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Effects of Classroom Management Intervention Based on Teacher Training and Performance Feedback on Outcomes of Teacher–Student Dyads in Inclusive Classrooms*

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Abstract

Teacher training and teacher quality are an important part of the education system, therefore there is a need for new training programs for teachers to gain new knowledge and skills and to support their professional development. In recent years, new programs have been developed to offer knowledge and experience to teachers, and different methods such as consulting to increase the effectiveness of these programs have been suggested. One of these methods is performance feedback which can desirably change teacher behaviors and offer teachers opportunities to experience applying these newly learned methods in their classrooms. The purpose of this study is to examine the effectiveness of performance feedback (PF) which was given daily to teachers following their training in classroom management strategies on the outcome of teacher-student dyads. This study was conducted using three teachers working in mainstreaming classes and their students with special needs. A single-subject design, the multiple-probe design with probe conditions across subjects, and the one group pre-test/post-test design were used to complete the research goal. As a result, performance feedback was found to have positive effects on teacher-use of target classroom management skills (individualization, transitions, and reinforcement). It was seen that intervention increased the preventive classroom management skills and classroom behaviors of teachers. Regarding the outcome for the children, the intervention program increased academic engagement and positive behaviors, while decreasing negative behaviors. Teacher opinions related to the performance feedback intervention were generally positive. Finally, social comparison data indicated that the intervention was socially valid, and by the end of the study the students who were participants in the research displayed more positive behaviors and less negative behaviors than the social comparison groups.

Keywords: Inclusion • Performance feedback • Classroom management strategies • Social comparison • Single-subject designs

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Education in general is the process of changing the behaviors of individuals in a desired direction (Demirel, 2007; Ertürk, 1994). There is a direct relationship between the quality of education and the quality of the teacher; effective teachers who aim to support the development of all students in their classroom are expected to assess the physical environment, function, and instructional materials of the classroom in terms of student needs, and to make the necessary adaptations and modifications (Friend & Bursuck, 2002). Studies show that there is a strong relationship between classroom management and student achievement, and the most important factors which affect student learning are classroom management (Wang, Haertel, & Walberg, 1994) and teacher behaviors (Fidler, 2002; Wright, Horn, & Sanders, 1997). In order to achieve successful classroom management, it is necessary to appropriately utilize classroom space, identify and implement classroom rules, utilize reinforcements in classroom management, hold students responsible during the process of instruction and assessment, create a positive classroom environment, and form positive teacher-student relationships (Burden & Byrd, 1994 as cited in Deniz, 2010). Therefore, it is emphasized that teachers have knowledge and skills about classroom management and they must improve their classroom management skills to increase the effectiveness of education (Fidler, 2002).

Teacher quality and effective instruction play an important role in general education as well as in mainstreaming education. Mainstreaming practices have been implemented since the 1980s in Turkey. In the scope of related laws and regulations, students with special needs were placed in general education classrooms, thus the roles and responsibilities of teachers changed (Sucuoğlu & Kargın, 2006). Teachers in mainstreaming classrooms are expected to meet the needs of all children, yet teachers indicate they lack the knowledge and skills on mainstreaming and children with special needs (Batu, 2010; Crane-Mitchel & Hedge, 2007; Gök & Erbaş, 2011; Kargın, Acarlar, & Sucuoğlu, 2006; Salend, 1998; Scruggs & Mastropieri, 1996). On the other hand, the Ministry of National Education (MoNE) arranges in-service training every year in order to let teachers gain knowledge and skills about mainstreaming practices. However, this training, which generally lasts five days, involves the transfer of knowledge to teachers without hands-on experience. Therefore, the issues faced in mainstreaming classrooms are not solved and the teachers who work in these classrooms cannot implement the knowledge acquired from the training into their classrooms. They have difficulty adapting and modifying instruction in terms of the individual differences of students (individualization) and in dealing with the problem behaviors they encounter (Batu & Özen, 1997; Kargın et al., 2005; Niesyn, 2009; Sucuoğlu & Akalın, 2010).

Teachers are provided with very little education about this topic in their pre-service and in-service training (Sucuoğlu, Demirtaşlı, & Güner, 2009), and providing only education may not be sufficient for giving knowledge or developing the skills of teachers (Önen, Mertoğlu, Saka, & Gürdal, 2009; Sarıgöz, 2011). When this is taken into account, it can be clearly seen that mainstreaming teachers need knowledge and skills to manage classrooms where children with special needs are in attendance and also to improve their preventive classroom-management skills (Batu & Özen, 1997; Kargın et al., 2005; Sucuoğlu & Akalın, 2010; Sucuoğlu, Akalın, Sazak-Pınar, & Güner, 2008). However, providing effective and efficient learning environments in addition to managing student behavior are very important in mainstreaming settings. The success of mainstreaming practices substantially depends on how well teachers manage their classrooms. In other words, teacher behaviors and classroom management skills can result in increased academic engagement and achievement as well as decreased problem behaviors for students with and without special needs (Soodak, 2003; Soodak & McCharty, 2006; Sucuoğlu & Kargın, 2006), thus making it easy to meet the needs of all students.

Even though effective classroom and behavior management are crucial for all teachers, especially for teachers who have students with special needs in their classrooms, there are very few studies about this topic in Turkey. In a few studies conducted in mainstreaming classrooms, the classroom management strategies of teachers (Sucuoğlu et al., 2008) and their in-class behaviors (Akalın & Sucuoğlu, 2010) were examined. The results showed a significant correlation between the behaviors of students with special needs and teacher behaviors. In another study, training offered and teachers about effective classroom management increased the knowledge of teachers but did not positively or significantly change the management strategies that teachers used in their classrooms (Güner, 2010). However, the success of mainstreaming practices is closely related to the fact that teachers who implement these practices learn and use effective instructional and classroom-management strategies in their classrooms. For this

reason, it is thought that teachers need to learn and have experience in implementing these strategies. In another words, in order to both increase the success of mainstreaming practices and have all students with or without special needs benefit from primary education to the utmost, there is a need for short-term, problem-focused, and solution-oriented teacher education programs which can allow teachers to gain knowledge and skills.

Teacher education can be offered using different methods such as in-service training, seminars, and distance education (Milli Eğitim Bakanlığı, 2012). In recent years, new programs have been developed to offer knowledge and experience to teachers, and different methods such as consulting to increase the effectiveness of these programs have been suggested (Mesa, Lewis-Palmer, & Reinke, 2005; Noell et al., 2000). One of these methods is performance feedback which can desirably change teacher behaviors and offer teachers opportunities to experience applying these newly learned methods in their classrooms (Scheeler, Ruhl, & McAfee, 2004). Performance feedback (PF) is defined as a method in which knowledge about the processes and results is offered to support the transfer or maintenance of knowledge and behaviors (Mortenson & Witt, 1998). It is effectively used in the process of personnel training in various workplaces, institutions, and educational settings (for detailed information, see Akalın, 2014a). The framework and main characteristics of performance feedback were identified by Van Houten in 1980 (as cited in Scheeler et al., 2004). The first characteristic is the content of PF. The content, or nature, of PF is related to its being rather corrective, general, positive, or descriptive, in addition to the way in which it is offered. For example, feedback can be offered to teachers face-to-face while conducting an observation as well as by the internet from a distance, or it can be offered after having obtained data through an audio recording, video recording, checklist, or anecdotal data through observation. Another characteristic is the frequency and timing (e.g., every day, once a week, etc.) with which feedback is offered to the teacher. PF can be offered by giving immediate verbal feedback by interrupting the practice of the teacher, or it can be offered by observing teachers while they are implementing their practice and offering feedback one or two days following the observation through video recordings, voice recordings, or notes taken during the observation. The last characteristic is the source of the feedback, or in another words, the person who offers the feedback. Feedback can be offered by experts or advisors from universities, or it can be offered by colleagues or people who are responsible for the practices at school.

