IOJPE

ISSN: 1300 – 915X
www.iojpe.org

International Online Journal of Primary Education *2022, volume 11, issue 1*

THE EFFECTIVENESS OF SCHOOL-WIDE POSITIVE BEHAVIORAL INTERVENTIONS AND SUPPORTS IN EARLY CHILDHOOD SETTINGS: A MIXED MODEL RESEARCH

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Received: July 6, 2021 **Accepted:** March 18, 2022 **Published:** June 30, 2022

Suggested Citation:
Melekoglu, M., & Diken, I. H. (2022). The effectiveness of school-wide positive behavioral interventions and supports in early childhood settings: A mixed model research. *International Online Journal of Primary Education (IOJPE), 11*(1), 109-135. https://doi.org/10.55020/iojpe.1052521

Abstract

It is important to support children's appropriate behaviors and social skills to extinguish problem behaviors at an early stage as much as possible. Therefore, researchers are in search of effective evidence-based interventions to deal with the problem behaviors of young children. The "Positive Behavioral Interventions and Supports (PBIS) Approach" seems to be the most widespread approach since the 2000s. PBIS aims to increase the quality of life of the child by making positive changes in the environment of the child. The study explores the effectiveness of the School-Wide Positive Behavioral Interventions and Supports Turkish education model (SWPIBS-TR) on problem behaviors and social skills within the early childhood settings. The intervention was carried out in four main stages and 14 steps. The study was conducted with the school managers, teachers, school staff, primary caregivers, and all children with and without disabilities in a preschool/kindergarten in Turkey. The research is mixed-method research and the "parallel convergent research" model has been adopted. The findings indicated significant decreases in the problem behaviors of children and increases in the social skills level. So, researchers, policymakers, and teachers should put the SWPBIS-TR approaches in their curriculum in Turkey.

Keywords: Behavioral problem, positive behavior/al support, school wide positive behavior/al support, early intervention, social skills.

INTRODUCTION

Early Childhood and Problem Behaviors

Early childhood refers to the 0-6 age range according to the Turkish Ministry of National Education (MoNE) Preschool Education Program (PEP) (2013), but it covers the 0-8 age range according to UNICEF (2001). Since linguistic, cognitive, sexual, social, and emotional development occurs in the early childhood years, this period is very important in the child's life. The skills acquired by the child in early childhood directly affect the behavior and development of the child in later years. All development areas directly affect one another and social and emotional development should be fostered well, especially in the acquisition of positive behaviors and appropriate social skills (Er-Sabuncuoğlu & Diken, 2010). From childhood, children who have not been able to develop an age-appropriate social-emotional development due to various reasons, cannot have a positive life in later life and often exhibit problem behaviors or may have the risk of showing problem behaviors. Children who exhibit problem behaviors fail to develop appropriate social adaptation skills in their environment and have difficulties in establishing positive social communication with individuals (Young, Caldarella, Richardson, & Young, 2012). However, from a young age, it is necessary to teach children appropriate behaviors and social skills, just like the skills in other developmental areas. Looking at MoNE-PEP (2013), the social skills program for children aged 3-6 is observed to include

goals such as fulfilling responsibilities, self-confidence, knowing self, being respectful, problem-solving, and obeying the rules. According to Young et al. (2012), achieving these goals is crucial for children to be able to develop positive behaviors and social skills from an early age. Indeed, children who can cope properly with the problems they encounter exhibit pro-social skills (eg, cooperation, respect, forgiveness, sharing) quite well (Dereli-İman, 2013). However, when they cannot gain the skills to cope with the problems they encounter, they may display problem behaviors such as aggression and belligerence (Young et al., 2012).

To prevent problem behaviors, parents, and teachers should be very careful in the early childhood years. Therefore, teachers of children who have started their education in any kindergarten need to observe and know their children well (Fox & Little, 2001). Pre-school children's problem behaviors should be detected and taken under control by their teachers as early as possible and (Stormont, Lewis, & Convington, 2005b). In fact, when appropriate intervention programs are not applied to children who show problem behavior or are in the risk group, many children exhibit these problem behaviors more intensely in their future schooling (Golly, Stiller, & Walker, 1998; MoNE & UNICEF, 2013).

Teachers usually struggle with similar problem behaviors of certain children in their lessons and try to come up with solutions. However, to produce more permanent and effective solutions, it is more important for them to develop an effective intervention program by determining the general needs and characteristics of children and the school to intervene in these problem behaviors, to gain positive behaviors and appropriate social skills (Fox, Dunlap, Hemmeter, Joseph, & Strain, 2003; Fox & Little, 2001). For the program to be applied to intervene in problem behaviors to be effective and efficient, this program should be applicable, reliable, and evidence-based. However, evidence-based intervention methods applied to address problem behaviors are quite limited in the literature. Intervention programs such as the First Step to Success (FSS) (Walker, 1998), Head Start and Positive Behavioral Interventions and Supports (PBIS) (Horner & Sugai, 2000) are the main evidence-based practices that are applied especially to prevent, reduce and eliminate problem/problem behaviors. The Head Start program offers financial and educational services to children aged 0-6 living in socio-economically and culturally disadvantaged living areas (Eliana, Thomas, & Currie, 2002). FSS is an intervention program that can be applied in different age groups and includes classroom and home-supported practices that guide the child to appropriate behaviors (Walker, 1998; Diken & Rutherford, 2005). Among these programs, PBIS is an intervention approach that has been widely used in recent years. When these programs are implemented by following the systematic and scientific application steps and when decisions based on scientific data are made in the implementation process of the programs, they are highly effective in teaching appropriate social skills and behavior (Fox & Little, 2001; Stormont, Lewis, & Beckner, 2005a).

Positive Behavioral Interventions and Supports Approach

PBIS is an approach that has adopted the philosophy of positive psychology and has certain goals. The PBIS approach includes intervention practices that provide children with positive learning environments and individual behavioral support (Horner & Sugai, 2000). According to Horner and Sugai (2000), by setting observable and measurable rules according to the needs and cultural characteristics of the school, the PBIS approach primarily aims to have all children follow these rules.

The PBIS approach aims to increase the level of knowledge and skills of primary caregivers in the family, teachers, and school staff at school in approaching children and supporting them appropriately in their education and training. Thus, children can develop positive behaviors and appropriate social skills (Carr et al., 2002), and so, their living standards improve (Erbaş, 2008; Kincaid et al., 2016).

In the literature, following the general features and implementation steps covered by the PBIS approach, PBIS can be applied at three levels as primary, secondary, and tertiary intervention strategies in schools and classrooms (Lewis & Sugai, 1999; Walker et al., 1996; Sugai & Horner, 2002). In addition, all three levels of the PBIS approach can be applied individually or separately, in all age groups from kindergarten to high school, as well as to individual, classroom, school-wide, or

larger-scale groups (Simonsen, Sugai, & Negron, 2008). A review of the related literature shows that in recent years, especially in the USA, various levels of school, regional or state-wide practices have been performed for all age groups (Kincaid et al., 2016). Nowadays, PBIS is mostly applied at school or province-level because school-wide or provincial practices can produce the most effective solutions to intervene in problem behaviors, especially since they involve collaborative practices of many stakeholders (Bradshaw, Mitchell, & Leaf, 2010).

School-Wide Positive Behavioral Interventions and Support (SWPBIS)

SWPBIS strategies include studies to determine the needs of all stakeholders in the school, taking into account especially the social, cultural, and economic characteristics of the school environment (Bradshaw et al., 2010; Sugai & Horner, 2006). As such, SWPBIS is an evidence-based practice that creates solutions to meet the needs of the school and to equip children with appropriate skills by cooperating with all stakeholders (Lewis & Sugai, 1999). According to Walker et al. (1996), Sugai and Horner (2002), the SWPBIS approach includes especially prevention-based intervention practices at three levels within the framework of the basic features and implementation steps of the PBIS. SWPBIS practices are classified as tier-1, tier-2, and tier-3 interventions. According to Walker et al. (1996), tier-1 level interventions include practices that cover all students by developing effective interventions to plan disciplinary rules at school and interfere with problem behaviors. According to Sugai and Horner (2002), interventions applied at this level generally have a positive effect on 85% of children. Tier-2 interventions include strategies such as identifying children who continue to exhibit problem behaviors despite tier-1interventions or who tend to exhibit problem behaviors, controlling their own behaviors and applying anger management tactics, and initiating school-family cooperation, and interventions applied in small groups to children with behavioral problems in daily life (Sugai & Horner, 2002; Walker et al., 1996). The tier-3 level interventions are implemented for children who continue to exhibit problem behavior despite tier-1 and tier-2 interventions. At this level, individual intervention programs are developed for the child in cooperation with many experts from the child's immediate environment and experts (Walker et al., 1996). If the child showing problem behavior is at high school, it includes high-level interventions such as getting support from correctional houses and providing individual counseling when necessary (Walker et al., 1996). According to Sugai and Horner (2002), this level of interventions covers 5% of all children at school or in classrooms. They are aimed to the problem behaviors of the children that disturb the environment and themselves and cause permanent social-emotional damage in the child that prevent learning. Elements of an effective SWPBIS education model are (a) forming the team (b) determining the goal/behavior to be acquired, (c) gaining the relevant behavior, (d) reinforcing positive behaviors, (e) giving feedback to problem behaviors, (f) measuring and evaluating, and (g) creating a systematic and individual support network (Fox & Little, 2001; Horner & Sugai, 2000; Stormont et al., 2005a). The SWPBIS team decides how and when the SWPBIS will be implemented, and this team determines the level of implementation of the PBIS by taking into account the basic needs of the school (Horner & Sugai, 2000).

