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AN EVALUATION OF COMPUTER-BASED PROGRAMMED INSTRUCTION FOR PROMOTING TEACHERS' GREETINGS OF PARENTS BY NAME

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Although greeting parents by name facilitates subsequent parent–teacher communication, baseline measures revealed that 4 preschool teachers never or rarely greeted parents by name during morning check-in. To promote frequent and accurate use of parents' names by teachers, the effects of a fully automated computerized assessment and programmed instruction (CAPI) intervention were evaluated in a multiple baseline design. The CAPI intervention involved assessment and training of relations among parents' and children's pictures and names, and produced rapid learning of parent names. The CAPI intervention also resulted in substantial improvements in the classroom use of parents' names for 3 of the 4 teachers; however, a supervisor-mediated feedback package (consisting of instructions, differential reinforcement, and error correction) was necessary to maintain name use for 2 of those teachers. The practical strengths and limitations of computer-based teacher training are discussed.

DESCRIPTORS: computer-based instruction, computer-based training, greeting by name, preschool teachers, programmed instruction, teacher training

In recent years, computer-based instruction has been used to teach a range of skills to normally developing adults. The skills include concepts and principles of behavior analysis (Miller & Malott, 1997; Munson & Crosbie, 1998; Tudor, 1995), use of computer software (Karlsson & Chase, 1996), computer programming commands (Kritch & Bostow, 1998), and programmed instruction design (Tudor & Bostow, 1991). The instructional programs have often been guided by the principles of programmed instruction (Skinner, 1968), which involves segmenting complex skills into their subcomponents, with each component taught to mastery in a series of steps in which prompting is initially provided frequently and then gradually, systematically, and completely faded. Positive reinforcement for correct responding and correction following incorrect responding are provided immediately after each response. Research has shown that programmed instruction frequently leads to more rapid acquisition than traditional (e.g., lecture-based) forms of instruction (Fernald & Jordan, 1991; Hughes & McNamara, 1961; Jamison, Suppes, & Wells, 1974; Kulik, Kulik, & Cohen, 1980).

In the current study, programmed instruction was delivered via computers. Because of the wide array of stimulus-presentation modes and programming options they offer, computers may indirectly influence the quality of instruction by making careful programming possible (R. C. Clark, 1983; R. E. Clark, 1983, 1985, 1994; Kozma, 1994). For staff training, computer-based instruction may be preferable to instructor-based (i.e., supervisor-mediated) training for a variety of reasons. First, a supervisor or other staff member need not be present to implement training (Farrington & Clark, 2000). Second, computer-based instruction is flexible in that it can be completed at

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various times (R. C. Clark, 1983). Third, staff can have greater control over when and how long they interact with the program (K. G. Brown, 2001; Desai, Richards, & Eddy, 2000). Fourth, computer-based instruction programs are not dependent on the presence of a particular ''specialist.'' If the programs are easy to use and detailed instructions on their operation and maintenance are available, they can potentially survive staff and supervisor turnover to a greater extent than supervisor-mediated training programs. Fifth, computers can be programmed to present prompts only when most appropriate (e.g., at the beginning of training, immediately after errors), to fade prompts gradually and only following correct responding, and to allow the presentation of new material only following mastery of previously presented materials (Avner, Moore, & Smith, 1980; Bostow, Kritch, & Tompkins, 1995). Sixth, computer programs can automatically collect and analyze training data with great accuracy and reliability (Bostow et al.). For these reasons, computers may be a preferred medium by which to deliver instruction.

