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 Seray Olcay¹
ORCID: 0000-0002-5007-7466

 Muharrem Koc²
ORCID: 0000-0002-9138-2205

 Sezgin Vuran³
ORCID: 0000-0001-7658-1102

 Mustafa Serdar Koksall⁴
ORCID: 0000-0002-2185-5150

Effectiveness of Class-wide Positive Behavioral Support Intervention in Teaching Social Skills to Students in a Primary School Activity Club

Abstract

Positive behavioral support (PBS) is one of the positive approaches based on the principles of the applied behavior analysis in preventing inappropriate behaviors in the school environment. In the present study, systematic social skills training was included as a part of the intervention, and whether this caused any difference in the social skills performance of students in the second grade in which PBS was applied. Moreover, the students in the second grade in which routine teaching continued, and the implementation reliability in the PBS intervention of the teachers and practitioner were also investigated. The experimental design with the pre-test, post-test and control group was used in this study. There was an experimental group and a control group in the study. The findings of the study showed that class-wide PBS is effective on the skills of the second-grade students in the experimental group of acquiring the target skills in the category of complying with the rules, group working and starting a relationship, and the skills of maintaining the skills obtained 3 weeks after the end of the intervention. The social validity findings showed that the opinions of the students on the target skill, intervention and their performance were positive.

Keywords: Positive behavior support, social skills teaching, students with special needs, experimental model, mainstreaming application.

Introduction

Since the presence of inappropriate behaviors will hinder education and training in the classroom, it causes the failure of teachers to achieve their education and training targets and decreases their motivation in addition to hindering students' learning. Nevertheless, it is possible to prevent inappropriate behaviors if a

consistent, predictable and positive environment is created for students. The teacher is the one to create this environment, and the positive point-of-view of the teacher is very important (Vuran, 2013). A consistent and predictable environment prevents the occurrence of inappropriate behaviors by ensuring that the teaching time is used in a qualified manner within an activity and in the transition from one

¹Ph.D., Hacettepe University, Faculty of Education, Department of Special Education, Ankara, TURKEY
e-mail: serayolcaygul@hacettepe.edu.tr

²Ph.D., Hacettepe University, Faculty of Education, Department of Psychology Counseling and Guidance, Ankara, TURKEY
e-mail: muharrem.koc@hacettepe.edu.tr

*Corresponding author.

³Ph.D., Anadolu University, Faculty of Education, Department of Special Education, Eskişehir, TURKEY
e-mail: svuran@anadolu.edu.tr

⁴Ph.D., Hacettepe University, Faculty of Education, Department of Special Education, Ankara, TURKEY
e-mail: serdar.koksall@hacettepe.edu.tr

activity to the other. Therefore, the literature on inappropriate behaviors in recent years focuses on the negative effects of these behaviors as well as reducing and eliminating these behaviors, and more importantly, preventing their emergence (Scheuermann and Hall, 2012).

Positive behavioral support (PBS) is one of the positive approaches based on the principles of the applied behavior analysis in preventing inappropriate behaviors in the school environment (Kurth and Enyart, 2016). This approach aims to prevent inappropriate behaviors and introduce positive adaptive and social behaviors. The main principle of PBS is to create a consistent and predictable positive environment for all students (Fox, Dunlap, Hemmeter, Joseph and Strain, 2003). PBS presents a three-stage design in the prevention of inappropriate behaviors (Newcomer, 2009). The first stage of this design is named primary prevention, school-wide intervention or universal intervention. Primary prevention includes the determination of rules and routines, identifying instructive expectations, reinforcing and introducing appropriate behaviors, and providing consistent reactions to inappropriate behaviors, and its aim is to reach all students. In the second stage, the behaviors of students at risk are addressed in terms of inappropriate behaviors through classroom-wide interventions. This stage, which is also called secondary prevention, includes academic and behavioral small group training, social skills training, and providing tips and feedback on appropriate behaviors in addition to interventions aimed at primary prevention. Interventions are performed in the third stage for students that exhibit inappropriate behaviors despite the primary and secondary prevention. This intervention applied at an individual level is performed for students that exhibit inappropriate behaviors at a high level, and personalized behavior management programs are planned and implemented in this process.

Regardless of the stage at which studies are implemented, it was shown that all PBS interventions are effective in increasing appropriate behaviors and preventing and reducing inappropriate behaviors by supporting the educational, social and personal development of both typically developed students and students with special

needs (Caldarella, Williams, Jolstead and Wills, 2017). PBS, of which effectiveness was supported with studies, is used nowadays in order to reduce inappropriate behaviors and increase appropriate behaviors in approximately 13.000 schools in the USA and Canada (Öğülmüş and Vuran, 2016).

Three main rules in class-wide PBS applied in the second stage, when the individual and classroom conditions of students are taken into consideration, are making adaptations in the environment in order to prevent inappropriate behaviors, teaching appropriate behaviors and social skills that will substitute inappropriate behaviors in the target environment, and creating a positive class climate (Ünlü, Vuran, Erten-Akdoğan, Güven, Yönter and Eray-Çaltık, 2014). The literature on classroom-wide interventions has shown that these interventions are effective in increasing appropriate behaviors (Atbaşı, 2016), reducing inappropriate behaviors (Ünlü et al., 2014) and introducing social skills (McDaniel, Bruhn and Troughtar, 2017). In these studies that investigated the effectiveness of classroom-wide interventions, it was observed that the intervention was conducted for the whole class, but data were collected only on the performance of a few students that exhibited inappropriate behaviors at a high level, and not on the performance of all students in the class (Atbaşı, 2016; Caldarella et al., 2017). Thirty four students attending the third grade were included in one of these studies. In the present study, class-wide PBS was applied to the whole class, and data were collected from only two students that intensely exhibited inappropriate behaviors. The findings of the study conducted with a single-subject research design showed that there was an increase in the behaviors of the target students in complying with the classroom rules (Ünlü et al., 2014).