SWPBIS strategies can be applied to different age groups in schools. The initial PBIS practices only focused on high school students, but later, secondary school and primary school applications have begun, and since the 2000s PBIS has been implemented with early childhood children (Simonsen et al., 2008). Since SWPBIS is mostly applied in older age groups, applied SWPBIS research on early childhood period is very limited (Fox & Little, 2001). However, the implementation of the PBIS steps does not differ much according to age levels (Stormont et al., 2005a). Compared with the practices for other age levels, the early childhood PBIS practices often appear to include prevention-based interventions because problem behaviors in young children are not yet established as in older age groups. PBIS practices generally consist of four basic components: "system, data, implementations and gains". Similarly, according to Stormont, Lewis, Beckner, and Johnson (2008), SWPBIS practices in early childhood also include these components. Early childhood SWPBIS implementation includes certain steps as in other age levels. According to the literature, these steps are (a) determining three to five behavioral objectives/outcomes by considering the needs of the school and children, (b) equipping children with these behaviors, (c) providing appropriate feedback for the positive and problem

behaviors of children, (d) providing positive learning environments, (e) making objective scales and evaluations and making decisions based on data, and (e) providing systemic and individual support (Horner & Sugai, 2000; Medley, Little, & Akin-Little, 2008).

Considering the national research literature, Melekoğlu (2017) is the first SWPBIS-TR research conducted at the preschool level. This study is a doctoral dissertation, which was developed and implemented to intervene in the problem behavior of young children. In the national literature, there is a limited number of PBIS applications (Atbaşı, 2016; Erbaş, 2008; Olcay, Koç, Vuran, & Köksal, 2020; Ünlü et al., 2013) no evidence-based article is available on SWPBIS-TR for both early childhood and other age levels (Melekoğlu, 2017; Melekoğlu, Bal, & Diken, 2017).

In general, most of the children in national and international schools behave negatively and the lessons are inefficient (Golly et al., 1998; MoNE & UNICEF, 2013). When problem behaviors observed in younger age groups are not eliminated by intervening especially before the age of nine and appropriate behaviors are not achieved, these problem behaviors are maintained in the older ages in various other ways, which become permanent and cause more severe harm to the individual and his/her environment (Foul, Stepensky, & Simonsen, 2012). In addition, such intervention into problem behaviors requires longer time, stronger financial support, and more experts. Therefore, early intervention is critical (MoNE & UNICEF 2013). The interventions for problem behaviors applied in Turkey are quite limited (Çelik et al., 2016; Dereli-Iman, 2013; Melekoğlu, 2017; Tomris, 2012).

With the education model of SWPBIS-TR used in this study, pre-school children were prevented from being labeled as children causing problems in society. When the outcomes of the study are examined, it is clear that it helped attain many environmental and social achievements. Children who display problem behaviors firstly harm themselves psychologically and socio-economically and then harm their close and distant environment. According to the related literature, when appropriate evidence-based practices are implemented with children at appropriate times, their positive behaviors increase and their problem behaviors are reduced (Faul et al., 2012; Golly et al., 1998). Since the current study targets children who exhibit or are at risk of exhibiting problem behaviors in early childhood, prevention interventions were applied at early ages before such behaviors became permanent. Thus, young children displayed appropriate behavioral and social skills and moved to the next level of education more happily and safely (MoNE & UNICEF, 2013). In addition, as the problem behaviors of the child turned into positive over time, it paved the way for a peaceful environment and positive social interaction in the family (Sugai & Horner, 2002). Teachers were observed to deal with problems mostly through traditional interventions such as talking to the child individually, interviewing the family, or punishing the child for the problem behavior. Systematic, sharing, evidence-based practices are developed and implemented according to the socio-cultural characteristics and needs of schools with a team of all stakeholders in the process of intervention to problem behaviors, by applying the SWPBIS education model. Studies conducted in recent years emphasize that large-group collaborative practices produce more effective and lasting solutions in responding to problem behaviors (Kincaid et al., 2016; Melekoğlu, 2017).

Purpose of the Study

In line with the information presented above, this study aims to evaluate the effectiveness of the SWPBIS-TR education model developed to support the appropriate social skills acquisition and reduce problem behaviors of 3 to 6-year-old children and to examine the participant views about the education model. For this purpose, the answers to the following questions were sought:

1. Does the SWPBIS-TR education model make a significant difference between children's social skills pre-test, mid-test, and post-test scores?
2. Does the SWPBIS-TR education model make a significant difference between children's pre-test, mid-test, and post-test problem behavior scores?
3. What are the opinions of administrators, assistant staff, teachers and children about the problem behaviors and social skills at school, and the SWPBIS-TR?

4. What are the parents' opinions about their children's social skills and problem behaviors at home and the SWPBIS-TR?
5. What are the teachers' application levels of their SWPBIS-TR knowledge in their classrooms after the research?

METHOD

This section includes the design of the research, participants, data collection, and data analysis.

Research Design

In this study, one of the mixed methods, "the convergent parallel mixed method" was applied (Hacıömeroğlu, 2013). When using this method, qualitative and quantitative data are collected simultaneously throughout all stages of the research. The reason for choosing this method is to collect and analyze data on the same subject using multiple complementary data sources to examine and understand the research problem in depth (Bütün, 2013; Creswell, 2009). Qualitative and quantitative data obtained by this research method provide data at the same level for the research questions (Creswell & Clark, 2007). As seen in Figure 1, the quantitative dimension of the research was designed as a pre-test, mid-test, and post-test research model without the control group. A public kindergarten school volunteering to participate in the study was determined as the experimental group of the study according to the convenient sampling method. For the qualitative part, semi-structured individual and focus group interviews were conducted. Figure 2 shows the "the convergent parallel mixed method design diagram". In this study the convergent parallel mixed method design was formed in four steps (Melekoğlu, 2017); (a) in the first step, the researchers sought answers to the research questions by using multiple data sources, using data techniques in parallel to each other. In the second step, the data were analyzed using qualitative and quantitative techniques. In the third step, the qualitative and quantitative findings obtained were given independently. In the fourth step, the findings were interpreted to determine the intersecting points of the findings obtained with both data types, their relationships. The findings confirmed each other, combined, and synthesized to examine the research questions in depth (Creswell & Clark, 2007).

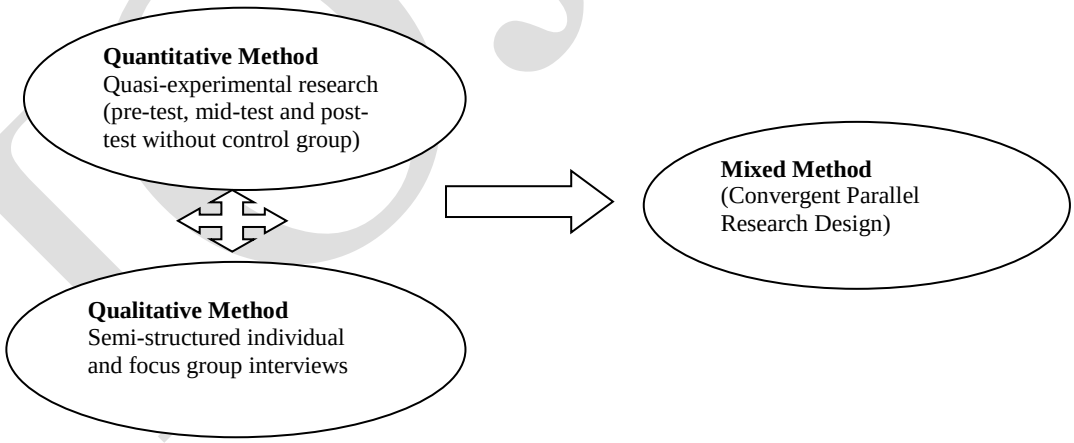

Figure 1. Mixed method research design

Research Setting

The research was carried out in a public kindergarten in a province of Central Anatolia Region of Turkey. Children in the 3-6 years old receive education in this school. In the school, there are five classes in the morning group and seven classes in the afternoon group, and a dual education program is practiced. Research practices were applied in all the classes, but since the teachers of three classes change during the year, four classes from the morning group and five classes from the afternoon group

were included in the study. There are 85 children in the morning group and 161 children in the afternoon group, with inclusive education practiced in all the classes.

Participants

During the research process, the quantitative data were collected from the children and the researcher. The children were administered the scale, and reliability data were collected from the researcher. Qualitative data were collected from teachers, administrators, staff, and parents. Both the ethics committee permission and the consent for voluntary participation from all participants were obtained for the research, and the research data and findings were limited only to the research school and participants.

Children. Since the SWPBIS-TR education model involves the participation of the whole school, all the children in the morning and noon groups participated in the study. For the children to participate in the study, the parents were asked to fill out voluntary participation forms and 152 parents allowed their children to participate in the study. The data of 131 children in total were included in the study because some children dropped out of school or changed their class for various reasons during the research. 84% of the children lived with their parents, and 16% lived with one of their parents. 28% of the children included in the study were girls. There were also children in kindergarten who were officially diagnosed with the need for special education or who only had a doctor's report but whose parents did not want them to be officially diagnosed with disabilities. Most children with disabilities had a diagnosis of autism spectrum disorder (ASD).

Teachers. Nine teachers and two administrators participated in the study. All of the teachers were female and graduates of the pre-school teaching undergraduate program. Most of the teachers were between the ages of 25 and 36 and had 4 to 15 years of experience.

Parents. 25 parents took the pre-test and 16 parents took the post-test. The mothers were on average 30-40 years old and did not work. 42% of the mothers had a secondary school or high school degree, and 58% had an associate degree or advanced degree. 67.4% of the fathers participating in the study were between the ages of 30 and 40, and more than half of them had an associate degree or advanced degree. The parents taking the pre-test and post-test were not all the same. The parents participating in the research were selected using the mixed sampling method. According to the criteria of the mixed sampling method, those (a) easily accessible by researchers, (b) individual applicants for interviews, (c) reaching the researchers with the guidance of the school administration and teachers, and (d) who the researchers randomly met during the entrance and exit hours of the school and agreed to interview were included in the study. Finally, the parents of child with disability and the volunteers of the parents of the students who displayed problem behavior or showed insufficient social skills according to the statements of teachers and parents were given priority.