Performance feedback can be used in different educational settings (Codding, Feinberg, Dunn, & Pace, 2005; Noell et al., 2005) and for different purposes (Hagermoser-Sanetti, Luiselli, & Handler, 2007; Mortenson & Witt, 1998; Noell, Witt, Gilbertson, Ranier, & Freeland, 1997; Noell et al., 2000). Generally, PF can be used along with social rewards after teaching a new strategy to the teachers for use in their classrooms (Casey & McWilliam, 2008), or it can also involve problem solving or answering questions (Akalın, 2014a). People who are offering PF generally indicate the steps of the program which have been correctly implemented using a written form or graph demonstration; they give corrective feedback for the steps which have been incorrectly or partially implemented, and they explain what the mistake was or how it can be corrected (Hagermoser-Sanetti et al., 2007; Scheeler et al., 2004). Verbal feedback, which is a type of PF, can be used with other means of performance feedback (written, graph, video, etc.) and involves short explanations about the data collected by these means (Casey & McWilliam, 2008). However, visual-graph feedback is a special type of performance feedback that involves giving quantitative data about the previous performance of individuals in order to affect their future performance (Leach & Conto, 1999, as cited by Casey & McWilliam, 2008).

In Turkey, in the field of special education, a few researchers have conducted studies related to informing and performance feedback whose effects are accepted in the international literature (Casey & McWilliam, 2008; Codding et al., 2005; Reinke, Lewis-Palmer, & Merrell, 2008). One of the studies was conducted with the mothers of children with mental impairments (Vuran, 1997), another one was conducted with student teachers who were studying the education of individuals with mental impairments (Erbaş & Yücesoy, 2002), and the last one was conducted with teachers working in general education classrooms (Timuçin, 2008). In all three studies, the importance of offering feedback was emphasized. However, there have not been any studies in which performance feedback was offered to general education teachers who had students with special needs in their classrooms. Therefore, the purpose of this study was to examine the effects on teacher and student outcomes of an intervention program which included giving information and

performance feedback about classroom management strategies to mainstreaming general-education teachers. In the direction of this general purpose, answers for the following questions were sought:

1. Is the intervention program based on giving information and performance feedback about classroom management strategies to mainstreaming general education teachers effective on teachers' a) target classroom management behaviors, b) general classroom management strategies, and c) characteristics?
2. Is the intervention program based on giving information and performance feedback to mainstreaming general education teachers effective on students with special needs in terms of students': a) positive and negative behaviors, and b) academic engagement?
3. Does the intervention program have social validity? a) What are the opinions of mainstreaming general education teachers about the classroom management intervention program which is based on giving information and performance feedback? b) What are the results of the social comparison findings for the intervention related to student behaviors?

Method

Participants

Participants of this study included three general education teachers who had children with special needs in their classrooms and who work at a primary school in a mid-socioeconomic region of the Çankaya Province in Ankara, Turkey. Two of the teachers were male and one was female. The mean age of the three teachers was 51 (range: 45-58 years old) and their work experience averaged 31 years (range: 22-42 years). The mean classroom size was 33 students (range: 30-35). The teachers met the following criteria: *1)* teaching a second or third grade class, *2)* having a child with special needs in the classroom, *3)* having difficulties related to classroom management, *4)* having no previous education about preventive classroom management strategies, and *5)* having no practice with performance feedback related to classroom management strategies.

In order to examine the effects of the intervention on child outcomes, one student with special needs from each teacher's class was selected. Data was collected from a total of three students with special needs. The mean age of the students was eight (range: 8-9 years old). Two of them were male and one was female, and two of them were in second grade while one of them was in third grade. In order to identify the students with special needs in the classrooms, the teachers were interviewed, information about the students was collected, and family consent was received. One of the students was diagnosed with a learning disability and the other two showed academic failure. These two students were below average in their classrooms in terms of academic achievements and social behaviors as well as having difficulties in reading-writing and mathematics skills. Even though these students did not have any official diagnosis assigned by the Counseling and Research Centers, the teachers indicated that these students could be included in the bottom 10% of students (risk group) in terms of their academic achievements since they were continuously and consistently behind their peers in terms of learning abilities and academic development.

Research Design

Two methods, the experimental and pre-experimental models were used together in this study. For the experimental model a multiple probe design across subjects was used to examine the effects of PF on target classroom management strategies (Alberto & Troutman, 2006). One group, using the pre-test/post-test design as the pre-experimental model, was used to examine the effects of the intervention on the general classroom management skills and characteristics of the teacher as well as the outcomes for the children with and without special needs. Only the post-test design with a control group was used to make a social comparison (Büyüköztürk, Kılıç-Çakmak, Akgün, Karadeniz, & Demirel, 2012; Karasar, 2014).

Independent and Dependent Variables

The independent variable of this study was the intervention program which included *giving information* and *performance feedback (PF)* about classroom management to teachers. During this intervention program, teachers were first informed briefly for 40-45 minutes, and then they were given delayed, graphical, and verbal feedback based on the daily data related to classroom management.

This study had two groups of dependent variables which included *teacher behaviors* and *student behaviors*. The dependent variables of teacher behaviors were grouped in three categories: *1)* target classroom management behaviors (individualization, transition, and rewarding), *2)* general classroom

management strategies (classroom rules, classroom schedule and order, starting the lessons, materials, monitoring the student and following their engagement, individualization of the instruction, giving directions, getting and maintaining student attention, transitions, rewarding positive behaviors, giving appropriate cues, ending the lesson, and problem behaviors), and *3)* teacher behaviors (the definition and behaviors of the teacher during the instruction, teacher's approval behaviors, all the characteristics related to teacher's position and instructional focus).

Dependent variables related to students with special needs were: *1)* positive behaviors (writing, academic reading, academic talking, raising hand, listening, following directions, looking at the task, talking about the task, doing the task, and using the materials) and negative behaviors (self-stimulation, not remaining seated, extracurricular talking, engaging in extracurricular activities, misusing the materials, opposing/not following the directions, and disturbing or interfering with others) and *2)* academic engagement (writing, engaging in the academic activity, reading out loud or silently, and academic talking).

Social Validity

In this study, two types of social validity data were collected:

a) The Teacher Satisfaction Form was used to evaluate the opinions of teachers about the intervention program in which they participated. For this purpose, teachers were asked to fill the satisfaction form after having completed the intervention program and their answers to each question were individually evaluated.

b) Secondly, a social comparison was conducted (Christensen, Young, & Merchant, 2004; Festinger, 1954; Houten, 1979; Szivos, 1991; Vuran & Sönmez, 2008). For this purpose, only the post-test design with control group, a pre-experimental model, was used (Büyüköztürk et al., 2012; Karasar, 2014). Social comparison (SC) was implemented by comparing the target individual's performance to those of peers with typical development (Houten, 1979). In this study, in order to test for the validity of the intervention related to the outcomes for the children, students in the intervention group were compared to students who had characteristics similar to the intervention group (three students with special needs and three students without special needs) and who were from a school which was located in the same region as the intervention school. For this purpose, at the end of the study, 20-minute videos were recorded in either Turkish, Mathematics, or Social Sciences lessons during the classrooms of the intervention and comparison groups. Using the video recordings, student behaviors were observed using the Student Behaviors Observation Form (STD.BOF). Then, the group means of students obtained from the student observation forms in the intervention and comparison groups were calculated and findings were graphically compared.

Implementer

The implementer, a research assistant in the Special Education Department of a university, has a master's degree and doctorate in Special Education. This researcher, who took courses related to classroom management for her bachelor and master's degrees, has worked on different projects about instructional characteristics and classroom management of mainstreaming classrooms as a scholar and a researcher.

