Assessing and Increasing Staff Preference for Job Tasks Using Concurrent-Chains Schedules and Probabilistic Outcomes

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The assessment and improvement of staff members’ subjective valuation of nonpreferred work tasks may be one way to increase the quality of staff members’ work life. The Task Enjoyment Motivation Protocol (Green, Reid, Passante, & Canipe, 2008) provides a process for supervisors to identify the aversive qualities of nonpreferred job tasks. Through participative management, the process reduces these aversive qualities while increasing the appetitive properties via the pairing of these tasks with enjoyable consequences. The present study provides an extension of Green et al.’s work through utilization of a concurrent-chains schedule arrangement via the pairing of reinforcing consequences with a target job task using probabilistic outcomes to directly assess job task preferences for eight direct support staff in a human service organization.

KEYWORDS preference assessment, concurrent chains, teachers, work enjoyment

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Given the numerous responsibilities and difficulties associated with working in a human service organization serving individuals with challenging behavior (Reid, 1998; Reid & Parsons, 2002), any success in the improvement of the quality of work life would come as a welcome respite for staff in these settings. One such approach to improving the quality of staff members’ work life has focused on assessing and increasing staff preference for job tasks (Green, Reid, Passante, & Canipe, 2008; Martin, 2005; Parsons, 1998; Parsons, Reid, & Crow, 2003). For example, Green and colleagues (2008) demonstrated that the use of the Task Enjoyment Motivation Protocol (TEMP) process increased direct support supervisors’ preference for previously non-preferred job tasks. Specifically, in accordance with the TEMP process, the researchers first asked the supervisors to rate their preference for required job tasks. Upon identification of the nonpreferred tasks, the researchers then implemented the TEMP intervention during one to one meetings with the supervisors. During these meetings, two components of the TEMP intervention were implemented. First, the researchers engaged the supervisors with a participative management process (see Reid & Parsons, 2006), which involved discussing the relative ranking of job tasks and discussing reasons why certain tasks were less preferred. The second component of the TEMP intervention involved a discussion of ways to reduce the aversive properties of the nonpreferred tasks and supplementing these tasks with other preferred tasks to increase the relative enjoyment of completing the nonpreferred tasks. Using a nonconcurrent multiple baseline across staff design, Green and colleagues (2008) demonstrated that the ratings of the nonpreferred tasks increased over time—suggesting a possible increase in the quality of the supervisors’ work life.

While the aforementioned Green et al. (2008) study lends some empirical support to the efficacy of the TEMP intervention, several limitations were noted by these researchers. First, the dependent measure consisted of a verbal report of preference in the form of a Likert-type rating. Second, the researchers note that the participants may have been verbally responding in an effort to please the researchers. Third, the use of a nonconcurrent multiple baseline may be considered a relatively less rigorous application of single-case experimental design, due to relatively little control for historical threats to internal validity (see Barlow, Nock, & Hersen, 2009).

In the present study, we sought to extend the Green et al. (2008) study by controlling for these limitations via a modified TEMP intervention, and for use with direct support staff, rather than supervisors, for tasks that feature aversive properties that could not be meliorated. In particular, we employed the use of a concurrent-chains schedule to directly measure participant choice and preference (see Tiger, Hanley, & Heal, 2006). In the concurrent-chains schedule, participants make a selection for a particular response by choosing amongst an array of stimuli (i.e., the initial-link choice) associated with a particular schedule of reinforcement delivered for that response in the terminal-link (i.e., being allowed to engage in the chosen response). Thus,
by measuring initial-link selections, researchers are able to directly assess participant choice and preference. Utilizing this direct measurement, rather than verbal report, we also reduced the possibility of the participants “faking good” because choices were associated with actual assignment to the chosen task within the terminal-link of the concurrent-chains schedule. This extension is noteworthy given previous literature (see Hanley, Iwata, and Lindberg, 1999) on concurrent-chains schedules that found that ambiguous preferences may become differentiated when pictorial initial-link selections result in actually experiencing the selected activity via differential outcomes. Moreover, to extend the use of our modified TEMP intervention to a group of participants—in this case, classroom direct support staff—we instructed participants to write down their initial-link selections with one staff member’s selection randomly drawn to create a probabilistic outcome for all staff members’ terminal-link assignment. This arrangement was based upon previous research by Layer, Hanley, Heal, and Tiger (2008). In particular, Layer and colleagues assessed children’s preference for edible items using two kinds of concurrent operants preference assessments; one in which selections consistently resulted in the selected item, and one in which children’s’ selections were probabilistically provided. The results from Layer and colleagues’ study suggested that probabilistic outcomes yielded better-differentiated preferences and corresponded with assessment results derived from consistent delivery of the preferred item. Thus, probabilistic outcomes may an efficient substitute to traditional techniques when preference hierarchies are needed from groups of participants. As an additional extension with direct support staff in applied settings, we targeted fixed job tasks—that is, we utilized tasks that could not be modified due to the nature of agency-wide job responsibilities and expectations. Thus, toward this end, we investigated the generalizability of a modified TEMP (M-TEMP) intervention through examination of tasks which may only be made more appetitive—an important consideration in settings where tasks simply cannot be altered due to policies and procedures and explicitly detailed job responsibilities. Finally, we utilized a concurrent multiple baseline design across two similar classrooms to increase our level of experimental control. Within this design, preference was depicted via the use of cumulative records for each initial-link selections within the concurrent operants schedule for each staff member, across all possible classroom job tasks.

