Teaching Naming Relatives to Individuals with Autism Using Simultaneous Prompting

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Abstract: This study examined the effectiveness of simultaneous prompting in teaching naming relatives to individuals with autism. Two 5.5 year old male participants who were diagnosed with autism were taught eight different relative names using simultaneous prompting. Maintenance and generalization data across materials, settings, and trainers were collected. Results revealed that simultaneous prompting was an effective way of teaching relative names to children with autism, and also that participants maintained and generalized the skills taught after training sessions were completed.

Imitation skills, initiating and continuing communication, functional communication skills, play skills, and role playing skills are primary skill areas to be taught to children with autism (Coyne, Nyberg, & Vandenburg, 1999; Hodgdon, 1999; Smith, 2001).

Functional communication skills are very essential parts of independent daily living. Children with or without disabilities need to learn functional communication skills in order to be a real part of the community independently. Children with autism especially need to be taught functional communication skills since they usually have very limited social interaction skills, communication, and play skills (Frost & Bondy, 2002; Kircaali-Iftar, 2003).

Knowing and using relative names is one of the ways of initiating communication within the family. In Turkey every relative has a different name to be used to call him or her. For example ‘dayı’ is uncle which is mother’s brother; ‘amca’ is also uncle but it is used for father’s brother; ‘teyze’ is aunt which is mother’s sister, ‘hala’ is also aunt but it is used for father’s sister, etc. Since everybody uses these names in order to talk to their relatives, one of the first things children learn are the relative names in his/her family. Teaching relative names is also part of the national preschool program in Turkey. Therefore, it is important for children with autism to learn to use relative names in order to initiate or continue communication with his/her relatives in daily lives and also to be accepted in the community.

Near-errorless teaching procedures are one of the ways of teaching communication skills to children with various disabilities. Simultaneous prompting is one of the most effective among near-errorless teaching procedures and also preferred as it is easily implemented by teachers and other practitioners (Tekin, & Kircaali-Iftar, 2001; Wolery, Ault, & Doyle, 1992).

During implementation of simultaneous prompting, the practitioner presents a controlling prompt (i.e., a prompt that ensures a correct response) simultaneously with the stimulus being taught. For example, the teacher shows a picture of a cat and says, “Tell me, what is on the picture?” and immediately responds “A cat.” While implementing the procedure, the participant is not allowed to give an independent response because the practitioner presents the controlling prompt with the task direction simultaneously. Therefore, probe sessions play a very important role for determining the transfer of stimulus control for the participant (Parrott, Schuster, Collins, & Gassaway, 2000).

Simultaneous prompting is suggested for teachers and other practitioners because of
many advantages. One advantage is that the student does not need to be taught a waiting response. This is a skill that individuals with autism usually do not have (Koegel & Koegel, 1999). Another advantage is the similarity of sessions to each other during the teaching procedure. The practitioner does not need to change the time for responding; because all trials are conducted with a 0 s waiting interval between task direction and controlling prompt. Another advantage is that there is only one type of correct response for the learner; therefore, there is no need to differentiate the reinforcement procedure as in other errorless teaching strategies (Parrott et al., 2000; Tekin & Kircalı-Iftar, 2001).

