

Effects of School Counselor Supervised Peer Tutoring in Inclusive Settings on Meeting IEP Outcomes of Students with Developmental Disabilities

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Abstract: The purpose of this study was to investigate the effects of school counselor supervised peer tutoring intervention on meeting IEP outcomes of six inclusion students with developmental disabilities in a public elementary and secondary school. The effectiveness of this intervention was evaluated by using multiple probe design across students. Elementary school students (3rd graders) were taught purchasing skill at school canteen and the secondary level students (7th and 8th graders) were taught first-aid skill. Three typical peers served as tutors for each student. The results showed that the school counselor successfully supervised peer tutoring intervention, the tutor reliably delivered intervention to their peers with developmental disabilities, and tutees acquired, maintained and generalized the skills on their IEPs. In addition, tutees reported positive opinions regarding the social validity of the study. Results, future research, and implications for practice are discussed.

Over the last two decades a fundamental shift has occurred in including children with disabilities into regular education settings. As a result of this reformative change, a growing number of students with disabilities are being included in the classrooms (Harrower, 1999). On the other hand, teachers of the inclusive classrooms do not have aides or other instructional facilitators in their classrooms for providing better educational services and meeting the IEP goals of their students with disabilities.

Purchasing skills and first aid skills are two important daily life skills to teach children with disabilities in regular education settings (Collins, 2007). However, planning to teach these skills to children with disabilities can be ignored in general curriculum program. By teaching these skills, the prospective behavior problems related with lack of these skills can be prevented. Accordingly, positive behavioral environment can be created and learning and positive outcomes in the lives of the children will be achieved.

The aforementioned inadequacies in regular education may cause problems in classroom, especially the growing number of students with disabilities in the classroom is considered. Therefore, the need of delivering evidence-based practices has risen due to practical and legal issues and teachers/researchers seek to find out evidence-based strategies to teach students with disabilities in the classrooms. Peer tutoring is known as one of the evidence-based interventions and would be one of the instructional resources for the teachers.

In simplest form, peer tutoring can be defined as a student helping another student learn a new skill (Bolich, 2001). It can also be defined as assigning a student for transmitting some information to teach a classmate or a peer who is receiving the information under supervision of a teacher (Gearheart, Weishahn, & Gearheart, 1992; Greenwood, Carta, & Mahadey, 1991; Olson & Platt, 2000; Utley, Mortweet, & Greenwood, 1998), and it can take various forms such as class wide one to one or small group peer tutoring, same age or cross age peer tutoring. The use of peers as tutors for teaching academic and social skills to children, especially those with disabilities, has a long and successful history in education (Barbetta, Miller, Peters, Heron, & Cochran,

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1991; Cochran, Feng, Cartledge, & Hamilton, 1993; Gardner et al., 2001; Greenwood et al., 1984; Klavina & Block, 2008; Tekin-Iftar, 2003). There have been many studies investigating the effects of peer tutoring in teaching various academic as well as social skills to children with various disabilities. Initiating and maintaining social interactions (Martella, Marchand-Martella, Young, & Macfarlane, 1995; McGee, Almedia, Sulzer-Azaroff, & Feldman, 1992; Staub & Hunt, 1993); initiating conversation, play, and interaction (Pierce & Schreibman, 1995); and performing canteen skills (Kohl & Stettner-Eaton, 1985) can be given as examples for teaching social skills to children with disabilities through peer tutoring intervention. Also literature has shown that peer tutoring is effective in teaching academic skills such as reading and spelling (Collins, Branson, & Hall, 1995; Telecsan, Slaton, & Stevens, 1999), mathematics (Topping & Bamford, 1998), community signs (Tekin-Iftar, 2003), sight words (Van Norman & Wood, 2008; Wolery, Werts, Snyder, & Caldwell, 1994), coin and value identification, answering questions about classroom activities, oral reading and comprehension, and naming opposites (Kamps, Locke, Delquadri, & Hall, 1989).

Response prompting procedures, peer modeling, and trial and error were used as instructional procedures during peer tutoring in the above mentioned studies. Constant time delay and simultaneous prompting (SP) procedures are the two procedures among response prompting procedures which are frequently used in the peer tutoring research. In related literature it is stated that using SP is easy (Tekin-Iftar, 2003; 2008; Tekin & Kircaali-Iftar, 2002) and as effective as constant time delay procedure (Kurt & Tekin-Iftar, 2008; Tekin & Kircaali-Iftar; Riesen, McDonnell, Johnson, Polychronis, & Jameson, 2003; Schuster, Griffen, & Wolery, 1992). During SP instruction, target stimuli and controlling prompt are delivered simultaneously. Therefore, the student does not have an opportunity to respond independently during instruction and probe session is needed to test the transfer of stimulus control. Research has shown that SP is effective in teaching both academic and social behaviors, either discrete or chained, to students with various disabili-

ties such as intellectual disabilities (Fetko, Schuster, Harley, & Collins, 1999; Fickel, Schuster, & Collins, 1998; Johnson, Schuster, & Bell, 1996; Maciag, Schuster, Collins, & Cooper, 2000; Parrott, Schuster, Collins, & Gassaway, 2000; Schuster & Griffen, 1993; Singleton, Schuster, & Ault, 1995), developmental delays (Sewell, Collins, Hemmeter, & Schuster, 1998; Wolery, Holcombe, Werts, & Cipollone, 1993), and autism (Akmanoglu & Batu, 2004; Akmanoglu-Uludag & Batu, 2005).