Social skills training is regarded as a component of primary, secondary and tertiary interventions in the PBS, and especially as a component of secondary interventions (Scheuermann and Hall, 2012). Studies have shown that social skills training alone positively affects the academic and social development and peer relations of pre-school and primary school students (Uz-Baş, 2010), and it is effective in

preventing behaviors that include violence by developing self-controlling skills (Liljenstein, 2001). Similar results were also achieved in studies in which social skills training is addressed as a component of the PBS (Simonsen, Britton and Young, 2010).

Despite the positive effects listed, the reliability of the intervention was shown as a limitation in a significant part of studies on the PBS interventions (Freeman, Simonsen, McCoach, Sugai, Lombardi and Horner, 2016), and it was indicated that teachers are effective and they have difficulty in implementing these interventions in their classrooms (Calderalla et al., 2017). When Reinke, Herman, and Stormont (2013) investigated the PBS-based classroom behavior management strategies used by teachers in classroom management, they showed that teachers did not use praise frequently despite using positively determined classroom rules, they used a lot of criticizing behaviors, and consequently experienced emotional anger. Studies have shown that when training and coaching are provided, class-wide PBS is applied in classes by teachers with high implementation reliability (Bethune, 2017).

While there is a limited number of studies investigating the effectiveness of class-wide PBS interventions on all the students in the class and the implementation reliability of teachers, the degree of implementation reliability (Gresham, 1989), described as the implementation of an intervention as it is aimed, is important. In some of the studies mostly conducted on a single-subject basis, it was observed that teachers collect the implementation reliability data on the intervention (Calderalla et al., 2017). As a result of a low level of implementation reliability, there is a research-intervention gap that affects the results of intervention (Fixsen, Naoom, Blase, Friedman and Wallace, 2005). Furthermore, studies investigating the effect of class-wide PBS interventions on the behaviors of all students in the class and including social skills training as a component of the intervention are also required. This study was planned both as a result of these requirements that emerged as a result of the literature review and asking for support from a primary school on the management of student behaviors. In the

present study, systematic social skills training was included as a part of the intervention, and whether this caused any difference in the social skills performance of students in the second grade in which the PBS was applied and students in the second grade in which routine teaching continued, and the implementation reliability in the PBS intervention of the teachers and practitioner were investigated. The answers to the research questions listed below were sought:

- (a) Is there a statistically significant difference between the scores obtained from the Behavior Observation Form by the students in the second grade in which class-wide PBS was implemented before the intervention (pre-test), during the intervention and maintenance (post-test) process?
- (b) What is the effect of class-wide PBS on the scores obtained by the *students with special needs* in the experimental group from the Behavior Observation Form?
- (c) Is there a statistically significant difference between the social skills pre-test and post-test scores (the sub-scales of starting a relationship and group working) of the *second-grade students* to whom class-wide PBS was applied?
- (d) What is the average of the social skills pre-test and post-test scores (the sub-scales of starting a relationship and group working) of the *students with special needs* in the group in which class-wide PBS was implemented?
- (e) Is there a statistically significant difference between the social skills (the sub-scales of starting a relationship and group working) scores of the second-grade students to which class-wide PBS was applied and the second-grade students to which class-wide PBS was not applied?
- (f) What is the treatment reliability of the components in the process of implementing the PBS components?
- (g) What are the opinions of the second-grade students to whom the PBS was applied on the target skills,

the process of implementing the PBS and their performance after the intervention?

Method

Research Design

The experimental design with the pre-test, post-test and control group was used in this study. There is an experimental group ($n = 16$) and a control group ($n = 15$) in the study. Experimental studies are studies in which the cause and effect relationship is addressed and which contain a process of intervention (Fraenkel & Wallen, 2006). The pre-test, post-test and maintenance data were collected in the research process. The PBS was applied in the experimental group, and the activity club routine training was maintained in the control group during the interventions.

Participants

Students

The study was conducted in a primary school in Ankara. There is a total of 13 activity clubs in the school where the study was conducted in the 2016-2017 academic year. One of these clubs is the life club. The aim of this club is to develop the social skills of students and ensure that they can effectively cope with the social problems they encounter in life. 16 students that attend the life club make up the experimental group of the study. 15 students that attend different clubs such as scouting and library and do not attend the life club made up the control group. The students were unbiasedly appointed to the control and experimental groups. The experimental group included 16 students in total, one of whom was diagnosed with learning disability and attention deficit and hyperactivity disorder (ADHD), and one of whom was diagnosed with ADHD. Eight of the students in the experimental group are male, and eight are female. The control group included 15 students in total, one of whom was diagnosed with ADHD, and one was diagnosed with learning disability. Six of the students in the control group are male, and ten are female. The age of the students in the control and experimental groups varies between 8 and 10 years. All of them are second-grade students.

Practitioner and observers

Class-wide PBS intervention in the study was performed by the life-club teacher and a researcher (first author). The teacher has worked in different primary and secondary schools as a school counsellor for 21 years. The researcher has done a doctorate in the field of special education and has worked in the field of intervention for approximately 11 years. Before the intervention, training was provided by the researcher to the teacher on the arrangement of the setting, creating and teaching classroom rules, creating routines, data collection, reinforcement and providing feedback; and consultancy was provided during the intervention on the subjects required. The researcher provided social skills training on the target behaviors once a week.

Reliability data regarding the dependent and independent variable were collected in the study. The interobserver reliability data of the study were collected by the school counsellor. The treatment reliability data of the study were collected by the second author of the present study.

Setting and Tools

The intervention sessions of the study were held in the classroom allocated to the life club. The classroom is approximately 5x5 m² in size. One of the walls in the classroom is completely covered by a mirror, while the other one is covered by colorful geometric patterns. The tools that were specifically prepared for drama and social skills training and projection were used in the study during group works, in addition to materials such as paper, pens, paints, construction paper and colored cardboard. A video camera was made available in the setting.