These advantages notwithstanding, it remains to be shown whether computer-based instruction programs are effective in promoting generalized and persistent behavior change relative to other proven training methods (e.g., ongoing supervisor-delivered performance feedback). Despite the wealth of data provided by studies on computer-based instruction, few experiments have examined how such instruction affects behavior outside the computerized context (Tudor & Bostow, 1991). That is, few studies have measured setting generalization (i.e., the use of the targeted skills outside the training setting) and response induction (e.g., being able to vocalize a response that has been taught textually). Some exceptions can be found in the field of pilot training using computer simulations (Ortiz, 1994). For example, Dennis and Harris (1998) found that a group of pilots-in-training who experienced computer-based simulation training using the computer's cursor and function buttons performed almost as well during a training flight as a group that used representative flight controls with the computer. Both groups outperformed a no-simulation control group. Thus, although the physical movements involved in operating the computer-simulated aircraft were quite different from those required by the actual flight controls, substantial training benefits were observed, suggesting that response induction may have taken place (see Avner et al., 1980, and Hutcherson, Langone, Ayres, & Clees, 2004, for other examples of potential indirect effects of computer-based training).

The dependent variable in the current study was preschool teachers' use of parents' names during teacher–parent interactions (for convenience, *parents* will be used to refer to the people who consistently accompanied the children to the preschool, regardless of their actual relation to the children). A consistent opportunity for teachers to initiate interactions with parents occurs during each morning check-in and afternoon pick-up. Early childhood educators explicitly recommend that teachers greet parents by name during these periods to promote parent–teacher communication (Essa, 2002; Morgan, 1989; O'Brien, 1997). The importance of positive relations between parents and early childhood educators has been increasingly emphasized in the early childhood literature (Endsley & Minish, 1991; Essa; O'Brien; Powell, 1978a, 1978b; Winkelstein, 1981; Zigler & Turner, 1982). Ideally, parents and teachers form a team that works together to promote the child's development, but lack of communication between parents and teachers may make such teamwork difficult to achieve. For instance, in a descriptive study that involved 16 child-care centers serving a total of 1,032 children, Endsley and Minish found that no interactions occurred between parents and teachers in 43% of observations obtained during morning and afternoon transitions.

When coupled with data suggesting that parent satisfaction may be related to the amount of parent–teacher communication (Winkelstein), the lack of such communication is even more troublesome. Nevertheless, we are not aware of any research that has sought to promote preschool teachers' use of parent names or other forms of parent–teacher interaction.

The purpose of the present study was to examine the extent to which computer-based programmed instruction would promote behavior change in a classroom setting, and if so, whether that behavior change would persist in the absence of additional interventions (i.e., ongoing performance feedback). More specifically, we sought to increase teachers' use of parent names during morning check-ins, a skill that has potential bearing on the quality of teacher–parent relations. A more general purpose of our study was to provide an example of how to evaluate indirect effects of computer-based instruction on staff behavior in their work settings.

METHOD

Participants

One male (T1) and 3 female (T2, T3, and T4) undergraduate student teachers participated; their ages ranged from 20 to 23 years (for the sake of brevity, the undergraduate student teachers will henceforth be referred to simply as "teachers"). The participants were enrolled in a two-semester preschool teacher-training program, and were continually supervised by a masters- or doctoral-level graduate student with expertise in early childhood education and behavior analysis. A total of 17 parents (out of 28) were identified as likely to bring one of 17 children (out of 19) to the preschool during the observation period. Two children who were usually dropped off after the experimental observations did not participate. Data were collected only when one of these 17 parents entered the classroom accompanied by his or her child and 1 of the 4 participating teachers conducted the check-in.

Setting

The experiment took place in a preschool classroom located in the Edna A. Hill Child Development Center at the University of Kansas. The classroom was approximately 12 by 7 m in area and served 19 children between the ages of 4 and 6 years. Computer-based instruction and assessment sessions were conducted in a 1.5 by 2 m office.