School staff. Nine staff participated in this study: one cook, two assistant teachers, and six caretakers of them. A semi-structured focus group meeting was held with the school staff during the pre-test and post-test process.

Dependent Variable

The Preschool and Kindergarten Behavior Scale pre-test problem behavior scores, social skill levels, and opinions of teachers/administrators, primary caregivers and school staff in the pre-test period about the problem behaviors and social skill levels of children in the 3-6 age group enrolled in kindergarten.

Independent Variable

The independent variable of this study is the SWPBIS-TR education model. The SWPBIS-TR education model is a set of practices that adopt behavioral, ecological, and positive psychology approaches to reduce problem behaviors of children aged 3-6 and equip them with appropriate behavior and social skills (Stormont et al., 2005a). The SWPBIS-TR education model was developed and applied by researchers based on the school-wide implementations of PBIS in the literature.

The main purpose of the planning, developing, and implementing of the SWPBIS-TR is to equip children with appropriate behavior and social skills and to reduce their problem behaviors. The most important factor in the SWPBIS-TR model is having a good team. A SWPBIS team is composed of administrators, teachers, parents, school staff, and students (Horner & Sugai, 2000). In the SWPBIS-TR team, all administrators, and teachers working at the school and the head of the school family association took part on behalf of the parents. The researchers and the team carried out the planning, development and implementation steps of the SWPBIS-TR education model together. Within the scope of this educational model, school behavioral values were determined as "love, responsibility, sharing, respect, and being safe".

SWPBIS-TR Implementation Steps

The researchers created a draft model based on the literature and implementation examples before implementing the SWPBIS-TR model, because the main elements of the model must be developed with the PBIS team, especially after obtaining the pre-test data (Stormont et al., 2008). Therefore, the school administrators and teachers were informed about the research process. The SWPBIS-TR education model was implemented in one academic year. In the first term, the education model was developed for teacher, family, and staff. The preparation of the necessary materials and the arrangement of the physical environment were completed. In the second term, the model was applied and evaluated.

Before the implementation, the researchers conducted a short-term pilot study that included the stages of collecting data and developing a PBIS model based on the data collected. During the pilot implementation process, not all the stages of the research were performed because applying the SWPBIS takes quite a long time. As part of an SWPBIS education model, appropriate adaptations can be made by intervening in all factors that generally trigger the child's problem behavior. But due to the central governance of education in Turkey and the obligation to follow a single regulation, some adaptations are made at the school based on the central regulations and practices. These are: (a) Instructional adaptations, (b) creating behavioral expectations/rules in the practice school, (c) physical environment adaptations (d) inclusive practices. These regulations usually include primary and secondary level intervention strategies.

According to the literature, SWPBIS practices in early childhood consist of seven steps and three levels of intervention (Fox & Little, 2001; Horner & Sugai, 2000; Stormont et al., 2005a). These seven implementation steps and levels of intervention may vary according to the needs of the specific school. For this reason, the SWPBIS-TR applied in this study consists of four main steps (introduction and development of the education model, implementation, evaluation and monitoring) and 14 sub-steps, and the education model includes tier-1 and tier-2 level interventions (Melekoğlu, 2017; Melekoğlu, Bal, & Diken, 2017). During the development process of the SWPBIS-TR, the draft booklets prepared by the researchers before the application were finalized. The researcher developed three booklets, namely the “application guide, the activities booklet for home and school, and the teacher and family training booklet,” in which all the information about the main steps of implementation, sub-steps of implementation and implementation process of the SWPBIS-TR education model are presented in detail."

The Development of the SWPBIS-TR: The operations performed in this step were completed in 10 sub-steps. The researchers first gathered the pre-test data and formed the school implementation team, during which a needs analysis of the model was made based on the pre-test data on dependent variables. The researchers developed the SWPBIS-TR education model with teachers in 14 weeks. The researchers worked for three hours in a week with the teachers to develop the model. During the process, teachers were informed about the components of the model and the content was created according to the determined need. The researchers organized family training and school staff training on the intervention process in the development of the SWPBIS-TR. In this process, the visuals required for the SWPBIS-TR were prepared and hung in the relevant places, some physical

arrangements were made in the school and the classrooms, and the necessary materials were provided during the implementation (Melekoğlu, 2017).

Application phase of the SWPBIS-TR: SWPBIS-TR includes tier-1 and tier-2 prevention strategies. As the primary intervention strategies, within the scope of the pre-test data, the factors that trigger problem behaviors of children were kept under control. For this, school rules were reviewed and reorganized with the SWPBIS-TR team, the physical environment of the school and classrooms was reorganized according to the MoNE (2012) regulations, (e.g., creating learning centers). Class and school behavior monitoring boards were set up, and the SWPBIS-TR visuals were placed on the appropriate locations. Teacher/family/school staff trainings on the strategies to intervene in children's behaviors according to the PBIS approach were conducted (Melekoğlu, 2017). The matrix related to the target behaviors determined by the pre-test data of the research and forming the dependent variable dimension of the SWPBIS-TR education model is given in Table 1. In this matrix, the positive behaviors and appropriate social skills that children are aimed to gain by replacing their problem behaviors are specified.

Tier-2 prevention includes individual or small group practices that are slightly more concentrated than tier-1intervention strategies for children who still display problem behaviors and tend to show problems despite the implementation of tier-1 intervention strategies. As part of this intervention, the children who continued to exhibit problem behaviors (behaviors determined in the pre-testing period) were taught the rules and instructions by using visuals. The functions of the problem behaviors of these children were determined, and teachers and families changed their behavior and attitude on this issue. Within the scope of this intervention, some revisions were made in the reinforcements and reinforcement schedules given to children.

All the materials and other resources required for the implementation were provided to the practitioners at the beginning. All written and visual materials were placed in the pre-implementation classes and throughout the school. The strategies in the education model were divided into 15-20 days and applied in five sessions in the classrooms. At the end of each session, the administrators, the first researcher and the teachers filled in the implementation reliability forms prepared for them to determine the reliability of the implementation.

Table 1. Kindergarten common behavioral expectation matrix

Behavior	Classroom	Restroom	Dining Room	Indoor & Outdoor Playgrounds	School Bus	School Entrance
Respect	I get in line I raise a hand I use words of courtesy	I ask permission to go to the restroom I wait my turn in the restroom	I stand in line and wait my turn I eat all kind of meals	I stand in line and wait my turn when necessary	I stand in line and wait my turn when necessary I speak with a low voice.	I stand in line and wait my turn when necessary I speak with a low voice.
Love	I listen to people carefully I greet and smile I keep my environment clean	I use toiletries carefully.	I use the items in the cafeteria carefully. I thank the cook.	I share toys and things. I use words of courtesy.	I greet people on the school bus. I use words of courtesy	I greet and smile when entering and leaving school.

Table 1 (Continued). Kindergarten common behavioral expectation matrix

Behavior	Classroom	Restroom	Dining Room	Indoor & Outdoor Playgrounds	School Bus	School Entrance
Being safe	I stand in line and wait my turn I move by walking I put the toys back when I'm done. I go out with my teacher's permission.	I wash my hands with soap and water I stay away from wet ground I stand in line when necessary	I speak in a low voice when necessary. I wash my hands before and after eating. I leave the cafeteria with my teacher.	I wash my hands after playing games. I play where my teacher allows. I stay away from people I don't know. I stay away from dangerous places.	I wear my seat belt. I sit in my own seat.	I wait in my turn under adult supervision. I move on foot when entering and leaving school.
Responsibility	I follow the rules of the learning centers	I do my own work. I use as little water as possible.	I eat my own food.	I use toys carefully and cleanly. I put the toys back after playing with them.	I keep an eye on my personal items.	I dress myself on my way to school and back. I keep an eye on my personal items.
Sharing	I share things in my school and classroom When I want something, I ask for permission	I use toiletries carefully.	I treat my friend sitting next to me nicely.	I share toys and items with my friends.	I'm kind to my friend sitting next to me.	I use school materials carefully.

Data Collection Tools and Process

As part of the research model and questions, the data were collected simultaneously using the qualitative and quantitative data collection tools for the pre-mid-post- test.

Preschool and kindergarten behavior scales [PKBS–2]

This scale was developed to measure the problem behaviors and social skills of 3-6 years old children Alisinanoğlu and Özbey (2009) adapted the scale for the Turkish context with a total of 3317 children aged 3 to 6. The scale consists of two independent parts: Problem Behavior and Social Skills. The Problem Behavior scale consists of four sub-areas: Externalizing, Internalizing, Antisocial and Self-Centered. The Social Skills scale consists of three sub-areas: Social Cooperation Skills, Social Independence and Social Acceptance Skills, and Social Interaction Skills (Alisinanoğlu & Özbey, 2009). It is important that the scale is used by someone who knows the student well, except for the researchers, and that the person administrating the scale has known the student for at least three months. The teachers gave this scale to each student in the pre-mid-post-testing periods.

Social validation forms for teachers and parents

These forms were developed by the researchers and administered in the post-testing to determine the satisfaction of parents and teachers with the SWPBIS-TR. In addition, to determine the social validity of SWPBIS-TR, the data were collected from parents and teachers through individual interviews after the implementation of the SWPBIS-TR was completed.

