical analysis, the horizontal axis represents the number of sessions conducted in the study, and the vertical axis represents the subjects' success percentages across three separate four operational skills.

For the analysis of interobserver reliability data, the formula“agreement / (agreement + disagreement) × 100”was used. To analyze procedural reliability data, the formula“observedpractitioner behavior / planned practitioner behavior × 100”was applied (Tekin-İftar &Kırcaali-İftar, 2018).

The data obtained from the social validity form were evaluated using a descriptive analysis technique. First, the researcher transferred the collected data to a computer and subsequently identified the emerging themes. A coding key consisting of the transcribed raw data and the themes derived from these data was provided to another researcher to assess inter-coder reliability. Finally, the findings were described and interpreted within the framework of the identified themes.

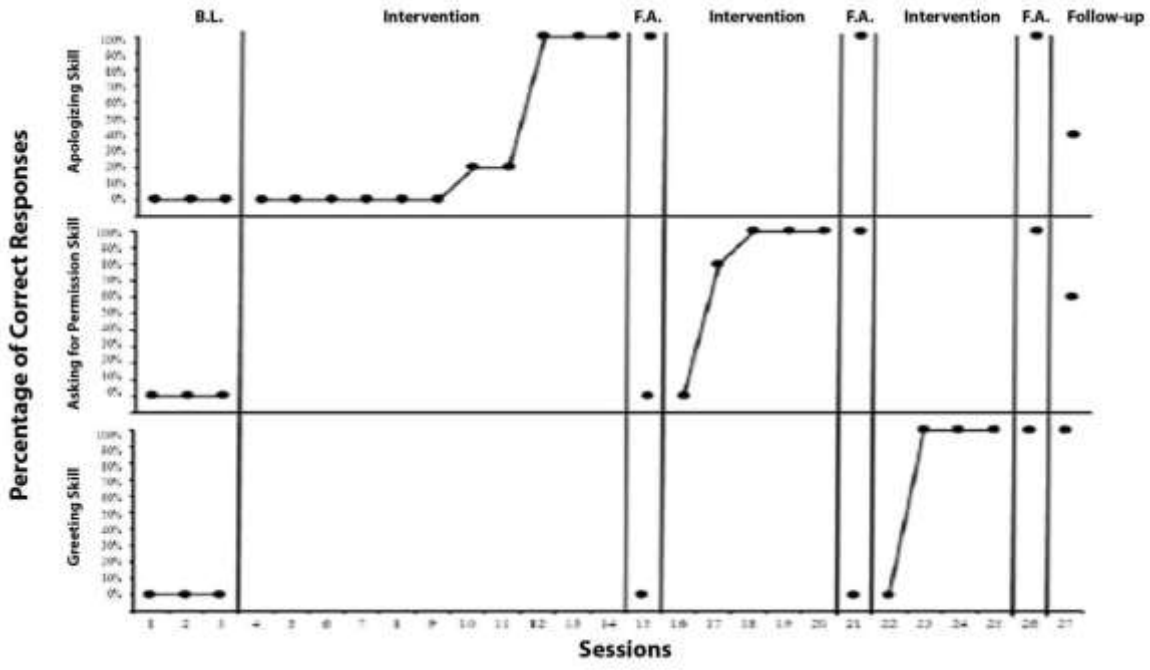
FINDINGS

The research yielded findings regarding the effectiveness of role-modeling behavior in music therapy instruction for individuals with autism spectrum disorder. The research findings are presented and explained below.

Findings Regarding the Effect of the Practitioner's Role-Modeling Method on the Behavior Change of Individuals with Autism Spectrum Disorder in Music Therapy Instruction