METHOD

Setting and Participants

Setting

The setting was two classrooms located in the early childhood education program of a human service organization serving children ages 3–22 in
the American Northeast. Classrooms 1 and 2—the settings for the present study—each provided educational services to six children using applied behavior analysis as its primary treatment and instructional approach. Children in Classrooms 1 and 2 ranged in age from 8 to 11, and 7 to 11, respectively. Three of the children in these classrooms also received residential services by the organization.

**Participants**

Participants were eight direct support staff members—seven females and one male—who served as teachers in the human service organization. All participants had a bachelor’s level education, with an average of 17.57 (SD = 13.85) months experience with the organization. The average age of the participants was 24.71 (SD = 1.60) years. The eight participants were evenly split between the two classrooms. In addition to teaching responsibilities, these participants were also involved with the morning and afternoon transport of residential students to and from school. Data were not collected for individual participants during days when they had transport responsibilities. Occasionally, other school direct support staff members were assigned to cover classroom shortages in the classrooms. Though these staff members occasionally participated in the intervention, their data were not recorded.

**Procedures**

**Baseline**

During baseline, the researcher compiled a list of four classroom responsibilities which staff members were required to complete each day. Responsibilities were typically assigned randomly each morning by the direct supervisors of the support staff. All classroom responsibilities were to be completed upon dismissal of the students and prior to the end of the staff members’ shift. For Classroom 1, job tasks consisted of (a) creating data sheets for the next day, (b) sweeping the classroom floor, (c) entering the data collected during the day for the classroom’s students, and (d) cleaning classroom tables. For Classroom 2, job tasks consisted of (a) sweeping the classroom floor, (b) applying a bleach solution to student’s work area due to excessive saliva play, (c) stocking and organizing the classroom closet, and (d) cleaning classroom tables. Each morning, the researcher presented each participant with a slip of paper with their name on it and told the participant to write down which of the four classroom responsibilities they would prefer most that day (thus, constituting the initial-link of the concurrent-chains schedule). After all choices were made, the researcher shuffled the paper slips and randomly drew one slip. The participant drawn was then assigned to the responsibility they identified as preferring most that day—that is, the terminal-link of the concurrent-chains schedule provided as a probabilistic
outcome. All undrawn participants were then randomly assigned to the remaining tasks. The mean probability of being drawn during baseline was 53% (range of 25 to 100%) for Classroom 1, and 33% (range of 20 to 50%) for Classroom 2. A probability of 100% was achieved when no other classroom participants were eligible for the drawing that day, due to sickness, vacation, or transport responsibility. Moreover, due to the occasional inclusion of other staff in the intervention whose data were not collected, probabilities fluctuated each day (e.g., even though there were four Classroom 2 staff, there was an occasional fifth staff member present, which reduced the probability to 20%). All choices were tabulated across each school day by the researcher, and tracked for each participant as a cumulative record. At the end of baseline, the classroom job tasks chosen least frequently across each respective classroom were targeted for the M-TEMP intervention condition (see below). Table 1 provides a list of the classroom job responsibilities assessed for both Classroom 1 and 2 and identifies the least-preferred job task for each. For Classroom 1, the least-preferred task was cleaning the floor. The least-preferred task for Classroom 2 was cleaning the student area.

**Modified TEMP Intervention (M-TEMP)**

The M-TEMP intervention replicated the concurrent-chains schedules and probabilistic outcomes from baseline with the exception of an additional reinforcer for the participant assigned to do the least-preferred task—either by having their slip of paper indicating a preference to do the least-preferred task drawn, or being randomly assigned the least-preferred task after another participant was drawn who did not choose the least-preferred task. According to Green and colleagues (2008; also see Reid & Parsons, 2006), the standard TEMP process consists of having staff engage in a participative management process, wherein supervisors discuss with the staff ways to reduce the aversive properties of nonpreferred tasks and what to do to increase preference and/or tolerance to the non-preferred tasks. In this study, the participative management process was conducted during a regularly scheduled classroom meeting at the end of the baseline condition. During this meeting, the researcher (also a direct supervisor to the participants) met with the entire group of participants serving as direct

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*Task identified as least preferred in baseline and targeted in M-TEMP intervention.
support staff in the classroom to discuss the aversive aspects of the non-preferred tasks and negotiated rewards for choosing the nonpreferred tasks to increase its appetitive properties—in this regard, our participative management process differed from the standard TEMP due to the use of groups and the inability to target the aversive properties of job tasks. For Classroom 1, the reinforcer for choosing the nonpreferred task consisted of allowing assigned participants to select their lunch periods—the scheduling of which was usually assigned randomly by the direct supervisor. For Classroom 2, the reinforcer consisted of having assigned participants select students who they would work with during the first hour of the school day—again, an assignment typically made randomly by the direct supervisor. The chances of receiving the probabilistic outcome during intervention was 42% (range of 25 to 100%) for Classroom 1 and 33% (range of 25 to 50%) for Classroom 2. For both baseline and M-TEMP intervention conditions, data were collected using permanent products. Moreover, researchers assessed whether participants completed the task they were assigned to do and whether they obtained their reinforcer if applicable across 100% of the school days as a measure of procedural fidelity. Across all school days, procedural fidelity was 100%.