Many studies examined effectiveness of simultaneous prompting in teaching both discrete skills (‘pointing to the numerals’ Akmanoglu & Batu, 2004; ‘identifying occupations’ Dogan & Tekin-Iftar, 2002; ‘word recognition’ Gibson & Schuster, 1992; ‘word identification’ Griffen, Schuster, & Morse, 1998; ‘teaching science vocabulary words’ Johnson, Schuster, & Bell, 1996; ‘object identification’ MacFarland-Smith, Schuster, & Stevens, 1993; ‘receptive manual sign identification’ Palmer, Collins, & Schuster, 1999; ‘teaching sight words’ Schuster, Griffen, & Wolery, 1992; ‘teaching community signs’ Singleton, Schuster, & Ault, 1995; ‘reading grocery sight words’ Singleton, Schuster, Morse, & Collins, 1999; ‘teaching community signs’ Tekin-Iftar, 2003; ‘rebus symbols’ Wolery, Holcombe, Werts, & Cipolloni, 1993) and chained skills (‘teaching vocational task’ Fetko, Schuster, Harley, & Collins, 1999; ‘teaching hand washing’ Parrott et al., 2000; ‘academic skills’ Riesen, McDonnell, Johnson, Polychronis, & Jameson, 2003; ‘making juice’ Schuster & Griffen, 1993; ‘teaching dressing’ Sewell, Collins, Hemmeter, & Schuster, 1998) to individuals with disabilities. Many of these studies were conducted with individuals with mental retardation (e.g., Dogan & Tekin-Iftar; Fetko et al.; Griffen et al.; Parrott et al.; Schuster & Griffen; Singleton et al., 1995; Sewell et al.; Singleton et al., 1999; Tekin-Iftar; Wolery et al., 1993, etc.). Only Akmanoglu and Batu examined the effectiveness of simultaneous prompting in teaching pointing to the numerals with individuals with autism. Therefore, there is a need to conduct studies examining effectiveness of simultaneous prompting on teaching various skills to individuals with autism.

The purpose of this study was to examine the effectiveness of simultaneous prompting on teaching naming relatives to children with autism. Research questions were: (a) Is simultaneous prompting an effective method for teaching naming relatives to children with autism? (b) Are participants going to maintain skills taught after one, two and four weeks? (c) Are participants going to generalize skills taught across materials, settings, and trainers? and (d) What do parents of participants think about the social validity of the study conducted with their children?

Method

Participants

Faruk and Orhan, two male students with autism, were the participants. Both were 5.5 years old and enrolled in the first author’s classroom for children with autism at a university unit for children with developmental disabilities for the last five months. Neither had any experience with the use of any kind of response prompting procedures. Prerequisite skills needed to take part in the study were being able to pay attention to an activity for at least 10 minutes, and being able to follow directions given by his teacher or any other trainer.

Faruk could perform basic self help skills such as toileting, dressing, undressing, and eating independently. He could manage many fine motor skills (holding a pencil, drawing a picture, coloring a given shape, etc.) when told to do so and gross motor skills (walking up and down the stairs, kicking a ball, etc.) independently. He could use two or more word sentences. Faruk could also initiate and complete a short conversation.

Orhan could perform basic self-help skills such as eating, toileting and dressing with physical plus verbal prompts or only with verbal prompts. He could also perform many fine motor skills (buttoning his shirt, coloring a given shape, etc.) again with physical plus verbal prompts or only with verbal prompts and gross motor skills (catching a ball with both hands, running after a friend, etc.) with verbal
prompts. Orhan could use one word sentences in order to tell his requests or express himself.

**Trainer and Observer**

The trainer (first author) was a research assistant in a doctoral program in special education and also a special education class teacher in the university unit for children with developmental disabilities. She had four-years experience teaching children with autism. She conducted all sessions of the study. Reliability data were collected by a research assistant who was also a doctoral student in special education and a special education class teacher in the same unit. She had also experience in using response prompting procedures during instruction in her class with her students with developmental disabilities. The observer was provided information about collecting reliability data before she started.

**Settings**

All sessions, except generalization sessions, were conducted in a classroom of the university unit. The classroom was the participants’ everyday classroom. Sessions were conducted during the lunch and play break. The unit was a segregated unit for children with developmental disabilities. The classroom had four square student desks, six small student chairs, four cupboards, one teacher table, one teacher chair, a chalkboard, an observation mirror and a video camera for recording the study. The student and the trainer sat at one of the student desks facing each other and all sessions were conducted in a 1:1 environment. The generalization sessions across materials were also generalization sessions across settings. They were conducted in the TV-Video Room of the unit where the TV, video, and many other educational materials were kept. Generalization sessions across trainers were conducted in the intervention setting with the second author.