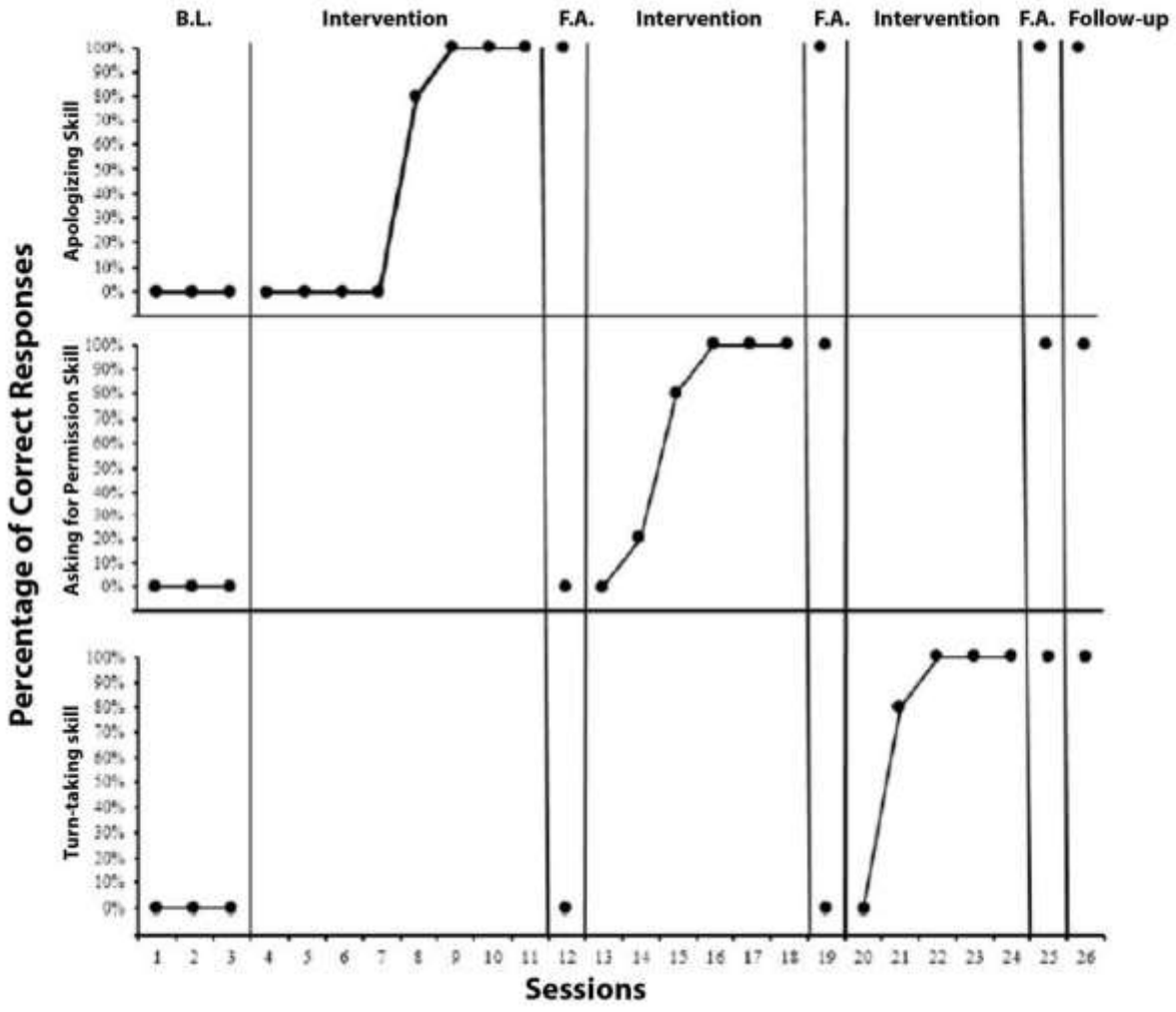
Data were recorded on the data collection forms and graphed by considering the participants' correct responses to all movements demonstrated by the practitioner during the probe and instructional sessions. In the graph, baseline probe, instructional, and follow-up session data were presented as percentages of correct responses for the targeted skill. Examination of the data obtained for the song aimed to be taught to Ali revealed that during the baseline phase, the data from three sessions were at 0%, indicating that the participant did not produce any correct responses during this phase. Subsequently, the percentage of correct responses increased. Ali was observed to have learned the targeted movements and the song's lyrics after 15 instructional sessions (See Graph 1).