Data Collection Tools

In parallel to the research questions, the Behavior Observation Form was used in order to evaluate the performance of the students in the experimental group in relation to the skills of complying with the rules in baseline, intervention and maintenance sessions, working with the group and starting a relationship. The Behavior Observation Form was prepared by the researchers in order to evaluate the performances of students in relation to the target skills in

the groups of complying with rules, group working and starting a relationship. These skills are presented in Table 1. The opinions of two faculty members working in the field of special education, one faculty member working in the field of general education, and one primary school teacher were taken in addition to the research team regarding the form and the operational definitions of target skills. The form and target skill definitions were given their final shape in accordance with expert opinions. The performance of the students in relation to each target skill in the form was scored between 0 and 4. The highest score that can be obtained by students is 60, and the lowest score is 0.

The *Social Skills Assessment Scale* was used in order to assess the social skills performances of the students in the experimental and control groups. The scale is a five-point Likert-type scale developed by Akçamete and Avcioğlu (2005) in order to assess the social skills of children aged between 7 and 12 years. The scale consists of twelve social skills groups for social skills and 69 items under these groups. The social skills groups in the scale are basic skills, basic conversational skills, advanced conversational skills, skills of starting a relationship, skills of maintaining a relationship, skills of group working, emotional skills, self-control skills, skills of coping with aggressive behaviors, result accepting skills, skills of giving commands and cognitive skills. In the scale, the items of always does were scored as (5), very frequently does as (4), usually does as (3), rarely does as (2), never does as (1), and the items left blank were scored as (0). The highest score that can be obtained from the scale is 345, and the lowest score is 69. Both the content validity and construct validity were used in order to determine the validity of the scale. The opinions of 5 faculty members, who are experts in their fields, were taken for content validity. A factor analysis study was conducted for the construct validity of the scale. As a result of the factor analysis, it was found out that the scale has a twelve-factor structure and these factors explain 75.3% of the total variance. The Cronbach's alpha values were examined

for the reliability coefficient of the scale, and it was observed that the Cronbach's alpha coefficient of the scale is .98. The Cronbach's alpha coefficient of the scale was found to be .70 in the present study. Only the sub-scales of group working and starting a relationship were taken into consideration in the study, and the Cronbach's alpha coefficient was found to be .72 for the subscale of group working, and .65 for the subscale of starting a relationship. The Cronbach's alpha coefficient was found to be lower than the values in the original study as a result of the number of samples in the study.

The *Social Validity Questionnaire* that consists of seven open-ended questions developed by the researchers in order to determine student opinions on the skills they learn, the importance of these skills, teaching methods used, and whether they use the behaviors obtained in daily life was used in the study. The opinions of two experts working as faculty members in the field of special education were taken after preparing the form, and the form was given its final shape in accordance with their opinions.

Dependent Variables

The dependent variables of the study are the students' levels of obtaining the skills of complying with the rules, groupworking and starting a relationship, and social skill performance levels. The teachers of the students ($n = 6$) were interviewed in the process of determining the dependent variables. The teachers expressed that all the students had difficulty in complying with the rules and social skills. The Social Skills Assessment Scale was taken as a basis for the determination of social skills in which students had difficulty. The skills that took the lowest score in the scale filled in by the classroom teachers of the students and that were functional in maintaining the classroom activities were selected as the dependent variable of the study. Some of these skills are the skills in the subscale of group working and starting a relationship of the scale. Some of the target skills were determined considering the suggestions of the teachers. These items are shown with the * mark in Table 1.

Table 1.*Target skills*

Group working skills	Skills of starting a relationship
*Complies with the rules.	Smiles when he/she encounters someone he/she knows.
Gets the permission of group members to participate in a group.	Salutes when he/she meets someone he/she knows (either orally or by bowing).
Complies with the division of labor in the group.	Introduces himself/herself.
*Resolves conflicts in the group.	Introduces people he/she knows to other people
Fulfills one's responsibility in the group.	Forms a group with the friends who are different from himself/herself.
*Talks quietly during the group activity.	
*Resolves the problems experienced with the friends in the group without complaining.	
Offers to play games to classmates.	
Offers to participate in the game that is being played	
Suggests playing new games	

Independent variable

The independent variable of the study is the class-wide PBS intervention. The components of the class-wide PBS intervention in the study were determined to be arranging the setting, creating rules and routines, social skills training, collecting data to monitor the effects of the intervention, symbol reinforcement and providing feedback. Interventions that were found to be effective with the studies were included in social skills training.

Implementation Process

Preliminary meetings and collection of pre-test data. The study was planned when the school counselors asked for support from the department of special education of a university in the management of student behaviors. The researchers accepted the demand for support from the school and attended a meeting with school directors, representative primary school teachers and school counsellors to understand the expectations of the teachers and discuss what could be done. As a result of the meeting, it was concluded that the student behavior with which the school director and teachers had the most problem was complying with the rules and exhibiting social skills. Another issue that came to the forefront at the meeting is that second-grade students exhibit inappropriate behaviors most intensively. The researchers started the study by determining in which social skills students had problems. The Social Skills Assessment Scale was used

to this end. The scale was filled in by second-grade primary school teachers for the students in the experimental and control groups. The social skill groups that were given low points by the teachers and the skills under these groups were determined as target skills. The assessments made by primary school teachers constituted the pre-test data of the participants on their social skill performances. Subsequently, the class-wide PBS intervention that lasted for 14 weeks was started. Implementation process are presented in Figure 1.

Baseline sessions

Activities were held in order to evaluate student performances in the skills that were scored low by the teachers once a week, in the first three weeks of the intervention. The students were allowed to exhibit the target skills determined during these activities. For example, the students were given the instruction "Form groups of three." for the skill of "Gets the permission of group members to participate in a group" in the group of group working social skill, and the life club teacher and the researcher collected data using the Behavior Observation Form on whether the students ask for the permission of group members to participate in a group. These data constituted the baseline data of the students on the relevant skill. Planning was done on how to place the PBS components in the natural flow by observing the activities held in the life club in this period of three weeks.

