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THE IMPACT OF CHECKLIST-BASED TRAINING ON TEACHERS' USE OF THE ZONE DEFENSE SCHEDULE

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We assessed the impact of checklist-based training on teaching teams' use of the zone defense schedule. Three teaching teams (lead teacher plus 2 assistant teachers) in an inclusive early childhood program participated. A multiple baseline design across teams was used to determine whether accurate implementation of the zone defense schedule increased when checklist-based training was provided. All teaching teams reached the preestablished criterion, implementing a minimum of 80% of checklist items accurately for 3 consecutive observations.

Key words: checklists, feedback, teacher training, zone defense schedule

Engagement describes the amount of time children spend involved with the environment in a way that is appropriate for their ages, abilities, and surroundings (McWilliam & Bailey, 1992). Classroom transitions are often targets for engagement-based interventions because (a) children spend 20% to 35% of their class time transitioning between activities (Sainato & Lyon, 1983) and (b) transitions can be characterized by low engagement if children must wait needlessly (e.g., sit at the table while the teacher prepares needed materials). The zone defense schedule (ZDS) is a system for organizing the staff and environment in early childhood classrooms (Casey & McWilliam, 2005; LeLaurin & Risley, 1972) that allows teachers to man zones and children to move between teachers (in contrast to man-to-man defense, which requires teachers to follow specific children around the classroom). LeLaurin and Risley (1972) showed that use of the ZDS resulted in short transitions (9.91 min across four routines vs. 20.74 min with man-to-man defense) with high levels of engagement.

Because LeLaurin and Risley (1972) showed that the ZDS is beneficial, the goal of the current study was to train teachers to implement the strategy. Identification of effective methods for training teachers to apply interventions that have been disseminated as effective practice is important to reduce the research-to-practice gap. Although theories about the cause of the gap abound (see Carnine, 1997; Gersten, Vaughn, Deshler, & Schiller, 1997), one likely culprit is the limited efficacy of didactic methods for providing professional development (Greenwood & Abbott, 2001). Job-embedded training (i.e., direct observation of skills followed by feedback) is a better approach for changing teachers' behavior in the classroom (Joyce & Showers, 1980; Rose & Church, 1998). Checklists are a tool for providing job-embedded training; they allow supervisors to structure observations and ensure that teachers understand the expectations for performance.

Data suggest that checklist-based training can produce changes in teachers' behavior, but most studies have focused on the integrity with which individualized plans were implemented (e.g., DiGennaro, Martens, & McIntyre, 2005; LeBlanc, Ricciardi, & Luiselli, 2005; Schepis, Ownbey, Parsons, & Reid, 2000). For example, Codding, Feinberg, Dunn, and Pace (2005) and Reid, Parsons, Lattimore, Towery, and Reade (2005) used treatment integrity checklists to improve accurate implementation of behavior support plans and to increase the percentage

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of opportunities in which individuals with disabilities participated in classroom activities. These studies focused on individual teachers' interactions with a specific student with a disability. The purpose of the current study was twofold: (a) to gather evidence about the efficacy of checklist-based training for improving implementation of a classwide intervention rather than an individualized plan, and (b) to determine if checklist-based training was effective when provided to a teaching team instead of an individual teacher. Specifically, we assessed the impact of checklist-based training on teaching teams' use of the ZDS.

METHOD

Participants and Setting

Nine female teachers in three classrooms participated. One lead teacher and two assistant teachers were present in each classroom. Classroom A consisted of 17 children between 18 and 30 months of age (although no more than 12 were present at once). Classroom B consisted of 12 children between 4 and 5 years of age. Classroom C consisted of 3-year-olds (16 were enrolled, although no more than 12 were present at once). Approximately half of the children had disabilities. In general, the classrooms used a man-to-man defense system, meaning adults were assigned to care for specific children.

Response Measurement and Interobserver Agreement

Teaching teams' use of the ZDS was measured with the ZDS Implementation Checklist (McWilliam, 2005; available from the first author). For each transition, the experimenter rated 15 items as occurring *none of the time*, *little of the time*, *some of the time*, or *most of the time*. The items describe accurate implementation of the ZDS: giving children a transition warning, having materials prepared, ensuring that an adult was available at the activity that was ending and the activity that was beginning, using the set-up role for unplanned situations, and alternating the set-up role among adults. Observing one transition was adequate because it allowed the experimenter to observe two activities. Teams were given credit for alternating the set-up role among adults when a different adult fulfilled the set-up duties during each activity.

