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TRAINING MIDDLE SCHOOL STUDENTS WITH LEARNING DISABILITIES TO RECRUIT POSITIVE TEACHER ATTENTION: EFFECTS ON TEACHER PRAISE, INSTRUCTIONAL FEEDBACK, AND ACADEMIC PRODUCTIVITY IN THE GENERAL EDUCATION CLASSROOM

DISSERATION

Presented in Partial Fulfillment of the Requirements for the Degree Doctor of Philosophy in the Graduate School of The Ohio State University

By
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* * * * *

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ABSTRACT

Social approval serves as a powerful reinforcer for many individuals. Teacher attention and praise are the primary form of social approval in school settings. In busy classrooms, however, many instances of desired student behaviors are not praised or attended to because the teacher may not notice those behaviors. One way to increase the probability that desired behaviors receive teacher attention is to train students to recruit positive teacher attention. Previous studies have shown that training students to recruit increases students' recruiting rates and teacher praise rates (e.g., Connell et al. 1993; Craft, 1996; Harchik, et al. 1993; Hrydowy et al, 1984). Craft (1996) was the only study to date identified by the author of this study which examined the effects of recruiting on academic skills.

The purpose of this study was to extend the findings of Craft (1996) by examining the effects of a recruitment training package on student recruiting, teacher praise, instructional feedback, and academic productivity in the general education math classroom. In this study, the special education teacher was trained by the experimenter to teach four middle-school students with learning difficulties when, how, and how often to recruit teacher attention in the
general education classroom, and what to say to the teacher during a recruiting interaction. The students were taught to show their work to the teacher and ask for feedback two to three times per workpage.

The results of this study indicate that: (a) middle school students with learning disabilities can be trained to recruit appropriately at target rates in the general education classroom, (b) student recruiting increases rates of teacher praise and instructional feedback received by the students, (c) student recruiting increases completion and accuracy of academic assignments, and (d) students can generalize recruiting to another classroom setting. An important finding of this study is that students must find teacher praise desirable in order for recruitment training to be effective.

There were several important implications of this study. First, students with disabilities can be taught recruit teacher attention in a manner acceptable to classroom teachers. Second, students' recruiting efforts can be successful in contacting a naturally existing, but often dormant, contingency of reinforcement (teacher attention and praise). Third, student-recruited teacher attention and praise can increase academic productivity and accuracy.
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Social approval, often conveyed through verbal praise, is a powerful reinforcer for most people (Skinner, 1953). Behaviors valued by significant others in a person's culture are often maintained by some form of approval, but sometimes they are not. Approval usually occurs intermittently—that is, not every instance of a target behavior is followed by praise—which tends to strengthen behaviors already emitted with some frequency (Skinner, 1953). If a newly acquired behavior does not initially meet with a continuous schedule of reinforcement (e.g., some form of approval), it may no longer be emitted (Alberto & Troutman, 1995; Sulzer-Azaroff & Mayor, 1991; Vargas, 1977).

The primary form of social approval in school settings is teacher praise. A typical setting where valued behaviors are sometimes ignored unintentionally is the classroom, where students are continually expected to acquire new skills that may not be maintained over periods of time. Desirable classroom behaviors may not be noticed by the teacher if students do not call attention to themselves. Teachers are more likely to notice and pay attention
to a student who is disruptive than a student who is working quietly and productively on an assignment.

The aversive nature of disruptive behavior in the classroom (e.g., yelling out, teasing, using profanity, running around) usually causes teachers to respond immediately so disruptive behaviors will cease. Paying attention to students when they are behaving inappropriately (e.g., “Carlos, you need to sit down right now!”) may be negatively reinforced by the immediate cessation of the inappropriate behavior (e.g., Carlos stops running around and returns to his seat), thereby increasing the future likelihood of the teacher paying attention to student disruptions.

Teacher praising behavior is usually not reinforced as effectively as teacher reprimanding behavior. When teachers praise students for appropriate behaviors, such as working quietly in class, there is usually no immediate change in student performance (e.g., the child continues to do his work when praised). Although praising a student who is working quietly on an assignment may increase the future likelihood of that behavior, there are no immediate consequences for the teacher’s praising behavior. Teacher reprimands, however, produce a change in behavior at that moment (e.g., the child stops whining). Speaking harshly to a student is negatively reinforced (e.g., the teacher immediately escapes the whining).

The student’s disruptive behaviors, in turn, may be positively reinforced by the teacher’s attention thereby increasing future incidences of disruptive behaviors. The child may stop whining at the moment the teacher yells at
him, but increased future whining is likely if the student desires attention from the teacher. Even though teacher attention comes in the form of disapproval, it may still be reinforcing to the student. For many children, negative attention is better than no attention at all (Alberto & Troutman, 1995; Madsen, Becker, & Thomas, 1968, Skinner, 1953).

Attending to instruction, completing assigned seatwork, and following directions are examples of appropriate classroom behavior that may not produce teacher attention. When appropriate student behavior is not reinforced by the teacher, it may be emitted at lower rates or completely cease. Teachers need to be skilled at "catching students being good" in order to help students maintain and extend appropriate behaviors. This approach, however, puts the responsibility of reinforcing target behaviors entirely on the teacher.

A supplemental approach designed to increase the probability that desired behaviors are reinforced is training students to recruit positive teacher attention. When students are taught to appropriately draw their teacher's attention to their accomplishments, they are being trained to recruit. When students are trained to recruit, the teacher is provided with a prompt to praise desired behaviors. The following vignette is an example of appropriate recruiting:

Fourth grader, Mary, After completing her spelling assignment during independent seatwork time, raises her hand and quietly waits for the teacher to notice her. When the teacher comes to Mary's desk, Mary says, "Look, I finished my work." The teacher
looks at Mary’s work and says, “You did a very good job.” Mary politely says, “Thank you.”

If Mary had waited for her teacher to notice she had finished her spelling assignment, she may not have received teacher praise, and may be less likely to finish her work in the future. Also, the teacher’s positive attention is reinforced by the student because Mary’s work is complete and she thanked the teacher.

Training students to recruit teacher attention is a low cost intervention for both teachers and students, for fostering the maintenance of academic skills and appropriate classroom behaviors. Recruiting could potentially help students generalize and maintain dozens of other academic and social skills.

**Purpose of the Study**

This study examined the effects of training middle school students with learning disabilities to recruit teacher attention in the general education classroom. Specifically, four students were taught when, how, and how often to recruit in the general education classroom. Students were taught to show their work to the teacher or to ask for help two to three times per work page, using appropriate statements such as: “How am I doing?” or “Does this look right?” Training consisted of systematic modeling, role playing, error correction, and praise.

Five dependent variables were measured during this study: (a) the rate of appropriate recruiting responses per 10-minutes of independent seatwork sessions in math class and social studies class, (b) the rate of teacher praise
statements per-10 minutes of independent seatwork sessions in math class and social studies class, (c) the rate of instructional feedback statements per 10-minutes of independent seatwork sessions in math class and social studies class, (d) the percentage of items completed on each math assignment, and (e) the percent accuracy of completed items on each math assignment.

Observational probes for three students were conducted in a social studies classroom to assess generalization of recruiting skills to another setting. Teacher praise and instructional feedback were also recorded in the probe setting.

Research Questions

This study was designed and conducted to obtain objective data in response to seven primary research questions:

1. What are the effects of training middle school students with learning disabilities to recruit teacher attention in the special education classroom on the rate of recruiting responses they emit during independent mathematics seatwork sessions in the general education classroom?

2. What are the effects of training middle school students with learning disabilities to recruit teacher attention in the special education classroom on the rate of teacher praise statements received by the students during independent mathematics seatwork sessions in the general education classroom?

3. What are the effects of training middle school students with learning disabilities to recruit teacher attention in the special education classroom
on the rate of instructional feedback received by the students during independent mathematics seatwork sessions in the general education classroom?

4. What are the effects of training middle school students with learning disabilities to recruit teacher attention in the special education classroom on the percentage of work completion and accuracy of assignments during independent mathematics seatwork sessions in the general education classroom?

5. What are the effects of training middle school students with learning disabilities to recruit teacher attention in the special education classroom on the rate of recruiting responses they emit during independent seatwork sessions in a probe setting (i.e., social studies class)?

6. What are the effects of training middle school students with learning disabilities to recruit teacher attention in the special education classroom on the rate of teacher praise statements received by the students during independent seatwork sessions in a probe setting?

7. What are the effects of training middle school students with learning disabilities to recruit teacher attention in the special education classroom on the rate of instructional feedback received by the students during independent seatwork sessions in a probe setting?

Additionally, interviews and questionnaires were administered at the end of the study to address two secondary research questions:
8. What are the students' opinions regarding the recruitment training and its effects?

9. What are the participating teachers' opinions regarding training the students to recruit their attention?
CHAPTER 2

LITERATURE REVIEW

This chapter reviews the literature related to teaching students to recruit contingent praise. The review consists of four major sections. First, a discussion of the current praise controversy will be presented followed by experimental research from the behavior analysis literature to illustrate the effectiveness of praise as a tool for behavior change. Second, descriptive research on the differences between general and special education settings will be presented to show the need for programming for generalized outcomes. Third, a description of six basic strategies for generalization programming will be presented with examples from the behavioral literature. Finally, a behavior analysis of recruiting reinforcement precedes a review of experimental studies in which children were taught to recruit teacher or adult praise and attention.

The Praise Controversy

Although there is substantial evidence that contingent praise, approval, and/or positive attention is an effective tool for behavior change (e.g., Fox,
Shores, Lindeman, & Strain, 1986; Gillat & Sulzer-Azaroff, 1994; Goetz & Baer, 1973; Griffith & Clark, 1981; Hall, Lund, & Jackson, 1968; Martella, Marchand-Martella, Young, & MacFarlane, 1995; Martens, Lochner, & Kelly, 1992; Staub, 1990; van der Mars, 1989), there are some who argue against the use of any contingent rewards including praise (Hintz & Driscol, 1988; Ryan & Deci, 1996; Kohn, 1993, 1994; Lepper, Keavney, & Drake, 1996; Schwartz, 1990). Kohn (1993), an outspoken and widely publicized critic of the use of praise, claims that praise increases pressure to “live up to” the compliment, insinuates unrealistic expectations of future success, insidiously manipulates people, establishes a power imbalance, insults people if awarded for unchallenging behaviors, and undermines intrinsic motivation.

Cameron and Pierce (1994) reviewed 100 studies on the effects of rewards on intrinsic motivation, and drew the following conclusions from their meta-analysis: verbal rewards were found to increase intrinsic motivation; tangible rewards do not decrease intrinsic motivation; and rewards are only detrimental when they are expected by the subject and the reward is delivered noncontingently (i.e., just for engaging in an activity).

Kohn (1993) states that “extrinsic motivators do not alter emotional or cognitive commitments that underlie behavior” (p. 2). It is difficult to determine whether or not this is a true statement because it is impossible to directly define and measure “emotional and cognitive commitments.”

Kohn (1994) also argues that learning is devalued because it becomes a prerequisite for adult approval. He states that “good values have to be grown
from the inside out”, and this can be accomplished by providing children with “an engaging curriculum” and “a safe, caring community in which to discover and create” (Kohn, 1994, p. 3). However, Kohn fails to acknowledge that the curriculum and the community are variables in the external environment, not “grown” from inside the child; and a “safe, caring community” for a child must have some sort of adult encouragement and approval for engaging in desired behaviors such as “discovering” and “creating”.

Deciding if behavior is intrinsically or extrinsically motivated may not be time well spent. People will engage in activities both because they enjoy the activity and because they may receive external rewards. One “type” of motivation does not cancel out another. From a behavioral viewpoint, all behavior is a result of the external environment. Future extrinsic consequences or intermittent reinforcement can be possible explanations for apparent intrinsic motivation (Dickinson, 1989). For example, a student may spend more time studying because his parents usually give him money and approval at the end of the school grading period as a reward for good grades. In the mean time, receiving high scores on individual tests throughout the grading period has become a powerful external reinforcer for the student. An observer who is unaware of these delayed and intermittent consequences may conclude that the student is intrinsically motivated to study. The construct of intrinsic motivation is scientifically vague (Dickinson, 1989), it might make more sense to simply examine the effects of rewards (i.e., praise) on behavior.
The following studies illustrate the positive effects of praise on student behavior.

**The Power of Praise**

Teacher praise is a powerful, low cost reinforcer that has been shown to be effective with a wide range of learners in a wide range of settings. The following studies illustrate the general effectiveness of contingent teacher praise with a variety of target behaviors, ability levels, and age levels.

**Preschoolers**

Three studies with preschoolers have showed contingent teacher praise increased social skills, compliance at transition times, and creativity. Fox, Shores, Lindeman, and Strain (1986) found that teacher prompts and contingent praise increased the frequency of withdrawn preschoolers' social initiations to classmates. After fading of prompts and praise, the children maintained similar levels of social interactions over the next 6 months. Connell, Randall, Wilson, Lutz, and Lamb (1993) found that contingent teacher praise significantly increased the active engagement and independent responding of four preschoolers with developmental delays when cleaning up during transitions. Goetz and Baer (1973) found that when three preschoolers were specifically praised for building block formations that were not previously constructed (e.g., "Oh, that's nice—that's different!"), they increased the number of different forms built per session. When students were contingently praised for repeatedly building the same kinds of structures
(e.g., “How nice—another arch!”), they continued to build the same kinds of structures.

**Elementary Students**

For elementary school students (grades K through 8) of various functional skill levels, praise was found to be effective for increasing academic time on-task, math performance, creative responding, and social interaction.

Hall, Lund, and Jackson (1968) demonstrated that when first and third grade students were given social reinforcement when they were actively engaged in study behavior, their time on task increased. Four target students were observed for 30-minute study periods. During baseline an observer recorded the classroom teacher’s typical pattern of responding to students, which usually consisted of attending to non-study behavior (e.g., snapping rubber bands, playing with toys, talking and laughing with peers). In the reinforcement condition, an observer signaled the teacher by holding up a small square of colored paper whenever a target student was engaged in study behavior. When signaled, the teacher gave the child positive attention (e.g., moved to the child’s desk, made a verbal comment, gave a pat on the shoulder). Significant increases in study behavior for occurred for all 4 students. During the baseline condition, students were on task for 25% to 43% of the 10-second intervals. In the reinforcement condition, on-task behavior increased to a mean rate of 71% to 77%.
Similarly, van der Mars (1989) found that increased teacher praise for class conduct and skill performance of three second graders substantially reduced their off-task behavior during physical education class.

Martens, Lochner, and Kelly (1992) compared the effects of two variable interval schedules of verbal reinforcement (VI 5-minutes and VI 2-minutes) for academic engagement. During the baseline condition, the teacher was instructed to conduct class in the usual manner while the observers recorded the academic engagement of two third graders doing seatwork assignments. During alternating treatment conditions, the experimenter recorded academic engagement and provided praise at the scheduled intervals. The results of this study indicated that the VI 2-minute schedule of verbal reinforcement was more effective for increasing academic engagement. The students were academically engaged a mean percent of 47.4 to 71.3 in the VI 5-minute condition, and 71.3 to 86.9 in the VI 2-minute condition. The results of this study demonstrate that students will exhibit desired behaviors at higher rates when they are praised contingently with greater frequency.

Gillat and Sulzer-Azaroff (1994) examined the effects of the involvement of a school principal on the math performance of seven third graders. The school principal visited a third grade classroom three times each week, and provided statements specifying what the students were to learn and verbal praise for good academic performance on multiplication facts quizzes. During intervention all students improved at a more rapid rate than in baseline. The
mean number of new multiplication facts the group learned was 10.26 during intervention, and 1.25 during withdraw of the intervention.

In a groups comparison study, Griffith and Clark (1981) assessed the effects of teacher praise on creative responding. The 84 sixth grade participants were divided into three groups. The students in group 1 were asked to tell the trainer all of the different answers they could think of when asked a question. In addition to what students were told in group 1, students in group 2 were told to be creative as possible. Students in group 3 received the same combined instructions as students in groups 1 and 2, but were also praised each time they emitted a unique answer. The following are examples of questions asked by the trainers: “Tell me all of the different things that you think might happen or that people might do if the world ran out of fuel.” “Tell me all of the different things that you think might happen or that people might do if everyone in the world looked alike.” and “Tell me all of the different things that you think might happen or that people might do if there was no such thing as television.” The results of this study indicated that students who were praised for creative responding emitted a greater number of responses, and a greater number of unique responses. All three groups of students were given a pre-test and post-test measuring their unique responses to questions. Students who were praised for creative responses (group 3) increased their mean number of unique responses from 3.5 to 8, while students in groups 1 and 2 actually decreased their mean number of unique
responses slightly (group 1 decreased from 2.8 to 2.2, and group 2 decreased from 4 to 3.3).

In another groups comparison study, Santomier and Kopczuk (1981) assessed the effects of teacher praise on social interaction between students with mental retardation and their typically developing peers in a physical education class. The three experimental groups were: (a) the control group, in which the teacher introduced the students to the play equipment and allowed free play; (b) experimental group 1, in which the teacher paired handicapped and nonhandicapped students for free play time, and (c) experimental group 2, in which the teacher paired disabled and nondisabled students and praised them contingently for social interaction. The students who were praised for social interaction (experimental group II) had the highest rates of social interaction between disabled and nondisabled students.

**Secondary Students**

Contingent praise was also effective for decreasing disruptive behavior and increasing academic performance for secondary school students. Staub (1990) examined the effects of public posting on disruptive hallway behavior (e.g., running, physical aggression, verbal abuse) in a middle school. The participants in this study were 250 students in an urban high school. Observers recorded incidences of running, physical aggression, and verbal abuse in this hallway during transition times. Three experimental conditions were used in this study: baseline, in which rates of student disruptions were observed and recorded; public posting, in which several posters in the
hallway indicated to students the percentage of daily occurrences of disruptive behavior; and public posting paired with verbal feedback and praise, in which the principal provided verbal feedback and praise over the intercom prior to class changes (e.g., "Nice job, you have improved by 10"). The mean percentage of disruptive behaviors during the two baseline phases was 63% and 49.4%, which decreased slightly to 42.3% and 46.1% during the two public posting phases. However, when public posting was combined with verbal feedback and praise (for two phases), the mean percentage of disruptive behavior decreased to 26.5% and 31%. This study demonstrated that public posting alone had little effect on the reduction of disruptive behaviors, but when it was combined with verbal praise and feedback disruptive hallway behavior decreased substantially.

Martella, Marchand-Martella, Young, and MacFarlane (1995) also found decreases in disruptive behavior as a result of specific praise statements. The experimenters trained two nonhandicapped highschool students to peer tutor a fourteen year old student with Down's Syndrome. When the peer tutors used specific praise statements, reduced negative comments, and stated appropriate commands (e.g., "Dan, tell me the word on the card"), negative behaviors (e.g., foot stomping, inappropriate verbalizations) decreased and compliance increased. During baseline, the target student averaged 37.7% compliance, .54 episodes of inappropriate verbalizations per minute, and .51 episodes of foot stomping per minute. When specific praise statements were implemented, the target student averaged 48.6% compliance, .37 incidents of
inappropriate verbalizations per minute, and .15 episodes of foot stomping per minute.

**Adults**

Praise has also been shown to increase target behaviors of adults. Cossairt, Hall, and Hopkins (1973) conducted a component analysis on increasing the rates of praise for three elementary school teachers in Kansas City. They examined instructions only, feedback only, and feedback plus praise. The feedback plus praise condition was most effective for increasing teacher praise to students. In addition to these findings, the teachers increased use of praise also increased their students' attending behavior.

Contingent praise was used as a primary component for teaching eight mildly mentally retarded adults to discriminate and safely respond to abduction and sexual abuse situations (Haseltine & Mittenburger, 1990). Small-group instruction consisted of instructions, modeling, rehearsal, feedback, and contingent praise. All but one subject demonstrated criterion skills and maintained them at a six month follow up.

The above examples illustrate that contingent praise can be an effective technique for increasing desirable behaviors or decreasing undesirable behaviors. The effectiveness of this teaching tool has generalized across ages (preschool to adult), levels of functioning (severely handicapped to nonhandicapped), and skills taught (social, academic, daily living). The following section presents examples of studies in which praise was used in combination with other instructional interventions.
Praise in Combination with Other Inventions

Feldman (1994) examined the effects of the assertive discipline model on the disruptive behaviors of two preschoolers. An important component of the Assertive Discipline approach is the consistent application of praise and rewards for engaging in appropriate behaviors. The other components of assertive discipline include establishing rules and systematically applying a progressive system of negative consequences each time a rule is not followed. In this study, the steps included a specific verbal warning, a second verbal warning coupled with a visual warning (i.e., a stop sign on a 3 X 5 card was displayed), time out, and a phone call to the parent. The mean incidents of disruptive behavior per hour decreased from 5.41 in baseline to 1.53 in follow up for one student, and 3.41 in baseline to .40 in follow up for the other student.

Contingent praise in combination with other teaching strategies was also found effective for increasing academic skills. Mudre and McCormick (1989) studied first and second graders with reading difficulties. Parents were trained to use the following strategies: prompt corrections of miscues, use cues to encourage students to identify words in context, and praise the students for self-corrections and use of context to identify words. The students showed an increase in the use of the strategies, a substantial decrease in error rates, and an increase in use of context, self-corrections, and literal comprehension.

Contingent praise also increased the academic performance of two 7-year-olds with autism and severe language delays (McGee, Krantz, Mason, &
McClannahan, 1983). Gestural prompts, behavior-specific praise, and contingent access to lunch making supplies were effective components for increasing receptive language skills which generalized to another setting and activity.

Praise in combination with a constant time delay procedure was also shown to be effective for increasing the academic performance of adolescents with learning and behavior disorders (Wolery, Cybriwski, Gast, & Boyle-Gast, 1991). When the students who were taught social studies and health facts in small group settings were praised for correct responses, their number of correct responses increased.

Effective Praise

Van Houten (1980) describes three ways to influence the effectiveness of teacher praise. Praise must be contingent, frequent, and descriptive. It is very important that praise be given contingently for good behavior. If a student is praised when he is not giving his best effort, he receives the message that the teacher is pleased with him performing below his capabilities. Teachers must be careful to individualize the standards of acceptable performance for each student in order to increase the effectiveness of praise for all students.

Another key to maximizing the effectiveness of teacher praise is frequency. Frequent praise is more effective for bringing desired changes in student behavior than infrequent praise. General education teachers usually have at least 20 students in their classrooms, so they need to remember to praise frequently in order to get the best results from all of their students.
To be maximally effective, praise must also be descriptive. When students are told exactly why they are being praised, they are more likely to repeat the desired behaviors in the future. If a student hands in a story she has written and her teacher says “This is very good. I like the way you remembered to start your sentences with a capital letter and end your sentences with the correct punctuation”, the student is more likely to repeat capitalization and punctuation skills in the future. However if the teacher just says “very good”, the student may not know why the story is “very good”, and may be less likely to repeat the specific skills for which she has been praised.

Educational Settings for Students with Special Needs

Historically, many people with special needs have been excluded from society in general. It was not until the 1970’s that schools were no longer legally permitted to deny enrollment to students with disabilities. The law requiring students to be educated in the least restrictive environment (LRE), mandated in P. L. 94-142 (Individuals with Disabilities Act of 1975), was the impetus for increased mainstreaming, educating students with special needs in general education classrooms (Wang & Baker, 1985). The LRE component of the Individuals with Disabilities Act dictated that students spend as much time as possible with their typically developing peers, and only as much time in exclusionary special education settings as absolutely necessary to meet their individual educational needs (Madden & Slavin, 1983). The resulting effects of more difficult-to-teach children placed in general education classrooms have required both general and special educators to adjust their instructional
methods to remedy the problem of academic and behavioral failure (Maheady, Harper, Mallette, & Karnes, 1987).

Advocates for mainstreaming all students with disabilities into classrooms with their nonhandicapped peers for 100% of the school day (e.g., Stainback & Stainback, 1992; Thousand & Villa, 1991; Wang, Reynolds, & Walberg, 1994-1995), thus eliminating the LRE and individual placement options, often support their full inclusion position by stating that separate special education instruction has failed students with disabilities. Students with disabilities are often provided with special education services in another setting for the part of the school day that they are not with their typical peers. Special education settings usually provide more intensive and individualized instruction of skills (Deno, Maruyama, Espin, & Cohen, 1990). Sometimes, however, students may demonstrate mastery of skills in the special education classroom, but fail to generalize those same skills to a regular classroom. One possible reason for this is the differing availability of reinforcement in each setting.

Differences Between General and Special Education Classrooms

Even though praise has been documented as an effective tool for behavior change, the rates of teacher praise in school have been low. White (1975) conducted observational studies in 16 general education classrooms to determine rates of teacher verbal approval and disapproval in grades one through 12. In grades one and two, the overall teacher approval rate was relatively high, the highest being a teacher approval rate of 1.3 approvals per
minute. After second grade there is a sharp decline in approval which continues to decline into highschool to rate of one approval for every 5 or 10 minutes.

Thurlow, Graden, Greener, and Ysseldyde (1983) also conducted observational studies comparing instruction for students with learning disabilities to their non-disabled peers. They observed 34 students from 17 third and fourth grade classrooms in nine suburban elementary schools, and found that students with learning disabilities received more individual instruction and more teacher approval than non-LD students. Teachers provided individual instruction for approximately 20-minutes per day for students with LD, and about 3-minutes per day for non-disabled students. Although teacher approval was low for all students, LD students received significantly more teacher approval (about 30 seconds per day) than non-LD students (about 15 seconds per day).

The differences between general and special education teacher behavior during reading instruction were reported by Ysseldyke, Thurlow, Mecklenburg, and Graden (1984) using the same population of students as in the above 1983 study. Teacher approval occurred more for special education students (about .26 minutes) than for general education students (.03 minutes), and special education teachers spent more time at the side of their students (8.4 minutes) compared to general education teachers (.3 minutes). Special education students also received more individual reading instruction,
an average of 14 more minutes than general education students (special education = 15.4 minutes; general education = 1.3 minutes).

Gable, Hendrickson, Young, Shores, and Stowitschek (1983) extended the descriptive studies of teacher behaviors by conducting an observational study of teacher approval rates across categories of exceptionality. Special education teachers and their students were observed during direct instruction for 10-minute sessions. They discovered that the rate of teacher praise varies significantly across categories of students with special needs: Teachers of students with mental retardation gave approximately 1.9 approval statements per 10-minutes; teachers of students with multiple handicaps gave approximately 2.25 approval statements per 10-minutes; and teachers of students with learning disabilities and behavior disabilities gave approximately .74 approval statements per 10-minutes.

More recent descriptive studies also found differences in teacher attention between general and special education classrooms. Baker and Zigmond (1990) conducted descriptive research in an urban school district of 42,000 students, K-12. They found the general education setting was, for the most part, characterized by instruction usually directed towards large groups of students with little time spent on addressing individual needs.

Similarly, upon examination of 14 schools in Minnesota, Deno, Maruyama, Espin, and Cohen (1990), found that more individual attention was provided to special education students in resource rooms as opposed to regular classrooms based on the verbal reports of general and special
education teachers. Further, Nowacek, McKinney, and Hallahan (1990) studied 117 elementary and intermediate/secondary general and special educators in Virginia and found special educators monitored and demonstrated positive regard to their students more frequently than general educators. The observers recorded occurrences of various teacher behaviors during a 35-minute observational period for three days. For the combined observational periods, the mean occurrence of positive regard was 12.8 in special education classrooms and 6.1 in general education classrooms. The mean occurrence of teacher monitoring behaviors was 39.1 for special education classrooms and 28.2 for general education. Nowacek et al. (1990) suggest the effect of class size plays a part in the frequency of the teaching behaviors they observed and recorded.

Although rates of positive teacher attention are low across both general education and special education settings, positive teacher attention is still much higher for special education students. Because special education classrooms have a smaller student to teacher ratio than general education classrooms, there are more opportunities to receive individual teacher attention (Madden & Slavin, 1983).

Where contingent reinforcement occurs more frequently (e.g., a resource room), individuals may be more likely to emit desired behaviors. Those same behaviors may not be emitted in settings where reinforcement is either nonexistent or is too thinly scheduled to be effective (e.g., the general education classroom). The differing contingencies of reinforcement (i.e.,
teacher attention) across special and general education classrooms is a possible explanation for failure of some students with disabilities to generalize skills across those settings. Because of differing class sizes, good performances of students receiving special education services are more likely to be noticed and praised in the special education setting, and more likely to be unintentionally ignored in the generality setting.

Programming for Generalization

Generalization of skills is the extent to which skills trained in one setting or stimulus situation are performed in different settings or stimulus situations. All students are typically taught skills in instructional settings that they are expected to use in other settings and situations such as home, community settings, jobs, and other classrooms. For example, a student is taught to count change in a classroom for the purpose of counting change during a purchasing transaction in a convenience store. If the student performs change-counting skills in the classroom, but not in the convenience store, he has not generalized the skill to that setting.

Heward (1987) defines three basic kinds of generalization: stimulus generality, response generality, and response maintenance. Stimulus generality is the extent to which a behavior trained under one set of stimulus conditions is performed under another set of stimulus conditions. For example, a student who learns to read at school can also read at home. Response generality is the extent to which the learner performs a variety of untrained functional responses in addition to the response that is trained. For
example, a student who learns to say "You're welcome" at appropriate times varies his response by saying any of the following: "No problem," "Anytime," or "Glad I could help". Response maintenance is the extent to which a student continues to perform a skill after some or all of the training has ended. For example, a student who learns to tie his shoes the first week of kindergarten can still tie his shoes when he goes to first grade.