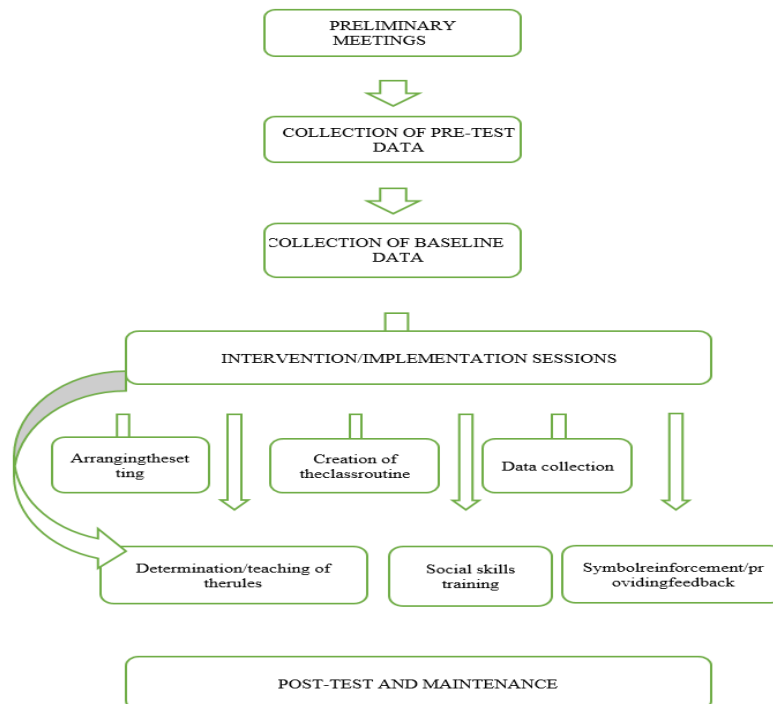


Figure 1.

Presents the flowchart of what is being done in the process of implementation.

Intervention sessions

The class-wide PBS, which consists of six components, was included in the process of intervention. The intervention was held as one session per week, for a total of eight weeks. One session consisted of block classes of 90 minutes. The following lines contain explanations on how each PBS component is applied in the study.

Component 1-Arrangement of the setting: As it is described under the heading of setting, there are many stimuli that can distract students in the classroom. The stimuli that could be removed from the classroom were removed in the process of intervention, while a setting arrangement was made for those stimuli that were not possible to remove such as the walls of the classroom and mirrors. Therefore, the intervention was started by arranging the setting. The classroom environment was arranged in the form of “horseshoe”, in such a way that the mirror would be behind the students.

Component 2-Determination and teaching of the rules: Another component of the PBS intervention is to determine classroom rules. To this end, five rules were determined together with the students for establishing the order of the class

in the first week (We must raise our finger to speak. We must listen when another person speaks. We must properly sit on our pouffes. We must talk to our friends using kind words and sentences. We must avoid behaviors that may harm our friends). The rules were expressed in positive sentences. What each rule means was discussed, and the rules were taught by using the teaching method of cool versus not cool. On the subsequent days, five minutes of the lesson were allocated to reminders on the rules.

Component 3-Creation of the classroom routine: An order of sequences showing what to do during the lesson was created. This order of sequences was used in the same way in each lesson. The practitioners monitored this order of sequences by using the checklist they prepared. The order of sequences was created as follows: (a) Entering the lesson when the bell rings-1 min., (b) salutation-2 min., (c) introducing the materials-3 min., (d) reminding the classroom rules-5 min., (e) reviewing the previous lesson-5 min., (f) explaining the subject to be covered on that day-2 min., (g) explaining why the subject is important and where and when these behaviors will be needed-5 min., (h) presenting the teaching by using the

teaching method determined for that subject-20 min., (i) guiding the students towards the activity in order to observe whether they exhibit the behaviors taught-25 min., (j) reviewing the things learnt-10 min., (k) symbol reinforcement and providing feedback-10 min., (l) saying goodbye-2 min.

Component 4-Social skills training: Social skills training was included as a component of the PBS in order to develop social competences to cope with the problems encountered in social life, which is the main aim of the life club. Explanations on what the target social skills are for social skills training and how they are determined are included under the heading of the dependent variable. Social skills training methods, of which effectiveness was shown with studies, were used for teaching each social skill determined. The social skills taught by weeks and the social skills training methods used are explained in Table 2.

Component 5-Data collection to monitor the effects of the intervention: Activities were held in order to observe whether the students exhibited the behaviors taught in each session of the intervention. Data were collected during these activities, in a similar manner to baseline sessions. The performance of the students in relation to the skills taught in that week was determined using the Behavior Observation Form.

Component 6-Symbol reinforcement and providing feedback: Symbol reinforcement was used during the study. To this end, a jigsaw puzzle of eight pieces was created using a favorite picture of each student. The students were granted the

right to get a symbol each time they complied with the rules determined in the process of implementing symbol reinforcement. The students were given signed papers made of colored cardboard as a symbol. At the end of the class, the students were allowed to replace these papers with a piece of the jigsaw puzzle, and the students were given a chance to complete their jigsaw puzzles by sticking the piece of the jigsaw puzzle to the relevant place. The students were allowed to take their jigsaw puzzle to home when the jigsaw puzzle was completed, and a new jigsaw puzzle was created for that student. Students were given feedback on their performance of participating in the activities together with symbol reinforcement. In this process, each student was first asked to evaluate himself/herself in relation to his/her performance on that day, and then the practitioners provided feedback.

Collection of the post-test data and maintenance sessions

Right after the end of the study, the primary schoolteachers of the students were asked to re-fill the Social Skills Assessment Scale for the students both in the experimental and control groups. These data made up the post-test data on the social skill performances of the participants. In addition to this, maintenance data were collected in a similar way to baseline sessions in order to assess whether the students in the experimental group maintained the target skills in the group of complying with the rules, group working and starting a relationship one, two and three weeks after the end of the study.

