Using Simultaneous Prompting for Teaching Various Discrete Tasks to Students with Mental Retardation

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Abstract: Effectiveness of a simultaneous prompting procedure was evaluated for students with mental retardation at different levels of schools (preschool, primary and secondary grades) using various discrete tasks. Participants included three students whose functioning levels ranged from typically developing to mild and moderate mental disabilities. Effectiveness of a simultaneous prompting procedure was evaluated through use of a multiple probe design across behaviors and replicated across students. Results indicated that the procedure was successful in teaching targeted behaviors to all students. Students maintained target behaviors at high rates up to 7, 18, and 25 weeks after training and generalized responses across people, materials, and settings. Limitations and implications for future research are discussed.

Special educators strive for effective teaching strategies that minimize errors in education settings (Gibson & Schuster, 1992; Tekin & Kircaali-Iftar, 2001) Several effective, near-errorless teaching procedures used to teach children with disabilities a variety of skills during the acquisition phase of learning have been discussed in the literature (Wolery, Ault, & Doyle, 1992) and include constant and progressive time delay. In addition to these procedures, simultaneous prompting (Gibson & Schuster) also results in low student error rates (Fetko, Schuster, Harley, & Collins, 1999).

Simultaneous prompting is a systematic form of the antecedent prompt and test procedure because all trials are conducted with zero second delays between the discriminative stimulus and the teacher’s prompt. However, simultaneous prompting procedures are different from antecedent prompt and test strategies in two distinct ways. First, when using simultaneous prompting, a controlling prompt is always used. Antecedent prompt and test procedures traditionally have not used controlling prompt as evidenced by variable and sometimes high learner error rates (Gibson & Schuster, 1992; Schuster & Griffen, 1993; Johnson, Schuster, & Bell, 1996). Second, when using antecedent prompt and test procedures, probe or test trials can occur at any point in time but usually have occurred immediately after training trials in a model-lead-test format (Wolery et al., 1992). The probe trials used during simultaneous prompting always occur immediately prior to instruction.

According to Schuster and Griffen (1993), when using simultaneous prompting, “A natural discriminative stimulus is presented and is followed immediately by a controlling prompt. Learners then imitate the prompt. Since learners never have an independent opportunity to respond during instructional trials, probe trials are conducted to assess the transfer of stimulus control from the controlling prompt used during instructional trials to the natural discriminative stimulus” (p. 300). Although not extensively researched like other instructional strategies appearing in the literature, research has shown some examples of the effectiveness of simultaneous prompting in teaching tasks to students with mild and moderate mental disabilities (Gibson & Schuster, 1992; Schuster & Griffen).

Though the number of studies reporting use of simultaneous prompting is limited, re-
search indicates that it has been used successfully with elementary-aged students and preschoolers to teach both discrete and chained tasks (Ault, Wolery, Gast, Doyle, & Martin, 1990; Dogan & Tekin-Iftar, 2002; Doyle, Gast, Wolery, Ault, & Meyer, 1992; Singleton, Schuster, Morse, & Collins, 1999).

Schuster, Griffen, and Wolery (1992) found simultaneous prompting to be slightly more efficient in teaching elementary age students with moderate mental disabilities to identify grocery words expressively. In an efficiency study that has been reported to date, simultaneous prompting was found to be more efficient than constant time delay when the procedures were used to teach grocery sight words to elementary students with moderate mental retardation (Schuster et al., 1992). In the only study that has reported using simultaneous prompting to teach a chained task, Schuster and Griffen (1993) found that the procedure was effective in teaching four elementary students to make juice from frozen concentrate. Singleton, Schuster, and Ault (1995) used simultaneous prompting to teach two elementary students with moderate retardation to expressively identify photographs of community signs (e.g., stop and exit) and incorporated instructive feedback about signs (e.g., ‘Exit means to go out’). Some of the instructive feedback was acquired by the participants. In addition, simultaneous prompting has been effective when teaching sight word reading to student with moderate mental retardation at the elementary (Griffen, Schuster, & Morse, 1998) as well as the high school level (Singleton et al., 1999).