Although effectiveness of instruction is very important, efficiency of instruction should also be considered when planning instruction to students with disabilities. Providing a broader learning environment is one of the measures for testing the efficiency of instruction. Delivering instructive feedback is an implication of creating broader learning environment. Instructive feedback can be defined as an instructional parameter that increases the number of behaviors learned during instructional trials. Werts, Wolery, Holcombe, and Gast (1995) defined instructive feedback technically as presenting extra, non-target stimuli, during consequent events of instructional trials. There are several studies investigating the use of instructive feedback during simultaneous prompting instruction (Tekin-Iftar, 2003; 2008; Tekin-Iftar, Acar, & Kurt, 2003; Tekin-Iftar, Kurt, & Acar, 2008). These studies showed that children with disabilities acquire some of the instructive feedback provided to them during instruction. Only one study among them searched for the use of instructive feedback during peer tutoring intervention and positive outcomes were obtained regarding the acquisition of it (Tekin-Iftar, 2003).

School counseling is one of the integral components of special education services in the schools where inclusion is established in Turkey. School counselors are expected to take role in developing IEPs, to provide services and consultation to teachers, parents, and students in the special education services in Turkey (Regulation of Special Education Services, 2009, Article 63). Teachers in the inclusive settings usually have inadequate resources and need assistance for providing quality of service in Turkey (Turkoglu, 2007). School counselors take the role of providing

information and experience to the teachers and students with regard to the implication of peer delivered intervention. To the knowledge of the authors there are four studies in which SP was delivered by peers, siblings, and parents (Batu, 2009; Tekin-Iftar, 2003, 2008; Tekin & Kircaali-Iftar, 2002). In these studies, special education teachers and/or researchers trained the instructors. Findings of all above studies with SP showed that peers, siblings, and parents implemented SP with high accuracy and most of these studies reported that SP is a relatively easy instructional procedure. As mentioned before, primarily researchers instead of teachers trained tutors. Therefore the need exists for investigating whether school counselors were able to teach tutors to implement SP in the tutoring process and if tutees were able to acquire the functional skills aimed to teach them. Parallel to these general aims, the following research questions are needed to expand the knowledge and practice of effective behavioral support in the schools: (1) Does school counselor train tutors about how to deliver SP procedure reliably? (2) Is SP delivered by peer tutors effective in teaching functional skills aimed at in their IEPs of the students with developmental disabilities? (3) Are peer tutees able to generalize the acquired skills across persons and settings? (4) Are they able to maintain the acquired skills one, three and four weeks after the instruction? (5) Are tutees able to acquire instructive feedback provided to them in the consequence events during a teaching trial? (6) Do peer tutees find peer tutoring intervention beneficial for themselves?

Method

Participants

Tutors and tutees. Twenty four students, 18 normally developing students acting as peer tutors and six peer tutees with developmental disabilities, participated in this study. Peer tutors and tutees were at the same grade level and three tutors from the same classroom served to a tutee in a rotation. The counselor conducted interviews in order to select tutors. Their school records (i.e., GPAs) and interpersonal relationships (i.e., being friendly, introverted etc.) were considered when select-

ing prospective tutors to interview. The school counselor shared the purpose of the study with the participants. None of the peers had experience with any response prompting procedure and peer tutoring intervention.

Prerequisite skills which peer tutors had to have were as follows: (a) reading and writing accuracy, (b) following written and verbal instructions, (c) agreeing to participate in peer tutoring process as tutor, (d) volunteering to deliver SP procedure to their classmates, (e) selecting possible reinforcement, (f) performing the target behaviors of the study correctly, and (g) being available for the study 5 times a week. Prerequisite skills which peer tutees had to have were as follows: (a) ability to pay attention to audio and visual stimuli for at least 5 minutes, (b) ability to follow verbal instructions, and (c) ability to select reinforcers. Descriptions of each tutee are presented in Table 1. The main areas of strength of the tutees are on communication skills. For example, they were able to use 4–5 word sentences, raise and answer questions, explain their needs etc. The majority of their weaknesses were about daily living skills such as purchasing, use of transportation independently, first-aid skills on themselves or others when needed, etc. Besides the information presented in Table 1, it is important to say that all tutees had normal physical growth and three of them (Deniz, Pelin, and Meral) were also attending one hour 1:1 instruction twice a week at different rehabilitation centers. No adaptive behavioral scores were available for the tutees.

School counselor. The trainer is a school counselor (third author of this paper) in the public school and was responsible for tutor training and implementation of the tutoring intervention. She had 16 years of experience in teaching children with developmental disabilities and held a master degree in special education. She conducted all experimental sessions of the study.