Table 2.

Distribution of the target social skills and teaching methods by weeks

Week	Social skills and teaching methods
1	Complying with the rules, smiling at people met, and saluting- Cool versus not cool, being a live model
2	Asking for the permission of group members self-introduction- Direct teaching method, being a live model and drama
3	Complying with the division of labor in the group, fulfilling the responsibility undertaken in the group and being a group with friends- Social story, drama
4	Resolving conflicts in the group and introducing people he/she knows to other people- Video-model in which adults act as a model, being a live model and drama
5	Solving the problems with the friend in the group without complaining- Video-model in which peers act as a model, being a live model and drama
6	Talking quietly during the group activity- Being a live model
7	Offering to play games to classmates and offering to participate in the game- Role-playing, record
8	Suggesting playing new games- Role-playing, record

Data Collection and Analysis

The data in the study on the levels of acquiring the target social skills by the experimental group, which included the basic skills of complying with the rules, group working and starting a relationship, were collected by the researcher and the life club teacher using the Behavior Observation Form. The research findings were obtained by taking the median of the data acquired by the life club teacher and the researcher. The Friedman test was used in the analysis of the data obtained from the Behavior Observation Form, and the Wilcoxon signed-rank test was used as the post-hoc test of this test. The research data were collected from the primary school teachers on the social skills performances of both the experimental and control groups using the Social Skills Assessment Scale. The t-test was used for independent samples in the analysis of the data obtained from the Social Skills Assessment Scale. In the study, the performance of the *students with special needs* in the experimental group in relation to the target skills of complying with the rules, group working and starting a relationship was analyzed graphically, and their social skills performance was analyzed by determining the average scores obtained from the Social Skills Assessment Scale.

Reliability

Interobserver reliability and implementation reliability data were collected in the study. The interobserver reliability data were collected by the school counsellor considering the definitions of target behaviors in Table 1. The definition of each target behavior was explained to the school counsellor after the researchers defined the target behaviors, and what should be taken into account for each definition was explained upon examples. In the study, the data were collected from 30% of all sessions using the interobserver reliability formula $[(\text{consensus})/(\text{consensus}+\text{dissensus}) \times 100]$. The interobserver reliability was found as 86.1% (range: 86-93%).

The treatment reliability data of the study were collected by the second author of the present study. Two different treatment reliability data were collected in the study. Firstly, data were collected from 30% of all sessions in order to evaluate whether the teacher implemented six components of

the PBS that are listed under the heading of intervention sessions in accordance with the plan prepared before the intervention. To this end, treatment reliability form that includes reactions expected from the practitioner was prepared. The opinions of two experts working in the field of special education were taken after preparing the form, and the form was given its final shape in accordance with their suggestions. In the form, the practitioner was expected to fulfil the steps of providing students with an opportunity to exhibit the target skills determined and recording in baseline and maintenance sessions, and to fulfill the steps listed under the heading of the arrangement of the setting and creating the class routine in intervention sessions. Secondly, the treatment reliability data were collected on the interventions used in the social skills training presented by the researcher. To this end, forms that include the steps of implementation of the methods used in the teaching of the target social skills listed in Table 2 were created. Opinions of the third author of the study and an expert with the experience of providing training using these interventions were taken on the forms created. In the study, the treatment reliability data on the interventions conducted both by the teacher and the researcher were collected from 30% of all sessions, and the treatment reliability was found as 100%.

Social Validity

Data were collected with semi-structured interviews held by the researchers (first and fourth author) using the Social Validity Questionnaire on how students in the experimental group evaluate the target skills, the PBS intervention and post-intervention performances (social validity); and the data were analyzed qualitatively. In the study, it was attempted to ensure internal reliability by evaluating the consistency of the coding made by two researchers separately (Yıldırım and Şimşek, 2005). Reliability calculation was performed for 42.8% of all the categories, one category that is unbiasedly determined from each theme to evaluate the consistency of the coding. Whether the coding performed by the researchers for the categories overlapped was checked using the formula of $[(\text{consensus})/(\text{consensus}+\text{dissensus})] \times 100$. The average reliability for the

categories in question was found as 90.4% (range: 71.4-100%).

Results

The answer to the question “*Is there a statistically significant difference between the scores obtained by the second-grade students to whom class-wide PBS was applied from the Behavior Observation Form in the pre-intervention (pre-test), intervention and maintenance (post-test) process?*” was sought in the study. The performances of the students in the experimental group were analyzed using the Friedman test for three different times of observation. The Wilcoxon signed-rank test was used as the post-hoc test of this test. The analysis results are presented in Table 3.

The statistical analysis results in Table 3 showed that there was a statistically significant difference between the scores obtained by the experimental group from the Behavior Observation Form before the intervention, during the intervention and in the maintenance process ($Z = 31.38, p < 0.05$). The findings of the maintenance test conducted in order to determine between which variables there were differences are presented in Table 4. According to the findings of the maintenance test, it was observed that there was a significant difference between the pre-intervention scores of the experimental group and the scores obtained during the intervention, and their pre-intervention scores and maintenance scores (post-test scores). It was observed that there was no significant difference between the scores of the experimental group during the intervention and their maintenance scores; and the

students maintained their performance during the intervention one, two and three weeks after the end of the training.

The answer to the question “*What is the effect of class-wide PBS on the scores obtained by the students with special needs in the experimental group from the Behavior Observation Form?*” was sought in the study. The performances of the students with special needs in the experimental group in relation to the target skills of complying with the rules, group working and starting a relationship during the pre-intervention, intervention and maintenance process are presented in Figure 2.

Examining Figure 2, it was observed that Student 1 and 2 failed to fulfil the target skills before the intervention, there was a significant increase in their performances during the intervention, and they maintained this performance in the maintenance process after the end of the intervention.