Programming for generalization is a critical aspect of effective special education because students with special needs are typically trained in settings other than where they must perform target skills (e.g., a student taught to subtract with regrouping in a resource room is expected to subtract with regrouping in his general education third grade classroom). Additionally, because of their disabilities, students receiving special education services often have more difficulty generalizing skills than their typically developing peers. Standards for judging the effectiveness of a special education program must take into account measurable improvements in the general education setting (Anderson-Inman, Walker, & Purcell, 1984).

Generalization of skills does not occur automatically (Baer, 1981). Behaviors typically will not generalize to other settings or stimulus situations unless teachers program for generalization. Stokes and Baer (1978) reviewed 200 applied behavior analysis studies relevant to generalization. The techniques designed to assess or program for generalization derived from this review were categorized under the following headings: (a) aim for natural contingencies of reinforcement, (b) teach enough examples, (c) program
common stimuli, (d) teach loosely, (e) program indiscriminable contingencies, and (f) teach self management skills. Each of these six generalization strategies is described and illustrated with an example from the behavioral literature.

**Aim for Natural Contingencies of Reinforcement**

Natural contingencies of reinforcement are uncontrived reinforcers developed through cultural evolution which can be trusted to operate reliably in an individual’s environment. Natural contingencies of reinforcement enable individuals to maintain repertoires of behaviors that are both adaptive and harmful (Alber & Heward, 1996; Baer & Wolf, 1970; Heward, 1987; Kohler & Greenwood, 1986; Stokes & Baer, 1977). The more settings in which a specific behavior meets with reinforcement and consequently is emitted more frequently in those settings, the greater the maintenance and generalization of that behavior (Cooper, Heron, & Heward, 1987). Conversely, the frequency with which newly learned behaviors are emitted decrease, perhaps to zero, if they do not produce reinforcement (Skinner, 1957).

Aiming for natural contingencies of reinforcement as an instructional strategy requires teaching only those behaviors that will be maintained by the natural contingencies of the post-intervention environment (Allyon & Azrin, 1968; Baer, 1981; Kohler & Greenwood, 1986). Skills most likely to be maintained by the natural environment are age appropriate, normalized, and functional. A target skill is functional if it produces reinforcement for the learner (Heward, 1987). Some target behaviors do not meet with
reinforcement in the generality setting because they are not emitted at a sufficient rate, accuracy, duration, or strength (Stokes & Baer, 1977; Stokes & Osnes, 1989). Sometimes, however, appropriately executed target behaviors are not reinforced because the natural contingencies of reinforcement in the student's environment are dormant (i.e., behaviors that may be reinforced go unnoticed) (Stokes & Baer, 1977; Stokes & Osnes, 1989). The natural contingencies of reinforcement are "asleep and need to be waked up and turned on" (Baer, 1981, p. 17).

When the natural environment is not providing reinforcement as it should, individuals can recruit the natural consequences. Published studies on training students recruiting skills to contact the natural contingencies of reinforcement will be described in detail later in this literature review.

**Teach Enough Examples**

Behavior change agents sometimes make the mistake of teaching just one example of a new concept or skill and then expecting the learner to generalize from that example (Stokes & Baer, 1977). Because most skills have to be performed in many settings requiring variations in responding, teachers must not only train several examples, but the examples selected must systematically sample the range of stimulus situations and response requirements of the generality setting (Heward, 1987). This approach is called the general case strategy (Horner, Eberhard, & Sheehan, 1986).

Sprague and Horner (1984) used the general case strategy to teach vending machine use to six high school students with moderate or severe mental
retardation. Training occurred first with one vending machine, then with three similar machines, and finally with three machines that sampled the range of stimulus and response variations. The third approach was the most effective for generalization of the skill to untaught vending machines.

Horner, Eberhard, and Sheehan (1986) used the general case strategy to teach generalized table bussing in cafeteria settings to highschool students with moderate to severe mental retardation. During training, there were 15 tables selected which included the range of types of tables students would encounter in the generality setting. Of the 15 tables used in training, the students were taught to discriminate which 10 tables were supposed to be bussed. The students had to attend to the following critical stimulus features: the presence or absence of people; whether the people at the tables were eating; whether the dishes were empty, partially full, or full; whether garbage was present; and the position of the garbage and dirty dishes. Using the training procedure, the students were able to generalize table bussing to 15 nontrained tables in two nontrained cafeteria settings.

Program Common Stimuli

As a general rule the stimuli in training settings differ, sometimes greatly, from the stimuli in generality settings. When training a new skill, teachers must include in the training environment all the important stimuli that exist in the generality settings (Kirby & Bickel, 1988). The more similar the stimuli included in the training setting are to the stimuli included in the generality setting, the greater the probability of generalization.
van den Pol et al. (1981) programmed common stimuli to teach three young adults with multiple disabilities to order food and eat in fast food restaurants. Training was first conducted in a classroom setting using signs depicting various McDonald’s sandwiches in conjunction with photo slide sequences, and a table was used as a counter for role playing. To minimize reading requirements, students were taught general classes of food items. They were also taught to inquire the total price of a combination of items before ordering, and they used a finger matching method of subtraction to detect errors in returned change. The contrived common stimuli was a prosthetic ordering form (i.e., a laminated sheet of cardboard with preprinted questions) used to prompt the student through the transaction. As a result of the training, the students improved their performance in restaurants, generalized the skill to novel settings, and maintained the skill over an extended period of time.

Trask-Tyler, Grossi, and Heward (1994) used the strategy of programming common stimuli to teach three adults with developmental disabilities and visual impairments to prepare food using tape-recorded recipes. In this experiment, programming common stimuli was accomplished by making the training setting most like the generality setting by using common cooking utensils, and real kitchens that contained counters, drawers, cabinets, tables, chairs, and kitchen appliances. Another important common stimulus was the cassette player with the prerecorded audiotape which could be taken to any kitchen setting. Generality probes with untrained recipes were conducted
following training. Using this training procedure, the students' cooking skills generalized to untrained recipes requiring similar skills used with trained recipes.

**Teach Loosely**

Systematically varying the noncritical stimuli during instruction is referred to as training loosely. When teachers vary stimuli that are not critical for performing the target skill, it is less likely that irrelevant stimuli will acquire control over the student's responses (Kirby & Bickel, 1988). Also, when teachers regularly vary noncritical stimuli, they are more likely to match at least some of the stimuli present in the generality settings, and probably increase the likelihood of generalization via programming common stimuli (Heward, 1987). Baer (1982) identifies a variety of examples of noncritical stimuli to vary in the instructional setting including: lighting, noise level, dress, temperature, time of day, choice of words, tone of voice, and number of students.

Campbell and Stremel-Campbell (1982) used the strategy of training loosely to facilitate the generality of newly acquired language for two preschoolers with mental retardation. Specifically, the students were being taught the correct use of the words "is" and "are". The training procedure occurred in the context of teaching a wide range of academic and self-help behaviors, and a wide variety of stimulus events to set the occasion for the language skill. The variations of noncritical stimuli in this experiment included the training materials, statements made to the children, and the
syntactic structure of the questions. The experimenters found substantial
generality of the appropriate use of “is” and “are” in the free play setting.

Program Indiscriminable Contingencies

When reinforcement is unpredictable and intermittent for a target
behavior an indiscriminable contingency is in place (Stokes & Baer, 1977). For
example, a student is sometimes given a sticker for raising her hand to
answer a question in social studies class. She never knows when she will
receive a sticker, so she raises her hand to answer questions as often as
possible. Indiscriminable contingencies are important for the generality of
behavior change because the generality setting is typically characterized by
unpredictable and intermittent reinforcement. The greater the similarity
between the training and generality setting, the greater the likelihood of
generalization of target skills. Behaviors acquired and maintained under
intermittent schedules of reinforcement are more resistant to extinction than
behaviors maintained by continuous reinforcement (Skinner, 1957).

Intermittent schedules of reinforcement and delayed reinforcement are two
techniques used to program indiscriminable contingencies (Heward, 1987).

When students can not predict when their performance of target skills will be
reinforced, they may be more likely to engage in the target behavior more
frequently. Not only are indiscriminable contingencies effective for
strengthening target behaviors, they also more closely resemble the
contingencies of most generality settings (Kirby & Bickel, 1988; Stokes & Baer,
1977).

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Dunlap and Johnson (1985) investigated the effects of programming indiscriminable contingencies on the on-task behavior (e.g., completing a puzzle, assembling ball-point pens, reading a book) of three elementary school children with autism. In this study there were two supervision conditions: predictable and unpredictable. In the predictable supervision condition, the teacher was present in the subject's setting for a specific period of time and absent for the rest of the session. During the unpredictable condition, the teacher was present on a random and intermittent basis. The level of on-task responding was over 30% higher for all students in the teacher's absence during the unpredictable condition than in the teacher's absence during the predictable condition.

**Teach Self-management Skills**

Self-management has been defined as "the personal and systematic application of behavior change strategies that result in the desired modification of one's own behavior" (Heward, 1987, p. 517). Students can be taught to systematically self administer behavior change strategies by: providing themselves extra cues for the target behavior (e.g., carrying to each classroom a laminated card listing the steps for asking for teacher help); confronting themselves with stimuli that successfully control the desired behavior (e.g., putting the bookbag against the front door to remember to bring it to class), changing their environment to make an undesired response less likely (e.g., leaving the electronic game at home to remove the temptation of playing with it during class), or restricting the conditions for a
specific behavior (e.g., studying only at the desk in the bedroom and not engaging in any other activity in that location) (Heward, 1987).

Dunlap and Dunlap (1989) taught three elementary students with learning disabilities to use individualized self-assessment checklists for subtraction problems like the following:

___ (1) I underlined all the top numbers that were smaller than the bottom.

___ (2) I crossed out only the number next to the underlined number and made it one less.

___ (3) I put a “1” beside the underlined number.

___ (4) All the numbers on the top are bigger than the numbers on the bottom. (p. 311)

Use of the self-assessment checklist produced immediate gains in correct responding with more stability of successful performance across sessions.

The preceding strategies for promoting generalized outcomes can be used in combination when planning and implementing instruction. This study, however, was designed to explore and extend the literature related to the strategy “aim for natural contingencies of reinforcement”. Teaching students to recruit positive teacher attention is one tactic which special education teachers can use to “wake up” the dormant natural contingency reinforcement—teacher praise and attention for appropriate behaviors in the general education classroom—thus facilitating generalization of target skills.
The following sections describe a behavior analysis of recruiting reinforcement and a review of research in which students have been taught to recruit.

A Behavior Analysis of Recruiting

A behavior analysis of recruiting reinforcement must begin with the basic principles of operant behavior. "Operant behavior is any behavior whose probability of occurrence is determined by its history of consequences." (Cooper, Heron, & Heward, 1987, p. 21). Behavioral consequences—reinforcers and punishers—are defined by their functional effect on the behaviors they follow. If a behavior increases when followed by the presentation of a stimulus, positive reinforcement has occurred (Cooper et al., 1987; Skinner, 1953; Whaley & Malott, 1971).

Attention and approval are often paired with both unconditioned and conditioned reinforcers (Skinner, 1953). Unconditioned, or unlearned, reinforcers such as food, water, sleep, and sexual stimulation serve as reinforcers for healthy, intact organisms without previous learning or conditioning. Conditioned reinforcers are developed because they are paired with unconditioned reinforcers through individual experiences with the environment (Cooper et al., 1987). For example, 5-year old Michael has an aunt who gave him candy (an unconditioned reinforcer) whenever she came to visit. Initially, the candy was always paired with his aunt’s attention. After a series of visits, his aunt’s attention alone developed into a conditioned reinforcer. Although the complete list of what functions as reinforcers is
unique to each person, attention and approval serve as effective reinforcers for most people.

The development of attention as an effective reinforcer for most individuals can be traced to the helplessness of infancy. When the infant cries she usually gets her needs met with unconditioned reinforcers, such as food and warmth. Attention from the caregiver is always paired with these unconditioned reinforcers and eventually becomes a conditioned reinforcer. Attention and approval continue serve as reinforcers because they are often paired with a wide variety of both conditioned and unconditioned reinforcers throughout the lives of most individuals. Getting attention from people is a requisite condition for obtaining other reinforcers from them (Skinner, 1953). Because attention is paired with a wide variety of reinforcers, it is considered a generalized conditioned reinforcer. "...Generalized reinforcers are effective even though the primary reinforcers upon which they are based no longer accompany them" (Skinner, 1953, p. 81). Consequently attention and approval exert powerful control over human behavior (Cooper et al., 1987).

Parents, teachers, and significant others, who in the past have been the primary sources of reinforcement, are usually targets for attention getting behaviors (Skinner, 1953). An individual’s approach to obtaining attention or approval is determined by his or her history of reinforcement. Some children and adults are very adept at recruiting approval in very subtle and acceptable ways, such as casually fitting an accomplishment into the conversation then downplaying its importance. An expert recruiter who humbly presents his
accomplishment in a manner so meek and hesitant that others have to prompt the details from him or her, gets much more social approval than someone who brags.

Individuals can also recruit the attention of others in various inappropriate ways, such as bragging, yelling, whining, or sulking (Malott, 1973). These behaviors often produce negative attention, which often functions as reinforcer for many children and adults (Skinner, 1953). For many, approval is a more powerful reinforcer than attention. Individuals who serve as significant sources of reinforcement give approval for behaviors they find favorable, which in turn shapes those behaviors (Skinner, 1953).

For example, a teacher who gives approval to students who score high on quizzes, complete their classwork, or speak politely to others, may have the effect of maintaining or increasing those desired behaviors. When students engaging in desired behaviors are not getting teacher approval, they may attempt to get their teacher's attention in other ways such as, fighting, yelling out in class, or using profanity.

If students are able to successfully obtain teacher attention by engaging in disruptive behaviors (e.g., hitting another child, using profanity), those disruptive behaviors may increase. If teacher attention is not provided for desired behaviors (e.g., attending to instruction, completing assignments), those behaviors may decrease. Training students to recruit teacher attention by appropriately pointing out their accomplishments (e.g., The student raises his hand and politely says, “How did I do on math assignment?”) may
generate sufficient teacher attention and approval to ensure the continuation of those accomplishments.

Figures 2.1 and 2.2 are contingency diagrams that illustrate the reinforcing effects of student recruiting for students and the reinforcing effects of student recruiting for teachers respectively. A contingency diagram is a visual representation of the antecedent stimuli prior to emitting a behavior, the behavior itself, and the consequences for emitting that behavior (Malott, Whaley, & Malott, 1993). The first tier of the contingency diagram in Figure 2.1 illustrates that the antecedent to the behavior of completing work is the presentation of the work, for example, the teacher tells the student to do page 17 in her math workbook. The behavior is writing the answers to the math problems on page 17. The consequence is work completion, having a page of completed math problems. The consequence in the first tier of Figure 2.1 (completed work) becomes the antecedent for the behavior of checking completed work (looking for errors and correcting them) in the second tier. The consequence of checking the work is having the work check completed. In the third tier of the contingency diagram, checked work becomes an antecedent for locating the teacher. The consequence for locating the teacher is finding her available (e.g., the teacher is in the classroom and is not busy with lunch count). The availability of the teacher then becomes an antecedent for recruiting praise (the student raises her hand, the teacher comes to her desk, the student asks, "How did I do on my math paper?"). Recruiting produces the consequence of receiving teacher feedback and/or praise (the
Figure 2.1. Contingency diagram for student recruiting.
Figure 2.2. Contingency diagram for teacher praise.

A = Antecedent
B = Behavior
C = Consequences
teacher says, "You did a great job"). Although praise does not occur until the final step of the chain, it is ultimately what makes the products of completed work and checked work function as reinforcers.

Figure 2.2 is a contingency diagram which illustrates the reinforcing effects of student recruiting on the teacher's behavior. The teacher's response to recruiting behavior is also reinforced. When she checks the work, she sees that it is done well. The teacher is first reinforced by the student's mastery of the material. Student work that is complete and/or of high quality serves as the antecedent for teacher praise. The teacher's praising behavior is then positively reinforced by the student's response, smile, and "Thank you."

When recruiting is done correctly, both participants in the recruiting interaction are reinforced, thus increasing the future likelihood of recruiting and praising. More importantly, the recruiting response increases the future likelihood of the student engaging in, maintaining, and extending the functional academic and social skills for which she is recruiting teacher attention.

Research on Recruiting

The most widely studied approach to solving achievement and discipline problems in the classroom is to change some aspect of teacher behavior (e.g., rate of praise, type of instructional feedback, selection and use of instructional materials) and measure the resultant effects on student behavior. The studies in this literature review showing the effectiveness of teacher praise demonstrate that behavior change is typically achieved by training teachers to
change the behavior of students. Students, however, can influence the behavior of teachers and become their own behavior change agents.

Cantor and Gelfand (1977) demonstrated that elementary school students who acted responsive towards adults (e.g., made eye contact, smiled when praised, responded enthusiastically to adult questions) received more adult positive attention than children who did not smile, look at, or talk to their teachers. Sherman and Cormier (1974) demonstrated similar results with two fifth grade students. When the students were taught to reduce their inappropriate behaviors, positive verbal statements from the teacher increased while negative verbal statements decreased.

Student influence on teacher behavior was also examined with a high school student. Polirstok and Greer (1977) found that an adolescent student with behavior problems was able to change the behavior of her four teachers. The student was able to increase the frequency of the positive verbal and nonverbal teacher attention she received by making positive verbal statements (e.g., "Thank you" "Cool" "I appreciate that") and positive nonverbal behaviors (e.g., smiling, looking at the teacher, nodding her head) in response to noncritical teacher comments and suggestions. Three of her four teachers increased their number approvals by 2 to 12 approvals per 60-minute observation period after the intervention was implemented, and all four teachers decreased their number of disapprovals by 2 to 6 disapproval statements per 60-minute session.
Graubard, Rosenberg, and Miller (1971) also found that adolescents with mental retardation were able to increase the frequency of positive interactions (and decrease the frequency of negative interactions) with their teachers when they made eye contact, sat up straight, nodded in agreement, asked for help, and made positive comments in class.

Klein (1971) demonstrated the effects of student influence on teacher behavior with college students. When students were attentive and cooperative (e.g., smiling, nodding, answering questions), positive teacher behaviors increased. When the students were more attentive, the instructor walked toward, leaned close to, and helped students more frequently in response to positive student behaviors. The instructor also increased positive nonverbal behaviors such as nodding when individual students spoke, smiling, and signaling for student to continue talking.

The above five studies provide evidence that elementary, adolescent, and adult age students can change teacher behavior by changing their own behavior. The combination of the effectiveness of teacher praise as a tool for behavior change, and the capability of students to influence the frequency of positive teacher attention provides the foundation for the next logical step: training students to recruit positive teacher attention for specific behaviors, thus activating a sometimes dormant, but generally powerful, natural contingency of reinforcement in the classroom.

Eight studies published in peer reviewed research journals have demonstrated the effectiveness of training students to recruit contingent
praise. Recruitment training was shown to be effective for preschoolers, both with and without developmental delays; intermediate elementary age students with learning difficulties, autism, and behavior disorders; and secondary students with behavior problems and mental retardation.

**Preschoolers**

Stokes, Fowler, and Baer (1978) taught four typically developing preschoolers to evaluate the quality of their academic work (paper and pencil writing tasks that involved tracing lines and letters) and to cue their teachers to evaluate that work by raising their hands and making statements such as “Have I been working carefully?” or “How is this?” The children used these skills successfully with teachers who were unaware of the study’s purpose, and approximately 90% of the children’s cues were followed by teacher praise within 20 seconds of a cue. The production and accuracy of the children’s academic work also increased after they began recruiting teacher attention—from a mean of 34 items correct (47% of all items attempted) to 54 items correct (72%)—even though no contingencies had been placed on production or accuracy.

Stokes et al. (1978) conducted a replication of their first experiment, using the same experimental procedures, to teach four preschoolers with “comprehensive academic and behavior problems” to recruit teacher praise and attention in a regular preschool classroom. Recruited praise increased from a mean of 1.2 praise statements per 20-minute session to a mean rate of 2.4 praise statements per 20-minute session. The academic tasks in this
experiment (printing skills) were not constant across conditions because the instructional program required increasingly difficult tasks for each child. However, data collected on academic tasks showed that the children maintained high levels proficiency throughout the experiment, a mean of 83% accuracy of completed items in baseline, and a mean of 86% accuracy of completed items after the intervention was implemented.

Four preschoolers with developmental delays who did not stay on task during in-class transitions (e.g., starting to clean up when told, putting materials away, getting ready for the next activity) participated in a recruitment study by Connell, Carta, and Baer (1993). Training the children to self-assess their cleaning-up performance resulted in increases in active engagement during the training sessions but produced limited and short-lived generalization in the children's actual classrooms. Following a positive self-assessment of their performance, the children were then taught to recruit teacher praise (i.e., saying "I'm done" and approaching the teacher with outstretched arms for a hug). Each child was observed in his or her classroom three times per week. The observation periods lasted three to seven minutes, beginning when the teacher signaled the students to clean up and ending when the teacher began a group activity. Active engagement was scored in a 10-s momentary time sample, while student recruiting and teacher praise was scored using discontinuous 10-s partial intervals. Self-assessment and recruitment training resulted in upward trends of active task engagement. During baseline, the mean percentage of intervals each student was actively
engaged ranged from 7.2 to 31.2, increasing to a mean percentage of 54.5 to 88.5 during the self-assessment condition. After the students were trained to self-assess and recruit teacher attention, active engagement increased to a mean percentage of 63.3 to 97.5. The intervals in which students received teacher praise increased from a mean of .30 during baseline to mean of .35 during self-assessment. During the self-assessment plus recruiting condition, the intervals in which students received teacher praise increased to a mean of 1.6.

As a social validity measure Connell et al. (1993) asked the teachers to rate the children each week, from 1 (least irritating) to 6 (most irritating) on the Subjective Units of Irritation Scale (Sherman & Cormier, 1974). Baseline mean ranks were 5.3 to 6, while self-assessment plus recruiting mean ranks were 1.5 to 3.5. The fact that all four children received their best ratings (i.e., "least irritable") during the self-assessment with recruitment phase of the study suggests the teachers viewed the children’s efforts to recruit praise positively.

Elementary students

Hrydowy, Stokes, and Martin (1984) taught six fourth-graders who were working below grade level to recruit praise from their classroom teacher. The students were trained to work quietly and accurately while completing part of an academic assignment (about one-fourth of the questions or items), evaluate their work and correct any errors, raise their hands to get the teacher’s attention, and to recruit positive feedback from their teacher with a question such as “How is this work?” or “Did I finish quietly?” Five of the six
students learned to recruit appropriately between 50% and 67% of the recruiting opportunities. Four of the students were successful in using their new recruiting skills to increase the rate of teacher praise statements. The rate of teacher praise statements across students ranged from .00 to .13 per 5-minutes in baseline, increasing to a rate of .06 to .22 per 5-minutes after training.

Morgan, Young, and Goldstein (1983) taught three 10 to 12-year-old boys with behavioral disorders to prompt for their teacher's help, praise the teacher after receiving help, prompt the teacher for approval for academic and social performance, and thank the teacher for the approval. The students were trained by one of the experimenters in the special education classroom through modeling, role-playing and practice in the training setting, and were systematically given feedback, social praise, and access to special activities (e.g., playing with a friend, playing with the pet gerbils, walking around campus) for engaging in the recruiting behaviors in the regular classroom. Student and teacher behaviors were recorded during 30-minute observation periods, in a general education classroom, in 10-second intervals. If any target student and teacher behaviors occurred within the 10-second interval, it was scored only once for that interval. All three boys received significant increases of teacher praise. During baseline, the mean frequency of teacher praise across students was .4 to 1.9. After each phase of training was complete, the mean frequency of teacher praise across students increased to 1.3 to 3.0.
Harchik, Harchik, Luce, and Sherman (1990) taught four boys with autism and severe disabilities, aged 9-13, to recruit praise from adult staff in a community-based group home. The children were taught to ask questions (e.g., "How did I do?") and make statements (e.g., "Check it out.") that might cue or set the occasion for adult praise after correctly completing leisure, self-care, or language activities. All four students successfully recruited staff praise across several untrained activities and in various untrained settings (e.g., kitchen, living room, classroom, bathroom, bedroom). Approximately 50% of the recruiting responses emitted by three of the boys were successful in producing staff praise, and 84% of the fourth child’s recruiting responses were followed by praise. This study is especially important as it demonstrates that students with severe disabilities can learn to recruit positive adult attention and generalize this skill across activities and settings.

Craft (1996) demonstrated the effectiveness of recruitment training with four fourth-graders with developmental disabilities. The students were trained by the special education teacher when, how, and how often to recruit in the general education classroom. Training consisted of modeling, role playing, error correction, and praise in the special education classroom. Students were taught to show their work to the teacher or ask for help two to three times per work page, and use appropriate statements such as: "How am I doing?" or "Does this look right?"

Data on the frequency of student recruiting and teacher praise statements were collected during a 20-minute homeroom period in a general education
classroom. During this period, the general education students completed a variety of independent seatwork tasks (reading, language arts, math) assigned by the general education teacher, while the four special education students completed spelling worksheets assigned by the special education teacher. This arrangement had been established prior to the experiment. If students needed help with their assignments during homeroom, the typical recruiting procedure was taking their work to the teacher’s desk and asking the teacher for help. The teacher usually remained at her desk throughout homeroom period, and there was often a line of three or four students waiting to ask questions.

Frequency of student recruiting responses and teacher praise statements per-20 minute period was measured during independent seatwork sessions when the experimental subjects worked on their spelling assignments. Recruiting across students increased from a mean rate of .01 to .8 recruiting responses per 20-minute session during baseline to a mean rate of 1.8 to 2.7 after the training phase. Teacher praise statements across students increased from a mean rate of .1 to .8 praise statements per session to a mean rate of 1.0 to 1.7 after the training phase.

Spelling assignments were collected by the special education teacher immediately after homeroom period and assessed for accuracy and completion. All four students showed improvements after recruitment training. The mean percentage of spelling worksheet items completed ranged from 8% to 60% during baseline, and mean percent accuracy of completed
items ranged from 25% to 67%. After the training phase, the mean percentage of items completed ranged from 64% to 100%, and the mean percent accuracy of completed items ranged from 67% to 97%. This is the first recruiting study showing academic productivity effects in a general education classroom.

**Adolescents**

The effects of training students to recruit praise was also studied with adolescents. Seymour and Stokes (1976) reported the first study in which students were explicitly taught to recruit adult attention. Three adolescent girls at a maximum security institution for juvenile offenders were taught to work more productively in several vocational training areas of the institution and to self-record their work output. The researchers thought the girls' improved productivity would result in increased praise and positive interaction with the staff, which would, in turn, function as a natural contingency of reinforcement to maintain the girls' improved work habits. When it was found that the staff's low baseline rates of positive interaction with the girls did not increase even though they were working more productively, the students were taught to recruit feedback from the staff when they produced high quality work. After the girls were trained to recruit feedback, there were significant increases in recruiting responses and staff praise. The mean recruiting rates for all girls in all settings combined increased from one recruiting response each 123 minutes to one recruiting response each 17 minutes. The mean rates of staff praise increased from one
staff praise comment each 154 minutes to one staff praise comment each 40 minutes.

After they found that self-monitoring alone was not consistently effective for helping three secondary students with mental retardation maintain desired levels of productivity in a vocational training setting, Mank and Horner (1987) taught the young adults to recruit feedback from their supervisors. After timing and counting the number of work units (e.g., bussing tables, washing dishes) they completed during a specified interval, the students compared their productivity with a pre-established acceptable standard, marked either a "+" (met the standard) or a "-" (did not meet the standard) in a self-recording notebook, brought the self-recording notebook to their supervisor, and asked for feedback. The experimenters did not report specifically the manner in which the students asked for feedback. When a student's notebook contained a "+", the supervisors provided praise (e.g., "You did a good job today. That was fast working."). When the notebook showed a student had worked below the accepted productivity rate, the supervisors provided disapproval and encouragement (e.g., "You worked slowly today. I hope you do better tomorrow and get a plus."). The combined self-monitoring and self-recruited feedback procedures were effective for maintaining efficient work rates that met or exceeded the supervisors' standards for up to two months.
Summary of Recruiting Research

Research to date demonstrates that students of various ages and abilities can learn to self-assess their performance and recruit positive attention from teachers and significant others in a variety of classroom and community-based settings. Table 2.1 summarizes the extent of external validity demonstrated by the eight studies. The effects of training students to recruit positive attention was shown to be successful across preschoolers, upper elementary age students, and adolescents/young adults functioning at a variety of levels. Skills were demonstrated in classrooms, vocational settings, and in a group home. General target skills for which the students recruited attention included: academic, social, vocational, and daily living skills. Teachers, staff, and supervisors were used as the target for recruiting contingent praise.

