EMPIRICAL REPORT

Maintaining Staff Performance Following a Training Intervention: Suggestions from a 30-Year Case Example

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Abstract A frequent challenge encountered by behavior analysts in human service agencies is maintaining effects of their training interventions with agency staff. A case example is provided to illustrate how effects of a staff training intervention initiated by a behavior analyst maintained for an extended period in a center-based program for adolescents and adults with severe disabilities. The process involved the behavior analyst working closely with the program supervisor and a professional staff member in a collaborative team approach to increase involvement of center participants in functional (vs. nonfunctional) educational tasks. Initially, the team jointly developed an intervention to increase staffs' provision of functional tasks. The behavior analyst subsequently worked with the team members regarding how to implement the intervention by training their staff and providing feedback. The two team members then continued providing feedback during their respective supervisor tenures without continued presence of the behavior analyst. Results indicated that initial increases in participant involvement in functional tasks maintained during follow-up observations encompassing 30 years. Normative comparisons also showed that the levels were well above the level of functional task involvement in other center-based programs across that time period. Results are discussed regarding recommendations for behavior analysts to use a collaborative team approach with supervisors indigenous to an agency to help maintain staff behavior targeted for change by the behavior analysts.

Keywords Maintenance · Staff performance · Feedback

The jobs of behavior analysts in human service agencies often involve changing the work performance of other agency staff. Behavior analysts frequently strive, for example, to promote proficient implementation of teaching programs by staff or plans for overcoming challenging behavior. To fulfill these job expectations, as well as to impact a variety of other staff performance areas that are frequently targeted (Parsons et al. 2013), behavior analysts can rely on a sound organizational behavior management (OBM) technology. Evidence-based strategies constituting OBM applications can be used for training targeted skills to staff and managing staff application of the skills during their day-to-day work (see Reid et al. 2011, for a review of OBM).

Despite the existing staff training and management technology, a continuing concern in OBM is how to promote long-term maintenance of staff behavior change once skills have been trained and initially applied (Babcock et al. 1998; Carr et al. 2013; McSween and Matthews 2005). It has been well noted that changes in staff behavior following staff training and supervision interventions often fail to maintain without specific maintenance procedures (McSween and Matthews 2005; Mozingo et al. 2006; Williams et al. 2002). There also has been a relative lack of reports evaluating maintenance of staff behavior (Downs et al. 2008; Noell et al. 2000), and especially long-term maintenance (Austin 2000; Oorsouw et al. 2009).

Although maintenance of staff behavior has been described in various ways, it generally refers to continuation of staff performance following the initial interventions to bring about desired performance and particularly when the interventionists (e.g., behavior analysts) are no longer working with the involved staff (cf. Sigurdsson and Austin 2006). The most

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common evidence-based approach for promoting maintenance with staff behavior is to ensure that the target performance is regularly monitored and staff are provided with feedback regarding the proficiency of their observed work behavior (Alvero et al. 2001; Reid 2004). Despite some controversy over the controlling variables of feedback such as an antecedent, rule-governed, and/or reinforcing function, there have been numerous demonstrations of its behavior change effect with staff performance (see Alvero et al. 2001, for a review). It is also often recommended that agency supervisors be involved in monitoring staff behavior and providing feedback to the staff (Mayer et al. 2014, Chapter 14; Sigurdsson and Austin 2006). The advantages of supervisor involvement in this regard have been noted frequently (Mayer et al. 2014; Reid 2004; Sigurdsson and Austin 2006), including their routine presence in staffs' work area and their control over agency contingencies affecting staff work behavior (e.g., preferred vs. nonpreferred work schedules, pay raises, duty assignments, job termination).