The findings on the question “*Is there a statistically significant difference between the social skills pre-test and post-test scores (the sub-scales of starting a relationship and group working) of the second-grade students to whom class-wide PBS was applied?*” are presented in Table 5.

The statistical analysis results in Table 5 showed that there was a significant difference between the pre-test and post-test scores obtained by the students in the experimental group from the sub-scales of starting a relationship ($Z = 136.00, p < 0.05$) and group working ($Z = 136.00, p < 0.05$). Upon analyzing the pre-test and post-test data of the control group, it was determined that there was a significant decrease in the post-test scores of the control group ($n = 15, Z = 2.21, p = 0.02$)

Table 3.

Behavior observation form scores of the experimental group

Group	Variable	n	Sd	Statistics	P
Experimental	SB Pre-test-SB Intervention-SB Post-test	16	2	31.38	0.00*

Table 4.

Follow-up (post-hoc) test results

Group	Variable	n	Statistics	p
Experimental	SB Pre-test-SB Intervention	16	136	0.00*
Experimental	SB Pre-test- SB Post-test	16	136	0.00*
Experimental	SB Intervention-SB Post-test	16	0.00	0.32

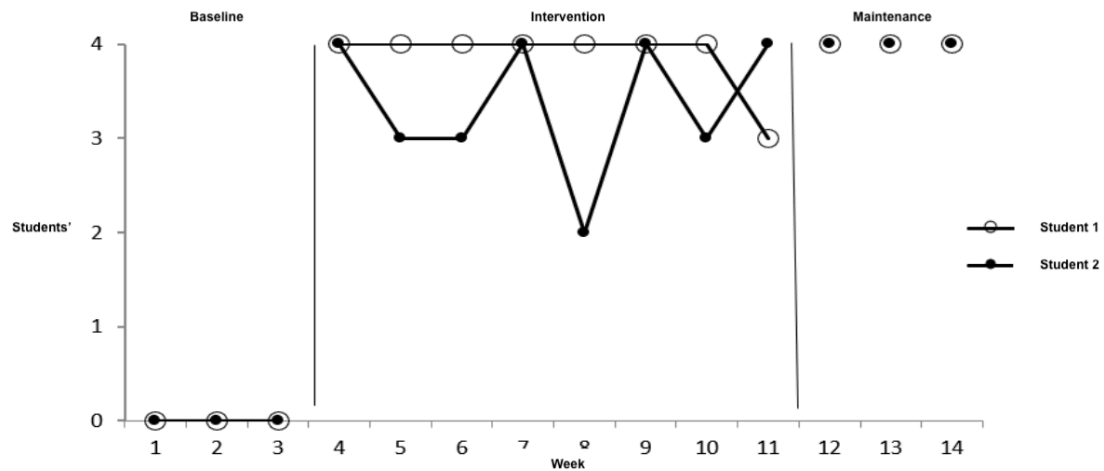


Figure 2.

The graphical view of the scores obtained by the students with special needs from the behavior observation form

Table 5.

Pre-test and post-test scores of the experimental group

Group	Variable	n	Statistics	Sd	p
Experimental	Starting a Relationship	16	136.00	19.32	0.00*
Experimental	Group Working	16	136.00	19.30	0.00*
Experimental	Sum of the Social Skills	16	136.00	19.33	0.00*

The answer to the question “What is the average of the social skills pre-test and post-test scores (the sub-scales of starting a relationship and group working) of the students with special needs in the group in which class-wide PBS was implemented?” was sought in the study, and the findings obtained are presented in Table 6. It was observed that there was a positive change in the social skill performances of Student 1 and Student 2.

The answer to the question “Is there a statistically significant difference between the social skills (the sub-scales of starting a relationship and group working) total scores of the second-grade students to which class-wide PBS was applied and the second-grade students to which class-wide PBS was not applied?” was also sought in the study. The findings on the pre-test and post-test social skill performances of the experimental and control groups are presented in Tables 7 and 8.

The data in Table 7 show that there is no statistically significant difference

between the pre-test scores of the experimental and control groups.

Examining Table 8, it was observed that starting a relationship, group working social skill post-test scores of the students in the experimental group varied statistically significantly, while starting a relationship and group working social skill post-test scores of the students in the control group did not vary statistically significantly.

Finally, the answer to the question “What are the opinions of the second-grade students to whom the PBS was applied on the target skills, the process of implementing the PBS and their performance after the intervention?” was sought in the study. The data obtained from the interviews were analyzed under three themes: (1) The knowledge and skills learnt in the process of intervention, (2) suitability of the teaching methods used, (3) the use and effects of the obtained knowledge and skills in daily life.

Table 6.*Average test scores of the students with special needs*

	Pre-Test Average Score	Post-Test Average Score
Student 1	1.97	4.31
Student 2	1.95	4.23

Table 7.*Pre-test score comparison of the experimental and control groups*

Group	Variable	n	Sd	Statistics	p
Experimental	Starting a Relationship	16	1	2.64	0.21
Control		15			
Experimental	Cooperating with the Group	16	1	1.78	0.34
Control		15			
Experimental	Sum of the Social Skills	16	1	2.41	0.17
Control		15			

Table 8.*Post-test score comparison of the experimental and control groups*

Group	Variable	n	Sd	Statistics	p
Experimental	Starting a Relationship	16	1	27.24	0.00*
Control		15			
Experimental	Cooperating with the Group	16	1	27.24	0.00*
Control		15			
Experimental	Sum of the Social Skills	16	1	23.93	0.00*
Control		15			