This dissertation was designed as a systematic replication of Craft (1996). The same basic treatment package was used with sixth graders with learning disabilities instead of fourth graders with developmental disabilities. The academic productivity and accuracy measure was applied to math skills instead of spelling skills. In the Craft (1996) study, the academic work measured was performance on spelling worksheets students with developmental disabilities brought into the general education homeroom (different assignments from their general education peers). In this study, the target students did the same seatwork assignments as the rest of the students in the general education classroom.
<table>
<thead>
<tr>
<th>Authors</th>
<th>Subjects</th>
<th>Target Skill(s)</th>
<th>Recruitees</th>
<th>Generality Setting(s)</th>
<th>Results</th>
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<tbody>
<tr>
<td>Seymour &amp; Stokes (1976)</td>
<td>4 adolescent girls in a maximum security</td>
<td>Classroom, workshop, office, and kitchen tasks</td>
<td>Maximum security unit staff*</td>
<td>Different vocational training areas of the maximum security unit</td>
<td>increased recruiting, staff praise, and work productivity</td>
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<td>unit</td>
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<tr>
<td>Stokes, Fowler, &amp; Baer</td>
<td>8 preschoolers, 4 typically developing &amp;</td>
<td>Academic paper and pencil tasks</td>
<td>The subjects' preschool</td>
<td>The subjects' general education preschool classroom</td>
<td>increased recruiting and increased teacher praise</td>
</tr>
<tr>
<td>(1978)</td>
<td>4 with academic and behavior problems</td>
<td></td>
<td>teachers*</td>
<td></td>
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<tr>
<td>Morgan, Young, &amp; Goldstein (1983)</td>
<td>Three 10-12 year-old boys with behavioral disorders</td>
<td>Academic and social skills</td>
<td>General education teachers*</td>
<td>General education classrooms</td>
<td>Increased recruiting and teacher assistance</td>
</tr>
<tr>
<td>Hrydowy, Stokes, &amp; Martin (1984)</td>
<td>6 typically developing fourth graders</td>
<td>Language arts and social studies classwork</td>
<td>The general education teacher*</td>
<td>The general education classroom</td>
<td>Increased and increased teacher praise</td>
</tr>
<tr>
<td>Mank &amp; Horner (1987)</td>
<td>5 adults with mental retardation</td>
<td>Restaurant work (e.g., washing dishes)</td>
<td>Job Supervisors</td>
<td>Integrated job settings</td>
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</tr>
<tr>
<td>Harchik, Harchik, Luce, &amp; Sherman (1990)</td>
<td>Four 9-13 year-old boys with autism</td>
<td>Daily living &amp; academic skills</td>
<td>Group home staff*</td>
<td>Different rooms in a group home setting</td>
<td>Increased recruiting across settings</td>
</tr>
<tr>
<td>Connell, Carta, &amp; Baer (1993)</td>
<td>4 at-risk preschoolers</td>
<td>Cleaning up at transition time</td>
<td>Preschool teachers*</td>
<td>The subject's classrooms</td>
<td>Increased active engagement, recruiting, &amp; teacher praise</td>
</tr>
<tr>
<td>Craft (1996)</td>
<td>4 fourth graders with developmental</td>
<td>Spelling worksheet completion</td>
<td>The general education teacher*</td>
<td>The general education classroom</td>
<td>Increased recruiting, praise, and academic productivity</td>
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<td>disabilities</td>
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Note: * = The recruitees were experimentally "blind" to the purpose of the study.

Table 2.1. Research on recruiting positive teacher/supervisor attention.
A limitation of Craft (1996) is the general education teacher usually stayed at her desk for the duration of the observation period, and the students recruited attention by going to her desk. In this dissertation the settings were more typical of general education classrooms in that the teachers moved around the classroom during seatwork assignments monitoring the students.

This dissertation also extended the Craft study by assessing recruiting behavior in an experimental probe setting (the social studies classroom). The measure of performance in the probe setting was designed to assess the extent to which target students generalized recruiting to other settings.
CHAPTER 3

METHOD

This chapter describes the participants, setting, research team, definition and measurement of the dependent variables, experimental design, and procedures used to conduct the study.

Students

Four students with learning difficulties, three girls and one boy, participated in this study. Parent/guardian permission was obtained for each student prior to the study. The special education teacher sent a letter to each student’s parents describing the general purpose of the study (Appendix A), and the parents signed a consent form (Appendix B) before participation was allowed. The four students were selected for the study because, according to the special education teacher, they were typically unproductive during independent work time, rarely asked for teacher help, and performed below grade level in math.

Prior to training each student the recruiting procedure, the special education teacher explained the rationale for the recruiting study to each
student, and asked if he/she was willing to participate. Each student signed a student assent form (see Appendix C) stating he/she was willing and interested in participating. Appendix D contains the script the special education teacher used for obtaining student assent.

Table 3.1 shows the ages, gender, ethnicity, grade point averages, test scores, and length of time in special education for each student. All four students were sixth graders, 11 or 12 years old. Three of the students were identified as having learning disabilities (Henry, Ellen, and Lisa) and one student had difficulties with math, but was not eligible to receive special education services (Pam). Henry and Ellen received special education services in a learning disabilities resource room for two and three periods per day respectively, and attended general education classrooms for math, social studies, exploratory arts, and physical education. Lisa spent the entire school day in general education classrooms and received the services of an LD tutor for one period per day in the general education math class. Pam received no special education services.

Henry, Ellen, and Lisa each had an Individualized Education Plan (IEP), and had received special education services for three to four years prior to school year in which the experiment was conducted (1996-1997).

Settings

This study was conducted in a public middle school in a midwestern, suburban school district. Three different classroom settings were used: the training setting, the primary setting, and the probe setting.
<table>
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<td></td>
<td></td>
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<td>Caucasian</td>
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<td>2.7</td>
<td>100</td>
</tr>
<tr>
<td>Pam</td>
<td>F</td>
<td>11-10</td>
<td>Caucasian</td>
<td>3.0</td>
<td>2.7</td>
<td>88f</td>
</tr>
</tbody>
</table>

Notes:

a = Grade point average fall semester prior to the beginning of the study.
b = Full-scale IQ score on Wechsler Intelligence Scale for Children Revised (Wechsler, 1974).
c = Kaufman Test of Educational Achievement (Kaufman & Kaufman, 1985).
d = Kaufman Test of Educational Achievement (Kaufman & Kaufman, 1985).
e = Woodcock-Johnson Language Proficiency Battery (Woodcock & Johnson, 1980).
f = Pam's Reading, Math, and Language Scores on Cognitive Abilities Test (Thorndike & Hagen, 1986).

Table 3.1. Student Information
Training Setting

All recruitment training was conducted in the special education resource room by the special education teacher. The special education teacher provided individualized instruction in mathematics, reading, and/or writing skills to 11 students who were placed in the resource room. All 11 students were sixth graders with learning disabilities who attended the resource room for one to three instructional periods per day. Between three and seven students were in the resource room during any one period. Each target student was trained how to recruit teacher attention during the last period of the school day, when there were only three other students present in the resource room. Recruitment training was conducted on an individual basis while students who were not being trained worked independently on assigned tasks.

Primary Setting

Henry, Lisa, and Pam. Data on student recruiting, teacher attention, and academic productivity were collected in the students' general education math classroom for Henry, Lisa, and Pam during independent seatwork time. The math class had 25 sixth grade students functioning at various levels. The typical routine for math class was 15 to 25 minutes of teacher lead group instruction followed by an average of 12 minutes (range 7-25 minutes) of independent seatwork practice. During independent seatwork sessions, when student and teacher behaviors were observed and recorded, the math teacher circulated the classroom monitoring and providing assistance to the students. When a student needed help he/she was expected to raise his/her hand and
wait for teacher assistance. The math teacher was kept “blind” to the purpose of the study because her interaction with the students, particularly her responses to student recruiting efforts, were key dependent variables.

An LD tutor was also present in the math classroom during observational periods. Although her primary purpose was to assist the students identified as having learning disabilities, she was expected to help any student in the class who was having difficulty. Because the LD tutor’s responses to students were observed and recorded, she was also kept “blind” to the purpose of the study.

Ellen. During the study, Ellen was pulled out of the general education math class and received math instruction in the resource room after she had received recruitment training (session 16). Because data could no longer be collected on Ellen in the math classroom, the social studies classroom became her primary setting. All of Ellen’s data reflect her performance in the social studies classroom. There are no probe setting data for Ellen because she was not placed in a general education classroom for any academic period other than social studies.

Data on recruiting, teacher attention, and academic productivity were collected in a general education social studies classroom for Ellen during independent seatwork time. The social studies teacher typically conducted 15-25 minutes of teacher led group instruction followed by an average of 15 minutes independent seatwork time (range 8-30 minutes). The social studies teacher monitored and provided assistance to students during independent seatwork sessions. Students were expected to raise their hands and wait for
the teacher if they needed help. The social studies teacher was also kept "blind" to the purpose of the study.

**Probe Settings**

Data on student recruiting and teacher attention were also collected in a general education probe setting two to three times per week to determine if Henry, Lisa, and Pam generalized the skill to a setting other than math class. The probe setting for each student was the social studies classroom. Henry, Lisa, and Pam had the same social studies teacher as Ellen, but they were assigned to social studies class at a different period of the school day. Typical procedures in social studies class are described above under the primary setting for Ellen.

**Research Team**

This study was conducted by a research team consisting of the experimenter, the special education teacher, one primary observer, and two secondary observers.

**Experimenter**

The experimenter was a doctoral candidate in special education and applied behavior analysis in the College of Education at The Ohio State University (OSU). Prior to enrolling at OSU, the experimenter had taught for five years in a rural school in Berkeley County, South Carolina, three years as a special education resource room teacher and two years as a general education teacher (third and fourth grade). Prior to teaching in Berkeley County, the experimenter taught second grade for two years in Charleston.
County, South Carolina. The experimenter received her M.Ed. in Special Education with an emphasis in learning disabilities from the College of Charleston, and her B.S. in Elementary Education at East Texas State University.

**Special Education Teacher**

The special education teacher received her B.A. in History at Miami University of Ohio. She received her certification in Learning Disabilities at The Ohio State University. At the time of the study, she was pursuing her M.A. in Special Education at OSU while teaching full time for her first year.

**Primary Observer**

The primary observer was pursuing her M.A. in special education and applied behavior analysis at OSU. She had five years of teaching experience with students with special needs in Georgia. The primary observer recorded student recruiting, teacher praise, and instructional feedback daily in the math classroom, and two to three times per week in the social studies classroom.

**Secondary Observers**

The two secondary observers were undergraduate special education majors at OSU. The secondary observers each recorded student recruiting, teacher praise, and instructional feedback in the math and social studies classrooms two to three times per week. The role of the secondary observers was to collect data with the primary observer so the experimenter could assess interobserver agreement. Sometimes the secondary observers served as
primary observers in several probe settings, in Ellen's social studies classroom, and whenever the primary observer was absent.

Definition and Measurement of the Dependent Variables

Five dependent variables were measured during this study: (a) rate of appropriate recruiting responses per 10-minutes during independent seatwork sessions in the math and social studies classrooms, (b) rate of teacher praise statements per 10-minutes during independent seatwork sessions in the math and social studies classrooms, (c) rate of instructional feedback statements per 10-minutes during independent seatwork sessions in the math and social studies classrooms, (d) percentage of items completed on each math assignment, and (e) percent accuracy of completed items on each math assignment.

Student Recruiting Responses

The primary observer recorded all observed instances of student recruiting responses on the recording form shown in Appendix E. Student recruiting responses were classified as appropriate or inappropriate. Additionally, the observers noted whether student recruiting responses were directed toward academic or nonacademic tasks.

Appropriate recruiting response. An appropriate recruiting response was recorded each time a student emitted the following sequence of behaviors: (1) raised hand to signal the teacher, (2) waited quietly for the teacher to speak to or walk to student's desk, and (3) emitted an appropriate verbal response requesting academic instruction or feedback from the teacher. Appropriate
verbal responses included, but were not limited to: "How does my work look?" "How am I doing so far?" "Is this right?" "Can you help me?" "Did I do a good job?" "Would you please look at my work?" "What do I do next?" "I don't understand this one." and "Look, I'm all finished."

Because the recruiting response was defined by its functional effect, a recruiting response was recorded when the teacher first responded to the student's signal either verbally (e.g., "I'll be right with you" or "Lisa?") or by moving to the student's desk within 20 seconds of the student's hand raise. If the student raised her hand and the teacher did not respond verbally or move to the student's desk within 20 seconds, this was noted by the observers, but it was not be scored as a recruiting response. A recruiting episode began when the teacher spoke to the student or walked to the student's desk and ended when the teacher walked away from the student's desk. The entire interaction between the student and teacher—beginning with the student's hand raise and ending with the teacher moving away from the student's desk—was recorded as one recruiting response, even if the student asked several questions once the teacher was at his or her desk.

**Inappropriate recruiting response.** An inappropriate recruiting response was recorded each time a student signaled the teacher in any way other than raising his or her hand. An instance of inappropriate recruiting was recorded when a student did any of the following: calling out across the room; repeatedly waving back and forth; getting out of his or her seat; using profanity; making negative comments about the lesson, seatwork assignment,
or the teacher (e.g., "This is stupid!"); speaking in a whiny tone of voice; speaking too quietly to be heard by the teacher; speaking loud enough to be disruptive to the class; making no verbal response (e.g., just pointing to the worksheet); and interrupting the teacher when she was involved with another student or adult. (Note: Only one student recruited inappropriately during the study. On one occasion, Henry got out of his seat to ask a question, and on three occasions, he called out a question without raising his hand.)

**Academic and non-academic recruiting responses.** Any recruiting response made by the target students were recorded even though the primary dependent variable was academic recruiting responses. Academic recruiting responses were scored when the student specifically asked the teacher about an academic task. For example, "Please look at my work." or "Am I doing this problem right?"

A non-academic recruiting response was scored when the student asked the teacher about anything other than academic assignments. For example, "May I sharpen my pencil?" "May I go to the bathroom?" or "When is the field trip money due?"

**Teacher Attention**

The observers recorded each instance of teacher attention as either student-recruited attention or non-recruited attention (see recording form in Appendix E). Each instance of teacher attention was further identified as one or more of the following types: praise, instructional feedback, negative attention, other attention, and no attention. More than one type of teacher
attention could be scored for a single recruiting episode (e.g., the teacher might respond to the student with both instructional feedback and praise).

**Student-recruited attention.** The observers recorded the type(s) of teacher attention under the category of student-recruited attention when teacher attention had been initiated by the student’s verbal (e.g., inappropriate yelling) or nonverbal cue (e.g., handraising).

**Non-recruited attention.** The observers recorded the types of teacher attention under the category of non-recruited attention if the interaction between the teacher and student was verbally initiated by the teacher (e.g., the teacher walks to the student’s desk when the student has not raised his hand or signaled the teacher in any way, looks at the student’s paper and says, “Nice work!”)

**Praise.** Praise was recorded each time the teacher made a positive statement to one of the target students about his or her work, behavior, or appearance. Both academic and nonacademic praise were recorded. Academic praise was recorded when the teacher emitted a positive statement about the student’s work, such as: “Nice job.” “That right!” “Looks good.” “I like the way you wrote neatly.” “Wow, you’re working hard today.” or “You got all the answers right.” Non-academic praise was recorded when the teacher emitted a positive statement about the student’s conduct or appearance, for example: “Nice haircut!” “I like your new shoes.” or “You’re being so polite today.”
Praise was not recorded for the target students when the teacher praised the whole class, or several students at a time. For example: "Wow, everyone is working so quietly today." or "Row one is doing a great job."

**Instructional Feedback.** Instructional feedback was recorded when the teacher made any statement to a target student that related to one or more items on his or her academic assignment, answered questions about academic items, or provided corrective feedback to the student about his or her work. Examples of instructional feedback included, but were not limited to: "Don’t forget to regroup." "Check this one over to see where you made a mistake." "Show me the next step." and "This one is not right. Try it again."

**Negative Attention.** Negative attention was recorded whenever the teacher made a statement about the student’s work or behavior that expressed disapproval. Examples of negative attention included, but were not limited to: "This is really sloppy." "Go sit down, now!" "Stop talking, and you might get some work done." "Don’t be so lazy, get to work." and "You might get some answers right if you paid better attention." Negative attention was not recorded when the teacher told the student an answer was wrong and/or gave corrective feedback (i.e., instructional feedback). (Note: There were no incidences of negative attention throughout this study.)

**Other Attention.** When the teacher made a statement to one of the experimental subjects that was neither positive, negative, nor instructional, "other attention" was scored. This typically occurred under the category of non-academic attention. Examples of other attention included, but were not
limited to: "Ellen, you may go sharpen your pencil." "The field trip money is due tomorrow." "Don't forget your book." "Please hand your homework in now." and "You have 10 minutes to finish up."

**No Attention.** No attention was recorded when the teacher did not respond to the student's recruiting response. If a student raised his or her hand and the teacher ignored the student, this was not scored as "no attention" because the student did not have the opportunity to complete the recruiting response sequence. If, however, the student completed the recruiting sequence, got the teacher to his or her desk, made a verbal statement to which the teacher did not respond, this would be scored as no attention.

**Observation and Recording**

**Observer Training**

The experimenter created a videotape showing a series of role plays of student-teacher interactions involving students recruiting responses, both appropriate and inappropriate, and various types of attention from the teacher. College students played the roles of the student subjects and the experimenter played the role of the classroom teacher. There were ten 10-minute videotaped scenarios used for training. Each scenario included a variety of appropriate and inappropriate, and academic and nonacademic recruiting responses. The scenarios also included a variety of positive, negative, instructional, and other types of teacher attention. The experimenter viewed the first three scenarios with the observers and pointed 67
out what to mark on the form for each interaction between the target students and the teacher. The data collectors were guided through completion of the form by the experimenter.

After guided practice with the first three scenarios, the data collectors independently viewed the remaining scenarios and recorded data. After each scenario, the experimenter checked the recording forms for interobserver agreement (IOA) and provided feedback to the observers. When the data collectors achieved at least 95% IOA across three consecutive sessions on frequency and type of student recruiting and on frequency and type of teacher attention, they practiced data collection on the target students in the experimental setting (the math classroom). When the data collectors reached a criteria of 95% IOA across three consecutive observation sessions in the math classroom on frequency and type of student recruiting and on frequency and type of teacher attention, they began collecting baseline data. (Note: It took the data collectors five days to achieve IOA criteria in the experimental setting.)

Observation and Recording of Data

When the teacher signaled that it was time to get started on independent seatwork assignments, the observers looked at the classroom clock, and recorded the time on the line of the recording form marked “session begins” (see Appendix E), data collection began for the session. The teacher signaled the beginning of the seatwork period with statements such as: “You may get started.” “You may begin.” “I want you to go ahead and do page 120 now.”

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Data collection for each session ended when the teacher signaled that it was time to stop, or the school bell sounded signaling the end of the period. Daily seatwork sessions/recording periods averaged 12 minutes (range 7 to 25 minutes). The students' desks were arranged in groups four so that the students in each group faced one other. The observers were seated in chairs, near the target students' desks, close enough to see and hear the students.

Each recruiting response and incidence of teacher attention was recorded according to the preceding definitions. The observer also noted the time each recruiting response occurred. Since one recruiting episode could evoke several types of teacher attention, a combination of teacher responses for each recruiting response was recorded. For example, both instructional feedback and positive attention were recorded when the teacher responded to a student by saying, “You did a nice job on number three, but you better check number four.” or “Let's do this one together. (The teacher would then verbally guide the student through the problem). Good!”

Appendix F shows a completed observation form illustrating how the following vignette would be recorded:

After completing the first row of math problems, Pam raises her hand and waits quietly for the teacher to come to her desk. Then Pam asks, “How am I doing so far?” The teacher looks at Pam’s paper then says, “Looks good so far...Oops, except problem five, check your addition on this one.” Pam looks down at her paper, then says “Oh, I see what I did wrong.” She corrects the problem,
and her teacher says, “Great job!” Pam says, “Thank you.” The teacher walks away from Pam’s desk.

The observers would record an appropriate recruiting response because Pam correctly followed the recruiting sequence: she raised her hand, waited quietly, and spoke politely. The recruiting response would be recorded as academic because Pam asked about her work. Teacher attention would be recorded as praise ("Looks good so far." and "Great job!") and instructional feedback ("Oops except number five, check your addition here."). The observer would also note in the comment section of the form that Pam said, "Thank you" to the teacher.

Five minutes later, Pam raises her hand, but the teacher does not immediately notice her. Pam yells out, "Ms. Taylor, come look at my paper!" Ms. Taylor raises her voice, "Pam, can’t you remember to raise your hand?" Pam says, "I raised my hand but you didn’t see me." Ms. Taylor says more quietly, "Well you need to wait a little longer." She walks over to Pam’s desk, looks at her work, and says, "This is very good."

The observer would record an inappropriate recruiting response because Pam yelled out. The recruiting response would be scored as academic because Pam asked the teacher to look at her work. Teacher attention would be scored as negative ("Pam, can’t you remember to raise your hand?"), other attention ("Well you need to wait a little longer."), and praise ("This is very good.").
The observer would also note the student said she yelled out when the teacher did not notice her.

Ten minutes later, the teacher walks to Pam’s desk, looks at Pam’s paper and comments, “You’re doing a great job on your math today.” Pam smiles at the teacher.

The observer would record praise (“You’re doing a great job on your math today.”) under non-recruited feedback because Pam did not recruit. The observer would also record this feedback as academic because the teacher made a statement about Pam’s performance on her math worksheet.

**Completion of Academic Work**

The experimenter scored and calculated completion of academic work. Each session during the study the students were given independent math seatwork by the general education teacher. The amount of work completed was determined by dividing the number of math problems answered by the total number of assigned problems to determine a percentage. Each answer to a math problem was counted as one response.

**Accuracy of Academic Work**

The experimenter scored and calculated accuracy of academic assignments using an answer key (see Appendix G). The percent accuracy of each student’s math assignments was determined by dividing the number of correct answers by the total number of items completed and dividing by 100.
Procedures to Achieve and Assess Believability of Data

Teacher Knowledge

The general education math and social studies teachers and the LD tutor were kept "blind" to the purpose of the study so that possible changes in teacher behavior would more likely be the result of student recruiting and not experimenter expectations. It was important that the general education classroom teacher remain unaware of the study's purpose and unaware that her own behavior was being recorded because such knowledge may have influenced how she responded. If the teacher knew, for example, that the observers were recording the rate at which she praised students, she might have provided more praise statements because that was what the observers expected.

The experimenter told the general education math and social studies teachers and the LD tutor that the observers would be in their classrooms to collect data on the independent work habits of a few students. The experimenter stressed to the teachers that any relationship between the observer and the experimenter could not be known to the students. The experimenter also explained to the math teacher, the social studies teacher, and the LD tutor that the results of the study would be weakened if the students realized they were being observed.
**Student Knowledge**

The students were told by the general education classroom teachers that the observers were guests visiting the classroom in order to watch teaching procedures. Recruitment training with the target students began three to seven weeks after the observers had been present in their classrooms to help minimize the probability of the students correlating their recruitment training with the observers' presence.

The experimenter did not serve as an observer and data collector in this study because she was working in the special education classroom with the special education teacher. Because the target students saw the experimenter in the resource room, she would not have been able to observe their behavior in the math classroom without the students possibly knowing why she was there. It was intended that the students not make any connection between the data collectors and the special education teacher, or their target behaviors may have been influenced.

**Observer Knowledge**

To minimize the possibility of observer bias, the observers were not told when recruitment training began for any of the students, the order in which the students were trained, or when any subsequent phase changes occurred for each student. Thus, the observers were kept "blind" with regard to when any changes in each student's recruiting behavior might be expected.
Assessment of Interobserver Agreement for Recruiting and Teacher Attention

Recruiting responses. Interobserver agreement (IOA) was determined for the frequency and type of recruiting responses by each student. A second observer was present for 30% (13 of 43 sessions) in Henry’s, Lisa’s, and Pam’s primary setting; 31% (9 of 29 sessions) in Ellen’s primary setting; and 30% (6 of 20 sessions) in the probe setting. The two observers independently and simultaneously recorded the frequency and type of student recruiting responses for all the target students. IOA was calculated for each student for both appropriate and inappropriate recruiting responses by dividing the total number of agreements by the total number of agreements plus disagreements and multiplying by 100.

\[
\text{Agreements} \times \frac{100}{\text{Agreements} + \text{Disagreements}}
\]

Teacher attention. The same procedure used to assess the IOA for the frequency and type of student recruiting responses was used to assess frequency and type of teacher attention. IOA was calculated and reported for each of the following types of teacher attention: praise statements, instructional feedback statements, negative attention, other attention, and no attention.
Assessment of Accuracy of Recording Students’ Completion and Accuracy of Assignments

A second observer scored 26% (11 of 43) of the math assignments completed by each student during the study. IOA was calculated for each student by dividing the total number of agreements of correct responses by the total number of agreements plus disagreements and then multiplying by 100.

\[
\text{Agreements} \times 100 \\
\text{Agreements + Disagreements}
\]

The experimenter referred to the answer sheet to re-check the scoring of any items on which the second observer’s scoring was different than hers. If a disagreement was found, the experimenter changed the original data record, if necessary, to reflect the accurate scoring.

Assessment of Treatment Integrity

The experimenter was present for each recruitment training session to observe the special education teacher and assess procedural reliability. A procedural checklist was used to assess the special education teacher’s implementation of the recruitment training procedure (see Appendix H). The experimenter assessed procedural reliability during each of the seven training sessions conducted by the special education teacher in the resource room. The experimenter was present for 25 (58%) of 43 sessions to assess procedural reliability of the end-of-the-day check and reward (see Appendix H).
Experimental Design

A multiple baseline design across students was used to analyze the effects of the intervention on the dependent variables identified in the research questions. When deciding if there is a functional relation in a multiple baseline design, the experimenter must look for stable baselines, and changes in target behaviors when, and only when, the independent variable is introduced. It is difficult to determine whether or not there is a functional relation when the treatment phase shows the desired change in some behaviors (or settings, or subjects), but not others (Cooper, Heron, & Heward, 1987; Poling, Methot, & LeSage, 1995).

Baseline logic operates within a multiple baseline design across behaviors, subjects, and settings in the following way: The prediction is made that if no intervention was introduced, the behavior would remain stable; verification of that prediction occurs when the responding patterns for the other behaviors, subjects, or settings continue at the same level even though there is a change at the first level; and replication occurs when the treatment is implemented at the other levels with similar effects.

The multiple baseline (Cooper, Heron, & Heward, 1987) is an effective design for assessing the effects of an intervention on target behaviors in which the withdrawal of an intervention is either impossible (once training is provided, it cannot be removed), and/or unlikely that changes in behavior produced by an intervention will return to baseline levels (training produced student recruiting may be maintained by teacher attention). In this study, after
the students learned to recruit contingent praise, it would be difficult, time consuming, and impractical to allow their behaviors to return to baseline level after training is complete.

The four conditions of the multiple baseline design in this study were baseline, training, generalization programming, and maintenance. All four students began in the baseline condition at the same time. Each student then progressed through the next three experimental conditions one at a time. The experimenter determined the order in which students were selected to begin recruitment training by the stability of their baseline data. Subsequent decisions to begin the next condition for each individual student depended upon the stability of the data in each condition.

**Baseline**

Students were observed in their general education math class during the 7 to 25-minute seatwork period while independently working on assignments given by the general education math teacher. The observers collected data on each student's frequency of appropriate and inappropriate recruiting responses, as well as recruited and nonrecruited teacher attention directed toward the target students. The baseline condition continued until a steady state of recruiting was achieved by at least two of the four subjects over a minimum of 10 sessions. When math period ended, the target students went to a different classroom. After the target students left the math classroom, the experimenter collected their assignments from the math teacher, made copies
for permanent product data collection, and returned the originals to the math teacher.

Because Ellen was removed from math class after the training phase, her data only reflects behaviors recorded in social studies class in which she achieved steady state responding for sessions for over a two-week period. When Ellen was selected for training, her baseline data in math class reflected steady state responding for 11 sessions.

**Recruitment Training**

The experimenter trained the special education teacher how to teach her students to recruit teacher attention. The experimenter described each step of recruitment training and then modeled the procedure. She asked the special education teacher to perform each teaching step several times, providing the special education teacher with praise and corrective feedback as needed. The experimenter was present during each student training session which allowed continuing feedback to the special education teacher.

The students were trained individually by the special education teacher in the special education classroom at the end of the school day. The one-to-one training took place from approximately 2:00 to 2:20. The experimenter was in the resource room with the special education teacher to make sure she was following the training procedures.

The training procedure had six parts: (1) Introduction and Rationale for Recruiting, (2) When to Ask for Help, (3) How to Ask for Help, (4) Modeling and Role Playing, (5) Beginning-of-School-Day Prompt, and (6) End-of-the-
School-Day Check and Reward. An outline and script of the recruitment training procedures follows. The first four parts of training were conducted in one 20-minute session on the first day of training. Parts 5 and 6 were each conducted during 5 to 10-minute periods the following school day (part 5 during morning homeroom, and part 6 at the end of the school day). The following school day, a second 20-minute training session was conducted in which the first four parts were repeated. (Note: Ellen was the only student who had a third 20-minute training session because she had more difficulty stating the recruiting steps). In the following script “Teacher” always refers to the special education teacher. The special education teacher prompted the students responses in the following way. If the student answered the teacher’s questions with one statement, the special education teacher prompted the student to extend his or her answer (e.g., “Can you tell me another reason?”). If the student did not make a response to some of the special education teacher’s questions, she provided him or her with an example, and prompted the student to say other examples (e.g., “If the teacher sees you got the answers right on your paper, she might say ‘good job’, what else might she say?”).