Implementation reliability form

To evaluate whether the research was conducted by teachers and researchers according to scientific study principles, three different implementation reliability forms were developed: "Researcher and Administrator SWPBIS-TR Implementation Evaluation Form, Researcher Implementation Reliability Form, and Teacher Implementation Reliability Form" (Steed & Webb, 2012; Stormont et al., 2008). The questionnaire items of the implementation reliability forms are evaluated with numbers between one and five as "*Never implemented, Not implemented, Partially implemented, Mostly implemented, and Fully implemented*". The strategies in the model were applied in a total of five sessions at three-

week intervals. The teachers, administrators, and researchers filled the implementation reliability forms after the teachers' related session was completed. The "research implementation reliability form" was filled in by the teacher, the administrators, and the researcher after the research was completed.

SWPBIS-TR follow-up form

The researchers, school staff, and administrators filled the SWPBIS-TR follow-up forms four months after the completion of the SWPBIS-TR to evaluate the effect of the implementation in the school. The teachers evaluated their work and other participants evaluated the work done by the teachers and at the school by making observations in the school.

Semi-structured individual and focus group interviews questions

During the pre-mid-post-test data collection process of the study, semi-structured individual interviews with teachers, administrators, parents, and a semi-structured focus group meeting with school staff were conducted. During the mid-test process, a semi-structured focus group meeting was held with the teachers and administrators. The researchers prepared 10-12 open-ended semi-structured draft interview questions for each participant group to determine the opinions and suggestions of the teachers, school staff, and parents regarding the problem behavior and social skill levels of children. In addition, since the qualitative data were to be analyzed by using the concept of inductive analysis technique, nine draft interview themes were prepared to create the interview coding key in line with the research questions and draft interview questions. Later, this draft semi-structured interview questions and interview coding key were sent to 14 experts to get their opinion. All the experts commented on the draft interview questions and the draft interview coding key. Finally, in line with the feedback from the experts, the interview questions and the interview coding key were finalized.

All of the interviews were carried out by the first researcher, and the interviews were mostly held in the project room allocated for research in the kindergarten. The interviews were held at the appropriate places and times by consulting the participants. The interview began by filling out the ‘Agreement Form" and "Personal Information Forms" and a digital voice recorder were used during the interview. During the focus group interviews, the interviewers were named as "Interviewer 1, Interviewer 2". During the focus group discussion, an expert participated as the report writer.

Data Analysis

Quantitative data analysis procedures

The quantitative data of the study were analyzed through a statistical software program related to social sciences. First of all, the raw data were entered into the statistics program and data entry reliability was ensured. Based on 30% of the data, whether the data were entered correctly in the statistics program was determined and the data entry reliability was found to be 100%. A descriptive analysis was performed to determine the socio-demographic information of the participants, and frequency and percentage calculations were made. After completing the procedures for the data entry, the Shapiro-Wilk test, one of the normal distribution tests, was run to determine the distribution status of the data, and it was decided to use nonparametric tests in the quantitative data analysis.

The differences between problem behaviors and social skills scores on the pre-mid-post-tests of the students participating in the SWPBIS-TR education model were determined by Nonparametric Related Samples Friedman Two-Way Analysis of Variance. In cases where a significant difference in problem behaviors total score was detected, a Post-Hoc analysis was conducted to determine the situations in which these differences exist. The effect sizes were determined by Cohen's r analysis. The range of .10-.30 was evaluated as "small", .30-.50 as "medium", .50-.70 as "large", and .70 and above as "very large" (Cohen, 1988). The same analyses were applied to all the quantitative data.

Qualitative data analysis procedures

The concept of inductive analysis was used in the analysis of the qualitative data because the data on the dependent variable was collected from three different groups of participants, both individual and focus group interviews were held, the interview questions consisted of various probes.

The qualitative data were edited before being analyzed, for which, first of all, the codes were created and the audio recordings of the interviews were transcribed. Next, on 30% of the data, an external researcher checked the reliability of the data transcripts and determined that the reliability was 100%. Participating teachers were named as T1, T2…, the administrators as A1, A2; the parents as P1, P2… and school staff as S1, S2… ". Thus, a pseudonym is used instead of the actual person and place names in the data.

After the qualitative data were put into the interview forms, all the qualitative data were recorded in the code key. The sub-domains of the PKBS-2 scale were taken as a basis for the creation of the main and sub-themes of the concept of inductive analysis data on the problem behavior and social skill levels of the students included in the code key (Alisinanoğlu & Özbey, 2009). The reason why the sub-domains of this scale were taken as basis in the coding process of qualitative data was that the quantitative and qualitative data, whose behavioral indicators in the scale show similarities with the concept of the inductive analysis data, could be better synthesized and interpreted. For the data coding reliability, 30% of each data group (teachers, parents, and focus groups) were randomly selected and given to four experts. The researchers informed the experts about how they carried out the concept of inductive analysis process. Miles and Huberman (1994) state that qualitative data should have a reliability percentage of at least 70% to ensure analysis reliability. The qualitative data coding reliability of this study was decided to be a minimum of 80%. The coding reliability percentage between the four experts and the researchers was found to be 89.78, 80.91, 90.57, and 93.87.

Implementation Reliability

In the study, the research implementation reliability and the reliability of the independent variable were determined. Miles and Huberman (1994) stated that the implementation reliability in scientific studies must be at least 70%. During this study, the scientific study steps were traced from the beginning to the end of the research and the research implementation reliability was calculated as 100%. The data was collected and the average of the total scores for the implementation reliability was calculated. According to the teachers' statement, the implementation reliability of the independent variable was 74.51%, and according to the researcher, it was 71.52% (Melekoğlu, 2017).

Social Validity

All of the teachers marked the options (I agree and I strongly agree) to indicate their satisfaction with the social validity form. When the satisfaction levels of the parents regarding the SWPBIS-TR education model were examined, it was observed that the families who meticulously followed the home activities of their children were quite satisfied with the SWPBIS-TR practices. Within the scope of the SWPBIS-TR education model, 91% of the parents found (a) the type of activities sent home, (b) the arrangements and activities at school, (c) the level of home activities that they can easily implement with their children, and (d) the SWPBIS-TR family education program very useful. 41% of the parents followed all of the SWPBIS-TR family participation and 47% followed some.

Follow-up

After the SWPBIS-TR model was completed, it was a summer vacation. For this reason, research follow-up data were collected two months after the schools opened in September. The preparations at the beginning of the academic year are very important for the SWPBIS-TR education model. During the follow-up data collection, it was observed that the physical arrangements and visuals made within the scope of the SWPBIS-TR education model were still used in the school environments and classrooms. Although the teachers changed their classes, it was observed that they exchanged materials with each other to apply the SWPBIS-TR, which they needed for their own learner groups. In calculating the scores of the research follow-up form, only the items that the participants marked as "Yes" were taken into account. The research follow-up scores were calculated by dividing the total number of "Yes" into the total number of items, and the research follow-up data was found to be 100%. Except for T6, the teachers are observed to have continued to apply the knowledge they acquired during the implementation of the SWPBIS-TR education model.

RESULTS

Since this is a mixed method research, quantitative and qualitative findings are given separately and interpreted by analyzing and synthesizing all the findings in the discussion section.

Quantitative Results

This section includes quantitative findings about the effect of the SWPBIS-TR on children's problem behavior and social skill scores. Results were given in Table 2.

The effect of SWPBIS-TR on children's problem behavior and social skill scores

When Table 2 is examined, a significant difference is observed between the pre-, mid-, and post-test scores for the total *Social Skills* of the children (Chi-Square: 71.694, p<.05), its first subdomain, *Social Cooperation* (Chi-Square: 19.805, p<.05), its second subdomain *Social Independence and Social Acceptance Skills* (Chi-Square: 77.738, p<.05), and *Social Interaction Skills* (Chi-Square: 46.758, p<.05), which is its third subdomain.

Table 2. Pre-Mid-Post-Test Friedman analysis results related to children's social skills levels

Dependent Variable	N	Mean	Standard deviation (Std.Dev.)	Average Rank	Chi-Square (X)	Degree of Freedom (Df)	Significance Value (p)
SST**-Pre	131	78.56	13.15	1.46			
SST-Mid	131	82.53	12.64	2.11	71.694	2	.000*
SST-S Post	131	85.10	11.33	3.43			
SSF1***-Pre	131	40.25	6.12	1.78			
SSF1-Mid	131	41.51	5.55	2.04	19.805	2	.000*
SSF1-Post	131	42.08	4.60	2.18			
SSF2****-Pre	131	25.78	5.26	1.45			
SSF2-Mid	131	27.92	5.24	2.14	77.738	2	.000*
SSF2-Post	131	28.72	4.96	2.41			
SSF3*****-Pre	131	12.53	4.28	1.73			
SSF3-Mid	131	13.09	4.24	1.97	46.758	2	.000*
SSF3-Post	131	14.30	3.17	2.30			

*p<.05, **Social Skills Total Score, *** Social Cooperation (Factor 1), **** Social independence and acceptance (Factor 2). ***** Social Interaction (Factor 3)

The nonparametric Post-Hoc analysis results revealed significant differences between the total *Social Skills* scores on the pre and mid test (z: -5.251, p<.05), mid and post-test (z: -2.564, p<.05), and the pre and post-test (z: -7.815, p<.05). In the effect size analysis, the total *Social Skills* pre and mid test scores of the children were found to be "medium" (.45); mid and final test scores were found to be "small" (.22), and the pre-test and post-test scores were found to be "large" (.68). In other words, the *Social Skills* scores of the children increased significantly compared to the research post-test score, the research pre-test and mid-test scores. Likewise, it was observed that the *Social Skills* mid-test scores of the children increased significantly compared to the pre-test scores.

In the nonparametric Post-Hoc analysis, the increase between the social skills first sub-domain *Social Cooperation* pre-test and post-test scores (z: -3.182, p<.05) was significant, and the increases in the pre-test and mid- test (z: -2.101, p>.05), mid- and post-test (z: -1.081, p<.05) scores were not significant. In the effect size analysis, the social skills first sub-domain *Social Cooperation* pre- and post-test scores of the children were calculated as “small” (.28). In other words, while the *Social Cooperation* score of the children increased significantly after the application compared to the pre-application, it was observed that the increase in the children's *Social Cooperation* score was not significant in the middle of the implementation compared to before, and after the implementation compared to the middle.