Response Definitions and Measurement

Classroom

Classroom observers scored teachers' use of accurate parent names using pencils and data sheets that contained the names of all of the children, their respective parents, and the teachers. Classroom observations were conducted during the program's first open hour, between 7:45 and 8:45 a.m. Each time a parent entered the classroom with his or her child defined an opportunity for the teacher who first approached the parent and child. An opportunity ended when the parent left the classroom. During this first daily interaction, the teacher typically greeted the child by saying, "Good morning —," while shaking the child's hand. The teacher then conducted a health check, which consisted of checking the child's mouth, torso, limbs, face, and scalp for signs of common disease or injury. Observers scored, by circling yes or no, whether the teacher who conducted the morning check-in used the name of the parent at any time during each opportunity (e.g., as a part of a greeting, salutation, or during conversation). Frequency of the naming response was not measured, only whether it occurred given an opportunity. When surveyed about the value of being addressed by name by teachers, parents' mean rating was 3.4 ($N = 27$, $SD = 1.0$; on a scale of 1 to 5, where 1 = *not important*, 2 = *a little bit important*, 3 = *somewhat important*, 4 = *very important*, and 5 = *most important*), indicating that this aspect of teacher–parent interactions was of some importance to parents.

Computerized Assessment and Programmed Instruction

The response that was measured during CAPI was typing the correct name in the presence of the relevant picture. All CAPI data were automatically recorded via the *PracticeMill* software package (Peladeau, 2000; see description below).

Procedure

Classroom Context

On the day before baseline observations (i.e., the day before the 1st day of the semester), participants were instructed by the preschool director to use parent names in greetings during check-in. The instruction was delivered during a 4-hr orientation in which the director reviewed general policies, strategies, and procedures of the program with all students enrolled in the preschool practicum. In addition, practicum students were provided a list of approximately 100 competencies that their supervisors would be using to evaluate their performance throughout the semester. Students were required to pass 85% of the competencies to receive a satisfactory grade in the practicum. Greeting parents by name was listed as the first competency, although competencies could be passed in any order. The teachers were not directly informed that their behavior of greeting parents by name would be specifically observed; however, they were told that data would be collected on all listed competencies, with extra attention to interactions with parents. Each of the participants signed a consent form containing statements to this effect. Finally, a list containing first names of parents and their children was available to teachers near the entrance to the classroom during the 1st week of observation. Procedures in the subsequent conditions were identical, except that the list of parent names was not available.

After the start of the semester, the participants were prompted as needed by supervisors to initiate the check-in routine (which included greeting the child and parent, conducting a health check, and assisting the child to engage in a scheduled activity), but were not specifically instructed to use parent names. However, the supervisors modeled the check-in routine (including greeting parents by name) during the initial 2 days of the semester.

Computerized Assessment and Programmed Instruction

PracticeMill (Peladeau, 2000) was used to design and implement the CAPI intervention. *PracticeMill* is a commercially available software package that allows users to design instructional programs that involve sequenced delivery of instructions, immediate delivery of feedback (including error correction), and automatic data collection and graphing. The participants were instructed on how to log into the program and how to move between frames. They were informed that if they did not know an answer, they could either guess or press "enter" to proceed to the next frame. The experimenter (first author) answered all questions regarding the function of the teaching program, short of providing answers or hints as how to respond. In each session, all stimuli in a given set were displayed in random order. Figure 1 specifies the four types of stimuli (parent pictures, parent names, child pictures, and child names) that were presented during CAPI and the specific stimulus–stimulus relations that were trained and assessed.

In this experiment, constructed responding was required throughout all assessment and training. Past research (Kritch & Bostow, 1998; Tudor, 1995; Tudor & Bostow, 1991) has suggested that active constructed responding (e.g., typing words or sentences) during instructional sequences results in quicker acquisition and stronger maintenance and generalization compared to less active responding (e.g., clicking on a stimulus with a mouse).