**Materials**

There were eight portrait pictures of relatives for each participant. Pictures were on 10 cm x 15 cm cards. For generalization sessions across both materials and settings, the relatives’ full body and portrait appearances were shown on TV to participants. For generalization, families were given a handycam camera before the study was started and asked to record all the full body appearances and portrait appearances of relatives identified by the researchers. For generalization sessions across trainers, pictures with the full body appearance of the relatives were on 10 cm x 15 cm cards. All cards were laminated. Also, chips as reinforcement and a stopwatch were used to record the duration of each session.

**Procedure**

Experimental procedure consisted of full probe, daily probe, training, maintenance, and generalization sessions. All sessions were conducted between 10 a.m. and 11 a.m. every school day in a 1:1 environment. Two daily probe sessions and two training sessions were conducted every day.

**Full probe sessions.** Full probe sessions were conducted before, and after the criterion was met by the participants during the training sessions. The first full probe session was conducted in order to collect baseline performance data. During all the full probe sessions, sixteen trials were conducted in order to check every target stimuli (i.e., relative pictures). In each teaching set, four relative pictures took place and during each full probe session, each target stimuli was asked three times randomly and 24 trials were conducted. After a participant met criterion with the first teaching set, the second full probe session was conducted. Similarly, after meeting criterion with the second set, last full probe session was conducted.

Full probe sessions were conducted as follows: (a) the materials (e.g., relative pictures, chips, stopwatch) were placed on the material desk, (b) relative pictures of the first teaching set were placed on the desk, (c) an attentional cue (i.e., “Orhan, are you ready?”) was provided, a task direction (i.e., “Orhan who is this?”) was given, (d) a 4 s waiting interval was provided for the participant’s response, (e) correct responses were rewarded verbally, and (f) incorrect responses were ignored by the trainer. The next trial was conducted 4 s after the previous one.
Correct responses of participants were rewarded verbally during full probe sessions (i.e., well done, good boy, etc.). Correct response was naming the relative shown on the picture. Incorrect responses were ignored by the trainer. Incorrect responses were naming the relative shown on the picture wrongly, naming the relative after the 4 s interval, or not naming at all in 4 s. For attending the full probe conditions and their cooperation, participants were provided tangible reinforcers.

**Daily probe sessions.** During simultaneous prompting a controlling prompt is always provided in the trials. Therefore participants do not have the chance to respond independently to the task directions. For this reason daily probe sessions were conducted before each training session in order to give the chance to respond independently. Only before the first training session was there no daily probe sessions. During every daily probe sessions each target stimuli was asked three times and 12 trails were conducted.

The only difference between full probe sessions and daily probe sessions was that, during full probe sessions all target behaviors were asked of the participant, during daily probe sessions, only the target behavior being taught was asked. Task directions were presented to the participant in an unpredictable order.

As during full probe sessions, correct responses resulted with verbal praise and all incorrect responses were ignored. Also, attention and cooperation of participants were reinforced at the end of each daily probe session.

**Simultaneous prompting training sessions.** Simultaneous prompting procedure was conducted for teaching relative names. During training sessions, task direction and controlling prompt were delivered at the same time (0 s). In the training sessions each relative name was asked three times. As there were four relative names in each teaching set, 12 trials were conducted during each training session. The response and inter-trial intervals were 4 s during training sessions. Model prompting plus verbal prompting were used as controlling prompts. Training sessions were continued until three consecutive 90-100% correct responses were given during daily probe sessions.

Training sessions were conducted as follows: (a) materials (four relative portrait pictures) were prepared on the desk, (b) introduction of the study took place (i.e., “Now we are going to learn how to name our relatives. First I am going to say and you will listen. Then I am going to ask you and you will tell the name of the relative on the picture.”), (c) an attentional cue was given to the participant (i.e., “Orhan, are you ready to work?”), (d) task direction was given (i.e., “Orhan, tell me, who is this?”), (e) controlling prompt and modeling were delivered (i.e., “Orhan, look this is aunt. Now you tell me, who is this?”), (f) participant’s response interval of 4 s, (g) correct responses (i.e., “This is aunt.”) resulted with verbal praise (i.e., “Good boy”, “Bravo”, etc.), (h) incorrect responses (were defined the same as in probe sessions) or no responses within 4 s resulted with error correction (i.e., “This is aunt.”), (i) correct responses after error correction were also praised verbally by the trainer, (j) 4 s waiting interval was conducted before the next trial. At the end of each training session, attention and cooperation of the participants were reinforced with tangible reinforcers.