Setting and Materials

The study was conducted in three different settings for the information giving, classroom observation, and PF sessions. Firstly, the session of information giving was conducted individually with each teacher in the computer laboratory of the school. A table and two chairs facing each other were placed in this laboratory, and a computer and a projector were utilized for giving a presentation to the teacher. In this session, in order to collect data for procedural fidelity, an audio recorder was used. Secondly, the classroom observations were conducted in the classrooms of the teachers from the intervention group and these observations were video recorded. Thirdly, the PF sessions were conducted in an empty classroom of the school, and they were implemented by the researcher who was sitting face-to-face with the teacher. These sessions were audio recorded in order to collect procedural data for fidelity.

Data Collection Tools

In this study, two types of data collection tools were used that were based on observations and subjective evaluations. In order to collect data related to teacher and student outcomes, the tools used based on observations and subjective evaluations are explained in the following sections.

Teacher Behaviors Observation Form (TCH.BOF): This form was developed by the first researcher under the advisory process of another expert in special education based on the Preventive Classroom Management Observation Form (PCMOB) and research studies related to teacher behaviors in the literature (Codding et al., 2005; Güner, 2010; Stichter, Stormont, & Lewis, 2009). This form, which was used to examine the effectiveness of the PF given to teachers on their target behaviors, consisted of definitions and the implementation steps of individualization, transition, and reward strategies. These strategies and their implementation steps are explained as follows:

Individualization: a) Teachers give appropriate cues to the student (teachers may individually work with the student for a short period of time such as 2-3 minutes when needed, they may help them by modeling for them or by providing peer support), b) they make modifications and adaptations (they may change the seating of the student, offer supportive materials, or modify/adapt the content-goals for the student), and c) they offer learning opportunities (they ask a question or give a direction to the student with special needs, wait for 3-5 seconds, offer a cue when the response is wrong, and reward the response).

Transition: a) Teachers get the attention of the students and wait for all students to be ready, b) they tell what the next activity is, c) they tell or show how the students will make the transition, and d) they monitor and follow all of the students during transition.

Rewarding: Teachers a) use the appropriate rewards, b) say what the reward is, c) say who gets the reward, d) say why they give the reward, and e) give the reward immediately following the behavior.

Target classroom management strategies identified in this study were recorded using the TCH.BOF, and based on the implementation steps of each strategy, event recording (Kırcaali-İftar & Tekin, 1997) was utilized. For this purpose, a "+" was written for each of the steps from the target strategies that were implemented correctly on the observation form, which meant *one correct implementation (one correct response),* when every step of the strategy was carried out correctly. The percentage of correct implementations for each strategy was calculated by the formula (*number of correct responses / total number of responses) x 100* (Codding et al., 2005). If the percentage of correct implementations of a strategy was high, it showed that the teacher was using the strategy correctly. In addition to individually calculating the percentage of correct implementations for each strategy, three strategies were addressed together, and the percentage of total correct implementations were also calculated. For this purpose, the following formula was used: *{total number of responses for correctly implemented target behaviors (total strategies) / total number of responses of correctly and incorrectly implemented target behaviors (total strategies)} x 100* (Codding et al., 2005). The basic criterion accepted for this study was correct implementation of the target strategies at 70% or higher for at least three consecutive sessions; the trend and stability of the data were considered for the effectiveness of the intervention (Alberto & Troutman, 2006).

Preventive Classroom Management Observation Form (PCMOF): This form was developed to evaluate the preventive classroom management of mainstreaming teachers (Sucuoğlu, Akalın, & Sazak-Pınar, 2007). It consists of 86 items under 13 major topics: classroom rules, classroom schedule and order, starting the lesson, materials, monitoring the students, individualization, giving directions, getting and maintaining student attention, transitions, rewarding positive behaviors, giving appropriate cues, ending the lesson, and problem behaviors. The observers complete this form by observing the teacher during instruction of 1-3 academic lessons. The teachers get 1 point when they use the strategy indicated on every item of the form, they get a zero when they do not use that strategy. Of all the items, 13 are reverse scored, and the scores obtained from each item are added to obtain a total score. The lowest score that can be obtained from the PCMOF is zero whereas the highest score is 86. The reliability of the PCMOF was examined by calculating the Cronbach's alpha internal-consistency coefficient of data collected from 191 teachers and it was found to be .87 (Sucuoğlu et al., 2007). The PCMOF was used to examine the effects of the intervention program on teachers' general classroom management skills before and after the intervention program.

Eco-Behavioral Assessment System (EBASS): In order to evaluate teacher and student behaviors before and after the intervention, the Code for Instructional Structure and Student Academic Response – Mainstream Version (MS-CISSAR) from the EBASS computer-based observation system was used. MS-CISSAR was adapted into Turkish by Sucuoğlu et al. (2007). The reliability of the program was tested by both calibration study (self-measurement) and inter-observer reliability studies, and inter-observer agreement was found

to be 84% (range: 77-90%). MS-CISSAR can be used to examine: a) student behaviors, b) teacher behaviors, c) environmental characteristics, and d) the interaction of these three characteristics with each other (Greenwood, Carta, Kamps, & Delquadri, 1997). Using MS-CISSAR, more than one instructional variable related to the classroom environment can be simultaneously assessed. All the characteristics related to teachers and setting can be simultaneously recorded using the momentary time sampling method and the percentage of occurrences for each variable (percentage of responses or intervals) can be obtained (Sucuoğlu & Akalın, 2010). With the TCH.BOF, teachers' target classroom management strategies (individualization, transition, and rewarding) were assessed, and with the STD. BOF, students' positive and negative behaviors were assessed. All teacher characteristics during instruction (teacher definition, approval behaviors, position in the classroom, and instructional focus) and academic engagement of students before and after the intervention (writing, task engagement, reading out loud or silently, and academic talking) were assessed using the MS-CISSAR. Data related to each teacher and student variable were analyzed by cellular analysis. For this purpose, the percentage of observational intervals in which behaviors occurred was calculated with the formula (*number of intervals in which the behaviors are observed / total number of observational intervals) x 100* from Greenwood et al. (1997).

Student Behaviors Observation Form (STD. BOF): This form which was developed by Akalın (2007) consists of a list of students' *positive in-class behaviors* (writing; listening; academic reading; academic questions, answers, and speaking; raising the hand; following directions; looking at the task, work, and materials; questioning, answering, talking about the task; doing the task or task engagement; and using materials) and *negative in-class behaviors* (self-stimulation; not remaining seated; extracurricular talking; extracurricular task (activity) engagement; misuse of the materials; opposing, objecting to, or not following the directions; and disturbing or interfering with others). Reliability of the data collected by the observation form was tested by calculating the inter-observer reliability coefficient and the mean percentage of this coefficient was found to be 88% within the range of 84%-94% (Akalın, 2007). This form was used to examine the effects of giving information and PF to teachers on the positive and negative behaviors of students with special needs. In order to examine the level of occurrence of each student's target behaviors, both positive and negative, based on video recordings, the one-minute momentary time sampling method was used and the response rate was calculated using the formula (*number of observational intervals in which the behaviors occurs / the total number of observational intervals) x 100* from Kırcaali-İftar & Tekin (1997).