Observer. A doctoral student in special education and a special education teacher collected reliability data. Prior to collect reliability data, the observer was provided information about data collection by the authors. She was given information about task analysis, definition of correct and incorrect performance of the steps in the task analysis, and the experimental sessions of the study

TABLE 1

Tutees Descriptions Summary

<i>Tutee</i>	<i>Gender</i>	<i>Age</i>	<i>Grade</i>	<i>Label</i>	<i>Areas of Strength</i>	<i>Areas of Weakness</i>
Deniz	Female	9	3 rd	Mild MR	Reading and writing skills	Daily living skills Social skills
Pelin	Female	9	3 rd	ADHD Mild MR	Receptive and expressive language skills Reading and writing skills	Daily living skills Cognitive skills
Meral	Female	10	3 rd	MR	Receptive and expressive language skills	Daily living skills Academic skills
Ece	Female	13	7 th	MR	Receptive and expressive language skills	Daily living skills Social skills
Eren	Male	13	7 th	MR	Receptive and expressive language skills	Daily living skills
Murat	Male	16	8 th	MR	Receptive and expressive language skills	Purchasing skills

(e.g., full probe sessions, intervention sessions, etc.).

Materials and Settings

During tutor training process notepads and reinforcers were used to teach how to deliver peer tutoring intervention. Reinforcers were selected by the peers and consisted of objects such as accessories, toys, stationery items, and edibles. During training, money and reinforcers were used to teach purchasing skill; and a doll, first aid materials such as band-aid, peroxide, and cotton were used to teach first aid skill. For data collection, a handycam, pencils, and data collection forms were used.

The study was conducted at a public school in Eskisehir, a mid size town, in central Turkey. Peer tutors were trained in a small group arrangement at the meeting room of the school. Peer tutoring intervention was conducted in a 1:1 instructional arrangement in the school. The school canteen was used for teaching purchasing skill and the school counselor office which was equipped with the school's first aid materials was used for teaching first-aid skill.

Research Design

A multiple probe design across subjects was used to examine the effectiveness of counselor supervised peer tutoring in teaching chained skills to children with developmental disabilities. Independent variable of the study was counselor supervised peer tutoring interven-

tion and dependent variables of the study were purchasing skill for the elementary school students and first-aid skill for secondary school students in the study. Task analyses were developed for teaching dependent variables and they can be obtained from the corresponding author. Multiple probe across students design allowed for instruction to begin with one tutee while periodic baseline probe sessions are conducted with all other tutees. This decreased the threat of learning through excessive and prolonged testing and exposure to materials. Experimental control was built in when the subject was responding at or near to baseline levels during full probe conditions before the intervention had been introduced and the criterion was met only after the intervention was introduced.

General Procedure

Experimental procedure consisted of tutor training and peer tutoring intervention. Full probe, intermitted probe, training, maintenance, and generalization sessions were conducted during peer tutoring. Tutor training took 2 hours. Peer tutors were trained in a small group arrangement in two sessions about how to deliver instruction with SP. After peer tutors acquired necessary steps 100% correctly while using SP, the researchers let them start tutoring intervention. Peer tutors collected the data during all experimental sessions. All sessions were recorded. Instructive feedback was delivered after each correct response during each instructional trial.

Purchasing skill at the school canteen and first aid skill were taught to six students with developmental disabilities. Students have long recess per day. Therefore, purchasing skill at the school canteen was accepted as a dependent variable. First aid skill was planned to teach in case there is an occasion to use this skill on themselves or others during a school day. In sum, both dependent variables were considered to contribute for them being more independent. Both dependent variables were measures as considering the percentage of steps correctly performed in the task analysis. All experimental sessions were conducted in a 1:1 teaching arrangement in different parts of the school. One trial was conducted in each session and single-opportunity method was used during sessions. A trial consisted of having the tutees performing the task analysis once per session. During single opportunity method, the tutees were given task direction and measurement was terminated following the first incorrect response in the task analysis. Efficient use of time is one of the main considerations for deciding to use single-opportunity method.

Peer Tutor Training

As mentioned before peer tutors were trained through (a) verbal description, (b) role modeling, (c) guided practice, and (d) performance feedback sequence (Telecsan et al., 1999; Tekin & Kircaali-Iftar, 2002). This sequence was given to school counselor as written document and she was asked to read and ask questions if she had any to the research team. A group teaching arrangement was used during the peer tutor training. Prior to peer tutor training, the counselor asked peer tutors to deliver instruction with SP to determine their entry performance. None of the peer tutors knew how to deliver instruction with SP. Then she started to teach the use of SP. Firstly, instructional concepts (controlling prompt, target stimulus, response interval, inter trial interval, reinforcement, instructive feedback, probe, data collection) were described. After giving a verbal instruction about these concepts, the tutors were asked to give written answers to the questions about the descriptions of each concept. They received a score for each correct response and exchanged

their scores for reinforcers. The school counselor identified the possible reinforcers by asking the tutors. She determined the value of the reinforcers prior to the study and let them know. They preferred to have stationery items, accessories etc. Secondly, the researcher roleplayed and modeled SP, and provided negative examples of SP. After that the tutors were asked to give their written responses about every single positive and negative example that was performed by the counselor. Thirdly, the counselor took the role of being a learner and let all tutors be her teacher and deliver instruction with SP. Lastly, the counselor delivered feedback to tutors individually until each of them delivered the procedure with 100% accuracy. This training took 2 hours. After forming tutor-tutee dyads, the counselor conducted a role-playing session individually with each tutor. These sessions usually took 20–30 minutes. The importance of being friendly to their tutees were explained to the tutors in these sessions and they were also told that were chosen to this study because of their good personality.