**Maintenance and generalization probe sessions.** Maintenance sessions were conducted one, two and four weeks after the last full probe session was conducted with each participant. Maintenance sessions were conducted the same as full probe sessions. During maintenance sessions participants’ attention and cooperation behaviors were reinforced with tangible reinforcers.

Generalization data were collected across materials, settings, and across trainers. All generalization data were examined via a pre- and post-test design. Pre-test session was conducted after the first full probe session and post-test session was conducted after each participant met the criterion. In each generalization session, 24 trials took place, there were eight target behaviors in each teaching set and each set was asked three times. During generalization sessions, correct responses of participants were praised verbally continuously and incorrect responses were ignored by the trainer. As in the other probe sessions, participants were reinforced with tangible reinforcers for their attention and cooperation.
Experimental Design

A multiple probe design across behaviors was used to examine the effectiveness of simultaneous prompting in teaching relative names to children with autism and was replicated across two participants. The dependent measure was the percent of correctly naming relatives. The independent variable was simultaneous prompting procedure. The independent variable was introduced to teach naming the relatives shown by the trainer (Target behaviors identified for each participant are presented in Table 1).

Reliability

Reliability data were collected in at least 20% of all the sessions. Two kinds of reliability data were collected: dependent and independent variable reliabilities. Both reliability data were collected from the same sessions selected randomly. Dependent variable (inter observer) reliability data were calculated by number of agreements divided by number of agreements plus disagreements multiplied by 100 (Tawney & Gast, 1984; Tekin & Kircaali-Iftar, 2001). Independent variable (procedural) reliability was calculated by dividing number of teacher behaviors observed by number of teacher behaviors planned multiplied by 100 (Billingsley, White, & Munson, 1980; Tekin & Kircaali-Iftar). Teacher behaviors observed were as follows: (1) controlling materials, (2) securing attention, (3) delivering task direction, (4) delivering controlling prompt (for only training sessions), (5) waiting for the 4 s response interval, (6) giving appropriate responses for the participants’ responses (error correction was conducted during training), and (7) waiting for intertrial interval.

Social Validity

Social validity data were collected via a questionnaire sent in closed envelopes to parents of participants. Five questions were asked in the questionnaires. These were: (a) Do you think that it is important to teach relative names to your child? (b) What are the important parts of the study we’ve conducted with your child? (c) Are there any parts of the study that you did not like? If yes, please indicate. (d) Are there any differences in your child after the study was completed? If yes, please indicate. and (e) Do you think there are any problems about the participation of your child in a study similar to the study we’ve conducted? Can you tell the reason for your answer in a few sentences? Parents wrote answers to the questions and sent the closed envelopes back to the researchers.

Results

Instructional Data

Results indicated both participants acquired the target behaviors. Simultaneous prompting was an effective way of teaching relative names to children with autism in this study. Figures 1 and 2 show percent of correct responses of participants during full probe, training, and maintenance sessions.

Table 2 presents each participant’s number of training sessions, and trials, number of training errors, percent of training errors, length of training sessions, length of daily probe sessions, number of probe errors and percent of probe errors.

In Table 2, number of training sessions was 27, and number of trials was 324. It can be

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seen that length of all training sessions with two participants was 52 min and 58 s and length of daily probe sessions for two participants was 51 min and 9 s.

Maintenance and Generalization Data

Maintenance data show that both students maintained the skills taught during instruction one, two and four weeks after they met the criterion. Figures 1 and 2 show participants maintained the skills acquired during training sessions. Orhan maintained the skills taught 96.6% (range = 90-100) and Faruk maintained the skills taught 100% during the maintenance sessions.

Generalization data were collected across materials, across settings, and across trainers. For generalization across materials, relatives’ full body appearances and portrait appearances were shown on the TV to the participants. During pre-test of the full body appearances on TV, Faruk responded with 8% accuracy (2 correct responses and 22 incorrect responses) and Orhan responded with 0% accuracy. During the post-test of the all body appearances on TV, Faruk responded with 75% accuracy (18 correct responses and 6 incorrect responses) and Orhan responded with 87.5% accuracy (21 correct responses and 3 incorrect responses).