Assessment. Assessment sessions involved the presentation of target stimuli (e.g., parent pictures) along with questions (e.g., "What is

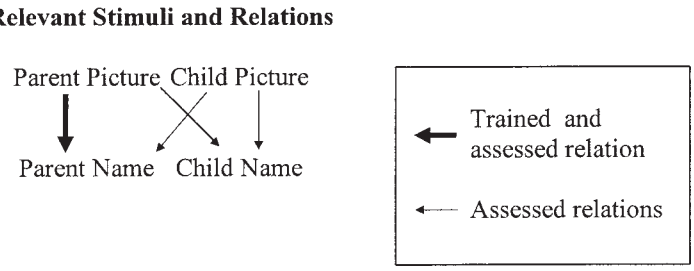

Figure 1. A schematic of assessed and trained stimulus relations. The bold arrow represents the trained relation.

the name of this person?") on a computer monitor. Participants moved between frames by typing an answer and pressing the "enter" key. Each frame (containing one parent picture and the relevant prompts) was presented once during each session for a total of 17 frames per session. No error correction or immediate feedback was provided, but the total number of correct responses for each session was displayed briefly on the screen at the end of each session. All assessment sessions were carried out in a single day for each participant.

Following classroom baseline observations, four kinds of assessments (three sessions of each) were carried out on the computer (see Figure 1). (a) The child picture–child name test (ChP–ChN) involved typing children's names in the presence of children's pictures (a picture of each child was displayed on the computer screen, along with the question, "What is the name of this child?"). (b) The parent picture–child name test (PaP–ChN) involved typing children's names in the presence of parents' pictures (a parent's picture was displayed on the screen along with the question, "What is the name of this person's child?"). (c) The parent picture–parent name test (PaP–PaN) involved typing parents' names in the presence of parents' pictures (a parent's picture was displayed on the screen along with the question, "What is the name of this person?"). (d) The child picture–parent name test (ChP–PaN) involved typing parents' names in the presence of children's pictures (a picture of a child was displayed on the screen along with the question, "Who typically brings this child to the classroom in the morning?").

Training. Immediately following assessment sessions, training was implemented on the PaP–PaN relation. Typically, participants completed all training sessions in a single day, but in cases of scheduling conflicts, training was sometimes completed on 2 consecutive days. Training sessions were conducted in the same manner as computer-based assessment sessions with the following exceptions: (a) A tally of the total number of correct and incorrect responses was constantly visible at the bottom of the screen. (b) Incorrect responses (or pressing the "enter" key without typing a response) resulted in the phrase "try again" being displayed on the screen along with the correct response. The participant then pressed "enter," the prompt disappeared, and he or she was required to type the correct response before moving to the next frame. (c) Correct responses resulted in an increase in the tally of correct responses and advancement to the next frame. (d) The training was divided into three levels, with the participant moving gradually from prompted to independent responding. In Level 1, the correct response (i.e., the name) was displayed on the screen along with the photograph of the parent, and the participant's task was to copy the name (e.g., "This is Jonathan. What is the name of this person?"). In Level 2, the latter half of the name model was removed, the photograph was still present, and the participant was again required to type in the whole name (e.g., "This is Jona—. What is the name of this person?").

In Level 3, the model was completely removed, and the participant was required to type the parent's name in the presence of only the parent's photograph (i.e., "What is the name of this person?"). The mastery criterion for all training levels was three consecutive sessions with 100% accuracy.

After the participants had passed the third training level, a test of the ChP–PaN relation was implemented. This test involved the presentation of children's pictures in the presence of which the teachers was required to type in the relevant parent's name (the question on the screen was "Who typically brings this child to the classroom in the morning?").

Refresher training. In refresher training sessions, participants completed one session of the last training level for the PaP–PaN relation, which involved responding in the absence of prompts, but with error correction in place. All participants were exposed to a refresher training session approximately 1 week (5 to 8 weekdays) after completing computer-based training and intermittently after that throughout the remainder of the participation period. Refresher sessions were included to ensure retention of parent names. Because we were concerned with the induction and generalization of skills acquired via computer-based instruction, continued classroom observation would have served little purpose if parent names were not retained in the computer context.