Satisfaction Form (SF): In order to examine the opinions of teachers about the intervention program which they participated in, the SF was developed by the researcher based on studies in the literature (Allinder & Oats, 1997; Calvert, 1986; Dahl, Teryo, & Symons, 2007; Güner, 2010; Vuran & Sönmez, 2008) under the guidance of another expert in special education. The form consists of 19 questions: 16 Likert-type items, two close-ended (yes-no) questions, and one open-ended question. The first part of the form consists of 16 Likert-type items to examine the appropriateness of the intervention program on a scale of 0 to 10 points. The mean of the three teachers' ratings on these items was calculated, and the items which had a mean of 5 or higher were accepted as showing that the teachers were satisfied with the program. On the second part of the form, there were two close-ended questions to examine the appropriateness of the study setting and the willingness of the subjects to participate in other similar studies, and one open-ended question to examine teacher opinions about the effects of the intervention program on teachers and students. Answers to the items on the second part of the form were analyzed by calculating frequencies and percentages. Teacher satisfaction with the intervention program was examined at the end of the intervention using this form.

Implementation

Pre-intervention Studies

Preparation of the Intervention Program: In order to prepare the information material for use in this study, literature related to preventive classroom-management strategies (Barton & Wolery, 2007; Casey & McWilliam, 2008; Colvin, Flannery, Suga, & Monegan, 2009; DiGennaro, Martens, & Kleinmann, 2007; Mesa et al., 2005; Reinke et al., 2008) were reviewed. The researcher made observations in the classrooms of the teachers using the PCMOF, and she performed interviews with the subjects. During the interviews, teachers were asked to indicate the problems they encountered in

classroom management, the solutions they made for these problems, and the classroom-management strategies which they found difficult to implement, etc. Based on the observations made via the PCMOF and interviews, three strategies (individualized instruction, transition, and rewarding) which teachers of students with special needs needed the most and which were also frequently emphasized in the literature were identified as the target strategies of this study and included in the information session. The information session included a brief presentation which lasted about 45 to 50 minutes. In this session, the teachers were briefly informed about preventive classroom management through the expository teaching strategy (Küçükahmet, 1997). One information session was conducted with every teacher. In this session, the target strategies included in the intervention program were briefly introduced, implementation steps of each strategy and how to implement these steps were explained, examples were presented, and questions from the teachers were answered.

The intervention program of this study consisted of giving information and performance feedback to teachers on classroom management. With this program, teachers were briefly informed then they were given delayed (within the first two days following the observation), graphed (line graphs), and verbal (social praise and brief explanations about practice deficiencies) performance feedback based on daily data related to classroom management (Casey & McWilliam, 2008; Erbaş & Yücesoy, 2002; Mesa et al., 2005; Hagermoser-Sanetti et al., 2007). Delayed PF was preferred in this study in order to not decrease the instructional speed or disrupt the course flow (Erbaş & Yücesoy, 2002). Thus, the types of performance feedback given to teachers in this study were delayed, graphed, and verbal feedback based on daily data.

Pilot Study: In order to predetermine issues that might be encountered during the research and to make the necessary modifications in the intervention program, a pilot study was conducted. In this study, two pairs of teacher and student with special needs were selected from another school which was located in the same region as the intervention school and had similar physical and instructional conditions. The teachers were given two information sessions lasting about 100 minutes and observations were conducted on three lessons from each of the classrooms, making for a total of six in-class observations. In the pilot study, use of observation forms were tested, video recording trials were conducted, and teachers were given information and performance feedback sessions. At the end, teacher opinions about the pilot study were taken. Data related to the pilot study was reviewed and necessary modifications and changes were made to the process of the intervention program and its implementation.

Pre-experimental Design: Collection of Pretest Data

At this stage, to support the data collected from the experimental design and to collect information related to student-teacher behaviors, the PCMOF, MS-CISSAR, and STD.BOF were used. Before the implementation of the intervention program, the researcher recorded videos during three consecutive academic lessons (Turkish, Mathematics, and Social Sciences) for 40 minutes in the classrooms in which the study were to be implemented, and then she collected the pretest data related to the teachers and students by analyzing video recordings.

Experimental Design: Collection of Single Subject Design Data

Data Collection in Baseline: Baseline data from the experimental design was collected through the TCH.BOF. For this purpose, during three different academic lessons, 20 minutes of video were recorded in the subjects' classrooms simultaneously. These videos were then watched and observed for whether the teachers were using the target strategies. Every strategy and implementation step which were exhibited were recorded on the observation form. During this phase, teachers did not receive any intervention. In the baseline phase, three baseline sessions were carried out with each teacher, consisting of nine baseline sessions in total, and the data related to these sessions were graphed.

Data Collection in Daily Probes: During the probes, while daily probe data was collected (continuously) for the first teacher, only data from one probe was collected weekly for the second and third teachers. For this purpose, in each probe session, 20 minutes of classroom video were recorded during academic lessons. These video recordings were then watched and data was noted on the TCH.BOF. In this session, for the second and third teachers only, probe data was collected but intervention was not implemented. These steps were repeated for the second and the third teachers during the implementation. At this stage,

teachers for whom the implementation had been finished had data from one probe collected weekly to examine the maintenance effects (Alberto & Troutman, 2006).

Intervention Phase: Intervention included PF and information sessions. Consecutive intervention steps implemented with each teacher included the following:

- First, a brief information session lasting about 40-45 minutes was conducted with the first teacher. The content of the intervention program was presented to the teacher and the teacher was briefly informed about preventive classroom management. In this session, target strategies of the intervention program were defined, implementation steps of every strategy were explained, examples were given, and questions from the teacher were answered. At the end of the session, the teacher was informed about the PF and graphical analyses. However, performance feedback was not given during this session.
- Having completed the information session, the initial 20-minute video for the first teacher was recorded in order to assess target classroom-management strategies. Using the TCH.BOF, observational data was collected by watching the video. Later, the percentage of strategies correctly implemented and the total percentage of correctly implemented strategies were calculated and the findings graphed.
- Before the next observation, the researcher then conducted the first PF session with the teacher during the recess. In this session, the results of the previous observation were first graphically presented to the teacher and then graphed and verbal feedback were given to the teacher related to their performance (level of correct implementation of target behaviors) from that observation. During this process, the 20-minute in-class video recording of the participant was watched by the researcher daily, and the data related to the teacher's classroom management behaviors were recorded on the TCH. BOF. For each of the strategies, the percentage of correct implementations was separately calculated at this stage and the total percentage of correct implementations for all three strategies was calculated. The findings were then graphed. The performance feedback that was given to the teacher was based on daily data and included a line graph. Feedback was given by explaining the graph, giving some brief information, and a verbal reward about the correctly implemented steps for each of the target strategies included in the intervention program, as well as a brief explanation with corrections for the unimplemented or partially implemented steps. In other words, during performance feedback, how to read the graph was explained to the teacher and the observational findings were shown graphically. Meanwhile, numerical data was also given about the level of correct implementations for the target behaviors which were included in the intervention program. For the correctly implemented target behaviors or steps of the behavior, a verbal reward (e.g., "you've done this step of the target behavior very well," or "you've done all the steps of this behavior correctly, you're doing great!" etc.) was given. For the unimplemented or partially implemented steps, a brief explanation with correction (e.g., "you've partially implemented this step of the behavior, you can try this in order to completely do this step in the next observation," etc.) were given.
- Classroom observations and PF sessions were repeated in the same manner until the criteria of success (correct implementation of the target strategies at 70% or higher and data stability shown for at least three successive sessions) for the intervention program was reached. When the first teacher approached the criteria of the implementation sessions, a second baseline level of data from the next teacher began to be collected. During the implementation sessions, when the first teacher reached the criterion for the percentage of correct implementations, performance feedback was ended with the first teacher and the implementation phase was started with the second teacher. The same procedure was followed for the second and third teachers. During the intervention, implementation was carried out with the teacher whose time had come, while weekly probe data was collected from the teachers who were not receiving intervention at that time. When the intervention was terminated for one teacher, weekly follow-up data was collected for that teacher.
- Information sessions which took place before the PF lasted about 40-45 minutes on average (range: 34-54 minutes), and a total of 122 minutes of audio recording were obtained over three sessions. Performance feedback sessions lasted about 10 minutes on average (range: 5-20 minutes) and for the three subjects a total of 18 PF sessions and 182 minutes of audio recording were obtained.