According to the nonparametric Post-Hoc analysis results, while the difference between the pre- and post-test (z: -7.723, p<.05) and the pre- and mid-test (z: -5.529, p<.05) scores for the *Social Independence and Social Acceptance Skills* was significant, the difference between mid- and post-test (z: -2.193, p> .05) scores was not significant. In terms of the effect size, the pre- and post-test scores for the second sub-domain *Social Independence and Social Acceptance Skills* were calculated as "large" (.67) and pre- and mid-test scores as "medium" (.48). In other words, the *Social Independence and Social Acceptance Skills* score of the children increased significantly after and in the middle of the implementation compared to before the implementation, and it was observed that the increase in the children's *Social Independence and Social Acceptance Skills* after the application was not significant compared to the middle.

Finally, according to the nonparametric Post-Hoc analysis, the increase from the *Social Interaction Skills* pre- and post-test (z: -4.603, p<.05) and to the mid- and post-test (z: -2.718, p<.05) was significant. However, it was observed that the increase from the pre-test to the mid-test (z: -1.884, p>.05) was not significant. The effect size analysis showed that children's *Social Interaction Skills* pre- and post-test scores had "medium" (.40) effect, and the mid- and post- test scores had a "small" (.24) one. In other words, while the increase in the *Social Interaction Skills* score was significant at the end of the study compared to the beginning and the middle of the study, it was not significant in the middle of the study compared to the beginning.

Table 3. Pre-Mid-Post-Test Friedman analysis results regarding children's problem behavior levels

Dependent variable	N	Mean	Standard deviation (Std.Dev.)	Rank Average	Chi-Square (X)	Degree of Freedom (Df)	Significance (p)
PBT**-Pre	131	38.46	12.85	2.51			
PBT-Mid	131	34.67	11.60	1.95	70.765	2	.000*
PBT-Post	131	33.14	10.86	1.54			
PBF1***-Pre	131	22.72	9.55	2.32	39.934	2	.000*
PBF1-Mid	131	21.12	8.50	2.01			
PBF1-Post	131	20.12	8.00	1.67			
PBF2****-Pre	131	7.42	3.44	2.29	34.479	2	.000*
PBF2-Mid	131	6.49	2.80	1.93			
PBF2-Post	131	6.21	2.68	1.78			
PBF3*****-Pre	131	3.69	1.25	2.26	43.819	2	.000*
PBF3-Mid	131	3.38	1.1	1.92			
PBF3-Post	131	3.25	.92	1.82			
PBF4******-Pre	131	4.64	2.23	2.37	48.704	2	.000*
PBF4-Mid	131	3.68	1.43	1.82			
PBF4-Post	131	3.57	1.36	1.81			

* p <.05, **Problem Behavior Total, ***Externalizing (Factor 1), ****Internalizing (Factor 2), ***** Antisocial (Factor 3), ****** Egocentric (Factor 4)

When Table 3 is examined, it can be observed that the differences between the pre-test, mid-test and post-test scores for the problem behavior of children total (Chi-Square: 70.765, p<.05), the problem behavior first sub-domain *Externalizing* (Chi-Square: 39.934, p<.05), the second sub-domain *Internalizing* (Chi-Square: 34.479, p<.05), the third sub-domain *Antisocial Behaviors* (Chi-Square: 43.819, p<.05), and the fourth sub-domain *Egocentric* (Chi-Square: 48.704, p<.05) are quite significant.

According to the nonparametric Post-Hoc analyses, the difference between the *Problem behavior* pre and mid-test (z: 4.572, p<.05), mid- and post-test (z: 3.274, p<.05), and the pre- and post-test total scores (z: 7.846, p<.05) were significant. In the effect size analyses, the total problem behavior pre- and mid-test scores of the children were found to be "medium" (.40); mid- and post-test scores "small" (.29), and the pre- and post-test scores were calculated to be "large" (.69). In other words, it was

observed that the problem behaviors of the children decreased significantly after the research compared to the pre- and mid-tests. Similarly, the problem behaviors of the children dropped significantly in the middle of the study compared to the beginning of the study.

In the nonparametric Post-Hoc analysis, the differences between the children's Externalizing pre- and mid-test (z: 2.533, p<.05), mid- and post-test (z: 2.718, p<.05) and pre- and post-test scores (z: 5.251, p<.05) were found to be quite significant. In the effect size analysis, the Externalizing total pre- and mid-test scores of the children were found to be "small" (.22), the mid- and post-test scores "small" (.24), and the pre- and post-test scores were found to be "medium" (.46). In other words, *Externalizing* sub-domain significantly decreased compared to the pre- and mid-test scores compared to the posttest. Similarly, the *Externalizing* sub-domain significantly decreased in the middle of the study compared to the pre-study.

The nonparametric Post-Hoc analysis showed that regarding children's Internalizing, the differences between the mid- and post-test (z: 1.205, p<.05), pre- and mid-test (z: 2.265, p<.05), and pre- and post- test scores (z: 4.170, p<.05) were significant. The effect size analysis results indicated that the effect size of the Internalizing pre- and mid-test was "small" (.26), and the effect size of the pre- and post-tests was "medium" (.36). In other words, the mid-test and post-test scores of the Internalizing sub-domain decreased significantly compared to the pre-test scores, and the post-test scores of the children in the Internalizing sub-domain decreased compared to the mid-test scores, but this decrease was not significant.

According to the nonparametric Post-Hoc analysis, the children's Antisocial Behaviors, except the mid- and post-test (z: .803, p>.05), the pre- and mid-test (z: 2.749, p<.05), pre- and post-test scores (z: 3.552), p<.05) was significant. The effect size analysis revealed that the effect size of the Antisocial Behaviors pre- and mid-test scores was "small" (.24) and the effect size of the pre- and post-test scores was "medium" (.31). In other words, Antisocial Behavior sub-domain mid-test and post-test scores decreased significantly compared to the pre-test, but the children's Antisocial Behavior sub-domain post-test scores decreased compared to the mid-test, but this decrease was not significant.

Nonparametric Post-Hoc analysis revealed that the difference between pre- and mid- test (z: 4.386, p<.05), pre- and post-test scores (z: 4.510, p<.05) was significant for the Egocentric subdomain, except for the mid- and post-test (z: .124, p>.05). In the effect size analysis, the children's Egocentric pre- and mid-test scores were calculated to had "medium" (.38) effect, and the pre- and post- test scores to have a "medium" (.39) effect as well. In other words, the Egocentric sub-domain mid-test and post-test scores decreased significantly compared to the pre-test, and the decrease in the children's Egocentric sub-domain score did not decrease significantly compared to the post-test.

Qualitative Results

This section includes findings about opinions of the administrators, teachers, parents, and staff about the problem behaviors and social skills level of children before and after the SWPBIS-TR implementation. Pre- mid- and pos-test findings were given in order.

Opinions of the administrators and teachers about the problem behaviors of children at school before the SWPBIS-TR implementation

The administrators and teachers expressed similar views about the problem behaviors of children at school and in classrooms. The sub-themes of the concept of inductive analysis data on the problem behaviors based on the sub-domains of the PKBS-2 scale were grouped as externalizing, internalizing, antisocial and egocentric behaviors, and the sub-themes data on social skills were categorized as the social cooperation skills, social adaptation and acceptance skills, and social interaction skills. For the data that did not fit into these categories, the sub-theme labeled as "other" was used.

Table 4 shows five sub-themes formed under the main theme labeled "problems encountered," and the opinions except the dependent variable are included in the "other" theme. These sub-themes are "*externalizing behaviors*, *internalizing behaviors*, *egocentric behaviors*, and *antisocial behaviors*". The administrators and teachers stated that children generally show externalizing (12) and egocentric behavior (8).

Table 4. Children's problem behavior definitions according to administrators and teachers

Problem Behaviors Encountered	**N**
Externalizing Behaviors	12
Egocentric Behaviors	8
Antisocial Behaviors	2
Internalizing Behaviors	2
Other	12
Other Problems	
Falling behind in academic skills	4
Falling behind in self-care skills	4
Lack of attention	3
Language, speech and communication problems	3

The sub-theme of exhibiting egocentric behaviors comprises "*always expecting attention and affection, having a mood disorder, trying to get requests done by crying"*. The sub-theme of exhibiting externalizing behaviors includes "*not wanting to obey the rules, avoiding group activities, talking loudly, struggling, harming things and friends, not sharing, yelling, and refusing to tidy up the classroom, not showing respect, and spitting*.". The sub-theme of exhibiting antisocial behavior includes problem behaviors such as "*not wanting to go to school or kindergarten and being restless*". A few teachers reported the problem behaviors they observed as follows:

> I have 22 students. If we consider 3 of them really problematic, 19 others remain. All of the 19 are positive; they do not have any problem behaviors... But these 3 children's problem behaviors are severe, and this disrupts the whole order... The student shouts, shows no violence, does not apply violence in any way to his friends, but he shouts (T9).
>
> I don't want violence; this has been the issue that I had the most difficulty with. Yes, they do this violence. The point I feel most sorry for is that even when playing games, children do it when they are free (T10). That is, we want them to obey the school rules, not to hurt each other, to be respectful, to wait for their turn,… but from time to time, we see them hit each other, I do not know, generally they do not follow the rules (A1).