Supervisor-Implemented Feedback

On the 1st day that the feedback package was implemented with each teacher, the experimenter asked if the teacher thought he or she knew all of the parents' names. If the teacher answered no, the experimenter reviewed the names. On subsequent days, the experimenter reviewed the previous day's data with the participant, praising name use (if any) and reviewing the names that had not been used and for which there had been an opportunity. Teachers also were encouraged to use as many parent names as possible during morning check-in. This feedback procedure was carried out every morning a few minutes before the observation period.

Interobserver Agreement and Experimental Design

A second observer collected classroom data on the use of parents' names simultaneously but independently during 42% of classroom observations. Interobserver agreement was calculated by dividing the number of agreements by the total number of agreements plus disagreements and multiplying by 100%. An agreement was defined as both observers circling the same option (i.e., either "yes" or "no") for each specified parent check-in. The mean agreement for teachers' use of names was 93% (range, 75% to 100%).

The influences of CAPI and supervisor feedback on teachers' name use were evaluated in a multiple baseline across subjects design.

RESULTS

Although using parents' names during check-in was emphasized during an orientation, included in a list of evaluative competencies, and modeled by a shift supervisor, teachers rarely or never used these names during baseline (4.2%, 13.6%, 0%, and 0% of opportunities for T1, T2, T3, and T4, respectively; see Figure 2). The 2 teachers who used parent names (T1 and T2) did so early in baseline; however, no name use occurred in the last few days of baseline for any teacher. CAPI was therefore implemented sequentially across participants. During computer-based assessment sessions, all of the teachers were able to type all (or almost all) of the children's names in the presence of either the child's or parent's picture (data not shown). However, no teacher was able to type more than 18% of parents' names given parents' pictures or more than 24% of parents' names given children's pictures (see Table 1). In other words, the teachers passed the two tests that involved children's names (i.e., ChP–ChN