**Introduction and Rationale for Recruiting**

**Teacher:** Sometimes when you are doing your work in class, you might need some extra help, or you might want the teacher to check your work to see if you’re doing it right. But you usually don’t ask the teacher for help. Why would it be a good idea to ask the teacher to check your work after doing part of it?
Student: To make sure it's right, so you don't do the whole page wrong and get a bad grade.

Teacher: Good. Now, what would happen if you checked over your work, were pretty sure it was correct, and then you asked the teacher to look at it.

Student: The teacher would like it and say, "Good job" or "Very good."

Teacher: How does that make you feel when the teacher tells you that you did a good job.

Student: Happy, good, etc.

Teacher: Teachers like it when their students do good work, but sometimes they don't notice your good work unless you tell them. Today we're going to learn how to show the teacher your work, so she'll either help you or tell you how well you're doing.

Why is it a good idea for you to complete your work and do it right?

Student: Better grades, the teacher will think you're a good student, might get extra privileges or rewards, the teacher will say nice things and that will make me feel good, etc.

When to Ask for Help

The special education teacher showed the student samples of his/her own work. She then guided the student through each assignment indicating which were less than 50% complete, 50% complete, more than 50% complete, and 100% complete. The teacher told the student that the
appropriate time to signal the teacher is when the work is 50% complete, then another time when the work is 100% complete. The student practiced identifying when his or her work was ready to be checked.

The student was instructed that the best time to signal the teacher was when the teacher is available.

**Teacher:** When would be a good time to signal the teacher?

**Student:** When she isn’t talking to another teacher, when she’s near my desk, when she’s not busy.

**How to Ask for Help**

**Teacher:** What would be the best way to get the teacher’s attention?

**Student:** Raise your hand?

**Teacher:** Good! (If the student said “get out of your seat” or “call the teacher’s name” the teacher provided corrective feedback).

**Teacher:** What will happen next?

**Student:** The teacher will come to your desk.

**Teacher:** Now when you talk to the teacher, you should look at her face, and use a polite voice. What are some things you could say?

**Student:** Is this right? Am I doing a good job? Please check my work? How am I doing? (The teacher stressed the importance of varying the responses so the student would sound more natural).

**Modeling and Role Playing**

Next, the special education teacher modeled the recruiting response by using a “think aloud” technique. “OK, I finished half of my work, now I’m
going to check it. Oops, I made a mistake here. I'll just fix that. Now where's the teacher. She's walking around the room checking work. I'll raise my hand now. She sees me. She's coming over. I'm going to look at her, smile, and say in a polite voice, 'Ms. Taylor, would you please tell me how I'm doing so far?' The teacher says 'This looks very good.' I will say, 'Thank you, Ms. Taylor.'

The teacher then guided the student through a role play of the recruiting procedure, providing praise and corrective feedback for the student's performance. The special education teacher then modeled and role played three to five scenarios. For example, if the teacher does not come over because she's busy with someone else, the student should put his hand down and try again in a few minutes when the teacher is not busy. The teacher may tell the student to make corrections, in which case the student should thank the teacher for her help.

**Beginning-of-School-Day Prompt**

The morning following the first day of training (and each morning thereafter throughout the continuous reinforcement part of the generalization programming condition) the special education teacher met with the student during homeroom period for about 5 to 10 minutes in the resource room to review recruiting, and then prompted the student to recruit in math class.

**Teacher:** Do you remember what we practiced yesterday about how to get your teacher to look at your work?
Student: Yes.

Teacher: Good. Let's review it. After you finish part of your work, what do you do?

Student: Check it to make sure it's right.

Teacher: Good. What do you do after you check your work?

Student: Raise my hand and wait quietly for the teacher. Then when the teacher comes to my desk, I'll say, "How does my work look?"

Teacher: Very good. What should you do when the teacher checks your work and gives your help or says it looks good.

Student: Say "Thank you".

The special education teacher then asked the student how he/she would respond to variations of the teacher's behavior. For example: "What should you do if the teacher does not come to your desk?" or "What should you do if the teacher tells you did your work wrong?"

Teacher: Very good. You remembered what you should do. Now, let's practice it one time.

The special education teacher and the student briefly role played a recruiting sequence. The special education teacher provided praise, prompts, and corrective feedback, when appropriate.

Teacher: I want you to ask Ms. Taylor to look at your work at least two times while you are doing your math. But, don't do it more than three times. OK?
Student: OK.

Teacher: I'll check back with you at the end of the day, to see how you did in math class.

Student: OK.

If the student had difficulty remembering the procedure, the teacher prompted him or her through the steps and repeated the review, during the 5 to 10-minute Beginning-of-the-School-Day Prompt. The special education teacher continued to prompt the student until he/she was able to state the steps for appropriate recruiting without prompts.

End-of-the-School-Day Check and Reward

Before the study began, the special education teacher had an incentive system already in place in her resource room. The special education teacher rewarded students who performed well in class, either academically or socially, by giving them a ticket. Students wrote their names on the tickets and placed them in a hat. Each Friday the teacher drew several tickets out of the hat during the last period of the day. Students whose tickets were selected won inexpensive prizes, such as pencils, erasers, or candy bars. Because the special education teacher described this system was a very effective motivator for all 11 of the students who attended her resource room, and because it was minimally intrusive for the special education teacher, this system was used to reward the target students for recruiting appropriately.

In addition to the behaviors that were typically rewarded with tickets, the four target students also won tickets for appropriate recruiting. One ticket for
recruiting one time, and two tickets for recruiting more than once. The tickets for recruiting were given to each target student privately. In addition to the tickets, the students were given a can of soda for recruiting at least twice in the continuous reinforcement part of the generalization programming phase.

The special education teacher asked the student during the last period of the school day in the resource room if he or she had recruited in math class, and, if so, how many times. If the student reported that he recruited once, the special education teacher praised the student and gave him a ticket. If the student recruited at least twice, the special education teacher gave him two tickets and a can of soda. If the student did not recruit, the special education teacher encouraged him to recruit the following day. The special education teacher relied on the student's own self-reports of recruiting behavior.

Training continued in the special education classroom for two days for Henry, Lisa, and Pam. Ellen's training lasted three days because she had difficulty stating the recruiting steps. After the first day of training, the student was prompted to recruit in math class during independent seat work time. In the morning, right before math class, the special education teacher reminded the student to use the skill. The criterion for rate of recruiting was once per 10-minutes. Because a few weeks of data collection were lost due to proficiency tests, a week-long field trip, and the general education math teacher being out of town, Henry and Ellen were trained at the same time. This was done to ensure enough time for all students to undergo the generalization programming and maintenance phases.
Prompting cards were given to three of the four students to help them remember to recruit teacher attention. Henry, Ellen, and Lisa were given prompting cards because they did not recruit in the general education math class for two consecutive days. Pam was never given a prompting card because she recruited consistently immediately after training until the end of the study.

The prompting cards were bright red or green file folders with three holes punched so they could be inserted into the students' notebooks (see Appendix I). Five 2” X 3” cards were taped to the folder. Printed on each card was the student's name, the date, and three boxes to check. Each time the student recruited he would check a box. After math class, Henry and Ellen brought their cards to the special education teacher who would give them a can of soda and two tickets if they recruited at least twice. (Note: Lisa never brought the prompting cards to the special education teacher). They would receive only one ticket and no soda if they recruited once. If they did not recruit at all, the teacher would prompt them to recruit the next day.

**Generalization Programming**

The generalization programming condition was divided into two phases: Continuous reinforcement (CRF) and Fading.

**Continuous reinforcement.** When the training phase ended, the special education teacher continued the beginning-of-the-school-day prompt, and the end-of-the-school-day check and reward for appropriate recruiting. But she no
longer reviewed and practiced recruiting skills with the students in the special education classroom.

During homeroom, the special education teacher would prompt the student to recruit at least twice. At the end of the day the special education teacher asked each student how many times he or she recruited teacher attention. She praised the student for appropriate recruiting behavior or provided prompts if no recruiting occurred. If the student recruited once, he or she received one ticket, if he recruited two or more times, he or she received two tickets and can of soda.

**Fading.** During the fading part of the generalization programming phase, the students were told that the special education teacher would only conduct a beginning-of-the-school-day prompt and an end-of-the-school-day check and reward on two randomly selected days per week. The experimenter determined which days were selected by drawing from a hat two of five cards, each card had one of the five days of the week printed on them. The students did not know which days were selected until the special education addressed those students individually for prompts and rewards on the selected days. Henry and Ellen were assigned to the resource room for homeroom and for the last period of the school day. On days selected for prompts and rewards, the special education teacher asked Henry and Ellen to come to her desk. Lisa and Pam were not in the special education teacher's resource room for homeroom or the last period of the day, so on selected days, the special
education teacher went to their general education classrooms and asked them to meet with her in the resource room.

Lisa. Lisa, a student with a learning disability, originally agreed to participate in this study, and her parents were reported by the special education teacher to be enthusiastic about her participation. After she was trained, however, Lisa refused to come to the special education teacher for the end-of-day check and reward, and she refused to fill out the prompting cards. The special education teacher reported that Lisa said, “Only the dumb kids ask the teacher for help.” The special education teacher reported that Lisa’s parents had worked out an arrangement with Lisa: if she showed improvement on her math assignments, the teachers should not offer her help during class unless she asks. The experimenter attempted to get Lisa to recruit by telling her every few days throughout the generalization phase, “You don’t have to ask for help. Just finish your work and show the teacher how well you did and how smart you are.” Lisa told the experimenter that she would show the math teacher her work during class, but she rarely did. During the maintenance phase, the experimenter no longer spoke to Lisa.

Maintenance

During the maintenance phase the students were no longer asked to come in at the end of the day to meet with the special education teacher, were no longer given verbal prompts or a prompting card, and no longer given tickets or soda.
Probes

Henry, Lisa, and Pam were observed in their social studies classroom two to three times per week throughout the study. The experimenter asked the social studies teacher's permission for the observers to come into her classroom and observe the students during independent seatwork time. The social studies teacher was also kept blind to the purpose of the study. Because Ellen was pulled out of the general education math class, social studies class became Ellen's primary setting leaving her without a probe setting.

Initially, the students were not prompted to recruit in social studies class. The probes were intended to measure possible spontaneous generalization of recruiting to another setting. On the fifth session of the generalization phase in the probe setting, Henry and Lisa were prompted to recruit and offered tickets for each time they recruited in social studies class because they did not recruit on 3 of 4 consecutive days. Pam was not prompted to recruit at all during generalization because she was spontaneously recruiting in the probe setting.

Teachers' Opinions of the Recruiting Intervention

The experimenter interviewed the math teacher, the social studies teacher, and the LD tutor individually to obtain their opinions of the students' behaviors related to this experiment. Once the teachers were debriefed about the purpose of the study, they were asked questions about their opinions of the target students' academic performance and social skills, and whether or
not they believed training students to recruit was a worthwhile use of instructional time. See Appendix J for the teacher opinion questionnaire.

The teachers were also given an experimenter-designed, 30-item teacher approval assessment inventory (see Appendix K), to obtain opinions about the extent to which each of the four target students liked or disliked various consequences (e.g., teacher praise, recognition, teacher help, non-praise rewards, ignoring).

**Student's Opinions of the Recruiting Package**

Student opinions about recruitment training were obtained in an oral exit interview administered by the experimenter one week after the last day of data collection. The students were interviewed individually in the resource room. The questions were designed to obtain the students' opinions of the training itself, whether they thought recruiting teacher attention helped them become more productive, and whether they thought the general education teachers acted differently towards them. See Appendix L for the student interview questionnaire.

The students were also given the experimenter-designed 30-item Teacher Approval Assessment Inventory, Student Version (See Appendix M) to determine the extent to which each student believed various consequences were rewarding to them. The experimenter read each question aloud to individual students, and allowed them time to mark their selections. When the students finished marking a selection, the experimenter went on to the next question. This procedure continued until all questions were answered.
This chapter presents the results of the study. Interobserver agreement and procedural reliability data are reported followed by data for student recruiting, teacher praise, instructional feedback, and academic work completion and accuracy in the primary setting. Student recruiting, teacher praise, and instructional feedback data for the probe setting are reported next. Finally, the results of the teacher and student opinion interviews and inventories are reported.

**Interobserver Agreement**

Data were collected in two different settings for Henry, Lisa, and Pam: the primary setting (math classroom) and the probe setting (social studies classroom). A second observer recorded student recruiting and teacher attention 13 (30%) of 43 sessions in the primary setting, and 6 (30%) of 20 sessions in the probe setting. When Ellen was removed from math class, she was observed in the social studies classroom as her primary setting. A second
observer recorded student recruiting and teacher attention for Ellen 9 (31%) of 29 total sessions.

**Student Recruiting**

Table 4.1 shows interobserver agreement (IOA) on frequency and type of recruiting responses emitted by each student in the primary setting (the math classroom for Henry, Lisa, and Pam, and the social studies classroom for Ellen). Also, Table 4.1 shows IOA results for Henry, Lisa, and Pam in the probe setting (the social studies classroom). IOA for frequency of recruiting in the primary setting was 94% for Henry, 93% for Lisa, and 100% for both Ellen and Pam. IOA for whether or not a recruiting response was appropriate in the primary setting was as follows: Henry, 88%; Ellen and Lisa, 100%; and Pam, 94%. IOA for type of student recruiting (academic/nonacademic) was 94% for Henry, 93% for Lisa, and 100% for both Ellen and Pam. For frequency, appropriateness, and type of student recruiting in the probe setting IOA was 100% for all students.

**Teacher Attention**

Table 4.2 shows IOA for each student for frequency and type of teacher attention received by the students in the primary setting and in the probe setting. IOA for frequency and type of student recruited teacher attention in the primary setting was as follows: Henry, 94% for frequency and 94% for type; Ellen, 100% for frequency and 94% for type; Lisa, 93% for frequency and 100% for type; and Pam, 100% for both frequency and type. In the probe setting
Table 4.1. Percent interobserver agreement on the frequency, appropriateness, and type of student recruiting responses by each student in the primary setting and probe setting.

<table>
<thead>
<tr>
<th>Student</th>
<th>Frequency</th>
<th></th>
<th></th>
<th>Appropriate/Inappropriate</th>
<th></th>
<th></th>
<th>Academic/Non-Academic</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Primary</td>
<td>Probe</td>
<td></td>
<td>Primary</td>
<td>Probe</td>
<td></td>
<td>Primary</td>
<td>Probe</td>
</tr>
<tr>
<td>Henry</td>
<td>94 (17)</td>
<td>100 (6)</td>
<td>88 (17)</td>
<td>100 (6)</td>
<td>94 (17)</td>
<td>100 (6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ellen</td>
<td>100 (18)</td>
<td>N/A</td>
<td>100 (18)</td>
<td>N/A</td>
<td>100 (18)</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lisa</td>
<td>93 (14)</td>
<td>100 (7)</td>
<td>100 (14)</td>
<td>100 (7)</td>
<td>93 (14)</td>
<td>100 (7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pam</td>
<td>100 (17)</td>
<td>100 (10)</td>
<td>94 (17)</td>
<td>100 (10)</td>
<td>100 (17)</td>
<td>100 (10)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Numbers in parentheses show total number recorded events (agreements plus disagreements) on which IOA data is based.
<table>
<thead>
<tr>
<th>Student</th>
<th>Student Recruited Attention</th>
<th>Non-Recruited Teacher Attention</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Primary Setting</td>
<td>Probe Setting</td>
</tr>
<tr>
<td></td>
<td>Freq.</td>
<td>Type</td>
</tr>
<tr>
<td>Henry</td>
<td>94 (17)</td>
<td>94</td>
</tr>
<tr>
<td>Ellen</td>
<td>100 (18)</td>
<td>94</td>
</tr>
<tr>
<td>Lisa</td>
<td>93 (14)</td>
<td>100</td>
</tr>
<tr>
<td>Pam</td>
<td>100 (17)</td>
<td>100</td>
</tr>
</tbody>
</table>

**Note:** Numbers in parentheses show total number recorded events (agreements plus disagreements) on which IOA data is based.

Table 4.2. Percent interobserver agreement on the frequency and type of teacher attention directed toward each student in the primary and probe settings.
interobserver agreement was 100% for all students for both frequency and type.

IOA for frequency of non-recruited teacher attention in the primary setting was 100% for Ellen, Lisa, and Pam, and 92% for Henry. For type of non-recruited attention, IOA was 96% for Henry, 100% for Ellen, 93% for Lisa, and 92% for Pam. In the probe setting, frequency of non-recruited attention was 100% for all students. IOA for type of non-recruited teacher attention was 100% for Lisa and Pam, and 89% for Henry.

**Academic Work Completion**

A second observer independently recorded student work completion and accuracy for: 11 (26%) of Henry’s 43 math assignments, 10 (25%) of Lisa’s 40 math assignments, and 11 (26%) of Pam’s 43 math assignments. IOA was 100% on both completion and accuracy of math worksheet assignments in the general education math classroom.

**Procedural Reliability**

The experimenter was present during all of the seven recruitment training sessions (two training sessions for Henry and Ellen together, one extra session for Ellen, two sessions for Lisa, and two sessions for Pam) to assess procedural reliability. (See Appendix H for procedural reliability checklist.) The special education teacher referred to her own copy of the procedural reliability checklist throughout each training session. During all seven training sessions, the special education teacher accurately conducted 100% of the 22 training steps in the correct order.
The experimenter was present for 25 (58%) of 43 sessions to observe the end-of-the-school-day check and reward (see Appendix H). The special education teacher correctly performed each of the 6 steps of asking the students how many times he or she recruited, praising and rewarding accordingly, or encouraging the student to recruit next time, on each day she was observed by the experimenter.

There are no data on whether or not the special education teacher performed the morning prompts correctly because the experimenter was unavailable to observe in the morning.

A significant threat to procedural reliability is the special education teacher's absence due to illness on 7 (16%) of the study's 43 sessions. When this occurred, the special education teacher left a note for the substitute teacher asking him/her to prompt specific target students in the morning. Rewards for recruiting were given by the special education teacher on the following day.

**Student Recruiting, Teacher Praise, and Instructional Feedback**

Figure 4.1 shows the rate of student recruiting responses and teacher praise statements per 10-minutes during independent seatwork sessions in the general education math classroom for Henry, Lisa, and Pam; for Ellen the data were obtained during independent seatwork sessions in social studies class. Figure 4.2 shows the rate of student recruiting and instructional feedback statements per 10-minutes. Table 4.3 and Figure 4.3 show the mean rate of recruiting, teacher praise statements, and instructional feedback statements.
Figure 4.1. Number of student recruiting responses emitted (data points) and teacher praise statements received (bars) per 10-minutes during independent seatwork sessions by Henry, Lisa, and Pam in a general education math class, and by Ellen in a general education social studies class. Asterisk above session 24 on Lisa's tier shows when contingencies for work completion were changed by Lisa's parents.
Figure 4.2. Number of student recruiting responses emitted (data points) and instructional feedback statements received (bars) per 10-minutes during independent seatwork sessions by Henry, Lisa, and Pam in a general education math class, and by Ellen in a general education social studies class. Numbers next to the bars on Henry’s tier indicate rates of instructional feedback statements above 3.0. Asterisk above session 24 on Lisa’s tier shows when contingencies for work completion were changed by Lisa’s parents.
Figure 4.3. Mean number of recruiting responses emitted and teacher praise and instructional feedback statements received per 10-minutes during independent seatwork sessions by Henry, Lisa, and Pam in a general education math class, and by Ellen in a general education social studies class.
<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>Generalization Program.</th>
<th>Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Henry</td>
<td>.13 (12)</td>
<td>0</td>
<td>.75</td>
</tr>
<tr>
<td>Ellen</td>
<td>.07 (5)</td>
<td>0</td>
<td>.07</td>
</tr>
<tr>
<td>Lisa</td>
<td>.05 (15)</td>
<td>.07</td>
<td>.44</td>
</tr>
<tr>
<td>Pam</td>
<td>.12 (28)</td>
<td>.12</td>
<td>.21</td>
</tr>
</tbody>
</table>

**Note:** Numbers in parentheses show number of sessions per phase.

Table 4.3. Mean number of recruiting responses emitted and teacher praise and instructional feedback statements received per 10-minutes of independent seatwork sessions by Henry, Lisa, and Pam in a general education math class, and by Ellen in a general education social studies class.
per 10-minutes of independent seatwork sessions during each phase of the study. Table 4.4 shows the percentage of sessions in which there were occurrences of student recruiting, teacher praise, and instructional feedback. Table 4.5 shows the percentage of praise statements and instructional feedback statements recruited by each student.

Henry

Baseline. Henry recruited on 2 (17%) of 12 baseline sessions, with a mean rate of .13 recruiting responses per 10-minutes per session. There were no incidences of teacher praise for Henry during baseline. Henry received instructional feedback on 7 (58%) of 12 baseline sessions, with a mean rate of .75 instructional feedback statements. Just 13% of the 15 total instructional feedback statements for Henry were recruited.

Generalization Programming. Henry recruited on 13 (62%) of 21 generalization programming sessions, with a mean rate of .86 recruiting responses per session. His recruiting showed variability ranging between 0 and 2 recruiting responses per 10-minutes per session. During fading, Henry recruited on only 3 (43%) of 7 sessions. He received teacher praise on 11 (52%) of 21 sessions, with a mean rate of .67 praise statements. Of the 14 total praise statements during generalization programming, 85% were recruited. Henry received instructional feedback in the generalization phase on 17 (81%) of 21 sessions, with a mean rate of 1.64 instructional feedback statements per session. Of the 37 total instructional feedback statements during generalization programming, 43% were recruited.
Baseline Generalization Program. Maintenance

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Henry</td>
<td>17 (12)</td>
<td>0</td>
<td>58</td>
<td>62 (21)</td>
<td>52</td>
<td>81</td>
<td>50 (8)</td>
<td>38</td>
<td>75</td>
</tr>
<tr>
<td>Ellen</td>
<td>20 (5)</td>
<td>0</td>
<td>20</td>
<td>100 (15)</td>
<td>80</td>
<td>100</td>
<td>100 (6)</td>
<td>67</td>
<td>100</td>
</tr>
<tr>
<td>Lisa</td>
<td>13 (15)</td>
<td>7</td>
<td>40</td>
<td>21 (14)</td>
<td>21</td>
<td>64</td>
<td>25 (8)</td>
<td>25</td>
<td>63</td>
</tr>
<tr>
<td>Pam</td>
<td>18 (28)</td>
<td>4</td>
<td>29</td>
<td>100 (8)</td>
<td>63</td>
<td>100</td>
<td>100 (5)</td>
<td>40</td>
<td>100</td>
</tr>
</tbody>
</table>

Note: Numbers in parentheses show number of sessions in each phase.

Table 4.4. Percentage of sessions in which student recruiting responses were emitted, and teacher praise and instructional feedback statements were received during independent seatwork sessions by Henry, Lisa, and Pam in a general education math class, and by Ellen in a general education social studies class.
<table>
<thead>
<tr>
<th>Student</th>
<th>Baseline</th>
<th></th>
<th>Generalization Program.</th>
<th></th>
<th>Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Henry</td>
<td>0 (~)</td>
<td>13 (15)</td>
<td>85 (14)</td>
<td>43 (37)</td>
<td>75 (4)</td>
</tr>
<tr>
<td>Ellen</td>
<td>0 (~)</td>
<td>100 (1)</td>
<td>93 (15)</td>
<td>86 (22)</td>
<td>100 (5)</td>
</tr>
<tr>
<td>Lisa</td>
<td>0 (1)</td>
<td>25 (8)</td>
<td>60 (5)</td>
<td>27 (11)</td>
<td>50 (2)</td>
</tr>
<tr>
<td>Pam</td>
<td>50 (6)</td>
<td>60 (10)</td>
<td>100 (6)</td>
<td>100 (12)</td>
<td>100 (3)</td>
</tr>
</tbody>
</table>

**Note:** Numbers in parentheses show the total number of praise and instructional feedback statements per phase.

Table 4.5. Percentage of praise and instructional feedback statements recruited during independent seatwork sessions by Henry, Lisa, and Pam in a general education math class, and by Ellen in a general education social studies.
**Maintenance.** Henry recruited on 4 (50%) of 8 maintenance phase sessions, with a mean rate of .46 recruiting responses per session. He recruited once on each of the first 4 sessions of the maintenance phase, but did not recruit during the last 4 sessions. Teacher praise occurred on 3 (38%) of 8 sessions, with a mean rate of .16 praise statements. Of the 4 total praise statements, 75% were recruited. There was downward trend of instructional feedback statements on the last 6 sessions of the maintenance phase. Henry received instructional feedback on 6 (75%) of 8 sessions, with a mean rate of 1.01 instructional feedback statements per session. Of the 12 total instructional feedback statements during maintenance, 42% were recruited.

**Ellen**

**Baseline.** Ellen recruited on 1 (20%) of 5 baseline sessions, with a mean rate of .07 recruiting responses. She did not receive teacher praise during baseline. Ellen received instructional feedback in the baseline phase on 1 (20%) of 5 baseline sessions, with a mean rate of .07 instructional feedback statements. The one instructional feedback statement she received was recruited.

**Generalization Programming.** Ellen’s data show a steady state of responding during the generalization programming phase. She recruited on 15 (100%) of 15 generalization programming sessions, with a mean rate of 1.21 recruiting responses per session. She received teacher praise on 12 (80%) of 15 sessions, with a mean rate of .82 praise statements per session. Of the 15 total praise statements during generalization programming, 93% were recruited.
Ellen received instructional feedback in the generalization phase on 15 (100%) of 15 sessions, with a mean rate of 1.37 instructional feedback statements. Of the 22 total instructional feedback statements, 86% were recruited.

**Maintenance.** Ellen recruited on 6 (100%) of 6 maintenance sessions, with a mean rate of 1.10. Her steady state of responding continued throughout maintenance. Ellen received teacher praise on 4 (67%) of 6 maintenance sessions, with a mean rate of .48 praise statements. All 5 praise statements for Ellen were recruited. Instructional feedback occurred on 6 (100%) of 6 sessions, with a mean rate of .80 instructional feedback statements. All 7 instructional feedback statements for Ellen were recruited.

**Lisa**

**Baseline.** Lisa recruited on 2 (13%) of 15 baseline sessions, with a mean rate of .05 recruiting responses. Teacher praise occurred on 1 (7%) of 15 sessions, with a mean rate of .07 praise statements. The one praise statement she received during baseline was not recruited. Lisa received instructional feedback in the baseline phase on 6 (40%) of 15 sessions, with a mean rate of .44 instructional feedback statements. Of the 8 total instructional feedback statements during baseline, 25% were recruited.

**Generalization Programming.** Lisa recruited on 3 (21%) of 14 generalization programming sessions, with a mean rate of .25 recruiting responses. She showed little change in responding from the baseline phase to the generalization phase. Lisa received teacher praise on 3 (21%) of 14 sessions, with a mean rate of .16 praise statements per session. Of the 5 total
praise statements during generalization programming, 60% were recruited. Lisa received instructional feedback in the generalization phase on 9 (64%) of 14 sessions, with a mean rate of .54 instructional feedback statements. Of the 11 total instructional feedback statements, 27% were recruited.

**Maintenance.** Lisa recruited on 2 (25%) of 8 maintenance sessions, with a mean rate of .22 recruiting responses per session. She received teacher praise on 2 (25%) of 8 sessions, with a mean rate of .22 praise statements per session. One of Lisa’s 2 praise statements was recruited. Lisa received instructional feedback on 5 (63%) of 8 sessions, with a mean rate of .52 instructional feedback statements. Of the 7 total instructional feedback statements during maintenance, 29% were recruited.

**Pam**

**Baseline.** Pam recruited on 5 (18%) of 28 baseline sessions, with a mean rate of .12 recruiting responses per session. She received teacher praise on 5 (18%) out of 28 sessions, with a mean rate of .12 praise statements per session. Of the 6 total praise statements during baseline, 50% were recruited. Pam received instructional feedback on 8 (29%) of 28 sessions, with a mean rate of .21 instructional feedback statements. Of the 10 total instructional feedback statements, 60% were recruited.

**Generalization Programming.** Pam’s recruited on 8 (100%) of 8 generalization programming sessions, with a mean rate of 1.39 recruiting responses per session. She received teacher praise on 5 (63%) of 8 sessions, with a mean rate of .55 praise statements per session. All 6 praise statements
for Pam were recruited. Pam received instructional feedback on 8 (100%) of 8 sessions, with a mean rate of 1.18 instructional feedback statements. All 12 instructional feedback statements for Pam were recruited.

**Maintenance.** Pam’s recruited on 5 (100%) of 5 maintenance sessions, with a mean rate of 1.18 recruiting responses per session. She received teacher praise on 2 (40%) of 5 sessions, with a mean rate of .29 praise statements per session. All 3 of Pam’s praise statements were recruited. Pam received instructional feedback on 5 (100%) of 5 sessions, with a mean rate of .90 instructional feedback statements per session. All 5 of Pam’s instructional feedback statements were recruited.

**Completion and Accuracy of Seatwork Assignments**

Figure 4.4 shows the percentage of math assignments completed and accuracy of completed work by Henry, Lisa, and Pam during each session. Table 4.6 and Figure 4.5 show the mean percentage of math worksheet items and mean percent accuracy of completed items per session by Henry, Lisa, and Pam during each phase of the study.