Table 5. Causes of problem behaviors according to administrators and teachers

Causes of Problem behavior	**N**
Child-related causes	11
School-related causes	9
Family-related causes	6

In the relevant literature, the causes of problem behaviors are classified as home- and school-related (Melekoğlu, 2017). According to Table 5, the main theme of "causes of problem behaviors" is examined under three sub-themes as *"child-related causes, school-related causes, and family-related causes"*. According to the teachers, the biggest reason behind the problem behaviors is the different developmental characteristics observed in children. Thus, the reasons for problem behaviors related to the child include *"their first encounter with the school environment, acting instinctively, being selfish, being ahead or behind in some developmental areas, being too young or old, and having special needs"*.

According to teachers, children do not always exhibit problem behaviors for the same reason. Another most important reason for problem behaviors is school-related. As such, the reasons related to the school include reasons related to *"the poor physical structure of the school and classrooms (overcrowded classes, lack of assistant teachers in classrooms, disorganized classroom environment) and reasons related to classroom practices"*.

Another factor that increases the child's problem behaviors is the "*family-related reasons*". The reasons listed under this sub-theme include the following: "*Families do not offer enough opportunities to their children, lack of rules in the family and at home, doing everything the child wants at home, parents' being too busy, lack of love, raising children in a way to make them oversensitive, family's lack of knowledge about raising children,*

parents being separated." While some teachers clearly stated the reasons for the problem behaviors, some stated the following:

> Can is autistic, so my mainstreaming student certainly didn't eat anything if there was something he didn't like, and I told his mother to put something he liked into his lunchbox, so she began putting milk or cake there (T12). Is it instinctive, is the behaviors at home, or what is happening at school. I cannot figure that out. I mean, what is the basis of all this, the child tries to explain something, maybe he has a problem there, or he could not find a way to express himself (T4).

Opinions of teachers and administrators about social skill levels of children before the SWPBIS-TR implementation

When Table 6 is examined, three sub-themes can be seen under the main theme of "social skill levels of children".

Table 6. Social skill levels of children according to administrators and teachers

Children's Social Skill Levels	N
Inadequate social independence and social acceptance skills	7
Inadequate social communication and interaction skills	6
Inadequate social collaboration skills	4

The "social independence and social acceptance skills" of children are observed to be insufficient. The subtheme of social independence and social acceptance skills observed in children includes the *"Inability to do their work themselves, lack of self-confidence, lack of full trust, inability to defend their rights, not eating food by themselves, not being able to dress and undress by themselves, having difficulty in recognizing their own belongings, fear of different social environments, difficulty in adapting to different environments, not acting in accordance with group rules, fear of separation, and an excessive attachment to parents."*

The sub-theme of social communication and interaction skills includes outcomes such as *"being afraid of communicating and talking, not making eye contact, not being able to empathize, and not greeting"*. Social communication and interaction problems were generally observed in CLDs. The sub-theme of social cooperation skills includes outcomes such as *"not waiting when you need to wait, not wanting to share, not taking turns appropriately before speaking, not obeying the rules, etc."* A teacher explained it as follows:

> For example, I have children who are very successful and very advanced, there are also those in the middle, but there are also those who have no social communication with their friends, I sometimes suspect whether they are special education children, for example. They do not answer my questions, when they speak they give no answers to me (T2).

Table 7. Mainstreaming / inclusion practices at schools according to administrators and teachers

Mainstreaming / inclusion practices	N
Teachers and other staff need information about mainstreaming /inclusion practices	12
Problems with mainstreaming / inclusion practices	12
Children with Learning Difficulties (CLDs) are welcomed by their teachers and friends	7
CLD's having insufficient social skills	4
Assistant teacher support is provided	3
CLD's having behavioral problems	3
Inadequate academic skills	3
Inadequate self-care skills	2

As shown in Table 7, eight sub-themes are formed under the main theme of "Mainstreaming/Inclusion practices". While two of these sub-themes are positive themes, others contain negative situations about *mainstreaming/inclusion practices*. In the kindergarten where the research was conducted, the social

acceptance rate of the CLDs is quite high. However, all of the administrators and teachers emphasized that they need to observe and application examples about special education and mainstreaming, especially at the practice level.

The difficulties with mainstreaming /inclusion practices involve *"The class sizes are not being in line with the legal requirement, the number of both diagnosed and undiagnosed CLDs in the classroom being high, having no cooperation with other institutions where CLDs receive education and the Counseling Research Center (CRC) where they are diagnosed"*. CLDs come to school at different times compared to their peers. They arrive at school 1-1.5 hours late and leave early. In addition, CLDs' families either hire an assistant teacher with their financial means or they wait for their children at school themselves. Some teachers stated the following about mainstreaming:

> At school, we only learned one thing about special education; intellectual disability and the hearing impaired. Now, the students with autism spectrum disorder, which have learned about only. We did not see a Down syndrome, it was not that frequent then, maybe there was no Down case, or maybe they stayed at home so we did not see them… I sat down, searched the internet, and bought books (about these disorders). For example, I had a hyperactive student for the first time this year, (I didn't know) how to approach this child (T11).
>
> …We have a special education student in our classes. It is a beautiful thing for my children, for me, and for my own children, in fact, for them, a different child is necessary. But I think I am inadequate in this regard (teaching them) (T2).
>
> …We are one of the schools with the highest number of mainstreaming students… They (CRC) send a report without any question about how many classes we have, do they have quotas or not, we have to take the child whose report came to us. We call the parent and find out that the parent is unaware of the report (A1).

Opinions of the school staff about the problem behaviors and social skills of children before the SWPBIS-TR implementation

The school staff have views similar to those of the school administrators and teachers about the problem behaviors of children at school. School staff, like the other participants, stated that children behave negatively in the washrooms, common areas, and cafeterias. Some school staff explained the problem behavior of children as follows:

> I think the age group of five has the most active children…A child bumped into me so hard last week that I was out of breath and gasped for a second. I cannot even imagine what would happen if that child hit a little boy (SS2).

According to the assistant staff, children experience serious deficiencies in social skill acquisitions such as getting in a line, using the appropriate tone of voice, and communicating with their friends within the school and classroom. Most of the children do not follow the rules and the school staff find it very difficult to deal with their problem behavior. According to SS4,

According to the school staff, children experience the most inadequate self-care skills especially in the cafeteria. The school staff stated that the children do not want to do their work independently. Children experience inadequacy in identifying their belongings, eating, dressing, and undressing skills. According to AS2,

> The children don't recognize their shoes. Families can instruct them on this and then send them to school; otherwise, the child cannot find his shoes because they send him in a different pair every day. The child forgets where he or she put it. They must put on the shoes themselves. I don't think the adults should put their shoes on for them.

Opinions of the parents about children's problem behaviors and social skill levels before implementation of the SWPBIS-TR

As can be seen in Table 8, three sub-themes were formed under the main theme of *problem behaviors of children at home*.

Table 8. Children's behavior definitions according to parents

Children's Problem behavior at Home	N
Displaying externalizing behaviors	24
Displaying egocentric behaviors	21
Displaying antisocial behaviors	9

Many parents stated that their children generally display egocentric and externalizing behaviors at home, and nine parents stated that their children display antisocial behaviors. The sub-theme of showing externalizing behaviors includes such behaviors as "*not doing their own work by themselves, sibling jealousy, aggression, harming the environment, hitting the primary caregiver, stubbornness, non-obedience, not following the rules, not knowing how to play together, not eating properly, sleeping irregularly, and throwing objects when angry.*" The sub-theme of *showing egocentric behavior* includes "*getting bored quickly, expressing wishes by crying, intervention in the private life of family members.*" The sub-theme of *showing antisocial behavior* includes behaviors such as "*unwillingness to prepare for school, stubbornness, insistence, constantly objecting, crying and running away from school/home*". Some parents explained the problem behaviors they observed in their children as follows:

> Let me tell you the behaviors I don't like. He is extremely stubborn. If he says something will happen, he cries until he gets it done. He screams a lot, I don't know, he throws things around, he has such a habit (P14)". For example, if anything, he hits us to get whatever he wants (P11)".
>
> First of all …he wants a hug from me everywhere, maybe because of his brother who is very keen on me right now. You know, he says mom, take me in your arms, okay, I'll take it, I always do a show of affection, so maybe I do it too much sometimes, but whatever he wants, even the smallest thing, he throws himself on the ground until he gets it. He's already doing it at school (P23)".
>
> It would be a lie if I said I found a solution to this. No, so he's playing (with his phone), but I gave up on that completely and I told myself that he would definitely get bored because we got this (phone) recently. The previous one was broken, could not be fixed for a while. But this time he wants to use our phones, he is constantly trying to install this game on his father's phone. He spends at least 3-4 hours with technological games. He's been playing them for about two years (P7).

Among the parents participating in the study, there are also four parents have a child with CLD. In the interviews, these parents expressed their opinions about "what CLDs generally do at home or at school, the type of disability of these children, where they received the education, the diagnosis steps, and the problems they experienced at school".

Findings of mid-test focus group interview conducted in the middle of the study

Since the implementation of the study was carried out between February and May, a semi-structured focus group meeting was held with the participation of teachers and administrators in parallel with the quantitative data collection, to control possible side effects that may affect the independent variable. The findings obtained from this interview are presented below.

During the mid-test, when the participants were asked about the effect of the SWPBIS-TR education model on their children's behaviors, all of them stated that the problem behaviors they observed in their children started to decrease after the application of the SWPBIS-TR education model and the children started to display appropriate behaviors. They stated that after the SWPBIS-TR

implementation started, children's externalizing behaviors such as "making noise, not picking up their toys, harming toys and friends" decreased.