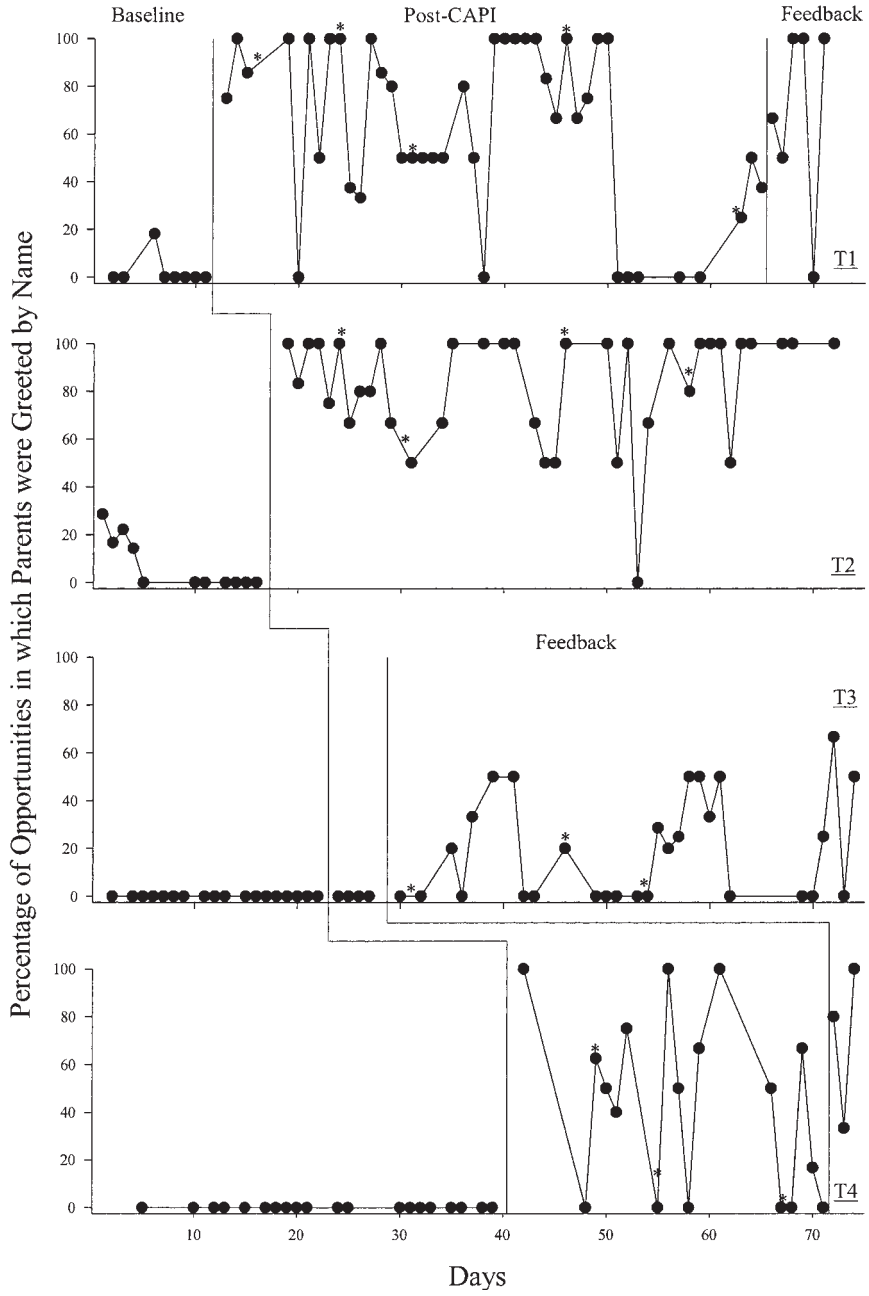

Figure 2. Teachers' use of parents' names during classroom observations. Each panel represents data from an individual teacher. Each data point represents the percentage of opportunities in which a teacher greeted a parent by name. A data point is not presented for days on which a teacher had no opportunities to greet parents. An asterisk denotes that a refresher training session was implemented.

Table 1
CAPI Results (Percentage Correct)

		Assessment	Training				Refresher	
			Level 1	Level 2	Level 3			
Teacher	Relation	Consecutive sessions	Errors	Errors	Errors	Posttest	First	Last
T1	PaP–PaN	0, 0, 0	0	10	2	100	82.4	82.4
	ChP–PaN	0, 0, 0				100	94.1	94.1
T2	PaP–PaN	11.8, 11.8, 5.9	0	0	0	100	100	100
	ChP–PaN	11.8, 11.8, 11.8				100	100	100
T3	PaP–PaN	17.6, 17.6, 17.6	0	1	1	100	76.5	100
	ChP–PaN	11.8, 11.8, 11.8				100	98.1	100
T4	PaP–PaN	17.6, 17.6, 11.8	1	1	0	100	94.1	94.1
	ChP–PaN	11.8, 17.6, 23.5				100	100	100

Note. PaP = parent picture, PaN = parent name, ChP = child picture, ChN = child name. Criterion for progressing from one level to the next was three consecutive sessions with 100% accuracy. Only the PaP–PaN relation was trained.

and PaP–ChN) and failed the two tests involving parents' names (ChP–PaN and PaP–PaN). PaP–PaN training was therefore implemented sequentially across teachers. Three teachers progressed through the training quickly while making few (T3, T4) or no (T2) errors. T1 made a total of 12 errors and thus took longer than the other 3 to progress through training. The total amount of time spent on CAPI training averaged 14.3 min and ranged from 7.0 min (T2) to 35.5 min (T1). In Table 1, the last session of training is displayed as a posttest for the PaP–PaN relation, because in that session, all teachers were responding independently (i.e., in the absence of prompts). After training of the PaP–PaN relation was complete, all of the teachers were able to type parents' names in the presence of children's pictures (ChP–PaN) with 100% accuracy without being explicitly trained to do so. The percentage of correct responses for the first and last of the computer-based refresher training sessions is shown in the two right columns of Table 1. Accuracy of all but one of the tests was over 80% and was 100% in half the cases.