**Henry**

**Baseline.** Henry displayed high variability in his completion and accuracy of math seatwork during baseline. His completed a mean of 49% of his math assignment (range 0% to 75%) across 12 sessions. Henry’s accuracy of the math items he completed averaged 51% (ranged 0% to 93%).

**Generalization Programming.** Henry’s work completion and accuracy increased and showed more stability during generalization programming.
Figure 4.4. Percentage of math assignments completed (bars) and accuracy of completed work (data points) by Henry, Lisa, and Pam during independent seatwork sessions in a general education math class. Asterisk above session 24 on Lisa's graph shows when contingencies for work completion were changed by Lisa's parents.
<table>
<thead>
<tr>
<th>Student</th>
<th>Baseline Completion</th>
<th>Baseline Accuracy</th>
<th>Generalization Program. Completion</th>
<th>Generalization Program. Accuracy</th>
<th>Maintenance Completion</th>
<th>Maintenance Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Henry</td>
<td>49 (12)</td>
<td>51</td>
<td>76 (21)</td>
<td>72</td>
<td>77 (28)</td>
<td>79</td>
</tr>
<tr>
<td>Lisa</td>
<td>62 (15)</td>
<td>71</td>
<td>85 (14)</td>
<td>82</td>
<td>87 (8)</td>
<td>83</td>
</tr>
<tr>
<td>Pam</td>
<td>56 (28)</td>
<td>65</td>
<td>83 (8)</td>
<td>91</td>
<td>88 (5)</td>
<td>83</td>
</tr>
</tbody>
</table>

Note: Numbers in parentheses show number of sessions in each phase.

Table 4.6. Mean percentage of math worksheet items completed and mean percent accuracy of completed items by Henry, Lisa, and Pam during independent seatwork sessions in a general education math class.
Figure 4.5. Mean percentage of math worksheet items completed and mean percent accuracy of completed work by Henry, Lisa, and Pam during independent seatwork sessions in a general education math class. The numbers in parentheses show the number of sessions in each phase for each student.
Henry’s mean work completion was 76%, with a range 62% to 100% across 20 of 21 sessions during this phase (he did not complete any items on session 16). Accuracy of completed math items averaged 72% (range 56% to 100%) in the generalization programming phase.

**Maintenance.** Henry’s completion and accuracy of math seatwork remained high and stable during the 8-session maintenance phase. He completed a mean of 77% of his assignment (range 62% to 100%). Accuracy of completed work averaged 79% (range 73% to 89%).

**Lisa**

**Baseline.** Lisa displayed high variability in her completion and accuracy of math seatwork during the 15-session baseline phase. She completed a mean of 62% of her math assignment (range 0% to 100%). Accuracy of completed work averaged 71% (range 50% to 100%).

**Generalization Programming.** Lisa’s work completion and accuracy increased and showed more stability during the 14-session generalization programming phase. She completed a mean of 85% of her math assignment (range 44% to 100%). Accuracy of completed work averaged 82% (range 68% to 100%).

**Maintenance.** Lisa’s completion of math seatwork remained high and stable during the 8-session maintenance phase, while her accuracy of completed work increased. She completed a mean of 83% of her math assignment (range 72% to 100%). Accuracy of completed work averaged 91% (range 60% to 100%).

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Pam

**Baseline.** Pam displayed high variability on completion and accuracy of math seatwork during the 28-session baseline phase. She completed a mean of 56% (range 0% to 100%). Accuracy of completed work averaged 65% (range of 0% to 100%).

**Generalization Programming.** Pam’s completion and accuracy of math assignments increased and showed more stability during the 8-session generalization programming phase. She completed a mean of 83% of her assignment (range of 75% to 100%). Accuracy of completed work averaged 91% (range of 75% to 100%).

**Maintenance.** Pam’s completion and accuracy remained high and stable during the 5-session maintenance phase. She completed a mean of 88% of her assignment (range 69% to 100%). Accuracy of completed work averaged 83% (range 50% to 100%).

**Recruiting, Praise, and Instructional Feedback in the Probe Setting**

Figure 4.6 shows the rate of student recruiting responses and teacher praise statements per 10-minutes during independent seatwork time in the social studies classroom for Henry, Lisa, and Pam. Figure 4.7 shows the rate of student recruiting responses and instructional feedback in the social studies classroom for Henry, Lisa, and Pam.

**Henry**

**Baseline.** Henry did not recruit and did not receive teacher praise in the 4-session baseline phase. Henry received instructional feedback on 1 (20%) of 5
Figure 4.6. Number of student recruiting responses emitted (data points) and teacher praise statements received (bars) per 10-minutes during independent seatwork sessions by Henry, Lisa, and Pam in a general education social studies class. Asterisks on Henry's and Lisa's tiers show when those students were prompted to recruit in the probe setting.
Figure 4.7. Number of student recruiting responses emitted (data points) and instructional feedback statements received (bars) per 10-minutes during independent seatwork sessions by Henry, Lisa, and Pam in a general education social studies class. Asterisks on Henry's and Lisa's tiers show when those students were prompted to recruit in the probe setting.
sessions, resulting in a mean rate of .08 instructional feedback statements per session.

**Generalization Programming.** Henry's recruiting behavior in the probe setting increased during generalization programming. He recruited on 6 (60%) of 10 sessions, with a mean rate of .54 recruiting responses per session. Henry received teacher praise on 3 (30%) of 10 sessions, with a mean rate of .26 praise statements. He received instructional feedback on 6 (60%) of 10 sessions, with a mean rate of .51 instructional feedback statements.

**Maintenance.** Henry recruited on 2 (50%) of 4 maintenance sessions in the probe setting, with a mean rate of .25 recruiting responses per session. Teacher praise occurred on 1 of 4 sessions, with a mean of .13 teacher praise statements. Instructional feedback occurred on each of the 4 sessions, with a mean of .53 instructional feedback statements.

**Lisa**

**Baseline.** Lisa recruited on 3 (43%) of 7 baseline sessions in the probe setting, with a mean rate of .26 recruiting responses per session. She received teacher praise on 2 (29%) of 7 probe sessions, with a mean rate of .12 praise statements. Instructional feedback occurred on 3 (43%) of 7 sessions, with a mean rate of .26 instructional feedback statements.

**Generalization Programming.** Lisa's recruiting behavior remained at low rates during generalization programming. She recruited on 2 (33%) of 6 generalization programming sessions in the probe setting, with a mean rate of .35 recruiting responses per session. Lisa was praised on 1 (17%) out 6
sessions, with a mean rate of .23 praise statements. She received instructional feedback on 3 (50%) out of 6 sessions, with a mean rate of .31 instructional feedback statements.

**Maintenance.** Lisa recruited on 2 (50%) of 4 maintenance sessions in the probe setting, with a mean rate of .47 recruiting responses per session. She received teacher praise on 3 of the 4 sessions, with a mean rate of .36 praise statements. Instructional feedback occurred on 1 of 4 sessions, with a mean rate of .12 instructional feedback statements.

**Pam**

**Baseline.** Pam recruited on 2 (17%) of 12 baseline sessions, with a mean rate of .13 recruiting responses per session. Teacher praise occurred on 1 (8%) of 12 sessions, with a mean rate of .07 teacher praise statements. Pam received instructional feedback on 3 (25%) of 12 sessions, with a mean of .20 instructional feedback statements.

**Generalization Programming.** During the 2-session generalization programming phase, Pam recruited on both sessions at a mean rate of 1.70 recruiting responses per session. She received teacher praise on both sessions at mean rate of .50 teacher praise statements. Pam also received instructional feedback both sessions, with a mean rate of .74 instructional feedback statements.

**Maintenance.** Pam continued to recruit at higher rates during the 3-session maintenance phase in probe setting. She recruited during all 3 sessions at a mean rate of 1.08 recruiting responses per session. She also
received teacher praise during all 3 sessions at mean rate of .54 praise statements. Instructional feedback also occurred on all 3 sessions at a mean rate of .86 instructional feedback statements.

**Student Opinions**

**Teacher Approval Assessment Inventory**

One week after the last day of data collection the experimenter individually administered the Teacher Approval Assessment Inventory, Student Version (see Appendix M) to each of the four students. The inventory consisted of 30 questions to which the student made one of the following responses: (a) I would like this a lot, (b) I would like this a little, (c) I wouldn’t care, or (d) I wouldn’t like it. This inventory sampled the following five categories of consequences: teacher praise (e.g., “very good” “you’re smart”); recognition (e.g., teacher sends a positive note to parents, puts the student’s paper on bulletin board, announces target student’s good performance to the class); teacher help (e.g., teacher provides help with a math problem); non-praise reward (e.g., can of soda, free time, play a game with friends); and ignoring (e.g., the teacher does not come to your desk while you are working). Table 4.7 shows the degree of preference for each category of consequences.

Henry, Ellen, and Pam selected choice “(a) I would like it a lot” or choice “(b) I would like it a little for 100% of the questions in the teacher praise and teacher help categories. Henry, Ellen, and Pam selected choice “(c) I wouldn’t care” or choice “(d) I wouldn’t like it” for 100% of the questions in the
Table 4.7. Percentage of selected choices for each category of consequences on teacher approval assessment inventory, student version. Degree of preference was stated as the following: (a). I would like it a lot, (b). I would like it a little, (c). I wouldn't care, (d). I wouldn't like it.

<table>
<thead>
<tr>
<th>Stud.</th>
<th>Teacher Praise (8)</th>
<th>Recognition (6)</th>
<th>Teacher Help (2)</th>
<th>Non-P Reward (10)</th>
<th>Ignoring (4)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
<td>A</td>
</tr>
<tr>
<td>Henry</td>
<td>100</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>83</td>
</tr>
<tr>
<td>Ellen</td>
<td>100</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>67</td>
</tr>
<tr>
<td>Lisa</td>
<td>13</td>
<td>13</td>
<td>75</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Pam</td>
<td>75</td>
<td>25</td>
<td>0</td>
<td>0</td>
<td>17</td>
</tr>
</tbody>
</table>

Note: Number in parentheses shows the number of items in each category.
ignoring category. Lisa selected choice “c) I wouldn’t care” for 75% of the questions in the teacher praise category, and 100% of the questions in the recognition and teacher help category. In the ignoring category, Lisa selected choice “b) I would like it a little” for 50% of the questions, and choice “c) I wouldn’t care” for 50% of the questions.

Interviews

Immediately after the students completed the inventory, they were interviewed individually by the experimenter (see interview questionnaire Appendix L). All four students were able restate the steps for recruiting teacher attention. Henry, Ellen, and Pam thought they did a good job of recruiting in their primary setting. Henry stated that he did not recruit much in the probe setting because he did not get a can soda for recruiting there. Pam thought she did a good job of recruiting in all of her classes because she “liked it” when the teacher came to her desk. Henry, Ellen, and Pam each said that they liked recruiting.

Henry, Ellen, and Pam made remarks indicating that the teacher helped them with their work when they asked, and usually said they were doing a good job (e.g., “Ms. Taylor helped me with my math problems” “She said I was doing a good job” “Ms. Ross gave me a lot of help when I asked” “I could tell she liked my work because she smiled at me” ). Henry said the teacher's attention made him feel “like a good student.” Ellen and Lisa said that the teacher’s attention made them “feel good”.

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None of the four students thought recruiting affected how much work they completed, but Henry, Ellen, and Pam thought recruiting helped with their accuracy because the teacher helped them Figure out the correct answers. Pam said, "When the teacher comes to my desk and helps me with the answers, I get better grades on my paper." Ellen said, "She checks the answers and helps me fix up the ones that are wrong. Then my grade is higher."

Henry, Ellen, and Pam said they did not think their peers noticed whether or not they were recruiting, and would not have cared one way or another if they had. Pam said, "If I raise my hand too much the other kids might think I'm trying to be a teacher's pet. But I didn't do it too much." When asked if they would continue to recruit, all students said they would. Henry said, "I think I'll do it more next year." Pam was the only student who thought her teachers' opinions of her was a bit different. She said, "I think Ms. Taylor and Ms. Yarletts liked me better when I showed them my work more."

Lisa. Lisa stated that she did not recruit much at all. Lisa emphasized that she did not like getting the teacher's attention. She said, "Whenever I raise my hand to ask for help the other kids think I don't know how to do my work. They think I'm stupid." She added, "I especially don't like it if Miss Ross comes to my desk because she's there to help the dumb kids in the class, and I'm not dumb." Lisa said she would rather do the work on her own without the teacher's attention.
Teacher Opinions

Teacher Approval Assessment Inventory

All three teachers were given the Teacher Approval Assessment Inventory, Teacher Version (see Appendix K) one week after the last day of data collection. They were asked to complete the inventory and return it to the experimenter on the following day.

All three teachers selected choice “(a) would like it a lot” for non-praise reward questions (e.g., candy bar, free time) for all four students. For Henry, Ellen, and Pam the teachers usually selected choice “(b) would like it a little” for questions in the teacher praise, recognition, and teacher help category. For Lisa, however, the teachers more often selected choice “(c) I wouldn’t care” for the teacher attention categories. In the ignoring category the three teachers typically selected choice “(c) wouldn’t care” for all students except Ellen, for whom they selected choice “(d) wouldn’t like it”.

Interviews

The day after the math teacher, the social studies teacher and the LD tutor were given the Teacher Approval Assessment Inventory, the experimenter interviewed each of them individually using the questionnaire located in Appendix J. When asked if they were able to Figure out what the research team was doing with the students, the math teacher and LD tutor thought the students were being taught to ask more questions about their work. The math teacher said she noticed that Henry and Pam were “asking more questions.”
The LD tutor said that Henry "asked for help more often." The social studies teacher said she did not know what we were teaching the target students because she really did not notice any difference in their behavior. She did notice, however, that Ellen "seemed to be participating more in class".

After explaining the purpose of the study, the experimenter asked specific questions about the students' recruiting behaviors. The math teacher and LD tutor said they thought Henry and Pam were recruiting at an appropriate rate, at appropriate times, for appropriate reasons, and that their recruiting seemed natural. The social studies teacher thought Ellen was recruiting appropriately. She thought the other 3 students should probably be recruiting at a higher rate.

The math teacher and LD tutor noticed higher levels of academic productivity and accuracy for Henry and Pam. The math teacher said she thought Henry's and Pam's "social skills had improved." The social studies teacher thought Ellen seemed to be "more productive."

All three teachers said they thought recruiting was a valuable skill to teach students, and that it made their interactions with the students who were recruiting more frequent and more positive.

After the experimenter showed the teachers the graphs and pointed out low levels of teacher praise during baseline and increased levels of teacher praise when students recruited, the LD tutor said that she "was surprised" because she thought she "praised the students more often". She also said "I don't really want to wait for the students to ask for help. I know they need"
help and I just wanted to give it to them." The math and social studies
teacher also thought they were praising students more often than the data
showed, but the math teacher thought that praise was "less important for
middle school children than for younger children." The social studies teacher
thought training students to recruit may be a "more valuable skill to teach
elementary age children, or children with more severe disabilities."

Lisa. The math teacher, LD tutor, and social studies teacher said they did
not notice any changes in Lisa's behavior, but the math teacher said Lisa was
"doing better quality work." The LD tutor explained that Lisa's parents
worked out an arrangement with Lisa - "if Lisa's work improved," the LD
tutor should not give her extra help or attention unless Lisa asked. After the
experimenter explained the purpose of the study, the math teacher stated that
Lisa "should probably be recruiting more often." The LD tutor said, "It's hard
to give Lisa help because she just doesn't want it. She gets this angry look on
her face whenever I check to see how she's doing."
CHAPTER 5

DISCUSSION

This chapter discusses the following: limitations of the study, the effects of the intervention on the dependent variables, implications of the study’s results for classroom practice, and suggested directions for future research on training students to recruit teacher attention.

Limitations of the Study

This section discusses the limitations of settings, teachers, students, measurement of the dependent variables, and experimental design.

Setting

Setting limitations that affected the outcomes of the study include the number of teachers in primary setting, the inconsistent assignment of seatwork from day to day, the loss of data due to school events, problems associated with collecting data at the end of school year, and the removal of a target student from the primary setting.

One problem limiting the generalization of the study’s findings is that there were two teachers, the general education teacher and the LD tutor, in
the primary setting (the math classroom). Most general education classrooms have only one teacher who is expected to provide help and feedback to students who are working independently. Because of the inclusion movement, however, it is not uncommon to find two teachers in a general education classroom where students with disabilities are assigned. An interesting point related to this problem is that even though there were two teachers in the room, students still received little or no praise during the baseline phase.

Another limitation is that students were not given independent seatwork every day. Each week, approximately one potential data collection session was lost due to the inconsistency of the math teacher assigning seatwork. When the students were not assigned independent seatwork, they had no opportunity to recruit. The inconsistent daily routine may have hindered the students’ use of recruiting skills. Henry’s recruiting behavior, especially seemed to be affected by this limitation. His recruiting throughout the generalization programming phase may have been more consistent if he had the opportunity to recruit every day. The inconsistency of assigning daily work was also apparent in the probe setting (social studies class). Students in this setting were only given independent work two or three days per week so they could not establish a daily recruiting routine. In addition to the variability of whether or not seatwork was assigned during math class, there was also variability of the length of time students had to complete math assignments (7 to 25 minutes), and variability in the difficulty of assignments.
All of these factors may have influenced the students' rates of recruiting. During the short seatwork sessions (e.g., seven minutes), the students may have run out of time before they decided to recruit teacher attention. Also, students may have recruited more when they found the seatwork items more difficult.

A third limitation related to setting is that school events and teacher travel reduced the number of data collection days, which significantly shortened the phases of the study. Special school events included a week-long proficiency test, a week-long camping trip, three morning assemblies for visiting artists, and two one-day field trips. The length of the study was reduced at the beginning because the math teacher went to Australia, and data collection had to be delayed for two weeks.

The major limitation created by shorter phases was that some students needed to spend more time in each phase in order to firmly establish their recruiting behavior. If Henry had been allowed to spend more time in the generalization programming phase, he may have recruited more consistently. Henry did not recruit on one-half of the sessions during the fading part of the generalization programming phase. If the experimenter had been able to extend the continuous reinforcement period of the generalization programming phase, and then fade it more gradually, Henry's newly acquired recruiting skills may have maintained better. The maintenance phases for all four students were too short to ascertain the strength of their recruiting behaviors. Extended maintenance phases are needed to obtain stronger
evidence that students’ continued recruiting was being maintained by teacher praise.

Collecting data at the end of the school year is the fourth limitation of setting. Each of the three students who were assessed for academic productivity had high levels of completion and accuracy during maintenance even though recruiting and praise occurred at lower levels. Because it was the end of the school year, it is possible that the math teacher was assigning seatwork less challenging to the students. Another possibility for high percentages of academic productivity in maintenance is the students were receiving intermittent teacher attention which strengthened academic productivity. For this reason, academic productivity data may be inflated in the maintenance phase. Another problem with collecting data at the end of the school year is that students may be less inclined to engage in behaviors that please teachers. Towards the end of the study, when Henry was asked why he did not recruit, he replied, “I’m tired.”

A fifth setting limitation was that because Ellen’s performance in math was so poor she was removed from the general education math classroom soon after training and placed in the resource room for math instruction. Ellen’s data from the social studies classroom became her primary setting data, and there was no opportunity to assess any generalization to another classroom.

On the four-tier graphs (Figures 4.1 and 4.2) showing recruiting, praise, and instructional feedback, the second tier shows data from a setting and
teacher different from the first, third, and fourth tiers. Because the setting was different for that tier, comparisons across all four students are limited. For example, length of time in each session for independent work was different in Ellen’s social studies classroom than in her math classroom. The problem with Ellen losing her probe setting is that there were only three students to compare instead of four, which limits the conclusions about the data collected in the probe setting.

Participants

Teachers. A limitation related to the math teacher involved in this study was her belief, as stated in her exit interview, that praise may not be as important for middle school students as for elementary school students. This belief may have influenced her rate of praise, as well as the students’ rates of recruiting.

Another problem was the frequent absences due to illness (7 of 43 sessions) of the special education teacher. The special education teacher was responsible for training the students, prompting them in the morning to recruit, and checking and rewarding each student’s recruiting at the end of the school day. If students recruited on a day the special education teacher was absent, and were not rewarded that until the next day, the extended delay of the reward may have weakened recruiting behaviors. In addition to this problem, the experimenter could not rely on substitute teachers to correctly prompt students to recruit, or to even prompt the students at all. The special education teacher left a note asking substitute teachers to prompt specific
students, but the experimenter was unable to verify that correct prompting occurred.

**Students.** The primary limitation related to the students is they were not assessed prior to their selection the degree to which teacher praise and attention functioned as a reinforcer. The experimenter incorrectly assumed all four students would find teacher praise and attention desirable. Lisa made remarks throughout the study and in the exit interview indicating that she found teacher attention aversive, even if it was in the form of praise.

**Dependent Variables**

Two dependent variable limitations were present in this study: the inconsistency of the amount of time students were given for independent seatwork in class, and the inconsistency of the number math items students were expected to complete. Students were given anywhere from 7 to 25 minutes to complete math seatwork assignments. The target recruiting rate was once per 10-minutes. If a student only had seven minutes to recruit, and recruited once that session, he would have met criteria with an rate of 1.4 times per 10-minutes. If the student had 25 minutes to work, he or she would have to recruit three times to meet criteria. The wide range of session lengths influenced the variability of the data. A frequency count for a consistent period of time would provide more information about the occurrence of student recruiting, teacher praise, and instructional feedback.

Another limitation was the inconsistent number of math problems assigned. Students were expected to complete from 7 to 30 math items on each
seatwork assignment. The wide range of math items imposed variability in the data on completion and accuracy of seatwork, making academic productivity across sessions difficult to compare.

The ideal setting conditions for this type of study would be an equal number of minutes each session to complete seatwork, and an equal number of items to complete for each assignment. Consistency of minutes each session and items on each worksheet would make comparisons by session more meaningful.

Experimental Design

The multiple baseline design across subjects used in this study had two limitations (Heward, 1987). First, this design may not show a demonstration of experimental control even though a functional relation exists between the independent variable and the target behaviors. Observation of concurrent behavior changes still in baseline conditions precludes the demonstration of a functional relationship within the original design. Second, the multiple baseline design provides a weaker demonstration of experimental control than the reversal design because verification of the baseline prediction made for each behavior is not directly demonstrated but inferred from lack of change in other behaviors.

Another limitation to the multiple baseline design specific to this study is that an extended time period is necessary to allow each student a sufficient number of sessions to achieve steady states of responding in each phase. Because weeks of potential data collection were lost at the beginning of the
study, Henry had to be rushed through the generalization phase, when his recruiting responses were still highly variable, to allow enough time to observe him in the maintenance phase. The loss of time throughout the study also limited the number of sessions in the maintenance phase for all four students.

Summary of Limitations

The limitations of this study fall into following categories: setting, participants (teachers and students), dependent variables, and experimental design. The primary limitations of setting include the somewhat unusual circumstances of having two teachers in one general education classroom, students not being assigned work on a daily basis, loss of many sessions due to special events, and problems associated with collecting data at the end of a school year. In the participants category, the primary limitation was the general education math teacher was less inclined to praise because of the student age levels. A problem with the special education teacher was her frequent absences (7 of 43 sessions). The major student limitation was Lisa's aversion to any form of teacher praise and attention. In the category of measurement, the main problem was the wide range of time periods in each session (7 to 25 minutes) allotted for work completion. Another problem with measurement was the wide range of number of math items to complete in each session, which weakened comparisons of percentage work completion and accuracy across sessions. The final limitation of this study is weaknesses associated with using the multiple baseline design across students.
Research Questions

This section discusses the study's results specific to each of the nine research questions.

Research Question One

What are the effects of training middle school students with learning disabilities to recruit teacher attention in the special education classroom on the rate of recruiting responses they emit during independent mathematics seatwork sessions in the general education classroom?

The results of this study show that students increased their rate of recruiting responses after training (target rate: once per 10-minutes). Connell et al. (1993), Craft (1996), Harchik, et al. (1993), Hrydowy et al. (1984), Mank and Horner (1987), Morgan et al. (1983), Seymour and Stokes (1976), and Stokes et al. (1978) also demonstrated increased rates of recruiting responses of students trained to recruit positive teacher attention. These results are especially significant for Ellen and Pam (see Tables 4.3 and 4.4). Ellen and Pam recruited on 20% and 18% of the baseline sessions respectively, at a mean rate of .07 and .22 responses per session respectively. In the generalization programming phase, Ellen and Pam recruited at a rate of 1.21 and 1.39 recruiting responses per session respectively. Both students continued high rates of recruiting during maintenance, with Ellen recruiting at a mean rate of 1.10 and Pam recruiting at a mean rate of 1.18. Ellen and Pam also showed consistency of daily recruiting responses, they recruited at least once during 100% of their sessions in the generalization programming and maintenance phases.
Henry also increased his mean recruiting rates per session, though not as significantly as Ellen and Pam. Henry recruited 17% of the baseline sessions at a mean rate of .13 recruiting responses per session. During generalization programming, Henry recruited on 62% of the sessions at a mean rate of .86, and then, in maintenance, decreased to a mean rate of .46 recruiting responses per session. His recruiting rate during maintenance was still higher than his recruiting rate during baseline. Henry emitted lower rates of recruiting when he was no longer continuously reinforced with cans of soda for two or more recruiting responses. Henry may have recruited more consistently in the generalization and maintenance phases if continuous reinforcement was extended for a longer period of time, and systematic fading of reinforcers was implemented more gradually.

Recruitment training had little effect for Lisa. She recruited on 13% of the baseline sessions at a mean rate of .05 recruiting responses per session, and increased to a mean rate of .25 in generalization and .22 in maintenance. Even though Lisa expressed an aversion to recruiting teacher attention, her recruiting rate still increased slightly after training. She only recruited on 5 (23%) out of 22 sessions in the combined generalization and maintenance phases. Lisa's low rates of recruiting, however, could be seen as a strength of this study because because this added believability to the rates of recruiting behaviors of the other participants.

Training middle school students with learning disabilities to recruit teacher attention increased the rates of recruiting responses emitted for three
of the four students during independent mathematics seatwork sessions in the general education classroom.

Research Question Two

What are the effects of training middle school students with learning disabilities to recruit teacher attention in the special education classroom on the rate of teacher praise statements received by the students during independent mathematics seatwork sessions in the general education classroom?

In this study training students to recruit teacher attention increased rates of teacher praise. These results are similar the following recruiting studies: Connell et al. (1993), Craft (1996), Harchik et al. (1993), Hrydowy et al. (1984), Mank and Horner, (1987), Seymour and Stokes (1976), and Stokes et al. (1978). Morgan et al. (1983) was the only recruiting study in which there was no increase in teacher praise after the intervention was implemented.

Similar to Connell et al. (1993), Craft (1996), and Harchik et al. (1990), not all recruiting responses were followed by praise in this study (see Table 5.1). During generalization programming, the percentage of recruiting which produced teacher praise was as follows: 71% for Henry, 76% for Ellen, 50% of Lisa, and 43% for Pam. Although teacher praise never occurred at very high rates for each of the four students throughout the study, it was still significantly higher for all students in the generalization programming and maintenance phases compared to the baseline phase. During baseline there was a total of one praise statement in the 32 baseline sessions (approximately
<table>
<thead>
<tr>
<th>Student</th>
<th>Baseline</th>
<th>Generalization Program</th>
<th>Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Henry</td>
<td>0 (3)</td>
<td>100</td>
<td>71 (15)</td>
</tr>
<tr>
<td>Ellen</td>
<td>0 (1)</td>
<td>100</td>
<td>76 (25)</td>
</tr>
<tr>
<td>Lisa</td>
<td>0 (2)</td>
<td>50</td>
<td>50 (4)</td>
</tr>
<tr>
<td>Pam</td>
<td>17 (6)</td>
<td>43</td>
<td>43 (14)</td>
</tr>
</tbody>
</table>

Note: Numbers in parentheses show the total number of recruiting responses per phase.

Table 5.1. Percentage of recruiting responses that produced teacher praise and instructional feedback statements during independent seatwork sessions by Henry, Lisa, and Pam in a general education math class, and by Ellen in a general education social studies.
praise statement in six and one-half hours) of the first three students (see Figure 4.1).

Three of the four students in this study received a substantial increase in teacher praise statements over baseline levels (see Tables 4.3, 4.4, and 4.5). Henry and Ellen received no teacher praise during baseline. For Lisa and Pam, the mean rate of teacher praise during baseline was .07 and .12 praise statements per session respectively. Lisa was praised on 1(7%) of 15 sessions, and Pam was praised on 5 (18%) of 28 sessions. Henry's mean praise rate during generalization programming increased to .67 praise statements per session, Ellen's increased to .82, and Pam's increased to .55. Lisa's mean praise rate only increased to .25 praise statements per session. This rate of praise is consistent with Lisa's low rate of recruiting.

In the maintenance phase, teacher praise statements were lower for all students than in the generalization programming phase, but still higher than in the baseline phase. The mean rate of praise statements in the maintenance phase was as follows: Henry, .16; Ellen, .48; Lisa, .16; and Pam, .22. Of the praise statements occurring in the generalization programming and maintenance phases, 80% to 100% were recruited for Henry, Ellen, and Pam. Teacher praise statements may have decreased for Ellen and Pam because the maintenance phase was at the end of the school year, and teacher involvement with students may have decreased in general. For Henry and Lisa, lower rates of praise statements may be a combination of end-of-the-school year decreased involvement as well as decreased recruiting.
Training middle school students with learning disabilities to recruit teacher attention in the special education classroom generally increased the rate of teacher praise statements received by the students during independent mathematics seatwork sessions in the general education classroom.