Graph 1. Percentage of Correct Responses for Ali's Baseline Level in Role Modeling Skills in Music Therapy Instruction



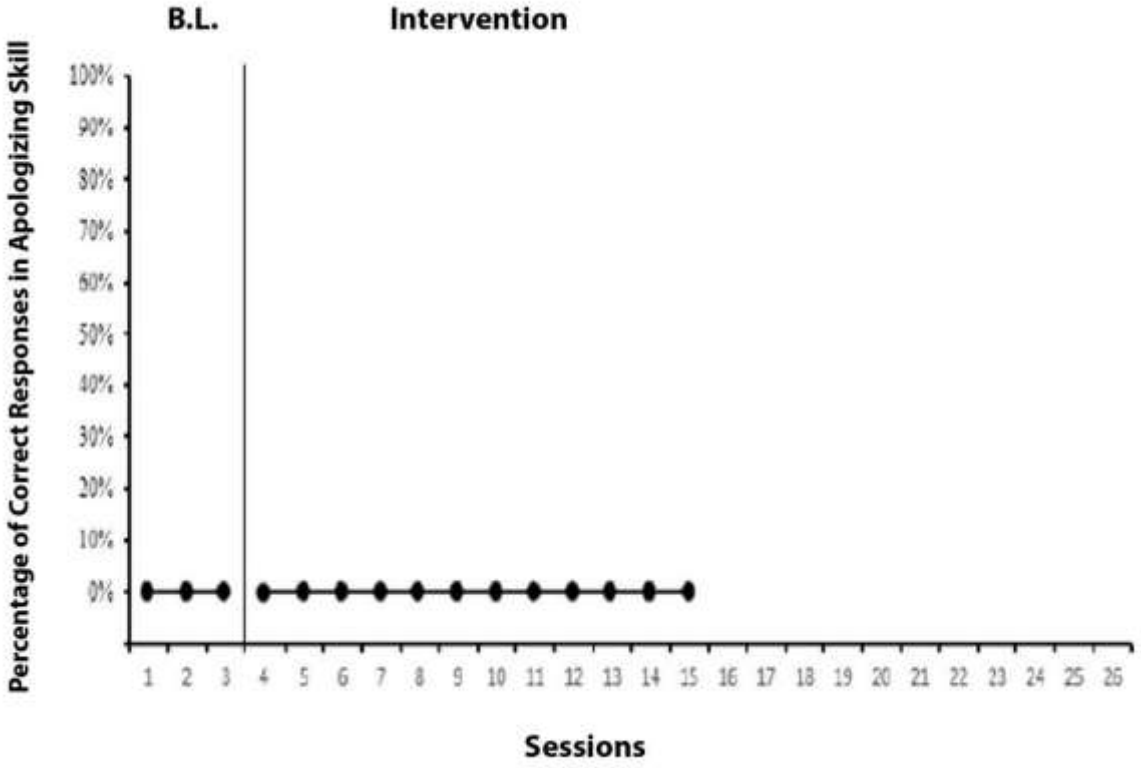
When examining the data obtained regarding the targeted behaviors (song lyrics, rhythm, and repetition) to be taught to another participant, Buse, it was observed that during the baseline phase, the data remained at 0% across three consecutive sessions and that the participant did not exhibit any correct responses during this phase. With the initiation of role modeling practices in music therapy instruction, it was observed that the level of Buse's performance on the targeted skills increased positively. Buse was observed to have performed the targeted movements (singing, rhythm, and repetition) after 15 instructionalsessions. Eight weeks after the intervention, she maintained the acquired skills at 100% accuracy.(see Graph 2).

Graph 2. Percentage of Correct Responses for Buse's Baseline Level in Role Modeling Skills in Music Therapy Instruction



During Murat's baseline phase, it was observed that the data remained at 0% across three consecutive sessions, and the participant did not exhibit any correct responses at this stage. Subsequently, intervention sessions were initiated. However, regarding the target behaviors of repetition and singing, Murat was unable to meet the criterion of three consecutive sessions at 100% accuracy during the intervention sessions. In order to obtain stable data with Murat, 15 instructional sessions were conducted.Murat participated in the instructional sessions with enjoyment and responded to the activities and music at the expected level. However, he did not provide correct responses during the daily probe sessions; therefore, his percentage of correct responses remained at 0% throughout all 15 sessions. The intervention was subsequently terminated (see Graph 3).