The findings of the concept of the inductive analysis of the mid-test focus group interview were classified into three sub-themes under the main theme of the effect of the SWPBIS-TR education model on children's behavior. These sub-themes are "*The effectiveness of intervention techniques, the absence of problem behaviors with the start of the implementation, and the decrease of problem behaviors with the implementation*". These sub-themes contain statements like "*I received positive feedback from parents about the intervention* (T12, T10), *center practices were successful, classroom rules were firmly set in place over time, the most challenging student in the class started to exhibit appropriate behavior, and I can control all students with the behavior board application*." (T10). One teacher expressed the effect of the SWPBIS-TR as follows:

> Before the implementation started, there were a lot of problem behaviors among our students. Some of these were family-related, and some were related to the personal characteristics of the child. However, I observed that the activities we did as part of this educational model, the assignments we sent, the behavior boards we used, and the expectations we set by our school… all helped make our children improve, and our parents also reinforced them with their observed feedback (T12).

Findings obtained from the administrator and teacher interviews after the SWPBIS-TR implementation

Table 9. The effect of SWPBIS-TR on the problem behaviors of children

Its Effects on the Problem behavior Levels	N
Discontinuation of problem behaviors with the start of the implementation	11
Continuation of problem behavior	2

As can be seen in Table 9, two sub-themes of SWPBIS-TR were formed within the scope of the main theme of "Effect on the problem behavior levels of children": "the continuation of problem behaviors after the implementation has started". These sub themes are *"Harming their friends decreased, they learned to get along with their friends (T5, T9, T12), bringing students to the administrative room decreased (Y2), many students' behaviors improved, their students were positively affected (T1, T10, T2, T6, T9, T11), they learned the rules (T2, T11, T10, T3, T7, T9), children express themselves better (T2), materials and centers were suitable for the children, and they liked the center practices (T2, T3)".* Some participants explained this as follows:

> **Administrator2:** If we compare before and after the research, there was a lot of confusion in the classes I attended before the project, that is, it was too common for the children to throw toys, throw toys, and hurt each other while playing. After the centers were established, the children were more conscious, calmer, their fidgety movements decreased, I can say that their mobility also decreased. While playing games, they were more respectful towards each other, and they no longer have behaviors like hitting or throwing toys.

Table 10. The effect of SWPBIS-TR on children's social skills

The Effect of SWPBIS-TR on Children's Social Skills	N
Developing social cooperation skills	7
Improvement in social communication and interaction skills	5
Improvement in social independence and adaptation skills	3

As shown in Table 10, the concept of inductive analysis findings of the main theme of SWPBIS-TR's "effect on children's social skill levels" are categorized under three sub-themes: development of social co-operation skills, increase in social communication and interaction skills, and an increase in social independence and adaptation skills. Some the concept of the inductive analysis findings of these sub-themes is "*The ability to make choices developed (T2, T4, T12), the skill of being a queue developed (T5, T9, T10), they learned the determined values (T5), they learned how to behave in different environments (T11), the child learned the*

terms related to social development (T6), sharing and respect increased (T5) and their responsibilities increased (T10) etc." According to the teachers, the best development occurred in the social collaboration skills, thanks to the implementation.

> So, it had a positive effect. We focused more on seeing positive behaviors rather than the problems with social behaviors. We tried not to see the problem behaviors, we tried not to attract attention, actually, they were things we knew but they did not practice (T6).

When the concept of inductive analysis findings obtained regarding the main theme of "the strongest dimension" of the SWPBIS-TR are examined, the sub-themes of "(a) *providing effective behavior and social skills teaching*, (b) *creating a positive physical environment*, (c) *supporting the professional development of administrators and teachers*, and (d) *developing cooperation between school, family and teachers*" emerge. Some participants expressed the positive contributions of the SWPBIS-TR as follows:

> The strongest aspect of the SWPBIS-TR is that it is systematic. In other words, the child perceives the (appropriate) behavior and repeats the same behavior all the time, and also our visuals are in front of his eyes, for example, he sees when he is going to get in a line and not cut in the line to get ahead of his friend, so these are the strong points (T4).

When the effect of SWPBIS-TR on inclusion practices is examined, it can be observed that the teachers developed more positive attitudes towards CLDs, learned new strategies to cope with the problem behaviors of CLDs, and increased their cooperation with the parents. Some findings on this subject are as follows: *"We conducted studies appropriate to the level of the child (T3), learned how to approach children with special needs (Y2), the environmental arrangement of the classroom relaxed the student with special needs (T9), the problem behavior of children with special needs decreased (T10), and the center practices enabled the child to act consciously in the classroom and supported the selection skill (T12)".*

Findings obtained from the interview with school staff after the SWPBIS-TR implementation

It was observed that the school staff agreed with the administrators and teachers about the contribution of the SWPBIS-TR to the improvement of the problem behaviors and to increasing the social skill levels of children. Some findings of the school staff indicated that "*children started putting on shoes and clothes independently, loud speaking and yelling decreased, there was a big difference compared to last year, the display of affection increased, and greeting is going well*".

All of the assistant staff stated that with the SWPBIS-TR education model, especially the achievements of "*social cooperation and social independence*" of children developed very well. Therefore, it was reported that children performed better in skills such as "*forming a line, speaking with a low voice, picking things up themselves*, and *doing their work independently*".

Findings obtained from the interview with parents after the SWPBIS-TR implementation

All of the participants stated that their children especially exhibited externalizing behaviors before the implementation; but that these behaviors were no longer present in their children or that there was a serious decrease in their rate. They stated that children behaved themselves and followed the rules better thanks to the SWPBIS-TR education model.

Table 11. The effect of SWPBIS-TR on children's problem behavior and social skills

Its effects on problem behavior	**N**
Problem behavior stops after implementation	16
Reduction in problem behavior	4
Its effects on social skill level	
Developing social cooperation skills	15
Developing social communication and interaction skills	10
Development of social independence and adaptation skills	7
Continued lack of some social skills	2

Four sub-themes were formed under the main theme of "the effect of the SWPBIS-TR education model on social skill level". These sub-themes include some findings such as *"He has been following the rules more at home for three months, I have been chalking the developments in the child up to the work done at the school, there are improvements in food and sleep time, there were some rules that he did not obey, the problem of eating continues, my child is satisfied with the center arrangement in the classroom,... he never tidied up his room, but now he does*" Some parental views on these findings are as follows:

> For example, after you have told us, he always puts on his shoes himself now, for example he always eats his own food… While he was trying to eat it, I sometimes shoved food into his mouth or something. Thank God now he is now self-confident. He says leave my coat, he says I will put it on (P3). When asked this parent (P3) about the possible reason for this behavior change in his child, she said.
>
> Of course, after I listened to you, I got more information about the project. So let me tell you here too, for example, I was thinking that I was helping the children by putting their shoes on, but now they do it themselves. Slowly, the children have been building self-confidence, and my child has built such self-confidence as well (P3).

As a result, when parents were asked about their opinions about the SWPBIS-TR education model, they stated that the SWPBIS-TR had many effective aspects, which were (a) providing effective behavior and social skills teaching (75%), (b) increasing school-family cooperation (50%), (c) creating a positive physical environment in the school and classrooms (31%), and (d) contributing to inclusive practices (12%). The SWPBIS-TR education model applied during the research process is the first of its kind in the national literature, in whose implementation process multiple participants, methods and tools were included. Melekoğlu (2017) reports many significant findings about the SWPBIS, especially regarding the dependent and independent variables, are included in the current study.

DISCUSSION and CONCLUSION

Some significant findings were obtained with the quantitative and qualitative data collection technique of this study, in which the effectiveness of the SWPBIS-TR education model, which was applied to reduce the problem behaviors of younger age group (3-6 years) children and increase their social skill levels, was tested. This study demonstrates that PBIS is highly effective in early childhood, especially in the intervention of problem behaviors of children and in developing their social skills, as in all age groups. The obtained quantitative and qualitative findings are compared and discussed in light of the literature.

With the implementation of the SWPBIS-TR education model, a significant decrease was observed in the problem behaviors of children. In other words, with the SWPBIS-TR, while children's levels of internalizing, externalizing, egocentric, and antisocial behaviors declined, their positive behaviors increased. Thus, these research results are similar to those reported in the literature (Benedict, Horner, & Squires, 2007; Smith, Lewis, & Strormont, 2011). The "Positive Behavioral Interventions and Support" approach is an evidence-based intervention that is widely applied in many countries, especially in the context of intervention to problem behaviors. However, the studies on the PBIS in Turkey are limited (Melekoğlu, 2017; Ünlü et al., 2013). Also, traditional methods that are applied in schools are ineffective and inadequate for the intervention to problem behaviors (Melekoğlu, 2017; Öğülmüş & Vuran, 2016). The SWPBIS-TR is an evidence-based model that meets an urgent need for intervention in problem behaviors in Turkey.

The qualitative findings obtained during the pre-test, mid-test, and post-test process of the research support the quantitative findings of the research. With this study, behavioral and social skills characteristics of young children were analyzed in-depth by collecting data from multiple sources and types with multiple data collection tools, producing an evidence-based practice example for the national literature. When the qualitative data of the study were examined, the teachers participating in the study, except for the teachers coded as T6 and T11, stated that they did not have any children who showed problem behaviors after the SWPBIS-TR education model was implemented. However, these two teachers stated that the behaviors of children who showed problem behaviors decreased to a

certain extent after the implementation. However, when the research implementation reliability data of the teachers were re-examined, it was found that T6's reliability score was much lower than the research criterion. Similarly, it was observed that the teacher T11 had some weaknesses in following the research steps. The data obtained from school staff also confirm these findings. As such, SWPBIS-TR is an evidence-based set of interventions consisting of data-based decisions and practices. According to the literature, it is critical to perform data-based planning and decision-making both in the development of the PBIS education model and in all other stages (Nelen, Blonk, Scholte, & Denessen, 2020; Stormont et al., 2008). Therefore, the reason why SWPBIS-TR was not effective at the desired level in the classrooms of these two teachers may be due to the failure of these teachers in following the implementation steps appropriately.