Which skills the students learnt from the study conducted throughout the process were addressed under the theme of the knowledge and skills learnt. This theme was examined under two categories being the skill of complying with the rules and group skills. 12 of these students answered the question which skills they learnt by listing the classroom rules they must comply with. One of the students expressed the classroom rules they must comply with as “*Students must ask for permission before talking.*” 10 of the students talked about the group skills they learnt, and this category was divided into two sub-categories as the participation in the group ($n = 6$, 60%) and group working ($n = 4$, 40%). Explanations on what students must do to participate in a group were included in the sub-category of participation in the group. One student described the behavior he/she learnt on this subject with the expression “*I learnt to ask my friend to be a group before forming a group.*” Skills such as helping each other in the group, sharing a task and working together were addressed under the sub-category of group

working. The answers in this sub-category can be shown as “*I learnt to make a division of labor in the group.*”

Another theme of the study is the theme of the teaching methods used. The answers of the students to this theme were addressed in two categories: the methods they like and methods they do not like. Students’ answers in relation to the methods they like can be listed as theater/drama activities ($n = 10$, 38.4%), watching film/video ($n = 4$, 15.3%), painting ($n = 3$, 11.6%), writing story-books ($n = 3$, 11.6%), reading stories ($n = 3$, 11.6%), symbol reinforcement ($n = 2$, 7.7%), cards of accepting to the game ($n = 1$, 3.8%). The expressions “*We played games and played roles*” for the sub-category of theatre/drama activities; “*I liked watching a film the most.*” for the sub-category of watching a film/video; “*I liked it very much to draw and paint pictures.*” for the sub-category of painting; “*We wrote a story-book, it was great.*” and “*I liked it very much to write a story.*” for the sub-category of writing story-books; “*I liked the story book of our class very much.*” for the sub-category of reading

stories; *"I liked the jigsaw puzzle."* for the sub-category of symbol reinforcement; and *"I liked the cards of accepting and not accepting to the game very much."* for the sub-category of the cards of accepting to the game can be given as examples. All the students said that there was no method that they did not like. One of the students expressed this by saying *"There was nothing that I didn't like; everything was great."*

The answers under the theme of the use and effects of the obtained knowledge and skills in daily life were assessed under three categories of the skills used in daily life ($n = 13$, 33.3%), reactions of the people around ($n = 16$, 41.1%) and the feelings of students ($n = 10$, 25.6%). The students stated that they used the skills they learnt in daily life with the expressions *"We form groups before playing a game and then start the game. When someone fails, we do not tell him/her that he/she should leave because he/she has failed; we ensure that he/she plays as well by teaching him/her the game."* The students expressed the reactions of the people around when they exhibited these skills as *"They generally thank us and become very happy."*, *"I get good and positive reactions."*, *"I think the people around me become happy."* The students expressed how they felt when they exhibited these skills as *"I get very happy."*, *"I feel very happy, and I like this very much."*

Discussion

In the study, it was aimed to investigate the effectiveness of class-wide PBS on the skills of complying with the rules, group working and starting a relationship of typically developed students and *students with special needs* attending second grade and to determine whether there was a difference between the social skill performances of the second-grade students to whom the PBS was applied and second-grade students to whom it was not applied. Furthermore, social validity data in the study were collected from the students in the group in which the PBS was implemented.

The findings of the study have shown that class-wide PBS, which consists of the components of arranging the setting, creating rules and routines, social skills

training, data collection to monitor the effects of the intervention, symbol reinforcement and providing feedback, is effective on the skills of the second-grade students in the experimental group of acquiring the target skills in the category of complying with the rules, group working and starting a relationship, and the skills of maintaining the skills obtained 3 weeks after the end of the intervention. Similar findings to the findings obtained from the present study were also obtained in the studies investigating the effectiveness of class-wide PBS. As a result of the literature review on the PBS, it was found out that this intervention is effective in acquiring the skills of complying with the classroom rules (Ünlü et al., 2014); coming to the lesson on time, making preparation for the lesson, listening to the lesson and being respectful towards one's friends (Atbaşı, 2016); playing games, sitting in place, engaging in the activity, participating in the lesson, and academic skills (Wright and McCurdy, 2011), while it leads to a decrease in disruptive behaviors (Wright and McCurdy, 2011). In the studies conducted by Ünlü et al. (2014) and Atbaşı (2016), it was observed that the effect of class-wide PBS is investigated only on students with intensive behavioral problems. Carter and Norman (2010) examined the effect of the PBS on the performance of students based on the opinions of teachers. It is thought that examination of the effect of the intervention on all students in the class by collecting data using different assessment tools (Behavioral Observation Form, Social Skills Assessment Scale) and from different sources (life club teacher, school counselor, primary school teacher, students, and the researcher) and the collection of the maintenance data three weeks later strengthen this study by making it different from other studies.

A significant difference between the pre-intervention scores and intervention and maintenance scores of the second-grade students in the experimental group of the study from the scores obtained from observations on their behaviors of complying with the rules, group working and starting a relationship in favor of the intervention and maintenance shows that the students achieved improvement in these skills, while the absence of a significant difference between the intervention scores and maintenance scores is a desirable situation showing that the students

maintained their performance during the intervention three weeks after the end of the intervention. It is thought that addressing the social skills training as a component of class-wide PBS also affects the social skill performances of students positively. Similar results were obtained in other studies in which social skills training was addressed as a component of the PBS (Simonsen et al., 2010). In another study on the opinions of the members of the profession working at schools where class-wide positive behavioral support interventions are used, 135 of 180 participants expressed the idea that the class-wide positive behavioral support intervention is used at their school. 45% of the participants who stated that the positive behavioral support intervention is used at their school said that social skills are taught within the scope of this intervention, and interventions such as the "Second step", "LEAPS", "Stop and think" are used within the scope of social skills training. The opinions of the participants on the effectiveness of social skills training showed that students do not use these skills outside the group, continue to exhibit inappropriate behaviors in their daily life despite acquiring the appropriate behavior, and they do not continue to exhibit the behaviors obtained (Rodriguez, Loman and Borgmeier, 2016). These findings differ from the findings obtained from the present study. It is thought that the use of different teaching methods such as social story, video model, teaching with cool versus not cool, which have been shown to be effective in the teaching of social skills with studies, in the research, and diversifying the process of teaching and the activities following this process can explain the difference observed between the research findings. It is believed that this feature of the study ensured achieving effective results and that the students maintained the skills they acquired. The literature on the social skills teaching methods listed in the study shows that the effectiveness of these methods is generally investigated by providing one-to-one training (Olçay-Gül and Tekin-İftar, 2016). It can be said that the presentation of the teaching methods listed in this study through a large group arrangement has contributed to the literature on social skills training.