Probe Sessions

There were full probe and intermittent probe sessions in the study. Correct responses were defined as performing a step of the task analysis correctly within 4 s; incorrect responses were defined as performing a step of the task analysis incorrectly, not completing it in 4 s, or performing a different step of the task analysis in all probe sessions. Correct responses resulted in verbal and social praise, whereas incorrect responses resulted in ignorance. Single-opportunity method was used during probe sessions. Response definitions and behavioral consequences for students' responses were the same in full and intermittent probe sessions.

Full probe sessions were conducted before and after the criteria were met by the tutees during the training sessions. Full probe sessions were conducted as follows. The peer stood near or next to the students in these sessions. Then he/she delivered a specific attentional cue to secure the tutee's attention (e.g., "Ece would you like to work for buying a bagel for your breakfast from the canteen?"), and after receiving an affirmative response

from the tutee through either eye contact or a gesture, the tutor praised the tutee (e.g., "Great!"). The task direction (e.g., "Could you please go for shopping from the canteen?") was delivered and the tutor waited 4 s for the tutee's response, and delivered appropriate behavioral consequences (e.g., "Great, you did it!").

Intermittent probe sessions were conducted after conducting two training sessions in each skill to test the acquisition. Correct responses were counted toward the criterion, and the criterion was 100% correct responding for three consecutive intermittent probe sessions. Intermittent probe sessions were implemented just like full probe sessions. The only difference between these two probe sessions was that, all tutees were probed during full probe sessions; however, only the tutee that was currently being taught was probed during intermittent probe session.

Tutoring Sessions

SP was delivered by the tutors for teaching chained skills, purchasing at the school canteen and first aid skill, to the tutees with disabilities. After getting stable data from the first full probe sessions, the intervention was started with the first tutee. Three peers served as tutors for each tutee (all from same classroom) in the study and they were rotated during a week. Training occurred in an 1:1 teaching arrangement. During training sessions, task direction and controlling prompt were delivered simultaneously (0 s delay) and one teaching trial was conducted in each session. Four second interval was used as response and inter-trial interval. Model and verbal prompting was used as the controlling prompt. Instructive feedback was delivered after every correct response during the intervention. Training sessions were conducted as follows: The tutor delivered a specific attentional cue to secure his/her tutee's attention (e.g., "Ece would you like to buy a snack from the canteen?"), and after receiving an affirmative response from him/her through either eye contact or a gesture, the tutor praised him/her. The tutor then delivered the task direction (e.g., "Have a look at the beverages and food, and order what you want to have."), and

then provided the controlling prompt simultaneously ("I want a bagel please.") and waited for 4 s for a response. If the tutees imitated the controlling prompt correctly, appropriate behavioral consequences and instructive feedback stimuli (e.g., "Great, you did it! The bagel is wrapped with a paper and we should save the papers into recycle bin for papers.") were presented by the tutor. Incorrect responses or no responses within 4 s were ignored. Instructive feedback stimulus for purchasing skill is about giving information about the package of the item (what it is made of) and about saving conditions (we save it in the recycle bin for glass). For the first aid skill the instructive feedback stimulus was about explaining the necessity of cleaning the injured part of the body, otherwise it will be infected ("We should clean the injured area of our body otherwise it would be infected.").

Maintenance and Generalization Probe Sessions

Maintenance sessions were conducted 1 and 3 weeks after the last full probe session with each participant. Maintenance sessions were the same as full probe sessions. During maintenance sessions only tutees' attention and cooperation behaviors were reinforced with tangible reinforcers.

Generalization of tutees' learning was measured during generalization sessions with new persons and settings. These sessions were conducted like full probe sessions and the data were collected via pretest-posttest measures. Pretest measures were taken during baseline sessions and posttest measures were collected after the criterion was met. As in the other probe sessions, tutees were reinforced with tangible reinforcers for their attention and cooperation. For testing generalization of the purchasing skills across settings, a convenient store across the school was used. Generalization of the first aid skill was tested on the bodies of different persons.

Social Validity

Social validity data collected from five of the six tutees and the third author, the school counselor, administrated the "Social Validity Form" and collected the data through interview. The form was developed by the research-

ers and consisted of three closed ended and four open-ended questions with a total of seven questions. Close-ended questions had three choices "Yes/No/Undecided". The form was designed to collect data about the opinions of the tutees regarding the importance of the goals, the acceptability of the intervention, peer delivered SP, and the significance of the findings of the study.