**Research Question Three**

What are the effects of training middle school students with learning disabilities to recruit teacher attention in the special education classroom on the rate of instructional feedback statements received by the students during independent mathematics seatwork sessions in the general education classroom?

This is the first recruiting study which specifically measured instructional feedback as a dependent variable. Training students to recruit positive teacher attention greatly increased the rate of instructional feedback for three of the four subjects, Henry, Ellen, and Pam (see Tables 4.3, 4.4, and 4.5). During baseline, Henry received instructional feedback at a mean rate of .75 instructional feedback statements of which 13% were recruited. The mean rate of instructional feedback statements received by Henry increased to 1.64 during generalization programming (43% recruited) and decreased to 1.01 during maintenance (42% recruited). Henry probably received higher rates of instructional feedback than the other students because the LD tutor spent a great deal of time helping him. During baseline, Henry was not recruiting, but once he started recruiting at higher levels after training, the LD tutor may have anticipated Henry's need for extra help. For the most part, she stationed
herself next to Henry throughout the generalization programming and maintenance phases during seatwork time. Instructional feedback for Henry decreased in the maintenance phase possibly because he was recruiting less often, however the LD tutor still provided him with relatively high levels of instructional feedback.

Ellen showed the most significant increases in instructional feedback after training. During baseline Ellen received instructional feedback at a mean rate of .07 instructional feedback statements per session (100% recruited). This increased to a mean rate of 1.37 (86% recruited) during generalization programming and decreased to a mean rate of .80 during maintenance (100% recruited).

Significant increases in instructional feedback were also apparent with Pam. Her mean rate of instructional feedback was .21 instructional feedback statements per session in baseline, 1.18 in generalization programming, and .90 in maintenance. Of the instructional feedback statements Pam received, 75% were recruited in baseline, while 100% of the instructional feedback statements were recruited in both the generalization programming and maintenance phases. Henry, Ellen, and Pam clearly would not have received higher levels of instructional feedback after training had they not recruited. Once again decreases in instructional feedback for Henry, Ellen, and Pam during maintenance could have been, in part, a function of overall decreased teacher involvement at the end of the school year.
Lisa’s mean rate of instructional feedback statements per session remained relatively consistent throughout each phase of the study: .44 in baseline, .54 in generalization programming, and .52 in maintenance. Less than 34% of Lisa’s instructional feedback statements were recruited throughout each phase of the study. Lisa’s low levels of recruiting responses after training can be explained by her aversion to teacher attention.

Training middle school students with learning disabilities to recruit teacher attention in the special education classroom increased the rate of instructional feedback statements received by the students during independent mathematics seatwork in the general education classroom.

**Research Question Four**

*What are the effects of training middle school students with learning disabilities to recruit teacher attention in the special education classroom on the percentage of work completion and accuracy of assignments during independent mathematics seatwork sessions in the general education classroom?*

This study provides strong evidence supporting a functional relation between training students to recruit teacher and increased academic productivity. These results are similar to those reported by Mank and Horner (1987) and Seymour and Stokes (1976), whose subjects showed increased job related productivity; and by Craft (1996) whose subjects showed increased academic productivity. Work productivity was highly variable for Henry,
Lisa, and Pam during baseline, but became more consistent during the
generalization programming and maintenance phases (see Table 4.6).

Henry's data showed high variability for both completion and accuracy of
math seatwork during the baseline phase. His work completion averaged 49%
(range 0% to 75%). Accuracy of Henry's completed math items averaged 51%
(range 0% to 93%). Henry's work completion and accuracy showed higher
scores and more stability during the generalization programming and
maintenance phases. His mean scores of completion and accuracy ranged
from 72% to 79% in the last two phases of the study.

For Henry, there were clear effects of recruitment training on academic
productivity and accuracy during the generalization programming phase. The
increased rates of teacher praise and instructional feedback statements
recruited by Henry during generalization programming may have positively
affected his academic productivity. However, during the maintenance phase,
Henry's academic completion and accuracy remained high even though his
recruiting rate declined as well as the teacher praise and instructional
feedback statements he received. Three possible explanations for this are: (a)
Henry may have established a routine of work completion during the
generalization programming phase which maintained until the end of the
study, (b) Henry received intermittent teacher attention which may have
strengthened his academic productivity, and (c) the seatwork assignments
may have been less difficult because it was the end of the school year.
Pam’s data showed the greatest increases in work completion after training. Pam’s data, like Henry’s, were highly variable in the baseline phase and much more stable in the generalization programming and maintenance phases. Her completion during baseline averaged 56% (range 0% to 100%). Accuracy of completed work averaged 65% (range 0% to 100%). Pam’s work completion and accuracy showed higher scores and more stability during the generalization programming and maintenance phases. Her mean scores of completion and accuracy ranged from 69% to 91% in the last two phases of the study.

Pam recruited at the criterion rate (one recruiting response per 10-minutes) after training until the end of the study. Although there were slight decreases in praise and instructional feedback during maintenance, Pam’s work productivity remained consistent.

Lisa’s data on completion and accuracy of math seatwork also showed high variability during the baseline phase and more consistency during the remaining phases. Her work completion averaged 62% (range 0% to 100%), and accuracy averaged 71% (range 50% to 100%). Lisa’s data on completion and accuracy of math seatwork showed more stability during the generalization programming and maintenance phases. Her mean scores of completion and accuracy ranged from 82% to 91% in these last two phases of the study.

Because Lisa rarely recruited throughout the study, and teacher praise and instructional feedback remained low in each phase, her increases in academic
productivity have an alternative explanation. After training, Lisa initially recruited to criteria in three of the first six sessions, then she discontinued her recruiting responses throughout the remainder of the generalization programming phase. On the third session of generalization programming, when the special education teacher reminded Lisa to recruit, Lisa stated that she did not want the teacher come to her desk during class because “only the dumb kids” ask for help. The special education teacher reported to the experimenter that on the evening of the third session of the generalization programming phase, Lisa’s parents phoned the LD tutor and asked her not to provide Lisa with extra help in math class if she maintains high levels of completion and accuracy of her work. Ironically, in terms of the context and purpose of this study, Lisa’s increased completion and accuracy with her math seatwork may have been produced by her desire to avoid teacher attention.

Lisa was the highest functioning of the three students for whom academic productivity was assessed. Her IQ score was 121, and her standard achievement scores for math, reading, and language were 100, 103, and 72 respectively. Because there was approximately a 20-point discrepancy between her IQ and achievement scores, Lisa qualified for the special education services of an LD tutor. A possible explanation for Lisa’s aversion to teacher attention is that she was unhappy with her learning disabilities label, and whenever she received assistance from the LD tutor, she may have felt this called attention to the fact that she was considered learning disabled. She may
have generalized the aversive nature of assistance from the LD tutor to the assistance of all classroom teachers.

All three students showed increases in academic productivity but for different reasons. Henry's and Pam's data are most likely directly related to their recruiting behaviors, and Lisa's data are most likely attributed to avoidance of teacher attention.

Training middle school students with learning disabilities to recruit teacher attention in the special education classroom increased the percentage of work completion and the percent accuracy of completed items during independent mathematics seatwork in the general education classroom.

**Research Question Five**

What are the effects of training middle school students with learning disabilities to recruit teacher attention in the special education classroom on the rate of recruiting responses they emit in a probe setting (the social studies classroom)?

Although student recruiting remained at relatively low rates throughout the study in the probe setting, Henry, Lisa, and Pam increased their rate of recruiting behavior in the probe setting after training. There were increases in recruiting behavior for all students after training. These results are similar to other studies in which recruiting generalized to probe settings (Harchik, et al. 1990; Seymour & Stokes, 1976; Mank & Horner, 1987).

Henry did not recruit during baseline. He recruited during generalization programming in the probe setting on 6 (60%) of 10 sessions, with a mean rate
of .54 recruiting responses. He also continued to recruit on 2 (50%) of 4 sessions during the maintenance phase, with a mean rate of .25 recruiting responses. Because Henry did not recruit in three of four consecutive sessions after training, he was prompted to recruit on the fifth session and offered an extra ticket for each time he recruited. After he was offered tickets he recruited on the next five of six sessions during generalization programming.

Henry did not emit spontaneous, unprompted recruiting in the probe setting. Also, he did not recruit on the last two probe sessions in the maintenance phase. This is consistent with Henry's data in the primary setting. Henry's recruiting may have been motivated more by tangible rewards than by teacher attention. While he recruited in the probe setting on most of the sessions after training, he rarely did so to the set criteria, once per 10-minutes. When asked why he did not recruit as much in social studies class (the probe setting) during the exit interview, he stated that he did not get a can of soda for recruiting in social studies class. Evidently the can of soda was a much more powerful reward for Henry than the tickets.

Although Lisa's recruiting rate in the probe setting increased slightly during the generalization and maintenance phases, she never recruited to criteria more than once during the 10 generalization programming and maintenance phase sessions. Lisa recruited on 3 (43%) of 7 sessions in the probe setting during the baseline phase, with a mean rate of .26 recruiting responses; increasing to a mean rate of .35 recruiting responses in generalization programming. During the maintenance phase, Lisa recruited
on 2 (50%) of 4 sessions, with a mean rate of .47. Lisa was also offered tickets to recruit in the probe setting on the fifth session of the generalization programming phase, but this had no effect on Lisa's rate of recruiting. Lisa may have been recruiting at higher rates throughout each phase in the probe setting when compared to the primary setting because the LD tutor was not present in the probe setting, and Lisa was less self-conscious about her learning disability label.

Pam's data show the greatest increases in recruiting responses. Pam recruited on 2 (17%) of 12 baseline sessions, with a mean rate of .13 recruiting responses. She recruited on all sessions throughout the rest of the study at a mean rate of 1.70 during generalization and 1.08 during maintenance. Without prompting, Pam began spontaneously recruiting in probe setting on each session after training. Pam was not rewarded at any time for recruiting in the probe setting. It seems that teacher attention in this setting was effective for maintaining Pam's target rates recruiting behavior.

Training middle school students with learning disabilities to recruit teacher attention in the special education classroom increased the rates of recruiting responses emitted by two of the three students in the experimental probe setting.
Research Question Six

What are the effects of training middle school students with learning disabilities to recruit teacher attention in the special education classroom on the rate of teacher praise statements received by the students in a probe setting?

Although teacher praise rates remained low throughout the study in the probe setting, it occurred at higher rates after students were trained to recruit. Henry received no teacher praise during baseline. After training, Henry received teacher praise on 4 of 14 sessions throughout the rest of the study at a mean rate of .26 during generalization and .13 during maintenance. Training Henry to recruit seems to have slightly influenced the rate of teacher praise directed towards him.

Teacher praise decreased slightly for Lisa in the generalization phase after training, then increased slightly in the maintenance phase. During baseline, teacher praise statements occurred on 2 (29%) of 7 probe sessions, with a mean rate of .12 teacher praise statements per session. She was praised on 1 (17%) of 6 sessions, with a mean rate of .23 teacher praise statements in generalization programming. Then, in the maintenance phase, she received praise on 3 (75%) out of 4 sessions, with a mean rate of .36. Lisa’s variability of teacher praise statements in the probe setting seems unrelated to her recruitment training.
Once again, Pam's data show the clearest relationship between the independent variable and the dependent variable. Pam received teacher praise on just 1 (8%) of 12 baseline sessions (mean rate per session, .07). Teacher praise occurred on one of the two generalization programming sessions (mean rate per session, .50), and all three maintenance phase sessions (mean rate per session, .54) Pam's rate of recruiting responses clearly influenced the rate of teacher praise statements she received.

Training middle school students with learning disabilities to recruit teacher attention in the special education classroom increased the rate of teacher praise statements received by two of the three students in the experimental probe setting.

**Research Question Seven**

What are the effects of training middle school students with learning disabilities to recruit teacher attention in the special education classroom on the rate of instructional feedback statements received by the students in a probe setting?

Each of the three students in the probe setting received higher levels of instructional feedback after recruitment training. Henry received instructional feedback on 1 (25%) of 4 baseline sessions (mean rate per session, .08). This increased to a mean rate of .51 and .53 instructional feedback statements per session in the generalization programming and maintenance phases respectively. Henry's increased instructional feedback appears to be functionally related to his increased recruiting. On the last two sessions in the
probe setting, Henry received non-recruited instructional feedback. His increased recruiting after training may have influenced the teacher to continue providing Henry with instructional feedback even on sessions when he did not recruit.

For Lisa, there was very little difference in the rate of instructional feedback between the baseline and generalization programming phases. In baseline, Lisa received instructional feedback statements on three of seven sessions (mean rate per session, .26). In the generalization programming and maintenance phases she received instructional feedback statements on three of six sessions (mean rate per session, .31), and one of four sessions (mean rate per session, .12) respectively. For Lisa, there was no effect of recruitment training on the dependent variable of instructional feedback because she rarely recruited.

Pam received the highest rates of instructional feedback in the probe setting after training because she emitted the highest rates of recruiting. In baseline she received instructional feedback on three of 12 sessions (mean rate per session, .20). In generalization programming and maintenance, Pam received instructional feedback on two of two sessions (mean rate per session, .74) and three of three sessions (mean rate per session .86) respectively.

Training middle school students with learning disabilities to recruit teacher attention in the special education classroom increased the rate of instructional feedback statements for two of the three students in the experimental probe setting.
Research Question Eight

What are the students’ opinions regarding the recruitment training intervention and its effects?

In general, the students responses during the interview were consistent with their recruiting behavior during the observation sessions in the general education classrooms. All four students were able restate the steps for recruiting teacher attention. Henry, Ellen, and Pam thought they did a good job of recruiting in their math class. Lisa stated that she did not recruit much at all. Henry stated that he did not recruit much in the probe setting because he did not get a can soda for recruiting there. Pam thought she did a good job of recruiting in all of her classes because she liked it when the teacher came to her desk. Henry, Ellen, and Pam each said that they liked recruiting, while Lisa said she did not.

Henry, Ellen, and Pam made remarks indicating that the teacher helped them with their work when they asked, and usually said they were doing a good job. They also said that the teacher’s attention made them feel good. Lisa emphasized that she did not like getting the teacher’s attention.

None of the students thought recruiting affected how much work they completed, but Henry, Ellen, and Pam thought it helped improve their accuracy because the teachers helped them figure out the correct answers.
Henry, Ellen, and Pam did not think their peers noticed whether or not they were recruiting, and would not have cared one way or another if they did. Pam thought that if she recruited too much, her peers might have thought she was trying to be a “teacher’s pet.” She thought she was recruiting just the right amount of times in her classes. Lisa thought her peers noticed every time she asked for help, and that they probably thought that she was not very smart because she needed the teacher to help her. Pam was the only student who thought her teachers’ opinions of her was a bit different. She thought both the math teacher and the social studies teacher liked her more than before she started recruiting. Henry, Ellen, and Pam said they would continue to recruit. Lisa said she would rather do the work on her own without the teacher’s attention. The results of these interviews indicate that three out of the four target students liked recruiting, and liked the extra teacher attention that resulted from recruiting.

General results of the Teacher Approval Assessment Inventory, Student Version indicate that Henry, Ellen, and Pam found teacher praise and teacher help desirable. For almost all of the questions on the inventory related to teacher praise and teacher help, Henry, Ellen, and Pam selected choice “(a) I would like it a lot.” Lisa, however, selected choice “(c) I wouldn’t care” for 75% of the questions in the teacher praise category, and 100% of the questions in the teacher help category. She even indicated that she “would like it a little” on one of the questions in the ignoring category. Lisa’s remarks during
the interview and answers on the inventory are highly consistent with her recruiting behavior throughout the study.

Different histories of reinforcement for individual students affect the degree to which teacher praise and attention serve as a reinforcers (Skinner, 1953, 1971, 1974). Had the students been assessed prior to the beginning of the study, Lisa would not have been selected as an experimental subject. Training students to recruit positive teacher attention would clearly be more effective for students who value teacher attention.

Based on the results of the student interviews and the Teacher Approval Assessment Inventory, Student Version. Three of the four students liked being trained to recruit teacher attention and liked the increased teacher attention, praise, and academic productivity their recruiting produced.

Research Question Nine

What are the participating teachers' opinions regarding the recruitment training intervention and its effects on the students and their behavior?

All three teachers gave similar responses to the questions asked by the experimenter. The LD tutor and math teacher both noticed that Henry and Pam were asking more questions, and that Lisa was doing higher quality work. The social studies teacher said she did not notice much difference in the behavior of the target students. However, she did notice that Ellen seemed to be participating more in class. This is not surprising considering Ellen showed the most consistency of recruiting in social studies class for the longest period of time.

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After the experimenter explained the purpose of the study, she asked specific questions about the students' recruiting behaviors. The math teacher and LD tutor said they thought Henry and Pam were recruiting at an appropriate rate, at appropriate times, for appropriate reasons, and that their recruiting seemed natural. They both stated that Lisa should probably be recruiting more often.

The LD tutor explained that Lisa's parents worked out an arrangement with Lisa—if Lisa's work improved, the LD tutor should not give her extra help or attention. The social studies teacher thought Ellen was recruiting appropriately. She thought the other three students should probably be recruiting at a higher rate. It would be a good idea to assess appropriate recruiting rates for the target settings prior to conducting a study like this, so that students can be trained to that criterion level.

The math teacher and LD tutor noticed higher levels of academic productivity and accuracy for Henry, Lisa, and Pam, and they stated they thought Henry's and Pam's social skills had improved. The social studies teacher thought Ellen seemed to be more productive.

Similar to the findings in the Craft (1996) study, all three teachers thought recruiting was a valuable skill to train, and that it made their interactions with the students who were recruiting more frequent and more positive. Similar to Connell et al. (1993), the teachers in this study thought more highly of students who requested help.
All three teachers thought they were praising students more often than the data showed, but the math teacher and the social studies teacher also thought that praise was less important for middle school children than for younger children. The math teacher thought training students to recruit was a valuable skill to teach but may be more appropriate for younger children.

Results of the Teacher Approval Assessment Inventory are consistent with several of the teachers' remarks during their interviews. For the most part, they rated teacher praise and teacher help consequences for Henry, Ellen, and Pam lower than those students rated them. Choice "b) would like it a little" was the typical response for teacher praise and teacher help questions whereas Henry, Ellen, and Pam usually selected Choice "a) would like it a lot". There seems to be a discrepancy between the teachers' and students' views of the importance of praise. Perhaps the teachers rated teacher praise lower than the students did because when the students were praised in the past, they may not have behaved in ways that indicated to the teacher they liked it. For example, they may not have smiled or thanked the teacher.

Each of the three teachers' ratings of consequences for Lisa were consistent with Lisa's own ratings. Choice "c) wouldn't care" was usually selected for teacher praise consequences for Lisa. She probably made her opinions of teacher attention very clear to her teachers, both verbally and nonverbally.

Based on the individual interviews, the teachers participating in this study liked when students recruited and liked the effects of increased student academic productivity.
Implications for Classroom Practice

The implications of this study are consistent with several other published recruiting studies (e.g., Connell et al. 1993; Harchik et al. 1990; Morgan et al., 1983). Students can be taught to "wake up" a powerful source of reinforcement by recruiting contingent teacher praise and attention (Stokes, Fowler, & Baer, 1978). Also, students' academic productivity and accuracy may be increased when they seek teacher attention and feedback for their work (Craft, 1996). The following categories of implications are discussed below: selection of students, training, programming for generalization, working with general education classroom teachers, and integrating students with disabilities into inclusive settings.

Selection of Students

The primary implication of this study related to students is the importance of assessing the extent to which students find teacher praise and attention desirable. The experimenter falsely assumed that all four students selected to participate in this study would find teacher praise desirable. However, it became clear during the course of the study that Lisa found teacher attention and praise aversive. In fact, Lisa worked out an arrangement with her parents that if she improved her performance in math class she could avoid teacher attention of any kind. When selecting good candidates for recruitment training, teachers need to take into account individual student histories of reinforcement.
Alber and Heward (1997) describe four "types" of students who would benefit from recruitment training: Withdrawn Willamena, a shy, well-behaved student rarely noticed by her teacher; In-a-Hurry-Harry, a student who works so fast that his assignments are riddled with errors so he does not get praised when he recruits; Shouting Shelly, a disruptive student who inappropriately recruits by impatiently calling out for teacher attention; and Pестering Pete, a productive worker who annoys his teacher because, although he recruits appropriately, he recruits too often.

The Teacher Approval Assessment Inventory, developed by the experimenter at the end of the study, provides one way in which teachers can evaluate the extent to which students find teacher praise reinforcing. The students' answers on this measurement device were very consistent with their behavior during observation in the general education classroom. Had this inventory been given to the students prior to the beginning of the study, Lisa would not have been selected as a target student. The experimenter plans to use the Teacher Approval Assessment Inventory when selecting students for any subsequent replications of this study. This device should also be used in combination with self reports from the student as well as by his or her teachers, parents, and peers.

The experimenter recommends the assessment of reinforcer preference prior to the selection of students. Ideally, a functional assessment should be implemented. For example, the trainer should systematically praise students for specific target behaviors, and measure whether or not those behaviors occur
more frequently. The behavioral research includes many studies on the selection of functional reinforcers for individuals with severe disabilities (e.g., Piazza, Fisher, Hagopian, Bowman, & Toole, 1996; Datilo, 1986; Wacker, Berg, Wiggins, Muldoon, & Cavanaugh, 1985; and Pace, Ivanic, Edwards, Iwata, & Page, 1985). There is little research, however, on assessing the relative reinforcement of teacher praise and attention.

The Dunn-Rankin Reward Preference Inventory (1973) is a checklist for higher functioning students that is meant to measure the following preferences: adult approval, peer approval, competition approval, independence rewards, and consumable rewards. A weakness of the Dunn-Rankin inventory is that all of the adult approval items were related to grades on academic assignments (e.g., “Teacher writes ‘100’ on your paper”, “Teacher writes ‘A’ on your paper”, “Teacher writes ‘Perfect’ on your paper”). This does not necessarily measure adult approval as a preference because the student may want to get a high grade on his or her paper, but may not want teacher praise, attention, or approval.

If a student who does not respond favorably to positive teacher attention is selected for training, the teacher should make an effort to change that pattern by continually pairing teacher praise with consequences that function as reinforcers. For example, if the student was given a highly desired tangible reward each time the teacher praised him, and the tangible reward was very gradually faded, teacher praise may eventually serve as a generalized conditioned reinforcer. This may be a valuable use of teacher time and effort, or
it may be more cost than the outcome is worth, depending on the philosophical world view of the teacher and the ease of training the student.

Expending the time and effort necessary to increase the effectiveness of teacher praise as a reinforcer may be very beneficial to the student because adult approval is a major component of the natural environment. Once conditioned, the student would easily be able to come into contact with the natural reinforcers of his daily environment. An alternate view of the cost-benefit ratio of changing the function of the consequence of teacher praise, is that limited teacher time and effort would be much better spent using previously established reinforcers to teach functional skills.

Training

Training students to recruit positive teacher attention is a relatively low-cost, low-effort strategy that can potentially yield very positive effects. Each student in this study was trained in two 20-minute sessions. Lower functioning students may need more time to train, but probably not much. Experimenters in previous recruiting studies conducted training for the following number of sessions: Craft (1996) trained her fourth graders with developmental handicaps in three 20-minute sessions; Seymour and Stokes (1976) conducted training with adolescent girls in three to ten 10-minute sessions; Morgan et al. conducted training with elementary students with behavioral disorders in nine 15-minute sessions; and Hrydowy et al. (1984) conducted training with fourth graders in three 15-minute sessions.
Students with mild disabilities typically spend the most time in general education settings compared to students with more moderate or severe disabilities. Students who become skilled at recruiting positive teacher attention can use this skill in a wide variety of normalized settings throughout the day (e.g., other classrooms, work settings, leisure settings). Many students with mild disabilities already have many of the components of appropriate recruiting already present in their repertoires. In this case, recruitment training may require even less time for teachers to implement.

The following training sequence suggested by Alber and Heward (1997) was used in this study: Provide a rationale for recruiting, model the skill, role play the skill, and provide practice, praise, and corrective feedback for when to recruit (when the teacher is available), how to recruit (use the appropriate signal), what to say to the teacher (vary polite requests for feedback, "How does my work look?"), how to respond to teacher feedback (say "Thank you"), and how often to recruit (at a rate appropriate to the setting, e.g., twice per 20-minute work period). These combined components of recruitment training were shown to be effective for teaching students to acquire recruiting behaviors. Once the students acquired appropriate recruiting behaviors, they needed additional support from the trainer in order to generalize those skills to other settings. Daily prompting and rewarding that is gradually faded once the students show consistency of responding is recommended. If recruiting responses become weaker, extra supports should be reinstated.
Prior to training, the target settings where the student will recruit positive teacher attention should be assessed for the following: appropriate rates of recruiting, appropriate recruiting behaviors (e.g., hand raise), appropriate times to recruit (e.g., when the teacher is available to help), and appropriate target skills for which students should recruit (e.g., completion of work). If students are trained to recruit to the criteria of a target setting, their recruiting behaviors are more likely to be reinforced by the teacher in that setting. Ideally, the target settings should be assessed through direct observation. The trainer should visit the target setting during several different periods throughout the school day, and record the manner in which students typically signal the teacher for attention. The trainer should also record teacher reactions to student recruiting to determine appropriate target behaviors, rates of recruiting, and acceptable ways of recruiting. For example, a teacher praises a student who recruits for turning in his homework, but does not praise a student who recruits for sharpening his pencil. So in this setting, homework completion may be a good target skill for which students can recruit teacher attention, but not pencil sharpening. When the target settings can not be assessed through direct observation, the trainer should ask the teacher in that setting appropriate recruiting behaviors, rates, etc. When it is impossible to ask the teacher in the target setting, trainers should make an informed guess based on the recruiting research.

It is important to train students to recruit at appropriate recruiting rates. A student recruiting too often may become a “pest” and may inadvertently recruit
negative attention instead of positive attention (Stokes, Fowler, & Baer, 1978). Students may need to be directly taught to self-record so they do not recruit too often. In the Craft (1996) study, students had boxes drawn on their spelling assignments indicating the point of work completion when they should recruit. In this study, three of the students were given a prompting card with a total of three boxes to check. They were instructed to check a box each time they recruited, and to stop recruiting after they checked the third box.

**Programming for Generalization**

Programming for the generalization of recruiting skills to other settings should be a primary goal. Building on the work of Stokes and Baer (1978), Alber and Heward (1997) describe nine strategies for programming for the generalization of recruiting skills.

*Simulate the generality setting as much as possible during training.* When training students to recruit, the students should practice self-assessment and recruiting using the same instructional materials used in the target settings. In this study the students were trained to recruit using their math assignments as training materials. This increased the likelihood of students recruiting for completion and accuracy of math assignments. Other ways to simulate the generality setting include: arranging the furniture in the training setting as it is arranged in the generality setting, practicing with the same tangible rewards used in the generality setting, and practicing with the same number of students, the same noise level, and the same lighting used in the generality setting.
Practice the full range of likely situations the student will encounter in the classroom. Training the range of likely situations in the generality setting, called the general case strategy (Sprague & Horner, 1984), involves the selection and use of teaching examples that sample the full range of stimulus situations and response requirements the student is likely to encounter in the generality setting. Students should be provided with repeated practice trials for recruiting for different kinds of classroom activities, recruiting for various kinds of academic work, and responding to different types of teacher feedback. In this study, the special education teacher role played with the students a wide range of possible recruiting situations and teacher responses to student recruiting, both positive and negative. The trainer also instructed the students to vary their own verbal statements in order to sound more natural.

Use minimum difference teaching examples. After students have demonstrated accuracy with basic discriminations of when and when not to recruit teacher attention (e.g., "Recruit when the teacher is near your desk." "Don't recruit when the teacher is doing lunch count."), teachers should use negative examples (i.e., when not to recruit) that are only slightly different from positive examples to help students make sharper discriminations (Horner, Dunlap, & Koegel, 1988). For example, while it is a good time to recruit the teacher when she is near your desk, the student should not recruit if she is near your desk, but working with another student. The trainer in this study practiced minimum difference examples with the students during role plays. The students in this study were high functioning and were quickly able
to discriminate minimum difference recruiting situations. Students functioning at lower levels may need more practice trials to acquire recruiting skills to this level of sophistication.

**Use intermittent reinforcement during training.** Every student recruiting effort will not be reinforced in the regular classroom, this was apparent in this study as well as other studies (Craft, 1996; Connell et al., 1993; Harchik et al., 1990). Intermittent reinforcement of a student's recruiting efforts during training will help prepare the student for the probability of intermittent reinforcement in the generality setting. In this study, the special education teacher and students role played, during training, many scenarios in which teacher praise was not forthcoming. Students who are more difficult to train should be praised for each recruiting response in the training setting for as long as it takes to establish correct recruiting responses. Once consistent recruiting responses have been established, the trainer should not praise every time the student recruits.

**Remind the student to recruit in the regular classroom.** Reminding students recruit is one of the most effective generalization strategies as well the easiest to implement. In this study the students were prompted each morning to recruit at least twice, but not more than three times in math class. The prompts were faded towards the end of the generalization programming phase. Verbal rehearsal of the recruiting steps during the daily prompt is probably an effective strategy for increasing the likelihood of correct recruiting. For example, the teacher may ask the students to restate the recruiting steps (e.g.,
"Do good work, check my work, raise my hand and wait for the teacher, and politely ask my teacher how I did.")