Although limited in number, several studies have reported the effectiveness of simultaneous prompting when used in one-to-one arrangements to teach discrete tasks. Gibson and Schuster (1992) found simultaneous prompting to be effective in teaching three of four preschool children with and without developmental delays, to read nouns that had been selected from storybooks. MacFarland-Smith, Schuster, and Stevens (1993) taught three preschool children with developmental delays to identify fruits and vegetables, while Wolery, Holcombe, Werts, and Cipolloni (1993) used simultaneous prompting to teach five preschoolers with developmental delays to identify rebus symbols. Wolery et al. also included classification information pertaining to the rebus symbols as instructive feedback, and found that participants acquired some of this information when simultaneous prompting was used. Tekin and Kircaali-Iftar (2002) found that both simultaneous prompting and constant time delay were effective but simultaneous prompting was more efficient than constant time delay in terms of the number of training errors and training time through criterion in teaching three preschoolers with developmental delays receptively identifying animals. Dogan and Tekin-Iftar (2002) found that simultaneous prompting was effective in teaching three preschoolers with developmental delays receptively identifying occupations from picture cards.

Students with mental retardation are likely to have different educational goals. No study was found that taught various tasks to each student in the same study using one to one instructional arrangement. Only two studies were located in which different stimuli were used to teach different tasks in a small group arrangement. In the first study (Brown & Holvoet, 1982), one student was taught to open an envelope, remove an advertisement, and attach it to a cork board. A second student was taught to manually sign ‘picture’ when shown a photograph. In the second study (Fickel, Schuster, & Collins, 1998), one student was taught to identify expressively 12 unlabeled outlines of states from maps of the United States. A second student was taught to verbally state the sums of six addition facts. A third student was taught to demonstrate the manual signs for six communication picture symbols. And a fourth student was taught to expressively identify 24 national flags.

Since simultaneous prompting has been experimentally evaluated in only a limited number of investigations, the lack of research where subjects are taught various tasks, and absence of response prompting research with students with mental retardation, additional research is warranted (Dogan & Tekin-Iftar, 2002; Gibson & Schuster, 1992; Singleton et al., 1999; Tekin & Kircaali-Iftar, 2002).

This study addresses three research questions: (a) Will simultaneous prompting be effective in teaching different discrete tasks to three students with mental retardation for reading sight words, receptively identifying digit numbers, and telling time in hours, halves, and quarters? (b) Will students main-
tain the acquired tasks overtime? (c) Will students generalize the acquired tasks across people, materials, and settings?

Method

Participants

Three students referred to the developmental disabilities unit of the Research Institute for the Handicapped at Anadolu University, Turkey to enroll in a special education support service participated. They were integrated in regular education classrooms at various levels (preschool, primary, and secondary grades). Each student was taught a different discrete task using different stimuli. Students ranged in age from 6 to 13 years. No student received medication or had known sensory impairments that affected his or her participation.

Erol was a six year four month old, male. He functioned in the mild range of mental retardation with an IQ score of 58 according to the Stanford-Binet Intelligence Scale (SBIS). He was able to initiate and maintain communication. He performed many gross motor and fine motor skills of his age. He was able to perform most self-care skills independently. His weaknesses were in problem solving, acquiring some concepts such as positions and, contrast. He attended a preschool program four days a week for four hours each day and was in a regular class with 16 other children. He attended morning sessions.

Yunus was an eight year 10 month old, male. He had Down syndrome and functioned in the moderate range of mental retardation with an IQ score of 38 according to the SBIS. Yunus’ strengths were his gross and fine motor skills, performed most self-care skills independently. Areas of weaknesses included receptive and expressive communication skills, social peer interaction, and perceptual discrimination skills. He attended a primary school program five days a week for three hours each day and was in a regular class with 25 other children. He attended afternoon sessions.

Yasemin was a 13 year 8 month old, female. She functioned in the moderate range of mental retardation with an SBIS IQ score of 45. Her weaknesses included vocational skills, communication skills, community skills, and social peer interaction, while her strengths included basic reading, math, and money skills. She attended a secondary school program five days a week for three hours each day and was in a regular class with 30 other children. She attended morning sessions.