Follow-up Phase: When target behaviors met the criteria of the PF sessions, weekly follow-up data was collected for the subjects with whom the

intervention had ended. For the three subjects, six, four, and three follow-up sessions were conducted respectively, consisting of 13 follow-up sessions in total. Six months after the intervention completed, one follow-up session with the subjects was carried out again in order to collect follow-up data using the TCH.BOF. During academic lessons, 20-25 minutes of video recording were taken once again. Data collected from these sessions were also graphed.

Pre-experimental Design: Collection of Post-test Data

When the intervention was finished for all the subjects, post-test data was collected from each subject following the same procedure as the pretest data collection. In this stage, 40 minute videos were recorded in three successive academic lessons in the classrooms where the study was carried out. In order to examine the effects of the intervention on teacher and student behaviors, the researcher collected post-test data from the pre-experimental design by analyzing the video recordings using the PCMOF, MS-CISSAR, and STD.BOF.

Reliability Data

Inter-observer Reliability: Reliability data for the dependent variable of single-subject design was collected by an independent observer who was a master's student and had training from the first researcher for this study. Inter-observer reliability of the data collected by the TCH.BOF was carried out separately for each subject, and it was collected in at least 20% of the probe, intervention, and follow-up sessions (Tekin-İftar & Kırcaali-İftar, 2004). Independent from the researcher, the observer watched 20% of the total observations (9 cd's in total) which were randomly selected videos, assessed teacher behaviors, and recorded them on the TCH.BOF. Later, the data from the researcher and the observer were compared and the inter-observer reliability coefficient was calculated using the formula *(smaller number/larger number) x 100* (Kırcaali-İftar & Tekin, 1997). The inter-observer reliability coefficient for all three subjects averaged 90% (92%, 95%, and 82% for the first, second, and the third teachers respectively) and the observations were accepted as reliable (Kırcaali-İftar & Tekin, 1997).

Treatment Integrity: Treatment integrity data was collected for the information and performance feedback sessions separately. One independent observer collected treatment integrity data for all three information sessions using the Information Session Treatment Integrity Form (IS.TIF). Another one collected data for 20% of the PF sessions (5 audio-recordings) using the Performance Feedback Treatment Integrity Form (PF.TIF). The IS.TIF includes the following items: the researcher gives an introductory speech for the information session and its content, she presents the topics in accordance with the information session materials, she gives examples about the topics, she answers the questions of the teacher related to the topics, and she informs the teacher about the next stage of the study. While listening to the audio recordings, these five items could be rated as "yes," "no," or "not applicable." The PF.TIS consisted of eight items which could be rated similarly as "yes," "no," or "not applicable." These eight items are: the researcher gives an introductory speech about the session, she presents a simple line graph based on daily data, she briefly explains the graph, she gives some brief information, she gives a social reward for the target behaviors which have been implemented, she gives a brief explanation and makes corrections for unimplemented behaviors, and she makes corrections for partially implemented target behaviors.

Treatment integrity was calculated based on the percentage of the carried-out items on the form by the formula *treatment integrity coefficient (%) = (correctly implemented behaviors/planned behaviors) x 100* (Billingsely, White, & Munson, 1989 as cited in Tekin-İftar & Kırcaali-İftar, 2004). This procedure yielded that the treatment integrity of both information sessions and performance feedback sessions were 100%, meaning that the research was implemented as planned with every subject.

Data Analysis

Data from the experimental model (single-subject design) was graphically (visually) analyzed using linear graphs based on data from the TCH. BOF (Alberto & Troutman, 2006). For the pre-experimental model, the following analyses were carried out: (*a*) Means of scores obtained from the PCMOF, (*b*) Percentage of intervals in which the behaviors were observed using the STD.BOF, (*c*) Cellular analyses and engagement analysis for the data collected from the MS-CISSAR. For data collected from this model within a group, analyses were carried out and the findings were compared before and after the intervention.

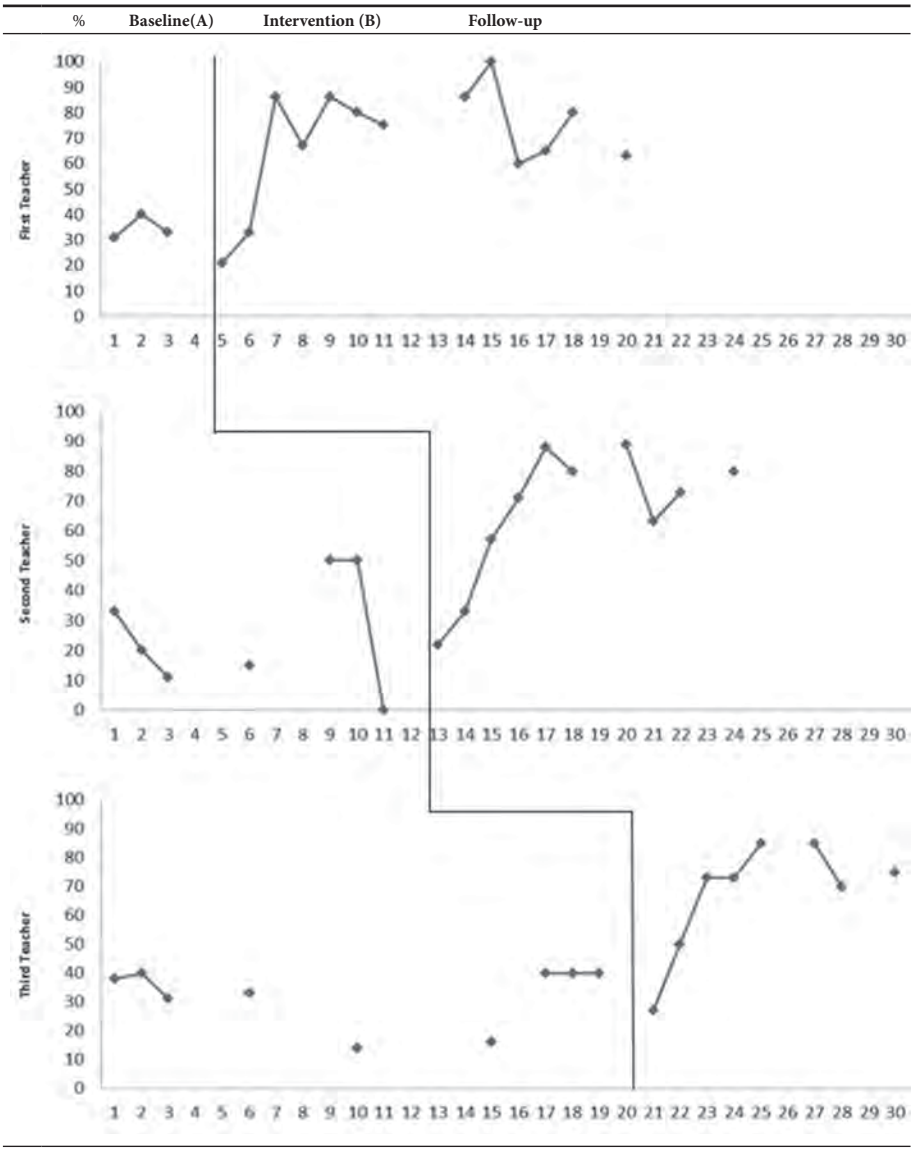

Figure 1: Graph showing the effectiveness of PF on teachers' target classroom management strategies (percentage of teachers' correct implementation of target behaviors).