When the findings of the study based on quantitative data are examined, it is observed that with the application of the SWPBIS-TR, overall, the problem behaviors of children decreased, and children acquired appropriate behaviors. Similarly, it was observed that there was a significant increase in children's social skill acquisition. In addition, the PKBS-2 scale (Alisinanoğlu, Özbey, & Kesicioğlu, 2012) was taken as a basis informing the sub-themes of the qualitative findings of the study, and the qualitative and quantitative findings were observed to overlap. To create a positive learning environment in schools and classrooms, it is necessary to control the problem behaviors of children and have them gain appropriate behaviors. Similarly, the literature emphasizes that teaching appropriate behaviors and social skills in schools, especially in younger age groups, is as important as teaching academic skills (Algozzine, Daunic, & Smith, 2010). In this sense, the SWPBIS-TR meets a great need for children to gain the appropriate behaviors and social skills.

When the findings of the development of the appropriate social skills of children, one of the dependent variables of this study, were examined, it was seen that children were behind in many social skills such as self-confidence, sharing, and respect, and the need to support their development in these social skills was emphasized. According to Carr et al., (2002) and Sugai et al. (2000), the PBIS approach tries to create positive outcomes for children, based on the child's environment, to help them gain positive behaviors and enable them to acquire appropriate social skills. In other words, PBIS enables the child to develop positive behaviors by making changes in the attitudes and behaviors of the people responsible for education, by making physical adaptations in school and home environments, and by improving the living standards of the child. In the current study, according to the decision on the learning centers included in the MoNE (2013) Preschool Regulation, and within the scope of the SWPBIS-TR practices, the necessary adjustments were made in all variables that negatively affect education quality based on the pre-test findings, by reorganizing the physical environment of the research school, deciding on the learning center activities, training the teachers, and training the parents. For this reason, in addition to contributing to the achievements of the children, the SWPBIS-TR made positive contributions to the professional development of the teachers, parents, and the school in general. In fact, according to the research follow-up data, the teachers applied the PBIS strategies they learned during the SWPBIS-TR implementation in their classes after the research. The SWPBIS-TR helped achieve the desired behavior change in children by making changes in the stakeholders or environments in the children's lives instead of 'repairing' the children, who were viewed by the participants as the primary source of problems in the school and home environment. This shows that the real source of the problems that children exhibit is other people, environments, systems, and practices. The literature states that 80-85% of children exhibit desired behaviors with the tier-1 intervention practices of PBIS (Walker et al., 1996).

In this study, interventions were made to reduce especially problem behaviors of children and improve their social skills, but according to the pre-test findings of the study, children also show a delay in the self-care, academic and communication skills according to their age and have difficulty concentrating on activities. The average time for children to focus and maintain an activity is 15 minutes. In addition, children do not want to participate in group activities that require academic work. As a result of these behaviors, children experience communication problems with their teachers. When the qualitative data of the study were examined in-depth, it was found that teachers used ineffective methods in the teaching of these activities, and individual

differences and children's levels were not taken into account in the implementation of literacy preparation activities. Therefore, when the lessons are not taught effectively and in a planned way, it is inevitable that especially three years old children display problem behaviors. It is very important to eliminate these problems in classrooms. When the MoNE (2013) PEP was analyzed in terms of these problems, the education, planning and implementation procedures were found not to comply with the regulations, and as part of the SWPBIS-TR, teachers made various arrangements such as creating learning centers in their classrooms, in line with the regulation.

Another important finding of the study is that the reason for the problem behaviors of children is stated by the parents as "related to the child, family and immediate environment", and the participants at the school stated that "the family and teachers have more influence on the development of problem behaviors". Similarly, the ecological approach explains the factors that trigger problem behaviors of children like school, home, society, and systems (Yurtal & Yaşar, 2008). Therefore, it is vital to plan the problem behavior intervention in a way that it includes the home and school environment. This study revealed that the main source of problem behaviors is the attitudes of teachers and families and systemic problems. Therefore, it is very important to analyze the root of the problem in the intervention into children's problem behavior.

When the opinions of the participants about the SWPBIS-TR are examined in general, it is clear that the behavioral expectations show similarities with the values education detailed in the MoNE (2013) curriculum. Therefore, with this education model, the process of determining the behavior for children, and planning and teaching the behavior was easy for the teachers. However, the teachers and administrators stated that the preparation and implementation process of the SWPBIS-TR education model requires a more systematic study and planning. In the SWPBIS-TR practices, different behavioral expectations/rules are determined for each age group and these behaviors are matched with certain concepts/values, and children are equipped with them through education, as in values education (Cihan, 2014). However, values education and the SWPBIS-TR education model are different from each other in many respects. For example, decisions taken in the SWPBIS-TR are specific to the school and the children, but the values education is implemented in all Turkish schools in the same way. The values in the SWPBIS-TR are determined especially in light of the pre-test data (Melekoğlu, 2017). When the values education in Turkey was examined in-depth, it was found that workshops related to 12 values such as empathy, tolerance, and friendship were carried out in MoNE schools during the 2015-2016 academic year. However, the concept of value is an intangible concept and it is difficult for children to understand and internalize them. Behavioral expectations/rules and values determined for preschool age children should be concretized in teaching so that children of this age can easily understand them since they are in the pre-operational period, and values that children can identify with their daily lives should be selected according to their age. Thus, the behavioral principles to be adopted by children through the SWPBIS-TR model were determined as "responsibility, respect, safety/trust, love, and sharing" based on the pre-test data. Similarly, it is stated in the literature that three to five concepts should be determined by considering the developmental characteristics of the pre-school children and that the practices planned for these children should include the concepts of "responsibility, sharing, and safety" (Stormant et al., 2008).

The SWPBIS-TR education model was implemented with all children in the school with and without special education diagnosis. It was not found strange by the teachers that there were some children with disabilities in their classrooms. However, teachers cannot plan and implement education by taking into account the individual differences and needs of children (Hundert, 2007). Children diagnosed with disabilities at school cannot benefit from and participate in activities in the school and classroom as much as their peers. In the teacher education part of the SWPBIS-TR, in addition to the content related to PBIS, detailed training was provided on inclusive practices, and the individual characteristics and educational needs of children with disabilities to require special education. However, the SWPBIS-TR education model could not provide the perfect solution to the special education problems of the school. For the purpose of this study, analyses on the problem behaviors and social skills of children with disabilities were conducted and positive results were obtained.

Looking at the post test data of the participants related to the SWPBIS-TR, the teachers and administrators reported that other teachers in many kindergartens in Turkey deal with similar problems, so such SWPBIS-TR practices are needed by other kindergarten teachers and they stated that SWPBIS-TR can be implemented with older age groups. Likewise, school staff and parents emphasized the importance of school-family cooperation and planned and disciplined work in the implementation of this educational model. As indicated by the research findings, positive results can be obtained when systematic and planned studies are carried out in schools.

To sum up, before the implementation of the SWPBIS-TR education model, there were no specific rules followed in schools and classrooms, and all the teachers in the research school generally tried to cope with the problem behaviors by themselves. There was no collaborative work in the school performed by all the teachers to address this issue. The teachers even thought that if they brought up the problems in their classrooms, they would be viewed as incompetent. There were scarcely any joint projects conducted throughout the school or in the same age groups to equip children with the appropriate behavior and social skills. However, in PBIS practices, it is important to determine the behaviors that children should exhibit according to their ages, based on data, and to teach these behaviors in tangible ways.

The number of studies on PBIS in the national literature is quite limited. In the international literature, PBIS education model is an evidence-based practice that is widely applied in the intervention of problem behaviors. The reason why this approach is widely accepted in the international literature is that PBIS can be applied according to the socio-cultural characteristics and needs of schools without requiring scientific adaptation studies and the creation of a positive classroom atmosphere in schools after the implementation. The researchers prepared three booklets, namely the SWPBIS-TR application module, the SWPBIS-TR teacher training module, and the SWPBIS-TR activities module, which were developed and used during the research. However, these are not sufficient. There are many prints or online resources about PBIS, and further research can be conducted on this subject.

The related literature suggests that PBIS can be applied at all grade levels in seven stages (Fox & Little, 2001; Stormont et al., 2008). However, since the present study was the first scientific study in which PBIS was implemented throughout the school and teachers had not taken part in studies related to PBIS, the implementation steps were carried out in 14 steps. Therefore, researchers planning to work on the PBIS approach can contribute to the determination of the most appropriate SWPBIS implementation steps by conducting new research based on the current study.

Limitations and Directions for Future Research

As regards the pre-test data of the study, a total of five main behavioral values, namely "love, sharing, respect, responsibility and trust", were identified and the children were taught these values. In the international literature, there are behavioral values such as "respect, safety, responsibility, diligence and kindness", but for the 3 to 6-year-old children, "being safety /secure, being kind and responsible" are the behavioral values that are commonly required (Stormont et al., 2008; Stormont et al., 2005b). In this study, children in the 3-6 age groups were studied, but researchers can work with children in the younger age groups as well as with older age groups of children.

The participation of many stakeholders in the research is very important, especially in school-wide applications of PBIS. This study had practices both in the school and home environment, but the majority of the work was carried out in the school environment and only the data obtained at the school were included in the study. Therefore, further research can be planned to focus on the home environment. Since the school-wide applications of PBIS require a significant amount of financial resources and multiple researchers, making such studies project-based is highly recommended as well.

Ethics and Conflict of Interest

This study contains main findings of the doctoral dissertation of first author “The Effectiveness of School Wide Positive Behavior Support Model in Early Childhood”. The dissertation was supported by TUBITAK 2214-A program and by BAP project numbered 1409E382 and was accepted by Anadolu University Research Commission. The research was conducted with ethical principles of the

Human Research Ethics Committee of Anadolu University (63784619-622.03-E.60039). For this study, research permission was obtained from Eskişehir provincial National Education Center. There is no conflict of interest between the authors. We thank to the pre-school teacher who participated in the research.

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