The learning strategies literature offers instructional techniques that can be used for recruitment training, such as providing mnemonic devices (Schumaker, Denton, & Deshler, 1984; Schumaker, Nolan, & Deshler, 1985). Alber & Heward (1997) suggest teaching students the mnemonic CLASS: Complete your work, Look it over for mistakes, Ask yourself if the teacher is available, Signal the teacher to look at your work, Say “Thank you”, to help them remember the steps for appropriate recruiting.

Give the student a physical prompt to recruit. Teachers should give the student a physical transportable reminder to recruit that can be used in general education classrooms. In this study, three of the students were given a prompting card, a bright red or green colored file folder with three holes punched so it could be inserted into the students’ notebooks. Five small detachable cards (2” X 3” ) were taped to the folder. Printed on each card was the student’s name, the date, and three boxes to check. Each time the student recruited he would check a box. After math class, the student brought his detachable card for that day to the special education teacher who would reward the student according to how many times he recruited.

The prompting card in this study served as a contrived common stimulus. A contrived common stimulus is a functional, transportable device taken to the generality setting that serves as a prompt for target behaviors. Previous studies have also used contrived common stimuli to program for
generalization. Van den Pol (1981) trained three young adults with multiple disabilities to order and eat food in fast food restaurants. The contrived common stimulus used in this study was a laminated ordering card which listed the steps the subjects needed to follow to appropriately perform the target skill. Trask-Tyler, Grossi, & Heward (1994) taught students who were blind and developmentally handicapped to cook using tape-recorded recipes. The contrived common stimulus in this study was the tape recorder and the recorded recipes.

Other suggestions for physical prompting devices include: marking the daily worksheets with words or symbols that serve as prompts to recruit, or having the student wear a special bracelet or use a certain pencil or pen in the regular classroom that serves as a reminder to recruit.

Teach students to self-record their recruiting responses. Giving students a simple way to count and record their recruiting responses can be an effective way of preventing students from recruiting too frequently or too infrequently. In this study, students used their recruiting cards to keep track of their recruiting responses. Other suggestions for recording recruiting responses include: using a wrist counter, transferring a set number of pennies from the students desk to his pocket, or writing hash marks at the top of an assigned paper.

Provide "delayed reinforcement" for recruiting. The use of delayed rewards can be a very effective generalization promoting strategy. Delayed rewards are defined by the following principles: reinforcement is not delivered each time
the target behavior is emitted, the contingency of reinforcement is unpredictable, and reinforcement is not delivered immediately after the target behavior is emitted (Baer, Williams, Osnes, & Stokes, 1984; Fowler & Baer, 1981). Delivery of the delayed reward is contingent upon the student’s performance in the generality setting at an earlier time period. Because the student does not know when the target behavior will be evaluated, he or she is likely to perform the target skill as often as possible in order to be eligible for the delayed reward (Stokes & Baer, 1977, Stokes & Osnes, 1989).

In this study, during the fading period of the generalization programming phase, the special education teacher met with each student at the end of two randomly selected days per week, asked the student to report the number of times he or she recruited, and provided the delayed reward accordingly (e.g., can of soda, tickets). The days when end-of-the-school-day checks and rewards occurred were unpredictable to the students.

Another tactic for programming delayed rewards for recruiting might include randomly selecting one or two periods of the school day for which recruiting behaviors are observed, and rewarding the student at the end of the day for recruiting during those periods. Students can also be rewarded at the end of the week for appropriate recruiting on two or three randomly selected days.

In this study, the students were remarkably honest when giving the special education teacher their recruiting reports, almost always matching the reports of observers. Since the students did not know they were being observed, they
thought the special education teacher was relying solely on their reports. Honest reports of the number of recruiting responses emitted may not be expected from many students so, if possible, trainers should let the students know they are using direct reports from adults in the regular classroom to verify the number of appropriate recruiting responses.

Ask the classroom teacher to praise the student’s recruitment efforts. It was not possible in this study to inform the regular classroom teachers about the experimenter’s training efforts, and ask them to praise when students recruited. If the research team did not keep the teachers “blind” to the purpose of the study, praise statements may have been greatly inflated because they would know that was what the experimenter was measuring. In a non-research practical situation, however, general education teachers should be informed of any recruitment training whenever possible in order to increase the likelihood that teachers will make an effort to praise the students whenever they recruit correctly and for appropriate reasons.

Teacher Behaviors

Natural rates of teacher praise and attention in Kindergarten through twelfth grade classrooms are typically low (Gable et al., 1983; Nowacek et al., 1990; Thurlow, et al., 1983; Ysseldyke, et al., 1884; White, 1975). The data in this study support the general finding that teachers do not praise students very much. An important implication of this study is that teachers may not realize how infrequently they praise students. All three teachers thought they were praising the students more frequently than they actually were. In practical
teaching settings, it might be a good idea to get the general education teacher to count and record his or her frequency of praising the students. A wrist counter is a simple and unobtrusive device for keeping track of praise statements. Not only will the teacher have an accurate record of frequency of praise statements, the wrist counter itself would serve as a prompt for praising students. Establishing a pre-determined criteria of praise statements for each instructional period or throughout the school day may increase the likelihood that the teacher will praise with appropriate frequency. This study corroborates the findings of White (1975) that teachers may not believe teacher praise is reinforcing to students beyond early elementary grades.

The teachers in this study rated teacher praise as less desirable for the target students than the students themselves rated teacher praise with the exception of Lisa on the Teacher Approval Assessment Inventory and during the exit interviews. In order to change this attitude, special educators should share with general educators the results of student interviews and questionnaires, and data from functional assessments of target students. Sharing data on student performance before and after systematic praise taken directly from the target teacher’s classroom may help convince teachers of the importance of frequent praise.

An implication for teachers discussed in greater detail in the programming for generalization section of this discussion, is that, when possible, general education teachers should be made aware of the special educator’s efforts to teach target students to recruit. If the teacher is aware of these goals, she is more
likely to praise when students recruit. The students themselves will serve as prompts for teacher praise.

Inclusive Settings

The current focal point of special education reform is inclusive education. Since the Individuals with Disabilities Act was passed in 1975, students with disabilities have been spending increasingly more time in educational settings with their non-disabled peers (Wang & Baker, 1985). Advocates for full inclusion (e.g., Stainback & Stainback, 1987, 1992; Thousand & Villa, 1991; Wang, Reynolds, & Walberg, 1994-1995) have influenced administrators to require the integration of students with special needs into general education classrooms for most or all of the school day. Because more difficult-to-teach children have been placed in general education classrooms, both general and special educators have to adjust their instructional methods to remedy the problem of academic and behavioral failure (Maheady, Harper, Mallette, & Karnes, 1987). One way to help students with special needs become more successful in general education settings is teaching them to recruit teacher attention.

The students in this study spent most of the school day in a general education classroom. In the math classroom, the three students with disabilities were experiencing academic difficulties. After they were taught to recruit teacher attention, their math performance increased by at least a full letter grade. If students with disabilities were taught to recruit in all general
education academic settings, it is possible that they would experience more overall school success.

**Directions for Future Research**

Systematic replications and extensions of research on recruiting should investigate the following areas: selection of recruiting settings, teachers or target praise agents, participants, target skills, curriculum areas, training procedures, and length of time for each phase.

**Settings**

Previous published studies on recruiting have assessed the effects of recruitment training in the following settings: preschool classrooms (Connell et al., 1993; Stokes et al., 1978), elementary school classrooms (Craft, 1996; Morgan et al., 1983; Hrydowy et al., 1984), integrated job settings (Mank & Horner, 1987), vocational training settings (Seymour & Stokes, 1976), and group home settings (Harchik, et al., 1990). This study extended the research base into the middle school. Additional settings for recruiting research may include different areas of the school other than the classroom, such as the cafeteria, the playground, the hallways, study hall, and after school activity settings. Students may recruit for any appropriate behaviors for which they are engaged in these settings such as social skills, appropriate conduct, and problem solving skills.

Students should also be assessed for recruiting skills in home settings. They may recruit from adults in their home for such accomplishments as homework completion, chore completion, or assistance with a younger sibling.
A wider variety of work settings may also be an area of exploration. The one recruiting study in an integrated work environment used a restaurant setting to assess students' recruiting skills. Other suggestions for work settings to study include: factories, offices, shopping centers, convenience stores, grocery stores, service stations, garages, sheltered work shops, and mobile work crew settings.

Leisure-activity and extra-curricular settings have been completely neglected in the recruiting research. Suggestions for possible settings include: bowling alleys, swimming pools, golf courses, baseball fields, ceramics class, cooking class, and dance class. Students can recruit attention for competent performance from peers, teachers, or coaches in those settings.

An important aspect of training individuals to recruit is assessing their performance in as many relevant probe settings as possible. Generalization of recruiting skills to as many settings as possible increases the likelihood that target individuals will tap into the natural communities of reinforcement throughout the day for a great variety of functional skills.

An ideal school-based study would assess student recruiting behaviors throughout the school day. For example, a student taught to recruit during homeroom could be observed in math class, reading class, language arts class, social studies class, science class, and the special area classes (e.g., art, music). If a student is taught to recruit and shows increases in academic productivity across the entire curriculum, the cost-benefit ratio of recruitment training would be tremendous (i.e., very low cost yielding an extremely high benefit).
Praise Agents

The following target praise agents were selected in previous studies on recruiting: preschool teachers (Connell et al., 1993; Stokes et al., 1978), general education teachers (Craft, 1996; Morgan, et al. 1983; Hrydowy, et al., 1984), job supervisors (Mank & Horner, 1987), and group home staff (Harchik et al., 1990). Potentially powerful praise agents neglected by recruiting research to date are the subjects' peers. Children from middle school age up through high school may find the approval of their peers more reinforcing than the approval of adults. Children can be taught to recruit from peers in any classroom setting, in cooperative learning groups, and in peer tutoring groups. Children may also recruit from peers in any leisure activity setting or extra-curricular activity setting. Students might also be taught to recruit from their parents and their siblings in the home settings. Another possibility for future research may be to train general education classroom teachers to teach their own students to recruit teacher attention.

Students

Previous recruiting studies have involved the following participants or subjects: preschoolers (Connell et al., 1993; Stokes et al., 1978), elementary school students (Craft, 1996; Hrydowy et al., 1984; Morgan et al., 1983), children with autism (Harchik et al., 1990), adolescents in a maximum security unit (Seymour & Stokes, 1976), and adults with severe disabilities (Mank & Horner, 1987). Although previous research has spanned a wide range of ages and functioning levels, there exists only one or two studies with each type of
subject. Future research should include additional studies on subjects from preschool age up through adulthood, and include wide ranges of functioning levels, including non-disabled students and students with severe disabilities. There are no published recruiting studies on the following populations: preschoolers with severe disabilities; early elementary school students (i.e., kindergarten through third grade); middle school students with learning problems or with mild to severe disabilities; high school students with disabilities or who are at risk for school failure; college students; and adults who are not severely disabled.

Teaching students with severe disabilities alternative ways of recruiting attention in inclusive settings is another research possibility. For example, students who have difficulty using language to communicate could be taught to recruit teacher attention and praise using augmentative or alternative communication devices.

**Targeted Skills for Recruiting**

Students have been trained to recruit for the following behaviors: cleaning up at transition time (Connell et al., 1993); spelling seatwork completion (Craft, 1996); academic and social skills (Morgan et al., 1983); language arts and social studies classwork (Hrydowy et al., 1984); academic paper and pencil tasks (Stokes et al., 1978); daily living tasks (Harchik et al., 1990), and vocational training or job related tasks (Mank & Horner, 1987; Seymour & Stokes, 1976). This study measured the effects of recruiting on completion and accuracy of math seatwork.
In addition to the above target skills related to the classroom, future research should also address the following types of skills: problem solving, writing, reading, working on the computer, note-taking, and more complex or extended academic projects (e.g., science experiments, research reports). Students may also be taught to recruit for school survival skills such as coming to class prepared with appropriate materials, completing and turning in homework, participating in class discussions, and behaving appropriately in class. Social skills may be another important area of recruiting research. Students can be trained to recruit for the following social behaviors: negotiating, cooperating, asking for assistance, offering assistance, or avoiding arguments.

Possible future research is left with a broad range of curriculum areas to explore. The effects of recruitment training on academic performance could be measured in the following areas for all grade levels: reading skills (e.g., decoding, reading comprehension), language arts skills (e.g., writing, editing, spelling), math skills (e.g., computation, solving story problems, measuring), social studies skills (e.g., remembering factual information, comparing and contrasting historical events), science skills (e.g., following procedures of classroom experiments), and research skills (e.g., finding necessary materials in the library, writing a research report).

Research on recruiting outside the school setting should include the target skills of: vocational tasks, work related tasks, home tasks (e.g., washing the
dishes), functional daily living skills (e.g., dressing, brushing teeth), and leisure activity skills (e.g., bowling, dancing).

**Training Procedures**

In this study, the students were individually trained to recruit so that prediction, verification, and replication of the effects of training across students could be demonstrated. Another way to do this kind of study which might make the results more meaningful would be to train several students together. A multiple baseline design across settings could be used to assess the effects of small group training. Students would be told to recruit in one setting initially (e.g., math class). If and when the students' recruiting skills reached steady states in the first setting, they would be prompted to recruit in a second setting and so on. This staggered introduction of recruiting across settings would continue until the student is recruiting in all selected settings.

Training several students at a time might allow them to serve as prompts for one another. For example, Peter observing Margie recruiting in health class might prompt for Peter to recruit also. Students who are trained together can also be told by the trainer to remind one another to recruit and to praise each other for recruiting. Conducting recruitment training with several students at a time is also more cost-effective than training students individually.

Training students to recruit directly in the target setting (e.g., general education classroom) is another variation of recruitment training. This might make generalization of recruiting skills to nontraining situations easier for the student. Another variation of the training procedure includes using different
types of tangible rewards or privileges to establish recruiting behaviors. Teachers may also try training students without tangible rewards initially to see if teacher praise alone is sufficient for increasing recruiting behaviors.

Other training variations that could be researched include experimenting with different kinds of prompts, self-assessment devices, self-recording strategies, fading strategies, and trainers. Parents, siblings, and peers could be trained to teach target students to recruit. The variations of training methods will be greatly influenced by the student's learning environment and his or her level of functioning.

**Increased Maintenance Phases**

A major limitation with many of the studies on recruiting including this one, is that the limited length of maintenance phases. In this study, there were only five to eight sessions of maintenance for the students. It was encouraging when students continued to recruit after all prompts and tangible rewards were discontinued (as Ellen and Pam did), but the short maintenance phase precluded determining how much longer the students would have continued recruiting. If a student continues to recruit for an extended period of time after all trainer-provided consequences are discontinued, evidence mounts that the recruiting behavior is being maintained by the positive teacher attention the student has contacted. The recruiting research will be enhanced greatly by studies with maintenance phases lasting several months.
Summary

Social approval serves as a powerful reinforcer for many individuals. Teacher attention and praise are the primary form of social approval in school settings. In busy classrooms, however, many instances of desired student behaviors are not praised or attended to because the teacher may not notice those behaviors. One way to increase the probability that desired behaviors receive teacher attention is to train students to recruit positive teacher attention. Previous studies have shown that training students to recruit increases students' recruiting rates and teacher praise rates (Connell et al. 1993; Craft, 1996; Harchik, et al. 1993; Hrydowy et al, 1984; Mank & Horner, 1987, Seymour & Stokes, 1976; Stokes et al., 1978). Several studies have also demonstrated that recruiting is functionally related to increasing social or vocational skills (Connell et al. 1993; Craft, 1996; Mank & Horner, 1987; Seymour & Stokes, 1976). Craft (1996) was the only study to date identified by the author of this study which examined the effects of recruiting on academic skills. The purpose of this study was to extend the findings of Craft (1996) by examining the effects of a recruitment training package on student recruiting, teacher praise, instructional feedback, and academic productivity in the general education math classroom.

In this study, the special education teacher was trained by the experimenter to teach four middle-school students with learning difficulties when, how, and how often to recruit teacher attention in the general education classroom, and what to say to the teacher during a recruiting interaction. The students were
taught to show their work to the teacher and ask for feedback two to three times per workpage, and use appropriate verbal statements such as "How am I doing?" Students were trained to recruit on two, 20-minute sessions via modeling, role playing, corrective feedback, and praise. Following training the students were prompted each morning by the special education teacher to recruit in math class. At the end of school day the special education teacher praised and rewarded students for recruiting to criteria. Prompts and rewards were faded until they were no longer used. At this point the students were observed for maintenance of recruiting behaviors.

The results of this study indicate that: (a) middle school students with learning disabilities can be trained to recruit appropriately at target rates in the general education classroom, (b) student recruiting increases rates of teacher praise and instructional feedback received by the students, (c) student recruiting increases completion and accuracy of academic assignments, and (d) students can generalize recruiting to another classroom setting. An important finding of this study is that students must find teacher praise desirable in order for recruitment training to be effective.

Despite the limitations of this study (e.g., a short maintenance phase due to time constraints, no pre-study assessment of teacher praise as a reinforcer for the students), there are several important implications. First, students with disabilities can be taught recruit teacher attention in a manner acceptable to classroom teachers. Second, students recruiting efforts are successful in contacting (or "waking up") a naturally existing (but "dormant") contingency
of reinforcement. Third, student-recruited teacher attention and feedback can increase academic productivity and accuracy. Future studies should assess recruitment training over longer maintenance phases and include experimental probes across multiple settings. Additional future directions for research include assessing the effects of recruitment training across a wide variety of students, target skills, settings, teachers.
LIST OF REFERENCES


APPENDIX A

LETTER TO PARENTS
Dear Parent (name of actual parent/guardian will be inserted):

One of my goals as a teacher is to keep informed of new educational methods or techniques. Staying informed helps me discover new ways to help your child experience continued positive educational progress. I am writing to let you know that (child’s name) has an opportunity to be involved in a study that will be conducted in his/her classroom. This study will be under the supervision of the principal investigator, Dr. William L. Heward, professor of special education in the College of Education at Ohio State University (292-3348).

Throughout the remainder of this school year, I will be working with Ms. Sheila Alber, a doctoral candidate in Special Education at Ohio State, on a study on how to make the time your child spends in the general education classroom a more positive and effective experience. With your permission, Sheila and I will teach (student’s name) how to self-assess the academic work (he/she) completes in the regular classroom and how to appropriately ask for extra teacher help.

As a member of my class, (student’s name) has the opportunity to participate in this study. Enclosed are two copies of a “Parent/Guardian Consent Form for Participation in Educational Research.” One copy must be signed and returned in the enclosed envelope in order for your child to participate in this study. If you agree to allow your child to participate, please sign and return one copy in the enclosed envelope by January 21, 1997. Keep the other copy for your records. If you have any questions, please do not hesitate to call me at school (487-5100) or at home (486-7391). You may also call Sheila at 297-7130. Thank you for your prompt response.

Sincerely,

Megan Solis
Special Education Teacher

c: Mr. Edward Orazon, Principal, Hastings Middle School
   Dr. William Heward, faculty advisor, The Ohio State University
   Ms. Sheila Alber, doctoral student, The Ohio State University
Parent/Guardian Consent Form for Participation in Educational Research

I agree to allow my child to participate in a research study in which special education students will be taught how to (1) self-evaluate their academic work and (2) seek teacher attention in the regular classroom. This study will be conducted by Sheila R. Alber, under the supervision of Dr. William L. Heward from The Ohio State University College of Education. This study will be conducted over a period of 14 to 16 weeks. I also give my consent for the persons conducting the study to have access to my child's school records in order to obtain information on his or her academic performance, standardized test scores, and Individual Education Plan. I understand that my child's identity will not be revealed in any publication, document, or any other form of report developed from this research. Additionally, I understand that I may withdraw my consent for my child's participation at any time without penalty.

Name of Student

________________________________________
Signature of Parent/Guardian     Date

Sheila Alber, Researcher     Date

William L. Heward     Date
Principal Investigator, Ohio State University

Special Education 292-8148
Sport & Exercise Sciences 292-6887
Wellness & Human Services 292-8183
Workforce Education & Lifelong Learning 292-5037
APPENDIX C

STUDENT ASSENT FORM
Student Assent Form

I agree to let my special education teacher, Mrs. Megan Solis, show me how to check my work and how to ask for help from my other teachers. I agree to let Ms. Sheila Alber look at my classwork while I am learning this new skill. I understand that I can stop participating in this project whenever I want without any penalty.

Student Signature Date

Megan Solis Date
Classroom Teacher
APPENDIX D

SCRIPT FOR OBTAINING STUDENT ASSENT
Script For Obtaining Student Assent

**Teacher:** I'm going to be working with a college student named Sheila Alber. She wants to study ways of helping students get more work done. This is something you may participate in, but only if you want to. Do you want to hear more about it?

**Student:** OK

**Teacher:** For about 15 to 20 minutes each day for about a week, I will be teaching you how to check your work, and then how to ask the teacher to come look at your work. Why might that be a good thing to know how to do?

**Student:** You can get help from the teacher if you need it. She can tell you if you did a good job. You might get better grades.

**Teacher:** That's right. That's what we would like to happen. I noticed that sometimes you don't get your work done, and that you don't ask for help when you need it. That's why I thought it would be good to teach these skills to you. Would you like to participate?

**Student:** Yes (If the student says “No” the teacher will tell him that it's OK in a supportive manner, and thank the student for listening).

**Teacher:** I'll be teaching you how to check your work and ask for help in a few weeks. Then Ms. Alber will look at your work to see if it's improving. Would that be OK with you?

**Student:** Yes (If the student says “no,” the teacher will tell him that it's OK in a supportive manner, and thank the student for listening).

**Teacher:** You can sign this form that says you volunteer to participate. Let's read together.

**Student and Teacher:** “I agree to let my special education teacher, Mrs. Megan Solis, show me how to check my work and how to ask for help from my other teachers. I agree to let Ms. Sheila Alber look at my classwork while I am learning this new skill. I can stop participating in this project whenever I want.”

**Teacher:** I will also send home a form to your parents asking them if it's OK.

Student signs the form. The teacher answers any questions the student has about the research, and then thanks the student for participating.
APPENDIX E

RECORDING FORM
<table>
<thead>
<tr>
<th>Time</th>
<th>Student RR</th>
<th>Student Recruited Attention</th>
<th>Comments</th>
</tr>
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<tbody>
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<table>
<thead>
<tr>
<th>Time</th>
<th>Non-Recruited Attention</th>
<th>Comments</th>
</tr>
</thead>
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<table>
<thead>
<tr>
<th>Time</th>
<th>Non-Recruited Attention</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
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</table>

**Code:**
- + = praise
- - = negative attention
- 1 = instr. feedback
- O = Other feedback
- No = No attention
APPENDIX F

EXAMPLE OF COMPLETED RECORDING FORM
<table>
<thead>
<tr>
<th>Time</th>
<th>Student Recruited Attention</th>
<th>Type</th>
<th>Class</th>
<th>Time Non-Recruited Attention</th>
<th>Code</th>
</tr>
</thead>
</table>

**Comments**

1. Great job.
2. Thank you.
3. Raised hand, teacher didn't see.

---

**Exper. Cond:** BL TR GN MN

---

**Code:**
- + = praise
- - = negative attention
- 1 = instr. feedback
- 0 = Other feedback
- No = No attention
APPENDIX G

EXAMPLES OF MATH SEATWORK AND ANSWER SHEETS
### Math Boxes

1. Add.
   a. $\frac{3}{4} + \frac{3}{4} = \underline{\phantom{10}}$
   b. $\frac{2}{3} + \frac{1}{3} = \underline{\phantom{10}}$
   c. $\frac{3}{8} + \frac{1}{2} = \underline{\phantom{10}}$
   d. $\frac{2}{5} + \frac{9}{10} = \underline{\phantom{10}}$

2. Complete.
   a. 8 oz = ______ lb
   b. $1 \frac{1}{2}$ lb = ______ oz
   c. 56 oz = ______ lb
   d. $3 \frac{1}{4}$ lb = ______ oz

3. Draw a line segment that is $\frac{3}{4}$ inches long. Mark and label dots on the line segment at the following distances from one end: $\frac{3}{4}$ inch, $1 \frac{3}{16}$ inches, $1 \frac{4}{5}$ inches, $\frac{5}{16}$ inch.

4. Find the median and mean of each set of numbers.
   a. 13, 29, 18, 34, 21
      - median: ______
      - mean: ______
   b. 42, 16, 51, 41
      - median: ______
      - mean: ______

5. In an average 60-minute television program, there are about 9 minutes of commercials. At that rate, about how many minutes of commercials would there be in 24 hours? ______
   in one week? ______

   a. $1000 - 25 = \underline{\phantom{10}}$
   b. $2037 - 294 = \underline{\phantom{10}}$
   c. $7214 - 6218 = \underline{\phantom{10}}$
## Math Boxes

1. Write 5 fractions equivalent to $\frac{3}{5}$.
   a. ___________________
   b. ___________________
   c. ___________________
   d. ___________________
   e. ___________________

2. Write the value of the digit 3 in each numeral.
   a. 456,396  __________
   b. 3,598,902  __________
   c. 40,378,922  __________
   d. 932,721,400  __________
   e. 790,473,225  __________

3. Complete.
   a. $28,000 \div 70 = \underline{}$
   b. $400 = 80 \times \underline{}$
   c. $\underline{} = 49,000 \div 700$
   d. $\underline{} = 2100 \div 3$
   e. $560,000 = 700 \times \underline{}$

   a. $42 \text{ in} = \underline{} \text{ ft}$
   b. $3 \frac{1}{2} \text{ ft} = \underline{} \text{ in}$
   c. $\underline{} \text{ in} = 4 \frac{3}{4} \text{ yd}$
   d. $2 \frac{1}{2} \text{ ft} = \underline{} \text{ in}$
   e. $\underline{} \text{ yd} = 32 \text{ ft}$

5. Add:
   a. $4209 + 6385 = \underline{}$
   b. $472 + 38,529 = \underline{}$
   c. $4 + 263 + 1020 + 79 = \underline{}$
Math Boxes

1. Rename each fraction as an equivalent fraction.
   a. \( \frac{1}{4} \) __________________
   b. \( \frac{1}{2} \) __________________
   c. \( \frac{1}{10} \) __________________
   d. \( \frac{6}{8} \) __________________
   e. \( \frac{4}{5} \) __________________

2. Write the value of the digit 9 in each numeral. Example: 79,804
   The value of 9 is 9000.
   a. 401,297 __________________
   b. 1,927,387 __________________
   c. 95,063,843 __________________
   d. 6,948,331,567 __________________

3. Complete.
   a. \( \frac{1500}{5} = \) ________
   b. \( 600 \times \) ________ = 54,000
   c. ________ = 80 \times 90
   d. \( \frac{8100}{\) ________} = 9
   e. ________ / 90 = 50

   a. 3 yd = ________ in
   b. 6 ft = ________ in
   c. ________ ft = 24 in
   d. 3\( \frac{1}{2} \) ft = ________ in
   e. ________ yd = 9 ft
   f. 108 in = ________ ft

5. Add.
   a. \[
   \begin{array}{c}
   2653 \\
   + 4819 \\
   \hline
   \end{array}
   \]
   c. \[
   \begin{array}{c}
   27 \\
   109 \\
   75 \\
   + 2636 \\
   \hline
   \end{array}
   \]
   b. \[
   \begin{array}{c}
   43,708 \\
   + 6,493 \\
   \hline
   \end{array}
   \]

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Math Boxes

1. Rename each fraction as an equivalent fraction.
   a. \( \frac{1}{4} = \frac{2}{8} \)
   b. \( \frac{1}{2} = \frac{2}{4} \)
   c. \( \frac{1}{10} = \frac{2}{20} \)
   d. \( \frac{6}{8} = \frac{12}{16} \)
   e. \( \frac{4}{5} = \frac{8}{10} \)

2. Write the value of the digit 9 in each numeral. Example: 79,804
   The value of 9 is 9000.
   a. 401,297
      The value of 9 is _____
   b. 1,927,387
      The value of 9 is _____
   c. 95,063,843
      The value of 9 is _____
   d. 6,948,331,567
      The value of 9 is _____

3. Complete.
   a. \( \frac{1500}{5} = \frac{300}{1} \)
   b. \( 600 \times \frac{90}{1} = 54,000 \)
   c. \( 7200 = 80 \times 90 \)
   d. \( \frac{8100}{900} = 9 \)
   e. \( \frac{4500}{90} = 50 \)

   a. \( 3 \text{ yd} = \frac{36}{1} \text{ in} \)
   b. \( 6 \text{ ft} = \frac{72}{1} \text{ in} \)
   c. \( \frac{2}{1} \text{ ft} = 24 \text{ in} \)
   d. \( 3\frac{1}{2} \text{ ft} = \frac{42}{1} \text{ in} \)
   e. \( \frac{3}{1} \text{ yd} = 9 \text{ ft} \)
   f. \( 108 \text{ in} = \frac{9}{1} \text{ ft} \)

5. Add.
   a. \[
   \begin{array}{c}
   \text{2653} \\
   + 4819 \\
   \hline
   7472
   \end{array}
   \]
   c. \[
   \begin{array}{c}
   \text{27} \\
   \text{109} \\
   \hline
   \text{136}
   \end{array}
   \]
   d. \[
   \begin{array}{c}
   \text{2636} \\
   + \text{2636} \\
   \hline
   \text{5272}
   \end{array}
   \]
   b. \[
   \begin{array}{c}
   \text{43,708} \\
   + \text{6,493} \\
   \hline
   \text{50,201}
   \end{array}
   \]
### Math Boxes