Results

Effects of the Intervention on Teacher Outcomes

Effectiveness of the Intervention Program on Teachers' Target Classroom Management Strategies: Analysis of data collected from the TCH.BOF showed that the percentage of correct implementations of the teachers' individualization, transition, and rewarding strategies changed from 0% to 100%. With the introduction of PF, teachers' correct implementation of the strategies increased as can be seen in Figure 1.

The first teacher's percentage of correct implementations of the three strategies together during the baseline phase (A) was 35% on average (data: 31%, 40%, and 33%). The first teacher's percentage of correct implementations of the target strategies during the intervention phase (B) was 64%

on average (range: 21%-86%). The second teacher's percentage of correct implementations of the target strategies during the baseline phase (A) was 21% on average (data: 33%, 20%, and 11%). In the first probe, the percentage of correct implementations was 15% and for the second baseline it was 26% on average (data: 40%, 38%, and 0%). The second teacher's percentage of correct implementation of the target strategies during the intervention phase (B) was 59% on average (range: 22%-88%). The third teacher's percentage of correct implementations of the target strategies for the baseline phase (A) was 36% on average (data: 38%, 40%, and 31%). In the probes, the percentage of correct implementations for the third teacher was 21% (range: 14%-33%), and for the second baseline it was 40% on average (data: 40%, 40%, and 40%). The third teacher's percentage of correct implementations of the target behaviors in the intervention phase (B) was 62% on average (range: 27%-85%).

According to the analyses, PF intervention increased the percentage of correct implementations of the target strategies. It was seen that the teachers met the success criteria (70%) at the end of the intervention phase and they started to use their classroom management strategies more. All these findings indicate that giving feedback to teachers was effective on target classroom management strategies (Figure 1).

Results of the Follow-up: With every teacher for whom the intervention was finished upon completion of the intervention phase, in order to collect follow-up data, weekly probe sessions were carried out. 6 months after having completed the intervention, another follow-up session was implemented. In all of the follow-up sessions for the three teachers, 6, 4, and 3 follow-up sessions were carried out respectively (Figure 1). The findings show that in all of the follow-up sessions, the percentage of correct implementation of the target strategies for the first, second, and third teacher was 76%, 76%, and 77% on average, respectively (Figure 1). As a result, the effects of the intervention were maintained since the percentage of correct implementations for all three teachers was above 70%.

Findings related to the Teachers' Preventive Classroom Management Skills: In this study, the effects of the intervention which included giving information and PF on teachers' general classroom management skills were also examined. For this purpose, data collected by the PCMOF were analyzed, and every teacher's (T1, T2, and T3) mean scores on the PCMOF before and after the intervention are shown in Figure 2.

The maximum score which can be obtained from the PCMOF is 86. According to Figure 2, when the teachers' PCMOF scores before and after the intervention are compared, it can be seen that all three teachers' mean scores increased after the intervention. Similarly, while all three teachers' mean scores of the PCMOF were 38 before the intervention, after the intervention it was 14 points higher, reaching 52. These findings indicate that giving information and PF increased the general preventive classroom management strategies of teachers as well as their use of the target strategies.

Findings related to Teacher Characteristics (Variables): By using the MS-CISSAR, teacher characteristics before and after the intervention were compared to examine the effects of PF on them. Since there was only one teacher who was responsible for teaching in the classrooms where the observations were made, teacher characteristics were examined in terms of the variables listed in Table 1.

According to Table 1, the percentage of teacher behaviors before and after the intervention were similar. Teacher behaviors after the intervention,

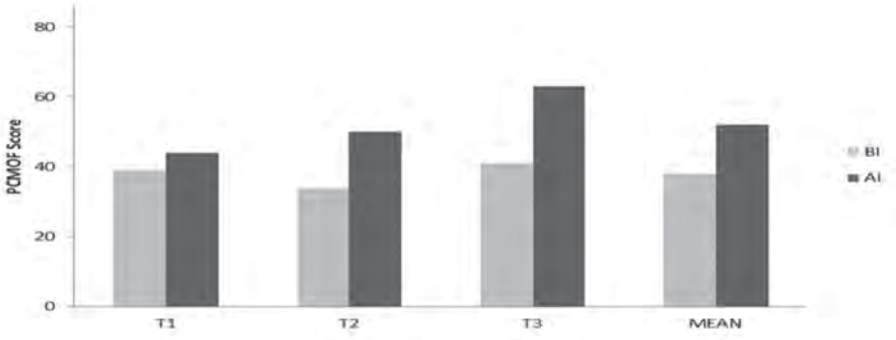

Figure 2: PCMOF scores of teacher before (BI) and after the intervention (AI).

Table 1
Teacher Characteristics Obtained From the MS-CISSAR Before (BI) and After Intervention (AI)

TEACHER VARIABLES	BI (%)	AI (%)	TEACHER VARIABLES	BI (%)	AI (%)
TEACHER BEHAVIORS			TEACHER APPROVAL		
Attention	41.7	33.3	None	95.0	91.7
Talk academic	28.3	28.3	Approval	1.7	8.3
Command academic	8.3	8.3	Disapproval	3.3	0.0
No response	6.7	8.3	TEACHER FOCUS		
Command management	3.3	5.0	Other	60.0	51.7
Talk nonacademic	0.0	5.0	Target + others	30.0	30.0
Question academic	5.0	3.3	Target	3.3	10.0
Nonverbal prompt	1.7	3.3	No one	6.7	8.3
Read aloud	0.0	3.3	TEACHER POSITION		
Command discipline	1.7	1.7	Back	16.7	43.3
Talk management	3.3	0.0	In front	46.7	38.3
			Side	21.7	13.3
			At desk	13.3	5.0

however, become more varied than they were before the intervention. For example, teachers' *academic question, talk about the task management,* and *attention (listening)* behaviors decreased, whereas in terms of task management, their *commands, nonacademic talk, nonverbal prompt,* and *reading aloud* behaviors increased. However, teacher behaviors such as *academic directions* and *directions related to discipline* did not differ. Moreover, at the end of the intervention, teachers' *disapproval* behaviors decreased whereas their *approval* behaviors increased. A similar result was obtained for *teacher focus,* and teacher behaviors towards target students increased at the end of the intervention. Lastly, when the teacher's *position in the classroom* is examined, it can be seen that at the end of the intervention teachers were giving the lessons *in the front of, at the back of,* and while *walking around* the classroom.

Effects of the Intervention on Student Outcomes

Findings Related to the Effects of Giving Information and PF to Teachers on Students' Positive and Negative Behaviors: Positive and negative behaviors of the students with special needs before and after the intervention are shown in Figure 3.

According to Figure 3, the positive behaviors of the three students with special needs (before the intervention: MS1= 45%, MS2= 50%, and MS3= 35%) increased after the intervention (MS1= 65%, MS2= 65%, and MS3= 85%). However, their negative behaviors (before the intervention: MS1= 55%, MS2= 45%, and MS3= 65%) decreased after the intervention (MS1= 35%, MS2= 35%, and MS3= 15%). As can be seen in the column of *mean* in Figure 3, while the special needs students' mean of the response percentages of positive behaviors was 43% (range: 35%-50%) before the intervention, their mean increased to 72% (range: 65%-85%) after

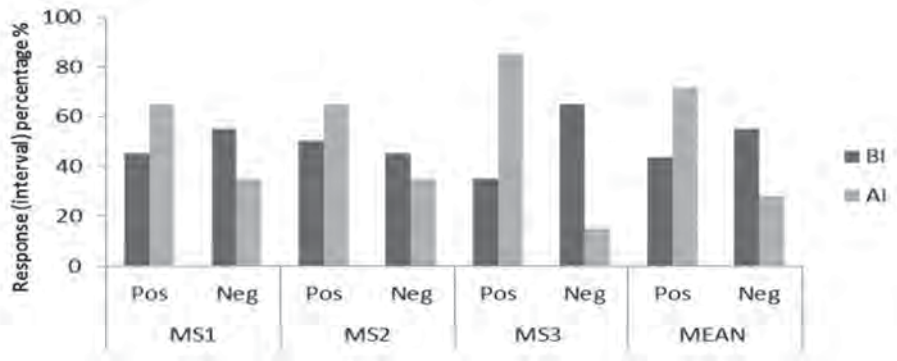

Figure 3: Response (interval) percentages of positive (pos) and negative (neg) behaviors of mainstreaming students (MS) before (BI) and after (AI) the intervention.