Prerequisite skills were determined through trainer observation prior to initiation of the study. Each student (a) could attend to a task for 10-15 min, (b) possessed adequate visual acuity to see target words, numbers, and time on a clock when they were presented in their various forms, (c) possessed adequate auditory acuity to hear the discriminative stimulus, controlling prompt, and praise statements, and (d) could verbally and physically imitate a teacher’s model. In addition, Yasemin named numbers 1 to 12, and named hour hand and minute hand of any clock. Secondary reinforcers also were identified for each student prior to the study.

The author conducted all experimental sessions, and a special education teacher trained in data collection procedures collected reliability data.

Setting

All experimental sessions were conducted individually in a room (6 m X 6 m) located at the Research Institute for the Handicapped. Instruction was in a 1:1 arrangement. Trainer and student sat face to face at a table. Sessions occurred on week days.

Experimental Design

A multiple probe design across behaviors and replicated across students was used to evaluate effectiveness of simultaneous prompting procedures. Experimental control is demonstrated when a change in the dependent variable occurred only after the independent variable was implemented in a time lagged fashion (Tawney, & Gast, 1984).

General Procedures

The trainer used a simultaneous prompting procedure to teach students with mental retardation. Tasks for each student initially included three sets of stimuli. The trainer conducted one session per day, which consisted of a daily probe session followed by the training session. The maximum amount of time allocated for each session was about 10 min. Ses-
sessions were conducted week days after school hours for two students and during school hours for one student.

**Screening and Task Selection**

Digit numbers, expressive words, and telling time in hours, halves, and quarters were selected for the following reasons: (a) targeted stimuli included the same task taught in inclusive classrooms, (b) ability to read digit numbers, expressive words, and telling time in hours, halves, and quarters facilitates independent life skills, (c) acquisition of targeted stimuli reduces negative attention from peers when in inclusive classrooms, and (d) each student’s IEP included an objective for reading digit numbers, and expressive words, and telling time. Screening procedures resulted in 25 unknown words for Yunus, nine digit numbers for Erol, and telling time in hours, halves, and quarters for Yasemin.

The trainer presented each potential item twice using a 1:1 format and recorded student responses as (a) correct, (b) incorrect, or (c) no response. Length of the response interval was 4 s following the task direction and presentation of the stimulus. The trainer praised correct responses and ignored incorrect and no responses. Students received praise for attention on the average of every fourth response. At the end of each screening session, students chose a reinforcer (e.g., pretzel, candy, cracker, sticker etc.). For each student, an item was targeted for instruction if incorrect or no responses occurred in all screening sessions.

Erol’s task was to identify whether or not he receptively identified digit numbers (i.e., 1-2-3-4-5-6-7-8-9) across three sets (i.e., three digit numbers per set). Erol’s teacher selected the task based on which curriculum-based skills he had not acquired in inclusive classroom. Each digit number was marked in red on Mat Book (Kilicoglu, Micozkadioglu, & Dede, 2001) used in inclusive classrooms for preschool grades. Screening for Erol consisted of presenting him with nine digit numbers from Mat Book (as described above). Nine unknown digit numbers were randomly assigned as target stimuli (three sets of three numbers).

Yunus’ task was to expressively identify 20 expressive words grouped across four sets (i.e., five expressive words per set). Yunus’ teacher selected the task based on which curriculum-based skills he had not acquired in inclusive classroom. Yunus had learned to recognize a few of the expressive words of Let’s Start Reading (Dogan, Guden, & Pinar, 2001) used in inclusive classrooms for primary grades but not many other words. Screening for Yunus consisted of showing him 20 flashcards (measuring 8 cm by 12 cm) printed approximately 3 cm high using a permanent black marker on index cards. Nine unknown expressive words (father, board, table, desk, window, plot, sister, mother, door) were randomly assigned as target stimuli (three sets of three words).