SOCIAL VALIDITY

The social validity of the aforementioned intervention was assessed by administering each participant a modified Intervention Rating Profile-15 (IRP-15; adapted from Martens, Witt, Elliot, & Darveaux, 1985) upon the completion of the study. The IRP-15 is a 15-item Likert-scale ranging from 1 (strongly disagree) to 6 (strongly agree). The wording was modified slightly to reflect the components of the present study’s intervention. Scores of 60 (slightly agree) to 90 (strongly agree) may be considered indicative of acceptability.

RESULTS

Results from the baseline and M-TEMP intervention conditions are depicted in Figure 1. As Figure 1 indicates, all participants demonstrated a clear preference for a particular work task during baseline, regardless of the degree to which they sampled across job tasks in their initial-link selections. Moreover, the least selected job task (from Table 1) was Task 2 for both Classrooms 1 and 2. Upon implementation of the M-TEMP intervention, all but two (i.e., Stephanie and Eileen) participants eventually demonstrated a preference for the targeted job task, which was previously the least preferred. While Stephanie and Eileen did not exhibit a differentiated preference for the target task, their data indicate indifference between the target task and
FIGURE 1 Cumulative initial-link selections of job tasks during baseline and the M-TEMP intervention (i.e., participative management process with subsequent pairing of a reinforcing activity with the target job task) in a multiple baseline across participants design.
other preferred tasks. Thus, the target task may not have been as aversive to Stephanie and Eileen as it was to their fellow staff members. At the aggregate level, Classroom 1 demonstrated a clear and immediate shift in preference upon implementation of the M-TEMP intervention, with Classroom 2 demonstrating a gradual shift in preference for all participants except for David, who had a shift in preference to the same effect as the Classroom 1 participants. The probability of receiving the probabilistic outcome varied across days, but was relatively stable across baseline and M-TEMP intervention conditions. For both Classrooms 1 and 2, the modified IRP-15 results suggested general acceptability (Classroom 1, $M = 66.33 \ [SD = 7.37]$; Classroom 2, $M = 73.75 \ [SD = 3.86]$). The two items rated lowest across all participants were “This intervention should prove effective in changing staff’s job satisfaction” ($M = 3.71 \ [SD = 1.25]$) and “Staff’s dissatisfaction with nonpreferred tasks is severe enough to warrant the use of this intervention” ($M = 4.00 \ [SD = 0.82]$). Four items were equally rated highest across all participants with a mean rating of 5.14 ($SD = 0.38$). These items were “I would suggest the use of this intervention to other classrooms,” “If I were a lead teacher, I would be willing to use this intervention in my classroom,” “The intervention is reasonable for the staff satisfaction problem described,” and “Overall, this intervention would be beneficial for staff.”

**DISCUSSION**

Through the use of initial-link selections within the concurrent-chains schedule as the dependent variable, we were able to obtain a direct measure of participant preference—a substantial improvement over sole reliance on verbal reports in previous research. Moreover, due to our integration of probabilistic outcomes, the likelihood of biased participant responding was reduced. Finally, we utilized a concurrent multiple baseline across participants design to demonstrate the effectiveness of the M-TEMP intervention. These results illustrated that participant choice and preference changed upon the introduction of the M-TEMP intervention. Moreover, all participants rated the intervention procedures acceptable.

These findings contribute to the existing literature on improving the quality of staffs’ work life by increasing staff members’ preference for job tasks (Green et al., 2008; Martin, 2005; Parsons, 1998; Parsons et al., 2003), as well as the research on the integration of probabilistic outcomes to concurrent-operants schedules. Given that a primary concern of human service providers is ensuring a stable direct support staff workforce and reducing high levels of staff turnover (as cited by Strouse, Carroll-Hernandez, Sherman, & Sheldon, 2003), identifying ways to promote a quality work life may increase the tenure of support staff and, at a minimum, facilitate relatively more enjoyable work conditions.
Despite the contribution of this study, several limitations exist, warranting further research on this topic. First, the study did not directly assess other changes in staff members’ performance (e.g., improved cleaning or increases in efficiency) as a function of changes in preference for job tasks. Additionally, collateral effects of an improved work life, such as employment tenure, were not measured. As noted, a gradual shift in preference was observed for all but one staff member in Classroom 2; variables surrounding this finding were not explored. Finally, supervisors of the direct support staff were not surveyed to assess their acceptability of implementing the M-TEMP process in an ongoing fashion with their staff.

In sum, these findings replicate and extend previous research supporting the notion that simple processes made at systems-level to produce changes in the preference of less-preferred job tasks ultimately enhance workers’ quality of life.

REFERENCES