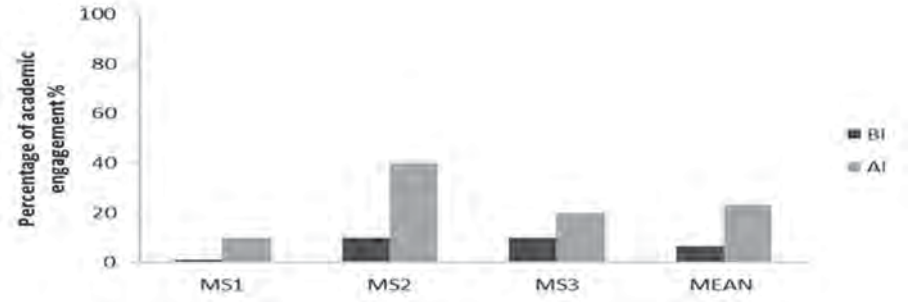

Figure 4: Percentage of the academic engagement behaviors of mainstreaming students (MS) before (BI) and after (AI) the intervention.

the intervention. On the other hand, before the intervention the mean of the response percentages of special needs students' negative behaviors was 55% (range: 45%-65%) and at the end of the intervention the mean decreased to 28% (range: 15%-35%).

Findings related to the Effects of Giving Information and PF to Teachers on Students' Academic Engagement: In this study, the effects of the intervention on academic engagement of students with special needs were examined by analyzing the data collected from the MS-CISSAR. Data before and after the intervention were compared descriptively (Figure 4).

According to Figure 4, academic engagement of the three students (before the intervention: MS1= 0%, MS2= 10%, and MS3= 10%) increased after the intervention (MS1= 10%, MS2= 40%, and MS3= 20%). Moreover, the three students' mean percentage of academic engagement before the intervention was 6.7% whereas it was increased at 23.36% after the intervention.

Social Validity Results

Satisfaction of the Teachers from the Intervention: With the Satisfaction Form, teacher satisfaction with the intervention program was assessed by calculating the mean of the three teachers' scores. Teachers rated the first questions from the initial part of the form with a 9 or 10, meaning that the content of the intervention program was appropriate, assignments during the intervention were clearly and easily understood, the intervention program included practical information which could be applied to classrooms, and the type of PF given during the intervention was appropriate. All teachers indicated that the content of the intervention program was effective in organizing the behavior of all students in general in the classroom, especially the behavior of students with special needs, and it was effective in increasing their achievements. Findings also showed that the willingness of teachers to take part in this study was high. They indicated that the intervention was useful and that they would suggest this program to their colleagues. For example, one of the teachers (T1) expressed that it was a positive thing that the researcher herself assessed the use of strategies in the classroom. Another one (T2) thought that the study was favorable, that being assessed by an expert was important, and that the PF given was appropriate for teacher education. The third teacher (T3) indicated that at the end of the intervention, student behavior as well as her own behaviors were positively changed and the intervention was beneficial for themselves and the students. As a result, the intervention program had high social validity.

Social Comparison Findings: In order to make a social comparison in this study, the behaviors of students of the intervention and comparison groups were video recorded and observed using the STD.BOF at the end of the study. Later the group means of students in the intervention and comparison groups were calculated based on the observation forms, and then the findings were graphed. This comparison showed that the positive behaviors of students with special needs from the intervention group and of average students in the comparison group were greater than their negative behaviors at the end of the intervention. At the end of the intervention, the mean percentage of positive behaviors of the students in the study group (72%) were close to the mean percentage of average students in the comparison group (75%). It was, however, much higher than the mean percentage of students with special needs (40%). On the other hand, the mean percentage of negative behaviors of students in the study group (28%) was similar to the mean percentage of average students in the comparison group (22%). It was, however, much lower than the mean percentage of students with

special needs (60%). According to these findings, students with special needs who were in the classrooms of teachers who participated in this study exhibited more positive behaviors and less negative behaviors than the students with special needs in the comparison group which did not receive the intervention. Moreover, students with special needs in the study group exhibited similar behaviors as their peers with typical development in the comparison group (for more detailed information see Akalın, 2014b).

Discussion

This study shows that information and performance feedback were effective on teacher outcomes in general. As was emphasized in similar studies (Barton & Wolery, 2007; Cossairt, Hall, & Hopkins, 1973; Mesa et al., 2005; Sutherland, Wehby, & Copeland, 2000), the PF which was used in the teacher education positively changed the teachers' classroom management strategies. The effectiveness findings of this study showed that PF might be used in teacher education as a short-term, problem-focused, effective solution.

Even though using PF in teacher education is an effective method, it is accepted that the brief information given before the PF increases its effectiveness (Casey & McWilliam, 2008; Coding et al., 2005; Reinke et al., 2008). Gilbertson, Witt, Singletary, and VanDerHeyden (2007) indicated that by only verbally saying or giving a written explanation about what is expected to be done without giving information or feedback, the teachers' procedural fidelity decreases. In another study (Mautone, Luiselli, & Handler, 2006), it was emphasized that teachers needed to learn, ask questions about, discuss, practice, assess, re-implement, and reassess the teaching strategies before using these strategies in the classroom. By giving information before PF, the procedural fidelity increases. On the other hand, only giving didactic education to teachers does not effect their in-classroom behaviors (Gilbertson et al., 2007). It is suggested that providing consultancy or mentors to teachers in the classrooms and giving PF during practice make them use the information they have learned (Casey & McWilliam, 2008; Reinke et al., 2008). In the current study, teachers were firstly informed about the effective classroom management strategies and then they were given PF to implement the target strategies in their classrooms. This intervention made positive changes in teacher outcomes, and it made them use the target strategies. However, the researchers did not make an assessment at the end of the information session. They described the intervention as giving information and PF together. In future studies with different teacher groups, the effectiveness of giving information and PF separately, as well as giving PF alone, could be evaluated.

It is suggested in the literature that verbal and graphed PF are more effective on teacher behaviors. For example, in one study (Cossairt et al., 1973) verbal feedback was used with social rewards and it was found to increase teachers' use of rewards for student engagement as well as their academic engagement. Hagermoser-Sanetti et al. (2007) found that graphed and verbal PF were more effective than just verbal PF for increasing the procedural fidelity of a method. It could be suggested that the findings of the current study support previous studies in that the use of graphed and verbal feedback together are effective on the percentage of correct implementation of teacher classroom-management strategies.

In teacher education, PF can be immediate or delayed. As indicated by Coulter and Grossen (1997), immediate feedback prevents learners from making mistakes once the feedback is given, and when there is a mistake it gives a chance to change and correct the behaviors (as cited in Scheeler, Macluckie, & Albright, 2010). It is indicated in studies in which the effects of different feedback were examined that both immediate (Coding, Livanis, Pace, & Vaca, 2008; Erbaş & Yücesoy, 2002; Gilbertson et al., 2007; Wilkinson, 1992) and delayed (Casey & McWillam, 2008; Colvin et al., 2009; Mesa et al., 2005; Timuçin, 2008; Yusuf, 2006) feedback had positive effects. For example, Colvin et al. (2009) showed that when feedback was given after observations were done for instructional setting, instruction, and student behaviors, the PF was effective on these three variables; there were positive changes in instructional setting and teacher behaviors. Similarly, delayed feedback which is given to teachers in order to decrease students' off-task behaviors, increased teacher rewarding behaviors (Timuçin, 2008). In the current study, delayed feedback was given to teachers following the day of observation during the intervention period. Data collected with the satisfaction form showed that participant teachers found the type of PF and its content appropriate and comprehensible, indicating that the timing of the PF was appropriate.