Yasemin’s task was to verbally state time on a clock (three sets of five stimuli each) when presented with clock and hearing the teacher state the position of hour hand and minute hand of the clock. The trainer selected target behaviors of telling time for Yasemin at her teachers and parents request. Screening for Yasemin consisted of (a) presenting her with 15 different time situations (one at a time) which were randomly ordered (five stimuli of hours, five stimuli of halves, and five stimuli of quarters), (b) stating the position of the hands and (c) asking to tell the time.

**Materials**

Instructional sessions required stimulus cards, and a clock. The trainer selected target digit numbers for Erol from the Mat Book used in inclusive classrooms for preschool grades. Digit numbers were printed approximately 7 cm high using a permanent black marker on index cards measuring 10 cm by 15 cm. The trainer selected target expressive words for Yunus from the Let’s Start Reading Book to learn reading and writing used in inclusive classrooms for primary grades. Words were printed approximately 3 cm high using a permanent black marker on index cards measuring 8 cm by 12 cm. The trainer selected a clock with a diameter of 19 cm and hour numbers printed 2 cm high using a permanent black marker, and with the minute hand turning just like a real clock.

**Full Probe Conditions**

Prior to instruction, the teacher conducted a minimum of three full probe sessions (a full
probe condition) with each student across all stimulus sets in the task using the 1:1 instruction format. He presented each item three times in random order for a total of 353 trials during initial full probe conditions (93 trials for Erol, 95 trials for Yunus, 165 trials for Yasemin). The teacher secured the student’s attention, presented the stimulus followed by the task direction, and waited 4 s for a response. If the student responded correctly, the teacher delivered praise in the form of smiling, nodding affirmatively, and saying “yes” or “good.” The teacher waited an intertrial-interval of 4 s and presented the next stimulus. If the student did not respond or responded incorrectly, the teacher waited the inter-trial interval and presented the next stimulus. Student attention was praised on a VR4 schedule. The teacher offered a tangible reinforcement (e.g., pretzel, candy, cracker, or sticker etc.) at the end of each probe session.

Full probe conditions also occurred after each student reached criterion on each stimulus set. These full probe sessions were conducted in the 1:1 instruction format. Intervention continued when data trend for the untrained sets was stable.

Daily Probe Sessions

The trainer conducted a daily probe session immediately prior to every training session to assess acquisition of stimuli currently being trained. Daily probe sessions began when baseline data for all students were stable. The trainer used the same format as described for full probe sessions. Each student received one trial per stimulus item. Data collected during daily probe sessions were used to determine when each set met criterion (80% accuracy for three days).

Instructional Procedures

The trainer used a simultaneous prompting procedure during instruction sessions. One instructional session occurred each day immediately following daily probe session. Each student was taught a different task with each task consisting of three to five sets of stimuli. Student attention was praised on a VR4 schedule. The maximum time allocated for each instruction session was 5 to 10 min. At the end of each session, students received descriptive praise for participating and were allowed to choose a reinforcer.

Each digit number for Erol received three trials for a total of nine trials per session. A trial began with the teacher securing attention by saying, “Hi Erol, we are together again to study numbers. Are you ready?” The trainer then placed the stimulus cards on the table in front of Erol and said, “Name the red number?” and immediately provided the answer (i.e., the controlling prompt). If Erol responded correctly within 4 s, the trainer said, “Yes, that is great” and went to the next trial. No responses or incorrect responses resulted in the trainer repeating the question and providing the prompt a second time. Training sessions continued until Erol reached 100% correct responding in three consecutive daily probe sessions.

The same instructional procedures were used for teaching Yunus words. Yunus received three trials on each word for a total of nine trials per session. Yunus’ trials began with the teacher securing attention by saying, “It is time to learn some words Yunus. Are you ready?” After receiving an affirmative answer the trainer placed the stimulus cards on the table in front of Yunus. The teacher said, “Show me, which one is the door?” and immediately provided the answer (i.e., the controlling prompt). If Yunus responded correctly within 4 s the trainer said “Yes, that is great” and went to the next trial. No responses or incorrect responses resulted in the trainer repeating the question and providing the prompt a second time. Training sessions continued until the Yunus reached 100% correct responding in three consecutive daily probe sessions.