Reliability

Reliability data were collected at least 30% of the experimental sessions. Both inter observer agreement and treatment integrity data were collected. Data were collected from the same sessions that were selected randomly. Interobserver agreement data on accuracy of learning was evaluated using a point-by-point method (number of agreements divided by number of agreements plus disagreements multiplied by 100) (Tawney & Gast, 1984; Tekin-Iftar & Kircaali-Iftar, 2006). Interobserver agreement data collected during full probe and intermittent probe sessions yielded a mean percentage of agreement of 98% (range = 94%–100%) and 96% (range = 88%–100%) respectively. During intervention sessions, interobserver agreement data showed a mean percentage of agreement of 99% (range = 96%–100%). Interobserver agreement data collected during generalization and maintenance sessions resulted with a mean percentage of agreement of 93% (range = 82%–100%) and 100% respectively.

Results

Treatment Integrity

Treatment integrity data were collected to estimate whether the tutors delivered SP reliably. An integrity checklist was used to evaluate at least 30% of sessions across all experimental conditions. Observer assessed the occurrence and nonoccurrence of the planned steps of all experimental sessions in the checklist. The checklist for the peer-delivered SP included the following steps: (a) having materials ready, (b) securing tutee's attention, (c) explaining rules, (d) delivering task direction, (e) presenting controlling prompt (for only training sessions), (f) giving appro-

priate feedback for the participants' responses, and (g) providing the appropriate inter-trial interval. Except delivering controlling prompt, the same steps were included in the checklist for the rest of the experimental sessions. Treatment integrity data was calculated by dividing number of tutor behaviors observed by number of tutor behaviors planned multiplied by 100 (Billingsley, White, & Munson, 1980; Tekin-Iftar & Kircaali-Iftar, 2006). Percentages of the tutors' compliance with the planned steps of SP intervention were consistently high. The tutors delivered SP with an average 94% (range = 83%–100%) compliance with its planned steps. The tutors delivered full probe sessions and intermittent probe sessions with an average of 93% (range = 80%–100%) and 90% (range = 80%–100%) compliance with the planned steps respectively.

Peer Tutoring

Graphs of the percentage of tutees' correct responding on shopping at a canteen and first aid skills are shown in Figures 1 and 2. During baseline sessions, the percentage of correct responding was low for all students. The mean percentage of correct responses for shopping at a canteen skill was 17.66% (range = 9%–20%) across three tutees (see Figure 1) and 14.66% (range = 0%–20%) for first aid skill across three tutees (see Figure 2). Data showed an increase after introducing the peer tutoring intervention for teaching both skills and each tutor met the criterion on this skill. For both shopping at the canteen and first aid skill, 100% correct responding was obtained across the all tutees for the last three intermittent probe sessions during intervention (see Figure 1 and 2) Therefore, it can be said that counselor supervised peer tutoring intervention was effective on teaching shopping at canteen and first aid skills to six inclusion students with developmental disabilities. Any procedural modification was needed during the intervention.

Maintenance and Generalization

Maintenance data was collected only for teaching first aid skill due to summer vacation and it was collected 1 and 3 weeks after