Human service agencies that take an OBM approach in their daily operation and staff supervision processes are heavily characterized by supervisors who routinely monitor and provide feedback to staff (e.g., McClannahan and Krantz 1993). However, many human service agencies have not adopted OBM in their overall operation (DiGennaro Reed and Henley 2015; LeBlanc et al. 2011; Reid 2004) such that systematic monitoring and feedback systems are not likely to be used pervasively or consistently, if at all. Correspondingly, supervisors in the agencies in which many behavior analysts are likely to work do not routinely monitor and provide feedback to staff. Such supervisors also may lack the appreciation and/or skills necessary for providing feedback effectively. In the latter agencies, promoting maintenance of targeted staff behavior can be particularly difficult for behavior analysts. Although the behavior analysts can perform the monitoring and feedback duties themselves, often they are not able to be present in the staff work area on a regular basis and they rarely have control of workplace contingencies characteristic of supervisor roles.

In the situation just noted, the recommendation to involve supervisors in monitoring and providing feedback is still relevant, though it can require more time and effort on the part of behavior analysts. One approach for behavior analysts to promote use of feedback by supervisors is to actively seek supervisor participation in all aspects of their initial and subsequent intervention processes with staff (Mayer et al. 2014, Chapter 13), including obtaining a consensus regarding the rationale or need to change a particular aspect of staff performance. Instead of a behavior analyst performing the staff training and initial on-the-job intervention activities (after the behavior analyst determines what staff behavior is necessary to promote client skill acquisition, reduction of challenging behavior, etc.), the behavior analyst can work with

supervisors in a collaborative team approach with shared responsibilities for developing and implementing the staff interventions. This team approach has been successful in behavioral investigations for changing specifically targeted areas of staff performance within agencies that do not practice OBM on an overall basis and in promoting at least short-term maintenance as the supervisors provide feedback to staff (Green et al. 2002; Reid et al. 2005). Even with the involvement of supervisory personnel though, *long-term* maintenance continues to be a concern due in large part to the lack of evaluations of maintenance for extended time periods as noted earlier.

Our purpose is to provide a case example that evaluated maintenance of the effects of a staff training intervention across a 30-year period during which supervisory personnel in a human service agency carried out a staff monitoring and feedback process. The intent is to illustrate a collaborative team approach involving a behavior analyst and agency supervisors as described above to train and then maintain staff performance initially targeted by the behavior analyst. The case example also represents a response to calls for long-term follow-up reports to evaluate the sustained success (or failure) of OBM interventions (Austin 2000; McSweeney and Matthews 2005).

General Background and Rationale for Initial Staff Intervention

In the early 1980s, there was a developing concern regarding the focus of teaching and related activities in classrooms and center-based programs for adolescents and adults with severe disabilities (Bates et al. 1981; Certo 1983). There was a growing recognition that many activities provided in these settings were designed for young children, such as teaching or otherwise supporting participants to put pegs in pegboards, string toy beads, and repeatedly put a simple puzzle together. The concern was that these child-like activities were unlikely to equip adolescents and adults with severe disabilities to function as independently as possible in their future or current adult lives outside of the classroom setting. A consensus was forming that teaching and related activities should focus on more functional or meaningful skills for adults such as learning work skills for which they could earn an income in a vocational situation, interacting with others in an adult manner, taking care of their home and personal care needs, and engaging in leisure activities that nondisabled adults typically pursued. Hence, the initial intent with the case example was to develop an intervention with staff working in a sample of three classrooms in a center-based educational program for adolescents and adults with severe disabilities to help them change the focus of student activities to be more adult-oriented and functional. A second investigation was then conducted to

expand the provision of functional activities to the remaining classrooms in the education program (and other center-based programs).

Procedures and Results

Setting and Participants

The target setting was Dogwood School (now Dogwood Resource Center) that served 56 adolescents and adults with severe disabilities. Approximately two thirds of the students were adults. The program structure consisted of self-contained classrooms, serving an average of approximately six students per classroom. There was a certified special education teacher in each classroom along with one to two classroom aids who typically had a high school education.

The collaborative team that developed and carried out the intervention with staff involved an agency behavior analyst (first author), supervisor of the program (second author), and a curriculum specialist in the target setting (third author; formerly Joyce McCarn) who later assumed the job of staff supervisor. The supervisor and curriculum specialist had masters degrees in special education, and although they had received some training in behavioral teaching procedures in their masters programs, they had no formal training in applied behavior analysis. They likewise had never participated in a behavior analytic staff intervention or research undertaking. Other personnel helped with the research aspects of the intervention who had backgrounds in behavior analysis, but their role in the target setting only involved conducting observations for evaluative purposes. The supervisor and curriculum specialist members of the initial team each functioned as the

supervisor of the program for most of the 30-year follow-up period (see later discussion).