Yasemin received two trials per stimulus item for a total 10 trials per session (five different time situations were randomly assigned for each instructional session of each stimulus set). Yasemin’s trials began with the teacher securing attention by saying, “Well Yasemin, are you ready to learn telling time?” He then presented the stimulus time on the clock and said, “What time is it?” and immediately provided the answer. When Yasemin responded correctly, the teacher provided verbal confirmation. Training sessions continued until Yasemin reached 100% correct responding in three consecutive daily probe sessions.
**Maintenance Probe Procedures**

Maintenance probe sessions on targeted tasks were built into the full probe sessions that occurred in the multiple probe design. Each time a set of stimuli reached criterion, maintenance data were collected on the previously trained sets. In addition, using a 1:1 format as described for screening sessions, maintenance probe sessions also occurred 7, 18, and 25 days after the final set of stimuli for each student reached criterion. These sessions occurred in an identical format to screening sessions.

**Generalization Probe Procedures**

The inclusive classroom teacher conducted generalization probe sessions prior to the initial full probe condition and following all training. These sessions occurred in the inclusive classrooms and stimulus cards and objectives used during these sessions were different in color or size from those used during instruction. Moreover, the targeted behaviors were required from students by their teachers in inclusive classrooms.

**Reliability**

Dependent and independent variable reliability data were collected on at least 30% of daily and full probe sessions, and instructional session; 50% of maintenance and generalization probe sessions by reliability observers. The trainer used the point-by-point method to calculate the dependent measure reliability. Number of agreements was divided by number of agreements plus disagreements and multiplied by 100 (Tawney, & Gast, 1984).

The trainer calculated independent variable reliability by dividing number of teacher behaviors observed by number of teacher behaviors planned and multiplying by 100 (Billingsley, White, & Munson, 1980). Independent variable reliability measured the following teacher behaviors, when appropriate: (a) having materials ready, (b) providing an attentional cue, (c) presenting the stimulus card or object, (d) delivering the prompt, (e) waiting 4 s, (f) delivering correct consequences, (g) providing attentional praise on the correct schedule, and (h) waiting the inter-trial interval.

**Results**

**Reliability**

Reliability data indicated 100% agreement during full probe sessions, 90% (range = 87-100) agreement during daily probe sessions, 100% agreement during generalization, and 80% (range = 77-100) agreement during maintenance probe sessions on the dependent variable.

Independent variable reliability data collected during probe sessions indicated that the teacher implemented the behaviors with an overall mean accuracy of 100%. Independent variable reliability data collected during training sessions indicated that the teacher implemented the procedures appropriately with an overall mean accuracy of 100%.

**Effectiveness**

Percentage of correct responses to targeted stimuli during probe (baseline, full, daily, and maintenance) sessions for each of the three students are shown in Figures 1, 2, and 3, respectively. Open circles represent percentage of correct responding during full probe and instructional sessions, maintenance and generalization session. All subjects met criteria after introduction of simultaneous prompting. These data revealed that simultaneous prompting was effective in teaching different discrete tasks to children with mental retardation in inclusive classrooms.

Instructional data for each student, number of training sessions, number of training trials, number and percentage of training errors, amount of training time, amount of daily probe time, and number and percentage of probe errors are shown in Table 1.

**Maintenance Data**

Maintenance probe sessions were built into the study by using a multiple probe design. This allowed monitoring the acquired stimuli throughout the study during full probe conditions. Maintenance data also were collected 7, 18, and 25 days following the final full probe sessions. These data are included in Figures 1-3. Students responded to targeted stimuli with a mean 100% during the 7, 18, and 25 days maintenance probe sessions.
Generalization Data

Generalization probe data were collected on students' performance across different people, stimuli, and settings before and after training. Before instruction, students were given a generalization pre-test. During the pre-test students could not identify their targeted stimuli. After instruction, all students responded with 100% accuracy on all stimulus sets during post-test for generalization probe session.