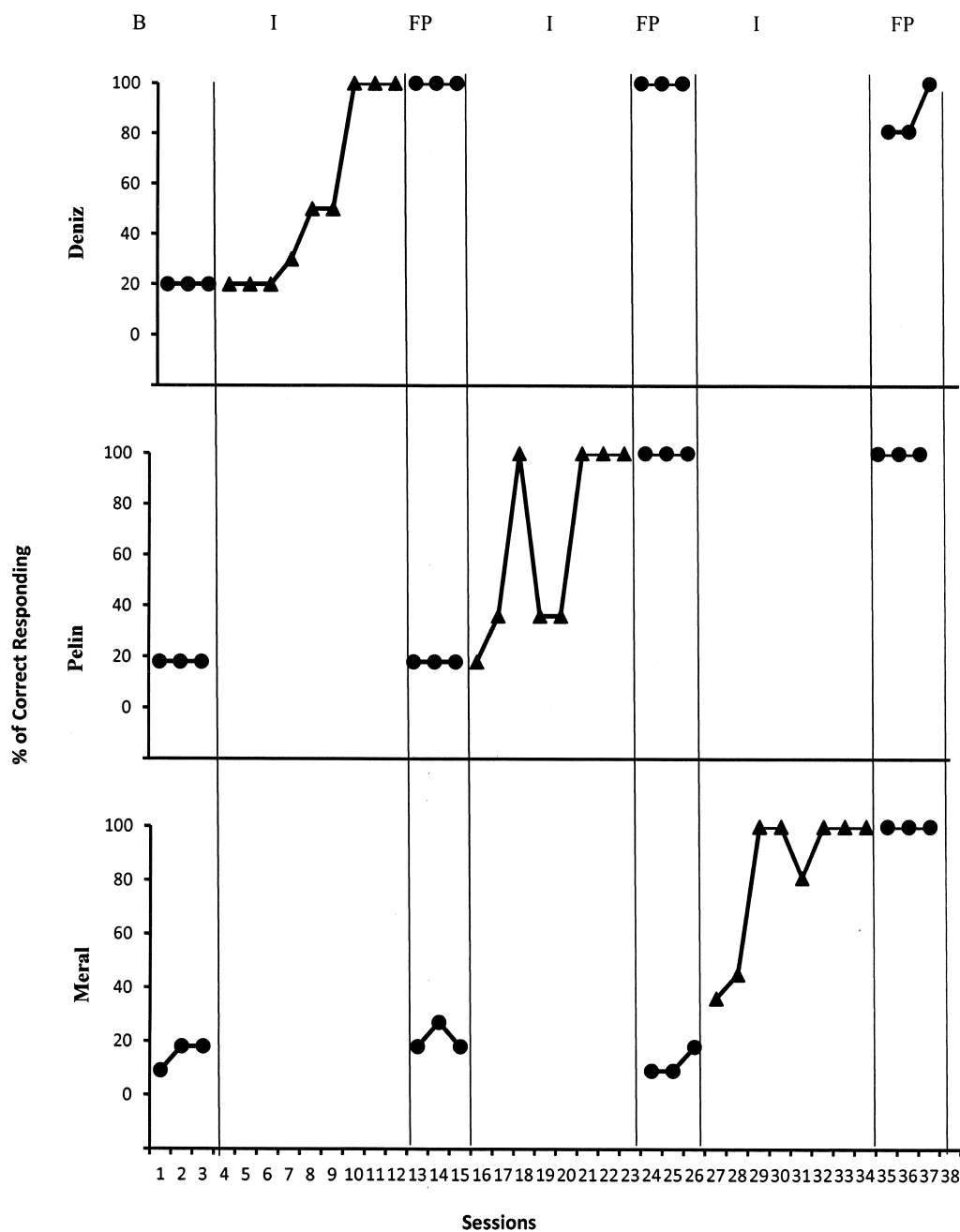


Figure 1. Percent of correct responding for Deniz, Pelin, and Meral during baseline, peer tutoring intervention, and maintenance probe sessions for purchasing skill at the school canteen.

the intervention had terminated. Data showed that peer tutees maintained the acquired first aid skill 1 and 3 weeks after the instruction at 100% accuracy. Post test gen-

eralization measures across persons and settings showed that all students generalized the skill at 100% accuracy across persons and settings.

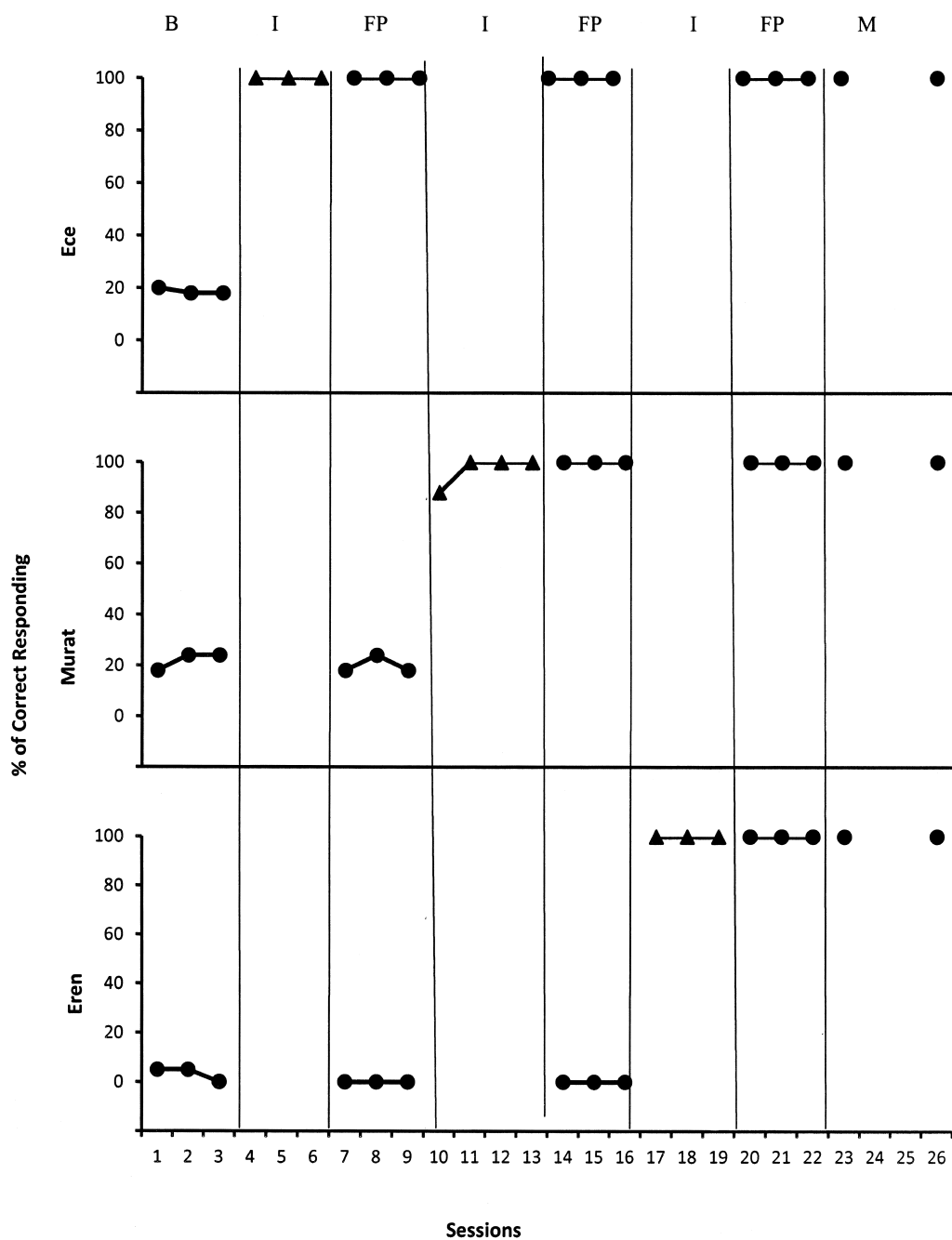


Figure 2. Percent of correct responding for Ece, Murat, and Eren during baseline, peer tutoring intervention, and maintenance probe sessions for first aid skill.