One checklist, reflecting group performance, was completed per observation. The percentage of items implemented *most of the time* was calculated. When there was no opportunity to observe a behavior (e.g., unplanned situations did not occur), *not applicable* was marked and the denominator was adjusted when calculating the percentage of items implemented accurately. A second experimenter observed 22% of the observation sessions (across classrooms and study conditions). For the *most of the time* rating, the mean agreement on occurrence plus nonoccurrence was 83% ($SD = 8.91$, range, 67% to 97%) and the mean kappa coefficient was 0.59 ($SD = 0.19$).

Procedure

Each classroom was observed 3 days per week for 60 min. The experimenter had to observe at least one classwide transition during each observation ($M = 2$ transitions per observation, range, 1 to 5) in the classroom (i.e., transitions to the playground or library were excluded).

Baseline. The experimenter did not show the checklist to the teaching team or provide feedback.

Provision of information. Before the intervention began, the first author met with each teaching team for 60 min. Written information about creating and implementing a ZDS was provided (i.e., chapters were copied from McWilliam & Casey, 2008, and teachers were asked to attend to specific sections and figures as they were explained), and the ZDS Implementation Checklist was reviewed. Teachers were asked to revise their schedule using the zone defense format within 24 hr. The first

author visited the classroom the next day to review the schedule and answer any additional questions.

Checklist-based feedback. At the end of each observation, the experimenter took aside the members of the teaching team, one by one, for a 2- to 3-min consultation (individual consultations were necessary to ensure that children were supervised). During the consultation, the experimenter showed the teacher the completed checklist and highlighted one or two items that were implemented *most of the time* by the team (e.g., "The team did a great job staffing the transition to circle time. Mariah stayed at the snack tables while Latricia got the props for circle time and waited for the first child to make the transition. That's exactly what we want to see."). The experimenter also explained why other items were not rated as occurring *most of the time* (e.g., "I marked *none of the time* for using the set-up role for unplanned situations. When Alice came in to ask about paperwork, Latricia gave her what she needed, but she was supposed to be leading circle time. Mariah was in the set-up role so she should have talked to Alice."). After the consultations, the experimenter made three copies of the checklist and placed them in teachers' mailboxes so they would be available for review.

Maintenance. After the teaching team implemented at least 80% of the checklist items *most of the time* for three consecutive observations, checklist-based feedback was discontinued. The experimenter continued to observe and complete the checklist; however, she did not consult with the teachers or place copies of the checklist in their mailboxes.

RESULTS AND DISCUSSION

Figure 1 shows that checklist-based training increased the percentage of checklist items implemented *most of the time*. The change in level between baseline and the first data point in the intervention condition indicates that providing information had an immediate impact on behavior; however, providing information was not sufficient for meeting the preestablished criterion of 80%. Checklist-based feedback produced increasing trends in appropriate use of the ZDS. When feedback was discontinued, performance in Classroom A declined but remained stable at the criterion; performance in Classrooms B and C remained stable at the level observed at the end of the intervention.

The arrow in Figure 1 marks a change in staffing in Classroom C. A student teacher led activities in the classroom at the beginning of the study. She was completing a university-required practicum and functioned as a lead teacher for 4 weeks. During Sessions 1 through 35, there were four adults in Classroom C: the student teacher and the regular teaching team. At the completion of the practicum, the student teacher left the classroom and the three members of the teaching team resumed their normal roles. Although the three-person teaching team used more components of the ZDS than the four-person team did, the change in staffing alone did not result in attaining the criterion level (as expected).

As stated previously, many studies about checklist-based training have focused on the integrity with which individual teachers implement interventions that require them to focus on their interactions with a specific student with a disability (e.g., Codding et al., 2005; DiGennaro et al., 2005; LeBlanc et al., 2005; Reid et al., 2005; Schepis et al., 2000). The focus of the current study, however, was on a classwide intervention and involved rating the behavior of the entire teaching team. The results suggest that checklist-based training is an effective method for improving teaching teams' implementation of an intervention that requires them to focus on their interactions with their fellow teaching partners and all children in the classroom.