Discussion

The purpose of this study was to assess the effectiveness of simultaneous prompting for...
teaching various tasks to students with mental retardation. In addition, maintenance and generalization of the targeted stimuli were assessed. Several conclusions can be drawn from the results of this study.

First, simultaneous prompting was effective in teaching various tasks to students with mental retardation. All students acquired their targeted stimuli within 93 training sessions (conducted over a period of 2 months) and maintained the behaviors up to 7, 18, and 25 days with 100% accuracy. Data collected during pretests and posttests indicated that students generalized their acquired behaviors across persons, settings, and materials with 100% accuracy. Previous studies have used simultaneous prompting with preschoolers (Dogan & Tekin-Iftar, 2002; Gibson & Schus-
Figure 3. Number of correct responses for Yasemin during full, daily, maintenance and generalization probe sessions. Closed circles represent daily probe, full probe, and maintenance probe data, and open circles represent generalization probe data.

ter, 1992; MacFarland et al., 1993; Tekin & Kircaali-Iftar, 2002; Wolery et al., 1993), elementary students (Schuster et al., 1992; Schuster & Griffen, 1993; Singleton et al., 1995) and high school students (Johnson et al., 1996). Since this study was conducted with preschool and elementary students for teaching discrete tasks, the findings of the study extend the current literature about simultaneous prompting procedure when students' levels of schools are taken into consideration. In addition, these findings, taken with those from previous on simultaneous prompting, indicate that the procedure is easy to use (e.g., Gibson & Schuster). Thus, it may have broad application inclusive settings in early and elementary education contexts (Wolery et al., 1993).

Second, students were taught several tasks
in the same study. Only one other study was located that taught more than one tasks using different stimuli to a small group of students (Fickel et al., 1998). Using different prompts (i.e., verbal and manual) across students is also an additional contribution. According to Fickel et al., “This is important given the trend toward the use of inclusive settings with students with disabilities. This trend will require students to learn in more heterogeneous settings and group will place demands on teachers for teaching diverse students within the same instructional group” (p. 239).

Third, several reasons may exist for conducting research in which effective and systematic strategies are examined for teaching students with mental retardation in inclusive classrooms. Almost all teachers want to: (a) teach their students with maximum effectiveness in a minimum amount of time, (b) overcome barriers for children who have diverse learning needs, (c) teach different concepts and skills, and (d) avoid teaching different kinds of tasks with different stimuli across students with varying cognitive abilities because of perceived difficulty. However, our independent variable reliability data indicated that the trainer implemented the required teacher behaviors with a high degree of accuracy. Whatever the reason, as more students with mental retardation, especially those with low incidence disabilities, move into heterogeneous and inclusive classroom settings for instructional purposes, additional research will be needed to guide the instructional efforts of classroom teachers and paraprofessionals (Fickel et al., 1998).

Fourth, amount of time that is spent on daily probe sessions must be considered when implementing a simultaneous prompting procedure. In this study, simultaneous prompting involved high probe time to criterion. However, this instructional procedure resulted in high student performance during maintenance and generalization probe sessions as it was in other studies with simultaneous prompting (e.g., Singleton et al., 1999). Since a major goal of education for students is to maintain and generalize acquired behaviors, the additional probe time that may be associated with simultaneous prompting may be defensible. However, additional research is needed before definitive statements can be made (Singleton et al.,).

Finally, the students with mild and moderate disabilities are believed to have benefited from this instruction. Although they had no history with simultaneous prompting procedure, they acquired and generalized all of their targeted information and maintained