Classroom observations (see Figure 2) showed increased use of parent names for 3 of the 4 teachers during check-in immediately following the CAPI intervention (names were used on 64%, 85%, and 43% of all opportunities within the phase for T1, T2, and T4, respectively). In baseline, only four of the 17 parents were ever addressed by name, but in the post-CAPI and feedback phases, all parents were addressed by name at least once. Use of names did not increase for T3; therefore, the feedback intervention was implemented first with her, and a small increase in use of names was subsequently observed (0% post-CAPI and 21% of all opportunities within the phase during the supervisor-feedback condition). Although the initial performance gains for T1 and T4 were substantial relative to baseline, somewhat variable name use was subsequently observed, especially in the latter half of the observation period. The feedback intervention was therefore implemented for T1 and T4 towards the end of the semester, resulting in a higher level of performance (72% and 73% of all opportunities within the phase for T1 and T4, respectively). T2 continued to use parents' names at a high level throughout the observation period; therefore, the feedback intervention was not implemented with her.

DISCUSSION

The current study contributes to the existing literature by (a) evaluating the effects of computer-based programmed instruction on

performance outside the computer context using repeated measures and single-case experimental designs, (b) demonstrating how behavior analysis can be brought to bear on teacher–parent relations, (c) offering a preliminary analysis of how computer-based programmed instruction may improve the overall efficiency of staff training, and (d) demonstrating how practical behavior change may result from indirect behavioral processes (response induction, stimulus generalization) brought about by computer-based programmed instruction.

Baseline observation in the preschool classroom showed that teachers rarely or never addressed parents by name, despite having been instructed to do so and provided with models by classroom supervisors. Several factors, including insufficient opportunities to learn parent names during typical daily interactions, cultural factors (e.g., traditional patterns of addressing elders by last name; R. Brown & Ford, 1961), avoidance of the social embarrassment of using the wrong name, or competing responses, such as talking to the child or conducting a health check, may account for this finding. Computer-based assessment showed that teachers could not accurately type the names of parents in the presence of the parent's pictures. Considering that 3 of the 4 teachers (T1, T2, and T4) showed substantial increases in greeting parents by name in the classroom following the CAPI intervention (range, 43% to 71%), the initial lack of classroom name use thus appears to be a function of poor stimulus control (as opposed to being exclusively influenced by motivational deficits).

At least two behavioral processes may explain the emergence of name use after computer training. First, reinforcement of typing may have resulted in increases in vocal responding via response induction (Catania, 1998; Skinner, 1953). Response induction occurs when reinforcement of one response topography (e.g., typing names) results in an increase in the frequency or strength of another topography (e.g., vocalizing names) that was not included in the contingency class. Such a class may be formed if a person vocalizes a parent's name prior to or while typing the name and reinforcement is then provided. Second, stimulus generalization may have led to performance changes related to CAPI because of the common stimuli that parents' pictures and parents' faces presumably share (i.e., responding may then have occurred in the presence of the latter via stimulus generalization; Stokes & Baer, 1977).

In CAPI training, positive reinforcement presumably consisted of being able to advance to the next frame contingent on correct responding and observing an increase in the tally of correct responses on the bottom of the screen. Negative reinforcement may have consisted of avoiding the correction procedure as well as an increase in the tally of incorrect responses. However, the reinforcing properties of these events were not systematically evaluated in this study and our analysis thus remains somewhat speculative. Nevertheless, the rapid acquisition of names during CAPI suggests that reinforcement did occur. It is also worth noting that these benign events may not be effective reinforcers for all staff; additional consequences may need to be programmed.

Due to induction and stimulus generalization, computer-based instruction may in some cases be sufficient to promote new response topographies in different settings. Following name training, classroom responding emerged without programmed changes in the motivating conditions or stimulus controls in that setting. For Participants T1, T2, and T4, it is possible that the proper motivating conditions were already in place in baseline and as the skill deficit was remedied, responding came into contact with naturally occurring reinforcement contingencies. In contrast, the classroom responding of T3 did not increase following computer-based training, suggesting that the lack of baseline responding may have been due either to motivational deficits or to a combination of motivational and skill deficits.