For generalization across materials, but with
portrait appearances on the TV, the pre-test results were as follows: Faruk had 4% accuracy (1 correct response and 23 incorrect responses), and Orhan had 0% accuracy. During the post-test of the portrait appearances on TV, Faruk responded with 75% accuracy (18 correct responses and 6 incorrect responses), and Orhan responded with 83% accuracy (20 correct responses and 4 incorrect responses).

Generalization across settings sessions was conducted in the TV-Video Room of the unit. This room was in the same unit as the participants’ class. In the room there were different materials being used by the classroom teachers during school days. Also there was a table and three chairs for watching the TV and video. The trainer conducted the generalization across settings sessions in a 1:1 environment. For generalization across settings, the relatives’ full body appearances and portrait appearances were shown on the TV. Results of this part of generalization across settings were the same as the results of generalization across materials with full body appearances on TV.

For generalization across settings, but with portrait appearances on the TV, results of the application were the same as the generaliza-
tion sessions across materials with portrait appearances on TV. Therefore detailed pre- and post-test results will not be presented again.

Generalization across trainers data were collected with the second author. During pre-test both participants responded with 0% accuracy, and during post-test, both participants responded with 100% accuracy.

**Reliability Data**

Dependent variable reliability (inter-observer reliability) data indicated 96.5% (range = 91.6–100%) agreement during full probe, training and maintenance and generalization sessions for Faruk. For Orhan there was an agreement of 98.2% (91.6-100%) during the full probe, training and maintenance and generalization sessions.

Results of independent variable reliability (procedural reliability) revealed that the trainer implemented the planned steps with 100% accuracy for both participants.

**Social Validity Data**

Both parents indicated that they were very happy because of their children being able to name their relatives at home. They also mentioned that the study was important because of their children’s self-confidence development. Also that their children started to use their relative names when they needed to communicate with them at home. Another point that parents mentioned was the development of using different words during communication after the study was completed. Besides all the points above, they also mentioned that they would give permission for their children’s participation in similar studies.

**Discussion**

Results revealed that simultaneous prompting was an effective way of teaching relative names to children with autism. Also, results showed that participants maintained the skills taught one, two and four weeks after the training was completed, and generalized the skills across materials, settings, and trainers. These findings were consistent with some other studies examining the effectiveness of simultaneous prompting on discrete behaviors (Akmanoglu & Batu, 2004; Dogan & Tekin-Iftar, 2002; Gibson & Schuster, 1992; Griffen et al., 1998; MacFarland-Smith et al., 1993; Schuster, et al., 1992; Singleton et al., 1995).

During the study, the trainer provided reinforcement during daily and full probe sessions and also training sessions. This was implemented to show that the learning of participants was a result of the independent variable of the study.

Error correction was also provided to the participants during the study in the training sessions. Doing this, it was thought that the participants would learn the skills taught more quickly.

In this study, generalization data were collected across a number of variables. One of them was materials. Researchers used different kinds of photos (all body appearances and portrait appearances on TV) for the subjects to generalize the skills they acquired. Another
variable was across settings. During the generalization sessions participants were taken to the TV-Video Room of the unit. Also generalization across trainers data were collected during the study. Doing this, the researchers assumed that participants would generalize the skills they acquired more easily to their daily lives.

Teaching the relative names may have been easier because the trainer was the classroom teacher of the students. Therefore participants were very familiar with the trainer and were used to her instruction. Hence the researchers did not need a time for getting used to the participants during the study.

Some suggestions can be presented for the future studies. First, researchers can use simultaneous prompting for teaching both discrete and chained skills to individuals with autism and other developmental disabilities. Second, comparison of different errorless teaching techniques can be conducted for teaching various skills to individuals with or without disabilities.

References


Received: 18 February 2004
Initial Acceptance: 7 April 2004
Final Acceptance: 30 September 2004