A number of limitations exist. First, feedback was provided by the experimenter, as in previous studies (e.g., Codding et al., 2005; DiGennaro et al., 2005; LeBlanc et al., 2005; Schepis et al.,

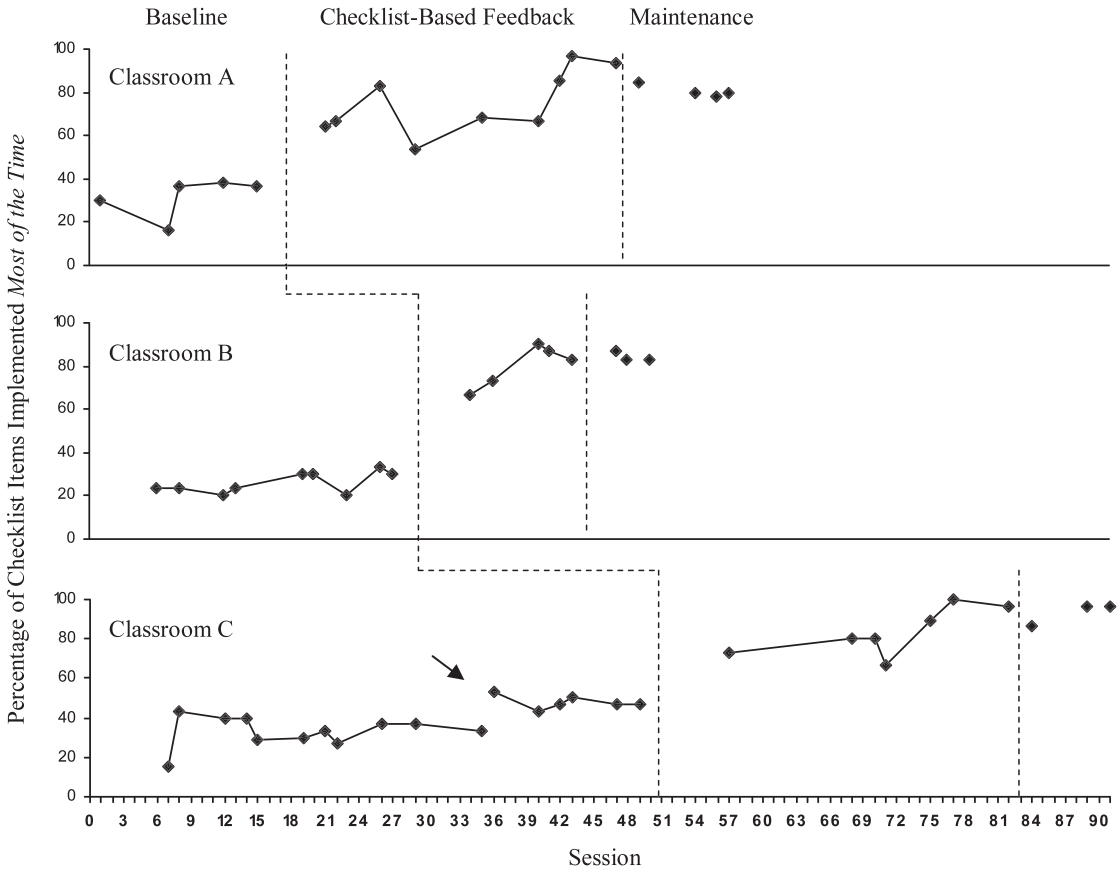

Figure 1. Percentage of items on the Zone Defense Schedule Implementation Checklist scored as implemented *most of the time* by the teaching team in each classroom. Session numbers reflect calendar days. Some sessions are without data because (a) no observations were scheduled for that day, or (b) the observation did not include the required number of classwide transitions. The arrow and break in the data for Classroom C indicate a change in staffing.

2000). Supervisors, however, are interested in the efficacy of interventions implemented by individuals similar to themselves, meaning further study is needed. Second, the checklist-based feedback was provided three times per week after a 60-min observation. The frequency and length of the observations will be prohibitive for some supervisors. Third, three adults were available to implement the ZDS (one more adult than is necessary), and most of the adults who received feedback were college educated. Such staffing does not necessarily represent most settings. Finally, it is unclear whether all steps in the procedure were necessary. In addition to providing information about the ZDS and checklist-based feedback, the experimenter made copies of the completed checklists and left them in teachers' mailboxes. Teachers were not required to review these checklists (e.g., the experimenter did not require teachers' signatures on reviewed checklists); therefore, it is unclear whether teachers received checklist-based verbal feedback or verbal feedback in combination with written feedback after information was provided. Despite these limitations, the current study provides convincing evidence about the efficacy of checklist-based training. The speed with which the criterion was achieved suggests that checklist-based training was an efficient method of professional development or supervision.

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