Graph 3. Percentage of Correct Responses for Murat's Baseline Level in Role Modeling Skills in Music Therapy Instruction



Findings Regarding the Music Learning Method Offered with Role Modeling in Music Therapy Instruction for Individuals with ASD and Its Effectiveness in Improving Music's Mental Permanence

The role modeling approach used in music therapy instruction to teach the intended skills was successful for two participants (Ali and Buse) and unsuccessful for one participant (Murat). These findings indicate that the music (song) was retained in the memory of most participants, whereas it was not retained for a few participants.

Social Validity

The social validity of the study was examined by obtaining feedback from the participants' mothers, fathers, and teachers regarding the importance of the taught skills, the appropriateness of the methods used, and the significance of the observed behavior changes.

The social validity questionnaires were completed by the mothers of two participants, the father of one participant, and the teachers at the participants' school (four teachers in total). All of the mothers and teachers (n = 6) reported that music therapy was beneficial for their children/students and should be continued in the future. The father of one student indicated uncertainty. These findings suggest that the study was viewed positively by the majority of parents and teachers, although one parent was hesitant.

Conclusion and Discussion

This research examined the effectiveness of role-modeling behavior in teaching music therapy skills to individuals with autism spectrum disorder. Additionally, the opinions of the participants' parents and teachers regarding the research were explored.

The findings indicated that role-modeling in music therapy instruction was effective for the participants, and that they maintained the learned skills eight weeks after the completion of the instructional sessions. However, the teaching of music therapy skills through role-modeling was not effective for the third participant diagnosed with autism spectrum disorder.

The social validity findings, collected from the participants' parents and teachers regarding the overall implementation, indicated that role-modeling in music therapy instruction was highly effective in promoting behavior change in individuals with autism spectrum disorder, although it was not effective for the third participant.

The reliability findings showed that all phases of the implementation with the participants were conducted with high procedural reliability, and that the data collected by the researcher were largely consistent.

Regarding the findings on effectiveness, maintenance, and social validity, there are very few studies examining music therapy instruction through role-modeling behavior in children with autism spectrum disorder.

This research is consistent with the results of the studies conducted by Yılmaz, Topaloğlu, and Akyüzlüer (2014) and Pektaş. The research conducted by Yılmaz, Topaloğlu, and Akyüzlüer (2014) examined the effects of group music activities on the social skills of children with autism. Four children with ASD participated in the research. A qualitative research design was employed, using interviews and document review. The semi-structured interview form and video recordings of the children's work and stage performances were analyzed using a descriptive analysis method, with the "Social Skills Checklist" developed by the researchers. The research results indicated that music activities positively changed the social skills of students with autism. They observed that group music activities increased the social skills of children with autism.

In another study, Pektaş (2019) examined the effectiveness of social story interventions adapted into musical activities for teaching social skills to children with developmental disabilities. The study included two male participants diagnosed with autism spectrum disorder (ASD) and one female participant with Down syndrome. Effectiveness data were collected during baseline sessions, daily probe sessions, instructional sessions, baseline probe sessions, and follow-up sessions. Social validity and reliability data were also gathered. The results were presented graphically. Musical activities were determined to be effective in teaching. However, they were not found to be effective for a student diagnosed with autism spectrum disorder.The social validity data, based on the opinions of the participants' parents, indicated that this study was highly effective.

In another study, Rosenburg (2016) conducted a case study involving students with autism spectrum disorder (ASD). The study was carried out in an art class at the first level of a public high school, where a therapy dog was introduced. The purpose of the study was to determine how Animal-Assisted Therapy could benefit individuals with ASD. Data were collected using observation, interviews, and surveys, employing a qualitative research approach. The collected data were analyzed to gain insight into how the inclusion of a therapy

dog can facilitate successful inclusion, facilitate the socialization of students with ASD, and influence student selection of artwork.

Recommendations

1. Further studies can be conducted on music therapy and role-modeling with students with autism spectrum disorder.
2. Teachers working with students with ASD can be provided with training by experts on role-modeling in music therapy.

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