Even though it was tested using the pre-experimental model, the findings of this study suggest that the

intervention increased the use of target classroom management strategies as well general preventive classroom management strategies. In the literature, there have been studies in which seminar (Güner, 2010) and the traditional behavioral consulting model (Timuçin, 2008) were tested. Güner's (2010) study, in which she offered a training program related to preventive classroom management, showed that teachers' pre-test and post-test scores for the preventive classroom management observation forms did not significantly differ, and even though participating in a training program on classroom management significantly changed teachers' level of knowledge, it did not make a difference on their use of classroom management strategies. In a traditional consulting model (Timuçin, 2008), problem solving strategies were used and the steps of the model included defining the problem, analyzing the problem, implementing the plan, and assessing the plan. The purpose in this model was to bring skill achievement based on verbal communication between the consultant and the counselee (the teacher). The consultant might not, however, observe the behaviors of the participant in a natural environment. Yet the PF method used in this study is thought to be more advantageous since it includes observation of the skills which teachers had learned during the implemented intervention, reinforcement of what the teachers had learned or correction of incorrect implementations by informing the teachers about the correct or incorrect implementation of the strategies, as well as observation of the changes in student behaviors elicited from the changes in teacher behaviors in their natural environments.

In this study, the effects of the classroom management intervention program, based on giving information and PF on teachers' classroom management strategies and teacher-student behaviors, were examined. In this context, analyses of the data collected by the MS-CISSAR showed that the intervention somewhat increased and varied the in-class behaviors of the teachers. However, different than the findings of studies which focused on teacher behaviors in the literature (Akalın, 2007; Alves & Gottlieb, 1986 as cited in Bulgren & Carta, 1992; Sucuoğlu et al., 2007), this study showed that after the intervention, teachers started to work more individually with, give more cues (individualization) to, give more directions about the task (transition behaviors) to, and approve (reward) more student with special needs. Parallel with this finding is that after the intervention, the positive behaviors of the students with special needs increased, their negative behaviors decreased, and their academic engagement increased. These findings support the view that giving information and PF to teachers positively affects student behaviors too. The finding that PF positively affected student behaviors is consistent with the findings of previous research. Research studies suggest that positive and negative behaviors of students with and without special needs are directly related to teacher behaviors (Greenwood & Carta, 1987), and if teachers build an effective classroom management system and change their behaviors, the behaviors of all students can change (Bulgren & Carta, 1992; Marzano & Marzano, 2003; Murdick & Petch-Hogan, 1996; Soodak & McCharty, 2006). Moreover, teachers can correctly implement the methods and strategies they have learned (Witt, Noell, LaFleur, & Mortenson, 1997), thus student academic engagement and academic performance may increase. Parallel with the findings of the previous research, this study suggests that the intervention program given to the teachers increased the academic engagement of students with special needs; the students started to write, engage in their tasks, and read both aloud and silently more.

In the literature, evaluating the effects of teacher education programs on child behaviors is strongly emphasized since teacher outcomes alone do not provide adequate information about the effectiveness of the intervention program (Guskey, 2002; Hagermoser-Sanetti et al., 2007; Scheeler et al., 2004). In this study, an intervention program based on giving information and PF was used for the first time in teacher education, being given to teachers who worked in mainstreaming classrooms in Turkey. Its effectiveness on student outcomes was also examined. Guskey (2002) suggested examining the effects of an education program on students as well as teachers. He emphasized that teacher education must have positive changes on the knowledge and behaviors of children, and he emphasized assessing the effects of the education program on student performance and achievements, their physical and emotional development, and their task engagement. When reviewed in this regard, it is the only study in which the effects of a teacher education program on child behaviors have been examined. Hence the results are very important both in terms of mainstreaming and teacher education, as well as in its contribution to the national and international literature.

This study shows that the social validity of the intervention program was very high. The findings related to teacher satisfaction and social

comparison revealed that (*a*) the intervention program which included giving information and PF was an appropriate model for teachers, and (*b*) there was a difference between the participant students of this study and the group of students who were in the classrooms of teachers who did not receive the intervention. Positive and negative behaviors of students with special needs who were in the classrooms of the teachers who received the intervention were similar to the behaviors of their peers without special needs after the intervention. As a consequence, it is thought that giving information and PF to teachers was effective both on teachers and students with special needs in their classrooms, and the change in the teacher behaviors led to positive changes in student behaviors. Similar social comparison studies (Aldemir, 2011; Christensen et al., 2004) showed that the performance of children with special needs exhibited similar behaviors as their peers or that their performance approached the performance of their peers after the effective interventions. These findings indicate that target behaviors in the intervention program were socially important too. Another indication of the social validity is the prolonged effects of the intervention. In another words, the maintenance of what had been taught (Kennedy, 2005 as cited in Vuran & Sönmez, 2008). In this study, follow-up data was gathered six months following the end of the intervention. It showed that teachers maintained the skills they were taught on classroom management, and that the effects of the intervention were also maintained, thus showing the PF intervention had social validity.

Even though this study has very critical results in terms of teacher and student outcomes, some limitations must be taken into account while the results are interpreted. The first limitation of this study was that the quasi-experimental model was only used to test the intervention's effects on the target behaviors of the teachers while other implementations were carried out using the pre-experimental model. The results of this study must be evaluated in light of this limitation. Since the school year was over at the end of the study, and gaining permission to make video recordings in the classrooms during the next academic year was very difficult, follow-up data was collected only once, six months after the finish of the intervention. In future research studies, more follow-up data can be collected, and this can give more information about the stability and maintenance of the data.

Despite the limitations listed above and the limited number of feedback studies (Erbaş & Yücesoy, 2002; Timuçin, 2008; Vuran, 1997) in the national literature, this study is the first study in which hands-on training was given to mainstreaming teachers by using graphs and verbal PF's on preventive classroom management skills using the social comparison approach. Results of this study are thought to provide the basis for future education programs which will be offered to mainstreaming teachers. It is critical to note that with the use of intervention based on giving short-term information and PF's on preventive strategies for facilitating effective instruction, teachers can use the newly learned strategies in their classrooms.

Suggestions

The results of this study showed that the intervention program which included giving information and PF's produced immediate and effective consequences, therefore performance feedback can be used in teacher education as a short-term and solution-oriented implementation model. From this aspect, the intervention program can be used to perform an implementation in addition to the theoretical information used for training in-service teachers. This study showed that the intervention based on giving information and performance feedback resulted in changes in teacher behaviors which led to positive effects on special needs students' behaviors. When considered from this point of view, preventive interventions are effective in mainstreaming classrooms and PF's can be used in teacher education programs.

In this study, three classroom management strategies (individualization, transition, and rewards) were identified as dependent variables. In future studies, the effects of PF on teachers for other preventive classroom management strategies can be examined. The effects of different PF types on teacher classroom management strategies and behaviors can be compared, and as in this current study, the effectiveness of the programs can be evaluated by observing teachers in their classrooms. Moreover, teacher and student outcomes after the intervention can be examined in terms of socioeconomic status, grade level, educational setting, teachers' undergraduate department, and lesson topic. Lastly, this study can be repeated under different experimental conditions, pre-test and post-test comparison data can be collected, and by comparing the groups before and after the intervention, social validity of the intervention can be strengthened.

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