The classroom performance of T2 remained robust throughout the course of the experiment. Indeed, she greeted parents by name on 28 of 30 opportunities during the last 10 days for which she had opportunities. T1 and T4 showed immediate classroom performance increases following CAPI, but the improvements either did not persist throughout the observation period (T1) or remained highly variable (T4). Nevertheless, a supervisor-mediated intervention was sufficient to restore performance to levels comparable to those that had occurred early in the post-CAPI phase. Because of the end of the semester, only 3 days of feedback could be implemented with T4; thus, her data do not permit strong conclusions regarding the effectiveness of feedback. However, the feedback intervention was not the main focus of the study and can be viewed as a remedial procedure in this context. Our limited data are nevertheless consistent with previous research that has shown the effectiveness of performance feedback consisting of differential reinforcement and error correction when targeted skills did not improve following antecedent interventions or initial improvements did not persist (e.g., Demchak, 1987; Quilitch, 1975).

Computer-based posttests revealed that an untrained relation (PaP–ChN) emerged following training of the PaP–PaN relation. These results may be interpreted within a stimulus equivalence paradigm (Sidman, 1994; Sidman & Tailby, 1982). It is possible that observing children and their parents during morning check-ins during baseline and hearing the children's names at that time established equivalence among children's appearance, children's names, and parents' appearance (stimuli that are observed in close proximity can enter into equivalence classes; Leader & Barnes-Holmes, 2001); however, parent names did not enter into the class. This is suggested by the assessment data that showed competency with all relations except those that involved parents' names. Due to the physical similarity between pictures and faces, the equivalence class eventually included parents' and children's pictures (an instance of equivalence class extension via primary stimulus generalization; Fields, Reeve, Adams, Brown, & Verhave, 1997). As the participants learned the relation between parents' names and pictures, the former stimuli entered the equivalence class. When children's pictures were subsequently presented, the responses previously evoked by parents' pictures (i.e., typing parents' names) were controlled by the children's pictures because both types of stimuli had become members of a common equivalence class (Barnes & Keenan, 1993; Sidman, Wynne, Maguire, & Barnes, 1989). The emergence of untrained relations in the computer context suggests that the efficiency of computer-based instruction might be increased if programming is guided by the underlying structure of relevant equivalence classes. Future research should examine the costs and benefits of incorporating a stimulus equivalence paradigm into computer-based programmed instruction.

A potentially important change in staff behavior (greeting parents by name) was demonstrated in the current study. The training package consisting of computer-based instruction and supervisor feedback is still in use 3 years after it was first implemented and has since been implemented in an additional classroom. We can speculate that greeting parents by name may be important for several reasons, among them because it may demonstrate to parents that teachers are committed to forming relations with them as well as their children. However, the extent to which this simple response influences parent–teacher interactions in general remains to be determined. As training packages to improve teacher–parent relations become available, researchers may begin to understand how improved relations may affect child welfare and parental satisfaction.

An important finding of the current study was that the computer-based training consumed

little time (range, 7.0 to 35.5 min, M = 14.3 min) yet resulted in considerable performance improvements for 3 of the 4 participants. This outcome suggests that computer-based instruction may be used as an adjunct to more traditional staff-training procedures (e.g., ongoing feedback). Future research should examine under what conditions and to what extent computer-based instruction can supplement or replace supervisor-mediated training, targeting a variety of staff responses. Research that compares the effectiveness or efficiency of computer-based instruction and subsequent feedback relative to an exclusively supervisor-mediated program for promoting important changes in staff behavior is also needed. Such research should measure time expenditure and cost of the two training procedures as well as the social acceptability of and relative preference for the different procedures. We hope that the current study can serve as a guide to future research on the use of computers in staff training.

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