**1. Add.**

| a. \( \frac{3}{4} + \frac{3}{4} = \) | 1 \( \frac{1}{2} \) |
| b. \( \frac{4}{9} + \frac{2}{3} = \) | 1 \( \frac{1}{3} \) |
| c. \( \frac{3}{8} + \frac{1}{2} = \) | \( \frac{7}{8} \) |
| d. \( \frac{2}{5} + \frac{9}{10} = \) | \( \frac{13}{10} \) |

**2. Complete.**

| a. 8 oz = \( \frac{1}{2} \) lb |
| b. \( 1 \frac{1}{2} \) lb = 24 oz |
| c. 56 oz = \( 3 \frac{1}{2} \) lb |
| d. \( 3 \frac{1}{2} \) lb = 52 oz |

**3. Draw a line segment that is 1\( \frac{3}{4} \) inches long. Mark and label dots on the line segment at the following distances from one end: 3\( \frac{1}{4} \) inch, 1\( \frac{3}{16} \) inches, 1\( \frac{4}{5} \) inches.**

```
3 1/4 3 3/16 1 4/5
```

**4. Find the median and mean of each set of numbers.**

<table>
<thead>
<tr>
<th>a. 13, 29, 18, 34, 21</th>
</tr>
</thead>
<tbody>
<tr>
<td>median: 21</td>
</tr>
<tr>
<td>mean: 23</td>
</tr>
<tr>
<td>b. 42, 16, 51, 41</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>median: 41.5</td>
</tr>
<tr>
<td>mean: 37.5</td>
</tr>
</tbody>
</table>

**5. In an average 60-minute television program, there are about 9 minutes of commercials. At that rate, about how many minutes of commercials would there be in 24 hours? 1,512 minutes.**

**6. Subtract.**

| a. 1000 – 25 = 975 |
| b. 2037 – 294 = 1743 |
| c. 7214 – 6218 = 996 |

Source: *The Wall Street Journal*
Math Boxes

<table>
<thead>
<tr>
<th>Question</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Write 5 fractions equivalent to ( \frac{3}{10} ).</td>
<td>a. ( \frac{6}{10} ) b. ( \frac{9}{15} ) c. ( \frac{12}{20} ) d. ( \frac{25}{30} ) e. ( \frac{18}{30} )</td>
</tr>
<tr>
<td>2. Write the value of the digit 3 in each numeral.</td>
<td>a. 456,396 ( 300 ) b. 3,598,902 ( 3,000,000 ) c. 40,378,922 ( 300,000 ) d. 932,721,400 ( 30,000,000 ) e. 790,473,225 ( 3,000 )</td>
</tr>
<tr>
<td>3. Complete.</td>
<td>a. ( \frac{28,000}{70} = 400 ) b. ( 400 = 80 \times 50 ) c. ( \frac{70}{700} = \frac{49,000}{700} ) d. ( \frac{700}{2100} = 3 ) e. ( 560,000 = 700 \times 800 )</td>
</tr>
<tr>
<td>4. Complete.</td>
<td>a. 42 in = ( 3\frac{1}{2} ) ft b. ( 3\frac{1}{2} ) ft = ( 39 ) in c. ( 17 ) in = ( 4\frac{3}{4} ) yd d. ( 2\frac{1}{2} ) ft = ( 30 ) in e. ( 10\frac{3}{5} ) yd = 32 ft</td>
</tr>
<tr>
<td>5. Add:</td>
<td>a. ( 4209 + 6385 = 10,594 ) b. ( 472 + 38,529 = 39,001 ) c. ( 4 + 263 + 1020 + 79 = 1366 )</td>
</tr>
</tbody>
</table>

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APPENDIX H

PROCEDURAL RELIABILITY CHECKLIST
### Procedural Checklist for Training

#### Introduction and Rationale

| +   | Teacher provides rationale for recruiting |
| +   | Teacher prompts student to state rationale |
| +   | Teacher praises and/or provides corrective feedback for student responses |
| +   | Teacher reviews work samples |
| +   | Teacher prompts student to state how much work must be done before recruiting |
| +   | Teacher praises and/or provides corrective feedback for student responses |
| +   | Teacher tells student appropriate times to signal the teacher |
| +   | Teacher prompts student to restate appropriate times to signal the teacher |
| +   | Teacher praises and/or provides corrective feedback for student responses |
| +   | Teacher tells student to signal by handraising |
| +   | Teacher prompts students to restate signal by handraising |
| +   | Teacher praises and/or provides corrective feedback for student responses |
| +   | Teacher demonstrates how to speak in a polite voice, and give three examples of what to say |
| +   | Teacher prompts student to restate “speak in a polite voice” and give three examples of what to say |
| +   | Teacher praises and/or provides corrective feedback for student responses |

#### Modeling and Role playing

| +   | Teacher models checking work with think aloud technique |
| +   | Teacher models handraising |
| +   | Teacher models speaking to the teacher |
| +   | Teacher prompts student to role play checking work |
| +   | Teacher prompts student to role play handraising |
| +   | Teacher prompts student to role play polite speaking to the teacher |
| +   | Teacher provides corrective feedback and praise |
Procedural Checklist for Review

+  - Teacher prompts student to state rationale
+  - Teacher praises and/or provides corrective feedback for student responses
+  - Teacher prompts student to state how much work must be done before recruiting
+  - Teacher praises and/or provides corrective feedback for student responses
+  - Teacher prompts student to restate appropriate times to signal the teacher
+  - Teacher praises and/or provides corrective feedback for student responses
+  - Teacher prompts students to restate signal by handraising
+  - Teacher praises and/or provides corrective feedback for student responses
+  - Teacher prompts student to restate "speak in a polite voice" and give three examples of what to say
+  - Teacher praises and/or provides corrective feedback for student responses
+  - Teacher prompts student to role play checking work
+  - Teacher prompts student to role play handraising
+  - Teacher prompts student to role play polite speaking to the teacher
+  - Teacher praises and/or provides corrective feedback for student responses
Procedural Checklist for End-of-the-School-Day Check and Reward

+  -  Teacher asks student if he or she recruited.
+  -  Teacher praises student for recruiting or prompts student to recruit the following day if he or she did not recruit
+  -  Teacher asks student how many times he or she recruited
+  -  Teacher praises and provides with appropriate rewards (e.g., soda, tickets)
+  -  Teacher asks the student to evaluate his or her own recruiting (e.g., how did you do?)
+  -  Teacher reminds the student to recruit the next day.
APPENDIX I

STUDENT RECRUITING PROMPTING CARD
APPENDIX J

TEACHER OPINION QUESTIONNAIRE
Teacher Questionnaire

1. We told you at the beginning of the study that we were collecting data on the independent work habits of a few students in the class. We were also teaching those students to do something. Were you able to tell what we were doing?

2. Did you notice anything different about the following students?

   Henry:

   Ellen:

   Lisa:

   Pam:

The following questions were asked after an explanation of the experiment. For each question the teacher was prompted to talk about each individual student.

3. What do you think about the frequency of the student's recruiting?

4. Do you think they recruited at appropriate times? Please explain.

5. Do you think they recruited for appropriate reasons? Please explain.

6. How natural did their recruiting seem to you?

7. How do you think their academic productivity was affected?

8. How do you think their social skills were affected?

9. Do you think this is a valuable skill to train? Please explain.

10. Do you believe your interaction with or behavior towards any of the students changed as a result of their recruiting?

The interviewer showed the graphs to the teachers, explained them, and asked for any reaction or comments.
APPENDIX K

TEACHER APPROVAL ASSESSMENT INVENTORY,
TEACHER VERSION
1. While your students are working on an assignment or problems at their desks, you come over to the student’s desk, look at his/her work, and say, “Good job, (student’s name)!”. Which of these statements describes best how you think this would make each of these four students feel?

HENRY -
a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

ELLN -

LISA -
a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

PAM -

2. While your students are working on an assignment or problems at their desks, you come over to the student’s desk, look at his/her work, and then pat him/her on the back.

Which of these statements describes best how you think this would make each of these four students feel?

HENRY -

ELLEN -

LISA -

PAM -
3. While your students are working on an assignment or problems at their desks, you come over to the student’s desk, look at his/her work, and notice he/she has a wrong answer. You help the student correct his/her answer.

Which of these statements describes best how you think this would make each of these four students feel?

HENRY -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

ELLEN -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

LISA -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

PAM -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

4. While your students are working on an assignment or problems at their desks, you come over to the student’s desk, look at his/her work, and then write “Very Good!” at the top of his/her paper.

Which of these statements describes best how you think this would make each of these four students feel?

HENRY -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

ELLEN -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

LISA -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

PAM -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it
5. While your students are working on an assignment or problems at their desks, you come over to the student’s desk, look at his/her work, and then say, “You’re smart, (student’s name)!"

Which of these statements describes best how you think this would make each of these four students feel?

HENRY -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDNT care
d. WOULDNT like it

ELLEN -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDNT care
d. WOULDNT like it

LISA -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDNT care
d. WOULDNT like it

PAM -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDNT care
d. WOULDNT like it

6. While your students are working on an assignment or problems at their desks, you never come look at the student’s paper.

Which of these statements describes best how you think this would make each of these four students feel?

HENRY -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDNT care
d. WOULDNT like it

ELLEN -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDNT care
d. WOULDNT like it

LISA -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDNT care
d. WOULDNT like it

PAM -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDNT care
d. WOULDNT like it
7. While your students are working on an assignment or problems at their desks, you come over to the student’s desk, look at his/her work, see the answers are correct, and give him/her a candy bar.

Which of these statements describes best how you think this would make each of these four students feel?

HENRY -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

ELLEN -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

LISA -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

PAM -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

8. While your students are working on an assignment or problems at their desks, you come over to the student’s desk, look at his/her work, see the answers are correct, and give him/her a can of pop.

Which of these statements describes best how you think this would make each of these four students feel?

HENRY -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

ELLEN -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

LISA -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

PAM -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it
9. While your students are working on an assignment or problems at their desks, you come over to the student's desk, look at his/her work, see the answers are correct, and tell the student he/she can have 10-minutes of free time during class.

Which of these statements describes best how you think this would make each of these four students feel?

HENRY -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDNT care
d. WOULDNT like it

ELLEN -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDNT care
d. WOULDNT like it

LISA -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDNT care
d. WOULDNT like it

PAM -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDNT care
d. WOULDNT like it

10. While your students are working on an assignment or problems at their desks, you come over to the student's desk, look at his/her work, and put his/her paper on the bulletin board.

Which of these statements describes best how you think this would make each of these four students feel?

HENRY -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDNT care
d. WOULDNT like it

ELLEN -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDNT care
d. WOULDNT like it

LISA -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDNT care
d. WOULDNT like it

PAM -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDNT care
d. WOULDNT like it
11. While your students are working on an assignment or problems at their desks, you come over to the student's desk, look at his/her work, see the answers are correct, and give him/her a “Get Out of 1 Homework Assignment” pass.

Which of these statements describes best how you think this would make each of these four students feel?

HENRY - ELLEN -

a. WOULD like this a lot  
b. WOULD like this a little  
c. WOULDN'T care  
d. WOULDN'T like it  

LISA - PAM -

a. WOULD like this a lot  
b. WOULD like this a little  
c. WOULDN'T care  
d. WOULDN'T like it  

12. While your students are working on an assignment or problems at their desks, you come over to the student’s desk, look at his/her work, see the answers are correct, and send a note home to his/her parents telling them he/she did a good job.

Which of these statements describes best how you think this would make each of these four students feel?

HENRY - ELLEN -

a. WOULD like this a lot  
b. WOULD like this a little  
c. WOULDN'T care  
d. WOULDN'T like it  

LISA - PAM -

a. WOULD like this a lot  
b. WOULD like this a little  
c. WOULDN'T care  
d. WOULDN'T like it  

222
13. While your students are working on an assignment or problems at their desks, you come over to the student’s desk, look at his/her work, see the answers are correct, and announce to the rest of the class what a good job he/she is doing.

Which of these statements describes best how you think this would make each of these four students feel?

HENRY -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDNT care
d. WOULDNT like it

ELLEN -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDNT care
d. WOULDNT like it

LISA -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDNT care
d. WOULDNT like it

PAM -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDNT care
d. WOULDNT like it

14. While your students are working on an assignment or problems at their desks, you come over to the student’s desk, look at his/her work, and walk away without saying anything.

Which of these statements describes best how you think this would make each of these four students feel?

HENRY -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDNT care
d. WOULDNT like it

ELLEN -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDNT care
d. WOULDNT like it

LISA -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDNT care
d. WOULDNT like it

PAM -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDNT care
d. WOULDNT like it
15. While your students are working on an assignment or problems at their desks, you come over to the student’s desk, look at his/her work, see the answers are correct, and let him/her play a game with his/her friends.

Which of these statements describes best how you think this would make each of these four students feel?

HENRY - ELLEN -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

LISA - PAM -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

Students working in a group

16. While your students are working on an assignment with a partner or in a small group, you come over to the student’s desk, look at his/her work, see the answers are correct, and say “Good job, (student’s name)!”

Which of these statements describes best how you think this would make each of these four students feel?

HENRY - ELLEN -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

LISA - PAM -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

224
17. While your students are working on an assignment with a partner or in a small group, you come over to the student’s desk, look at his/her work, see the answers are correct, and then pat the student on the back.

Which of these statements describes best how you think this would make each of these four students feel?

HENRY -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

ELLEN -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

LISA -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

PAM -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

18. While your students are working on an assignment with a partner or in a small group, you come over to the student’s desk, look at his/her work, and notice the student has a wrong answer. You help him/her correct the answer.

Which of these statements describes best how you think this would make each of these four students feel?

HENRY -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

ELLEN -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

LISA -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

PAM -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it
19. While your students are working on an assignment with a partner or in a small group, you come over to the student’s desk, look at his/her work, see the answers are correct, then write “Very Good!” at the top of his/her paper.

Which of these statements describes best how you think this would make each of these four students feel?

HENRY - ELLEN -

a. WOULD like this a lot  
b. WOULD like this a little  
c. WOULDN'T care  
d. WOULDN'T like it

a. WOULD like this a lot  
b. WOULD like this a little  
c. WOULDN'T care  
d. WOULDN'T like it

LISA - PAM -

a. WOULD like this a lot  
b. WOULD like this a little  
c. WOULDN'T care  
d. WOULDN'T like it

a. WOULD like this a lot  
b. WOULD like this a little  
c. WOULDN'T care  
d. WOULDN'T like it

20. While your students are working on an assignment with a partner or in a small group, you come over to the student’s desk, look at his/her work, see the answers are correct, then say, “You’re smart, (student’s name)!“

Which of these statements describes best how you think this would make each of these four students feel?

HENRY - ELLEN -

a. WOULD like this a lot  
b. WOULD like this a little  
c. WOULDN'T care  
d. WOULDN'T like it

a. WOULD like this a lot  
b. WOULD like this a little  
c. WOULDN'T care  
d. WOULDN'T like it

LISA - PAM -

a. WOULD like this a lot  
b. WOULD like this a little  
c. WOULDN'T care  
d. WOULDN'T like it

a. WOULD like this a lot  
b. WOULD like this a little  
c. WOULDN'T care  
d. WOULDN'T like it

226
21. While your students are working on an assignment with a partner or in a small group you never come over to look at the student's paper.

Which of these statements describes best how you think this would make each of these four students feel?

HENRY -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

ELLEN -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

LISA -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

PAM -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

22. While your students are working on an assignment with a partner or in a small group, you come over to the student's desk, look at his/her work, see the answers are correct, and give him/her a candy bar.

Which of these statements describes best how you think this would make each of these four students feel?

HENRY -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

ELLEN -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

LISA -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

PAM -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it
23. While your students are working on an assignment with a partner or in a small group, you come over to the student’s desk, look at his/her work, see the answers are correct, and give him/her a can of pop.

Which of these statements describes best how you think this would make each of these four students feel?

HENRY -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

ELLEN -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

LISA -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

PAM -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

24. While your students are working on an assignment with a partner or in a small group, you come over to the student’s desk, look at his/her work, see the answers are correct, and tell the student he/she may have 10-minutes of free time during class.

Which of these statements describes best how you think this would make each of these four students feel?

HENRY -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

ELLEN -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

LISA -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

PAM -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it
25. While your students are working on an assignment with a partner or in a small group, you come over to the student’s desk, look at his/her work, see the answers are correct, and put his/her paper on the bulletin board.

Which of these statements describes best how you think this would make each of these four students feel?

HENRY -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

ELLEN -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

LISA -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

PAM -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

26. While your students are working on an assignment with a partner or in a small group, you come over to the student’s desk, look at his/her work, see the answers are correct, and give him/her a “Get Out of 1 Homework Assignment” pass.

Which of these statements describes best how you think this would make each of these four students feel?

HENRY -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

ELLEN -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

LISA -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

PAM -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it
27. While your students are working on an assignment with a partner or in a small group, you come over to the student's desk, look at his/her work, see the answers are correct, and send a note home to his/her parents telling them he/she did a good job.

Which of these statements describes best how you think this would make each of these four students feel?

HENRY -
- a. WOULD like this a lot
- b. WOULD like this a little
- c. WOULDN'T care
- d. WOULDN'T like it

ELLEN -
- a. WOULD like this a lot
- b. WOULD like this a little
- c. WOULDN'T care
- d. WOULDN'T like it

LISA -
- a. WOULD like this a lot
- b. WOULD like this a little
- c. WOULDN'T care
- d. WOULDN'T like it

PAM -
- a. WOULD like this a lot
- b. WOULD like this a little
- c. WOULDN'T care
- d. WOULDN'T like it

28. While your students are working on an assignment with a partner or in a small group, you come over to the student’s desk, look at his/her work, see the answers are correct, and announce to the class what a good job he/she is doing.

Which of these statements describes best how you think this would make each of these four students feel?

HENRY -
- a. WOULD like this a lot
- b. WOULD like this a little
- c. WOULDN'T care
- d. WOULDN'T like it

ELLEN -
- a. WOULD like this a lot
- b. WOULD like this a little
- c. WOULDN'T care
- d. WOULDN'T like it

LISA -
- a. WOULD like this a lot
- b. WOULD like this a little
- c. WOULDN'T care
- d. WOULDN'T like it

PAM -
- a. WOULD like this a lot
- b. WOULD like this a little
- c. WOULDN'T care
- d. WOULDN'T like it
29. While your students are working on an assignment with a partner or in a small group, you come over to the student’s desk, look at his/her work, see the answers are correct, and walk away without saying anything to him/her.

Which of these statements describes best how you think this would make each of these four students feel?

HENRY -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

ELLEN -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

LISA -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

PAM -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

30. While your students are working on an assignment with a partner or in a small group, you come over to the student’s desk, look at his/her work, see the answers are correct, and let the student play a game with his/her friends.

Which of these statements describes best how you think this would make each of these four students feel?

HENRY -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

ELLEN -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

LISA -

a. WOULD like this a lot
b. WOULD like this a little
c. WOULDN'T care
d. WOULDN'T like it

PAM -

a. WOULD like this a lot
b. WOULD like this a lot
c. WOULDN'T care
d. WOULDN'T like it
APPENDIX L

STUDENT OPINION QUESTIONNAIRE
Student Questionnaire

Student: ______________________ Date ______

1. Do you remember the steps for recruiting the teacher’s attention? Can you tell me them?

2. How well do you think you recruited in math class?

3. How often do you think you recruited in math class?

4. Did you do recruit the teacher’s attention in your other classes? Which ones? How good of a job did you do?

5. Did you like recruiting your teachers’ attention?

6. How did your teachers act when you did it? What kinds of things did she say?

7. How did the teachers’ attention make you feel?

8. Do you think you got more work done when you recruited?

9. Do you think you got more of your answers right when you recruited?

10. What do you think the other students thought about what you were doing? Did any of your classmates or friends say anything about your recruiting?

11. What do you think the teacher thought about you?

12. Is there anything else you want to tell?
APPENDIX M

TEACHER APPROVAL ASSESSMENT INVENTORY,

STUDENT VERSION

234
1. While you are working on an assignment or problems at your desk, your teacher comes over, looks at your work, and says, “Good job, Pam.”

Which of these statements describes how this would make you feel?

a. I WOULD like this a lot
b. I WOULD like this a little
c. I WOULDN'T care
d. I WOULDN'T like it

2. While you are working on an assignment or problems at your desk, your teacher comes over, looks at your work, and then pats you on the back.

Which of these statements describes how this would make you feel?

a. I WOULD like this a lot
b. I WOULD like this a little
c. I WOULDN'T care
d. I WOULDN'T like it

3. While you are working on an assignment or problems at your desk, your teacher comes over, looks at your work, and notices you have a wrong answer. The teacher helps you correct you answer.

Which of these statements describes how this would make you feel?

a. I WOULD like this a lot
b. I WOULD like this a little
c. I WOULDN'T care
d. I WOULDN'T like it

4. While you are working on an assignment or problems at your desk, your teacher comes over, looks at your work, and then writes “Very Good!” at the top of your paper.

Which of these statements describes how this would make you feel?

a. I WOULD like this a lot
b. I WOULD like this a little
c. I WOULDN'T care
d. I WOULDN'T like it

235
5. While you are working on an assignment or problems at your desk, your teacher comes over, looks at your work, and then says, "You're smart, Pam!" Which of these statements describes how this would make you feel?

a. I WOULD like this a lot  
b. I WOULD like this a little  
c. I WOULDN'T care  
d. I WOULDN'T like it

6. While you are working on an assignment or problems at your desk, your teacher never comes over look at your paper while you are working.

Which of these statements describes how this would make you feel?

a. I WOULD like this a lot  
b. I WOULD like this a little  
c. I WOULDN'T care  
d. I WOULDN'T like it

7. While you are working on an assignment or problems at your desk, your teacher comes over, looks at your work, sees your answers are correct and gives you a candy bar.

Which of these statements describes how this would make you feel?

a. I WOULD like this a lot  
b. I WOULD like this a little  
c. I WOULDN'T care  
d. I WOULDN'T like it

8. While you are working on an assignment or problems at your desk, your teacher comes over, looks at your work, sees your answers are correct, and gives you a can of pop.

Which of these statements describes how this would make you feel?

a. I WOULD like this a lot  
b. I WOULD like this a little  
c. I WOULDN'T care  
d. I WOULDN'T like it
9. While you are working on an assignment or problems at your desk, your teacher comes over, looks at your work, sees your answers are correct, and tells you that you can have 10-minutes of free time during class.

Which of these statements describes how this would make you feel?

a. I WOULD like this a lot
b. I WOULD like this a little
c. I WOULD'NT care
d. I WOULD'NT like it

10. While you are working on an assignment or problems at your desk, your teacher comes over, looks at your work, sees your answers are correct, and puts your paper on the bulletin board.

Which of these statements describes how this would make you feel?

a. I WOULD like this a lot
b. I WOULD like this a little
c. I WOULD'NT care
d. I WOULD'NT like it

11. While you are working on an assignment or problems at your desk, your teacher comes over, looks at your work, sees your answers are correct, and gives you a “Get Out of 1 Homework assignment” pass.

Which of these statements describes how this would make you feel?

a. I WOULD like this a lot
b. I WOULD like this a little
c. I WOULD'NT care
d. I WOULD'NT like it

12. While you are working on an assignment or problems at your desk, your teacher comes over, looks at your work, sees your answers are correct, and sends a note home to your parents telling them you did a good job.

Which of these statements describes how this would make you feel?

a. I WOULD like this a lot
b. I WOULD like this a little
c. I WOULD'NT care
d. I WOULD'NT like it
13. While you are working on an assignment or problems at your desk, your teacher comes over, looks at your work, sees your answers are correct, and announces to the rest of the class what a good job you are doing.

Which of these statements describes how this would make you feel?

a. I WOULD like this a lot  
b. I WOULD like this a little  
c. I WOULDN'T care  
d. I WOULDN'T like it

14. While you are working on an assignment or problems at your desk, your teacher comes over, looks at your work, sees your answers are correct, and just walks away without saying anything to you.

Which of these statements describes how this would make you feel?

a. I WOULD like this a lot  
b. I WOULD like this a little  
c. I WOULDN'T care  
d. I WOULDN'T like it

15. While you are working on an assignment or problems at your desk, your teacher comes over, looks at your work, sees your answers are correct, and lets you play a game with your friends.

Which of these statements describes how this would make you feel?

a. I WOULD like this a lot  
b. I WOULD like this a little  
c. I WOULDN'T care  
d. I WOULDN'T like it

16. While you are working together with a partner or with a small group of students on an assignment, your teacher comes over, looks at your work, sees your answers are correct, and says, "Good job, Pam!"

Which of these statements describes how this would make you feel?

a. I WOULD like this a lot  
b. I WOULD like this a little  
c. I WOULDN'T care  
d. I WOULDN'T like it
17. While you are working together with a partner or with a small group of students on an assignment, your teacher comes over, looks at your work, sees your answers are correct, and then pats you on the back.

Which of these statements describes how this would make you feel?

a. I WOULD like this a lot
b. I WOULD like this a little
c. I WOULDN'T care
d. I WOULDN'T like it

18. While you are working together with a partner or with a small group of students on an assignment, your teacher comes over, looks at your work, and notices you have a wrong answer. The teacher helps you correct your answer.

Which of these statements describes how this would make you feel?

a. I WOULD like this a lot
b. I WOULD like this a little
c. I WOULDN'T care
d. I WOULDN'T like it

19. While you are working together with a partner or with a small group of students on an assignment, your teacher comes over, looks at your work, sees your answers are correct, then writes “Very Good!” at the top of your paper.

Which of these statements describes how this would make you feel?

a. I WOULD like this a lot
b. I WOULD like this a little
c. I WOULDN'T care
d. I WOULDN'T like it

20. While you are working together with a partner or with a small group of students on an assignment, your teacher comes over, looks at your work, sees your answers are correct, then says, “You’re smart, Pam!”

Which of these statements describes how this would make you feel?

a. I WOULD like this a lot
b. I WOULD like this a little
c. I WOULDN'T care
d. I WOULDN'T like it
21. While you are working together with a partner or with a small group of students on an assignment, looks at your work, your teacher never comes over to look at your paper.

Which of these statements describes how this would make you feel?

a. I WOULD like this a lot
b. I WOULD like this a little
c. I WOULDN'T care
d. I WOULDN'T like it

22. While you are working together with a partner or with a small group of students on an assignment, your teacher comes over, looks at your work, sees your answers are correct, and gives you a candy bar.

Which of these statements describes how this would make you feel?

a. I WOULD like this a lot
b. I WOULD like this a little
c. I WOULDN'T care
d. I WOULDN'T like it

23. While you are working together with a partner or with a small group of students on an assignment, your teacher comes over, looks at your work, sees your answers are correct, and gives you a can of pop.

Which of these statements describes how this would make you feel?

a. I WOULD like this a lot
b. I WOULD like this a little
c. I WOULDN'T care
d. I WOULDN'T like it

24. While you are working together with a partner or with a small group of students on an assignment, your teacher comes over, looks at your work, sees your answers are correct, and tells you that you can have 10-minutes of free time during class.

Which of these statements describes how this would make you feel?

a. I WOULD like this a lot
b. I WOULD like this a little
c. I WOULDN'T care
d. I WOULDN'T like it
25. While you are working together with a partner or with a small group of students on an assignment, your teacher comes over, looks at your work, sees your answers are correct, and puts your paper on the bulletin board.

Which of these statements describes how this would make you feel?

a. I WOULD like this a lot
b. I WOULD like this a little
c. I WOULDN'T care
d. I WOULDN'T like it

26. While you are working together with a partner or with a small group of students on an assignment, your teacher comes over, looks at your work, sees your answers are correct, and gives you a “Get Out of __ Homework assignment” pass.

Which of these statements describes how this would make you feel?

a. I WOULD like this a lot
b. I WOULD like this a little
c. I WOULDN'T care
d. I WOULDN'T like it

27. While you are working together with a partner or with a small group of students on an assignment, your teacher comes over, looks at your work, sees your answers are correct, and sends a note home to your parents telling them you did a good job.

Which of these statements describes how this would make you feel?

a. I WOULD like this a lot
b. I WOULD like this a little
c. I WOULDN'T care
d. I WOULDN'T like it

28. While you are working together with a partner or with a small group of students on an assignment, your teacher comes over, looks at your work, sees your answers are correct, and announces to the class what a good job you are doing.

Which of these statements describes how this would make you feel?

a. I WOULD like this a lot
b. I WOULD like this a little
c. I WOULDN'T care
d. I WOULDN'T like it
29. While you are working together with a partner or with a small group of students on an assignment, your teacher comes over, looks at your work, sees your answers are correct, and just walks away without saying anything to you.

Which of these statements describes how this would make you feel?

a. I WOULD like this a lot
b. I WOULD like this a little
c. I WOULDN'T care
d. I WOULDN'T like it

30. While you are working together with a partner or with a small group of students on an assignment, your teacher comes over, looks at your work, sees your answers are correct, and lets you play a game with your friends.

Which of these statements describes how this would make you feel?

a. I WOULD like this a lot
b. I WOULD like this a little
c. I WOULDN'T care
d. I WOULDN'T like it