Acquisition of Instructive Feedback

Data collected for testing the acquisition of instructive feedback stimuli demonstrated

that each peer tutee acquired some of his/her own instructive feedback stimuli. Prior to intervention, none of the tutees had any correct

performance on the instructive feedback stimuli. After the introduction of intervention Deniz had a 77.6% accuracy (range = 33%–100%), Pelin had 100% accuracy, and Meral had 67% accuracy for instructive feedback presented during teaching purchasing skill. Ece had 33.3% (range = 0%–100%), Murat and Eren had 100% accuracy for instructive feedback presented during teaching first aid skill.

Social Validity

The tutees reported positive opinions regarding the aims, procedures, and results of the study. They were asked whether they liked learning new skills by working with their peers. All subjects answered this question positively by choosing “yes” item. Regarding the aims of the study, all subjects reported that these skills were important for themselves in their daily lives. The third question was about whether they use the skills in the novel settings after acquisition. Four of them explained that they use it whenever they need and only one subject stated that she (Deniz) was undecided about using it in the novel settings. The open-ended questions were about the most and least liked part of the study and the changes/improvement that they observed themselves and in their friends after the termination of the study. They answered the question about the most liked part in the study as “I felt very happy when I got some snacks from my school canteen by myself,” “I learned to shop at my school canteen,” and “I felt very happy for both being able to purchase at my school canteen and being praised during the study.” Tutees who learned to apply first-aid skills answered this question by stating that they liked this study since they learned a useful skill. None of the subjects reported any negative points in the study. They reported the changes/improvements in themselves and in their friends positively. They stated that, after having this intervention they were able to perform the acquired skills in a variety of settings and had gained self confidence in the school. One tutee (Deniz) stated that he/she participated into other lessons and classes actively by raising his/her hand more and answering the questions that his/her teacher had asked and one tutee

stated that he/she felt herself more willing to participate the lessons, and loved school more.

Discussion

This study was designed to assess whether a school counselor would be able to teach students to deliver instruction with SP reliably to their peers with developmental disabilities and the effectiveness of counselor supervised peer tutoring on teaching chained skills to students with developmental disabilities. Besides these aims, maintenance and generalization effects of the intervention, the acquisition of the instructive feedback stimuli, and social validity of the study were examined. Data showed that the counselor was able to teach the tutors to deliver peer tutoring instruction reliably and the tutees met the criterion on the skills taught to them. Data also indicated that the tutees maintained and generalized the acquired skill at criterion level and acquired their instructive feedback stimuli to a certain extent. Lastly, the tutees reported positive opinions regarding the social validity of the study. These findings are similar to those in previous studies which assessed the effects of peer tutoring intervention on teaching various skills to their peers with disabilities (Barbetta et al., 1991; Cochran et al., 1993; Gardner et al., 2001; Greenwood et al., 1984; Klavina & Block, 2008; Martella et al., 1995; Pierce & Schreibman, 1995; Tekin-Iftar, 2003; Van Norman & Wood, 2008; Wolery et al., 1994). The following conclusions can be drawn from the data obtained in this study.

First, the data showed that school counselor was able to supervise the tutors how to deliver instruction with SP to their peers successfully. As noted in the introduction, peer tutoring intervention was delivered by either a special education teacher or a research team. To the knowledge of the authors of this study, this is the first study that a school counselor was trained to supervise peer tutoring intervention in the school system. As said before school counselor services are an integral part of special education services and from this perspective the findings of this study enrich the current literature about the role of school counselor during establishing peer tutoring intervention in the schools.

Second, the findings showed that tutor delivered SP was effective in teaching chained skills to students with developmental disabilities. Students demonstrated low levels of correct responses during baseline sessions consistently and their correct responses increased after tutoring intervention showing a functional relationship between counselor supervised tutoring intervention and correct responses to the chained skills aimed to be taught. The change in trend and level of the data in the study was replicated across students and behaviors. These findings are consistent with the findings of the previous studies. For example, literature has shown that it has been successfully used to teach chained skills such as community skills (Tekin-Iftar, 2008); self-care skills (Parrott et al., 2000; Sewell et al., 1998); vocational skills (Fetko et al., 1999; Maciag et al., 2000); and daily life skills (Batu, 2009; Schuster & Griffen, 1993). Therefore, this study refines and enhances the current literature about the effectiveness of SP on teaching chained skills to children with developmental disabilities.