Two *students with special needs* were included in the experimental group of the

study. The research findings have shown that there was a significant increase in the target skills of these students, and their social skill scores increased after the intervention when compared to the period before the intervention. In a study investigating the effectiveness of class-wide PBS on the disruptive behaviors of *students with special needs*, Simonsen et al. (2010) showed that the PBS is effective in reducing the inappropriate, disruptive behaviors of students. Kurth and Enyart (2016) also emphasized that positive behavioral support interventions positively affected the development of all students, including *students with special needs*, and they were effective in creating a positive class climate. In this respect, the research findings support the findings obtained by Simonsen et al. and Kurth and Enyart. In certain sources in the literature, inappropriate behaviors are defined as social skills deficiencies (Ergenekon, 2017); and it is aimed that *students with special needs* acquire appropriate social skills by providing social skills training to *students with special needs* in separated environments (Olçay-Gül and Tekin-İftar, 2016). It is thought that the findings of this study contribute to the literature in that it is possible to both increase the social competences and decrease the inappropriate behaviors of *students with special needs* without separating them from their peers by using the class-wide PBS in which social skills training is addressed and implemented as a component.

In the study, precautions were taken to increase the social acceptance of *students with special needs* in the class in order to create a positive class climate, which plays a significant role in the effectiveness of the PBS intervention. Attention was paid to selecting skills that will increase the social acceptance of *students with special needs* into the group in the process of determining the target skills in the study. The skills in the sub-scales of group working and starting a relationship were primarily addressed in the process of planning the study. During the observations made in the process of planning, it was observed that two *students with special needs* constantly complained about their friends in the group and talked loudly during the group activities, and this caused the reaction of other students, whereby the skills of "Talks quietly during group

activities. Resolves conflicts in the group. Resolves the problems with the friends in the group without complaining.” were addressed as target skills. No data were collected on assessing social acceptance in the study. However, the opinions of the teacher and the researcher showed that the acceptance of *students with special needs* by the group increased. This finding gives rise to the thought that using the PBS intervention in classes in which inclusion interventions are held will contribute to the acceptance of *students with special needs* by their classmates.

In the study, it was observed that there was a significant difference between the scores obtained by students in the experimental and control groups from the subscales of starting a relationship and group working of the Social Skills Assessment Scale, and the social skill scores of the students in the experimental group were higher than the scores of the students in the control group. Considering that only social skills training positively affects the social skill performance of primary school students (Uz-Baş, 2010), an increase in the social skill scores of the students to whom the class-wide PBS presented with systematic social skills training is applied is an expected situation.

As distinct from other studies in which the class-wide PBS intervention was conducted, the students in the group in which the intervention was performed were asked to assess the target skills they acquired, the process of intervention, and their performance after the intervention in this study. The social validity findings collected from the students with the subjective assessment approach showed that the opinions of the students on the target skill, intervention process and their performance after the intervention were positive. These findings are in parallel with the findings found by Rodriguez et al. (2016) indicating that students do not use the behaviors they have learnt through the class-wide PBS that includes social skills training as a component in real life. Student opinions on the PBS intervention especially focus on the social skills training methods such as video model, live model, social story, drama that are included in the intervention process; and the students said that they liked these methods very much. Differently from other studies, the

collection of the social validity data can be regarded among the strong aspects of the study.

Another aspect that strengthens the study is that the treatment reliability data were systematically collected in the study. In the literature, it is emphasized that the PBS must be implemented in a reliable manner, but the assessment and reporting of the treatment reliability are not explained sufficiently (Freeman et al., 2016); it ensures a decrease in inappropriate behaviors when it is implemented in a reliable way (Freeman et al., 2016) and affects academic achievement positively (Gage, Leite, Childs and Kincaid, 2017).

Certain difficulties were encountered in the process of class-wide PBS intervention. The PBS intervention that consists of the components of arranging the setting, creating the rules and routines, social skills training, data collection to monitor the effects of the intervention, symbol reinforcement and providing feedback was used in the study. In this process, difficulties were encountered in terms of time management during symbol reinforcement interventions. The students were given the right to get a symbol each time they complied with the rules determined in the process of implementing symbol reinforcement. Signed papers made from colorful cardboard were given to the students as symbols. At the end of the lesson, the students were allowed to replace these papers with a piece of a jigsaw puzzle, and the students were given the opportunity to complete their jigsaw puzzles by sticking the piece of the jigsaw puzzle to the relevant place. 10 minutes were allocated to the process of symbol reinforcement and providing feedback within the class routine created in the study. It was very hard to perform this process on time for each student. Nevertheless, the process of symbol reinforcement that includes achieving a jigsaw puzzle that consists of animal pictures has been one of the components that the students like most. Therefore, the process was maintained in this way without making any adaptation in the intervention process.

Considering the findings obtained from the study and other findings that examine the effectiveness of class-wide PBS, it can be said that (a) class-wide PBS is effective in teaching the social skills of complying with the rules, group working

and starting a relationship to students, (b) addressing the social skills training as a component of the PBS positively affects the social development of students, (c) and the PBS can be used as an approach in acquiring the target skills by *students with special needs* and their acceptance by their peers. For further studies, it can be suggested to conduct studies that focus on the effectiveness of school-wide PBS and examine the effect of this intervention on the social and academic development of students in the classes where inclusion interventions are performed. With regard to the intervention, it can be suggested to teachers to perform class-wide and school-wide PBS interventions and social skills training for different skills.

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