| TABLE 1 |
|---|---|---|---|---|---|---|---|
| **Instructional Data for Each Student and Training Set Through Criterion** |
| **Student/Set** | **No. of training sessions** | **No. of training trials** | **No. of training errors** | **% training errors** | **Training time (min:sec)** | **Daily probe time (min:sec)** | **No. of Probe errors** | **% probe errors** |
| **Erol** | 1 | 15 | 45 | 0 | 0 | 135 min 18 s | 45 min 05 s | 17 | 37 |
| | 2 | 11 | 33 | 0 | 0 | 99 min 16 s | 33 min 08 s | 9 | 27 |
| | 3 | 5 | 15 | 0 | 0 | 45 min 44 s | 15 min 12 s | 5 | 33 |
| **Total** | | 31 | 93 | 0 | 0 | 280 min 18 s | 93 min 25 s | 31 | 33 |
| **Yunus** | 1 | 16 | 48 | 0 | 0 | 144 min 01 s | 58 min 23 s | 13 | 27 |
| | 2 | 8 | 32 | 0 | 0 | 96 min 55 s | 24 min 01 s | 8 | 25 |
| | 3 | 5 | 15 | 0 | 0 | 45 min 22 s | 15 min 15 s | 4 | 26 |
| **Total** | | 29 | 95 | 0 | 0 | 286 min 18 s | 97 min 39 s | 25 | 26 |
| **Yasemin** | 1 | 12 | 60 | 0 | 0 | 96 min 36 s | 48 min 36 s | 21 | 35 |
| | 2 | 16 | 80 | 0 | 0 | 128 min 19 s | 64 min 42 s | 39 | 48 |
| | 3 | 5 | 25 | 0 | 0 | 40 min 05 s | 20 min 23 s | 11 | 44 |
| **Total** | | 33 | 165 | 0 | 0 | 265 min 00 s | 133 min 41 s | 71 | 43 |
| **Grand Total** | | 93 | 353 | 0 | 0 | 831 min 36 s | 324 min 45 s | 127 | 35 |
the acquisitions with 100% accuracy. In addition, some inappropriate behaviors often observed during instruction in inclusive classrooms (e.g., being off-task, non compliance, and aggression toward others) did not occur during this study. The subjects were observed to smile, cooperate, and participate appropriately throughout the study. Future research should assess levels of inappropriate behaviors exhibited by students when engaged in various group and one-to-one instruction arrangements as well as with various instructional strategies (e.g., simultaneous prompting, model-lead-test, system of least prompts) and techniques (e.g., active versus passive error correction procedures).

Although results of this study were positive, data should be viewed cautiously since several limitations exist. First, there are several arguments against one-to-one instruction provided out of inclusive classrooms such as removal of students from the regular classroom for certain periods, and difficulties in providing coordination between resource room and regular classroom (Allington & Johnston, 1989; Kircaali-Iftar, 1992; Reisberg & Wolf, 1986; Stein, Leinhardt, & Bickel, 1989). Second, although all tasks taught in this study were discrete tasks, they have different forms. Therefore, these skills may require different learning abilities. Third, instruction was delivered in a room that is not located in the students’ schools. Fourth, a high rate of probe errors occurred in the study. This is consistent with other studies using simultaneous prompting procedures (Gibson & Schuster, 1992; Griffen et al., 1998; Schuster et al., 1992; Singleton et al., 1995; Fickel et al., 1998). On the other hand, no training error occurred during training with all students; whereas 33% errors occurred during daily probe sessions with Erol, 26% errors occurred during daily probe sessions with Yunus, and 43% errors occurred during daily probe sessions with Yasemin. These finding are consistent with finding of previous studies (e.g., Singleton et al., 1999). Future research may assess effects of intermittent daily probe sessions on acquisition of the target behaviors. Additionally, providing corrective feedback in the consequent event during these daily probe sessions may decrease error rates currently found.

In conclusion, results suggest the possibility of further research with students across intellectual functioning levels. This is particularly important as the trend in education moves towards more inclusive settings. Teachers in inclusion classes are expected to be responsible for teaching many skills to more than one child with differing diagnoses. In this case, this study can be replicated with small and large group arrangement to help teachers and observational learning can be investigated. In addition, similar skills can be examined using the effectiveness of different teaching methods. Moreover, although simultaneous prompting has been compared to other instructional procedures when teaching discrete tasks (i.e., Schuster et al., 1992), the effects and efficiency of the simultaneous prompting procedure should be compared to other strategies (e.g., progressive time delay, constant time delay, system of least prompts, etc.) with various discrete tasks so that teachers can provide the most appropriate instruction possible to students (Parrott, Schuster, Collins, & Gassaway, 2000).

References


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