Third, the data showed that the tutees maintained the acquired skills after the intervention was terminated and generalized the acquired skills across persons and settings. These findings have shown that tutor delivered SP intervention was successful in maintaining and generalizing the acquired skills. As it is known that failure to promote maintenance and generalization of the acquired skills is an important problem and there are well documented research about it. The findings about maintenance and generalization of the acquired skills are promising and consistent with the findings of the earlier studies investigating maintenance and generalization effects of SP (Akmanoglu & Batu, 2004; Akmanoglu-Uludag & Batu, 2005; Fetko et al., 1999; Maciag et al., 2000; Parrott et al., 2000; Tekin-Iftar, 2008).

Fourth, in this study, students with disabilities were able to acquire instructive feedback stimuli provided to them after the correct response during each teaching trial to a certain extent. These findings are consistent with the findings of the study in which instructive feedback stimuli were presented along with SP instruction (Parrot et al., 2000; Schuster & Griffen, 1993; Singleton et al., 1995; Tekin-

Iftar, 2003; Tekin-Iftar et al., 2003; Tekin-Iftar et al., 2008).

Fifth, social validity findings showed that tutees found tutoring process and SP procedure as well as aims and outcomes of the study socially valid. They reported that they had the chance of receiving reinforcement for their correct performance; they had the chance of building friendship with their normally developing peers, and would like to take a part in similar studies in the future. These findings are consistent with the findings of a previous study in which the effectiveness of peer delivered SP was examined (Tekin-Iftar, 2003). Also as noted earlier, it is seen in literature that the effectiveness of SP delivered by people other than special educators such as siblings, parents, etc. was examined and the social validity parameter of these studies were measured positively in general (Batu, 2009; Tekin & Kircaali-Iftar, 2002; Tekin-Iftar, 2008). Therefore, it can be stated that these findings support the findings of the previous studies in this sense.

Based on the findings and the observations of the researchers during the implementation of the study, it is worth discussing the following points. First of all, high treatment integrity data of the study showed that both tutoring and SP procedures are easy to implement and can be supervised by a school counselor. The counselor in this study was given a three page written document to read and then a discussion was held to help her out the points that she did not understand. This is very promising for establishing such a peer tutoring intervention in the schools where students with disabilities are included. As noted earlier, teachers of the students with disabilities in regular classroom settings have problems in the classroom such as lack of resources, teacher aids.

A focus on inclusion in general education has jeopardized the functional skill instruction to prepare students for the natural environment or life in general. This study proposed a window for teaching functional skills at school successfully by school counselor supervised peer tutoring.

A school counselor implemented tutor training. As explained earlier tutor training was planned and supervised by the school counselor and it is important to propose a model that is effective and easily implemented

by a school counselor to close the research to practice gap.

The tutor training part of the study showed that tutors were able to acquire SP procedure in a short period of time. It took only 2 hours to teach tutors to use SP reliably and this point makes the study more valuable.

In this study the tutors collected intervention data. Researchers collected intervention data in the majority of the peer tutoring studies (Tekin-Iftar, 2003). The observation of the researchers and high reliability findings showed that there was no problem while teaching tutors to collect data or implementing data collection by themselves.

Limitations of the Study

There are several limitations to this study that should be considered. This study was limited with six inclusion students with developmental disabilities and their 18 peers with normal development and the research team of the study. Also, the effects of peer tutoring intervention were measured only on teaching chained skills. Another limitation to this research is using 1:1 instructional arrangement during intervention. However, it was decided to deliver intervention in 1:1 instructional arrangement for establishing experimental control. Besides this limitation, using single opportunity method can be considered as another limitation to this study. Single opportunity method was used to control carryover and sequence effects of the earlier steps on other steps of the task analyses. However, this might hide the real performance of the students about the further steps in the task analyses. Lastly, maintenance data were collected in a short period of time due to school holiday.

Future Research Directions

By considering the above-mentioned limitations of the study, the following recommendations can be raised for future research. First, this study can be designed with students with different characteristics and with different researchers to add the literature on evidence-based practices. Future research should investigate ways to experimentally investigate the effects of counselor-supervised peer tutoring

intervention by group instructional arrangement. Another recommendation for future research can be replicating the same study by using multiple opportunity method for bringing to light the real performance and possible effects of the intervention on the behaviors. Maintenance effects of the study can be measured over a long period of time.

Implications for Practice

Results from this study indicated several evidences about implementing tutoring intervention in the schools. First of all, school counselors are able to establish peer tutoring interventions in their schools. Second, students with normal development are able to provide intervention to their peers with disabilities reliably and successfully. Third, students with developmental disabilities are able to acquire chained skills through peer tutoring intervention in which SP procedure is used. There are several studies investigating the effects of other procedural methods such as constant time delay, modeling, etc. (Cochran et al., 1993; Collins et al., 1995; Gardner et al., 2001; Greenwood et al., 1984; Klavina & Block, 2008; Olson & Platt, 2000; Telecsan et al., 1999; Utley et al., 1998) and this study opens a new window for the educators by recommending school counselor supervised peer tutoring intervention to teach various skills to students with developmental disabilities and help out their teachers during training.

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