Initial Staff Intervention

The initial intervention with the classroom staff was part of an investigation intended to increase and validate functional classroom tasks for adolescents and adults with severe disabilities (Reid et al. 1985). Initially, operational definitions were developed by the collaborative team with the behavior analyst taking the lead role. The definitions focused on what constituted functional versus nonfunctional tasks for adults based on some previous research provided by the behavior analyst (Dyer et al. 1984) and suggestions in the existing literature (Brown et al. 1979, 1981). First, student *on task* was defined (see Reid et al. 1985, for elaboration). Behaviors considered *on task* were then defined as *functional* or *nonfunctional* based on the materials being used and the activity. For materials to be functional, they had to be the same as those used in a nonclassroom situation or be used by adults without disabilities in a nonclassroom setting. For an activity to be functional, it had to meet the criteria for one of the following skill domains: (a) it would be likely to occur among typical adults during leisure time (leisure domain), (b) the activity was part of a vocational task that, once mastered, would be a skill that a student could be paid to perform in an employment situation (vocational domain), (c) it was part of an interpersonal interaction that the student would perform once mastered at least weekly outside of the classroom or it represented an interaction that would not be unusual for a typical adult to perform weekly (communication/social domain), (d) it was part of an activity that once mastered would be likely to occur among typical adults in a community setting (community

Table 1 Examples of functional and nonfunctional tasks, activities, and materials for adolescents and adults with severe disabilities

Skill domain	Functional task	Nonfunctional due to materials	Nonfunctional due to activity
Domestic/self-help	Student responding to an instruction of how to put on her coat	Student responding to an instruction of how to put a coat on a doll	Student responding to an instruction of looking at a magazine picture of a woman putting on a coat
Leisure	Student being physically assisted in operating an iPad	Student being physically assisted in operating a child's pop-up toy	Student being physically assisted in putting pegs in a peg board
Vocational	Student sorting nuts and bolts into a package for retail sale	Student sorting plastic toy nuts and bolts into a paper cup	Student placing cotton balls into an empty egg carton
Community living	Student attending to teacher demonstration of counting out US\$1.00 in change	Student attending to teacher demonstration of counting toy coins	Student attending to demonstration of matching pictures of coins to printed number values
Social/communication	Student being assisted in signing "Hi" when first greeted by a teacher	Student being assisted in holding up a cartoon of an animal waving high	Student being assisted in coloring a picture of someone signing "Hi"

Note. Based on Reid et al. 1985

living domain), or (e) it would be performed by someone for the student outside of the classroom if the student did not perform the task for him/herself (domestic/self-help domain). Examples of functional versus nonfunctional tasks using these criteria are provided in Table 1.

Student involvement in functional tasks was observed using a systematic observation system developed by the team under the direction of the behavior analyst (again, see Reid et al. 1985). Briefly, each student was observed individually and the observer recorded whether the student was on task or not. If the student was on task, then whether his/her behavior was functional or not was scored. Both the materials being used and the ongoing activity had to be functional for the students' on-task behavior to be scored as functional.

Subsequently, the team developed and implemented a three-part training intervention that was carried out by the program supervisor with staff in each of three classrooms. The first part consisted of a review of a seven-page handout (provided to the staff) that provided a rationale for focusing on functional tasks, definitions, and examples of functional versus nonfunctional materials and activities. Additionally, staff were asked to consider what materials and activities could be altered in their classroom to become more functional using the handout as a guide and to present their ideas at a forthcoming meeting. At the meeting, the supervisor reviewed the ideas and provided approving and/or corrective feedback to ensure the planned materials and activities met the criteria. A time was then set for the staff to put the ideas into place. The second part of the intervention involved the supervisor prompting the staff during visits to their classrooms to ensure what they were

developing complied with the criteria. The third part involved the supervisor systematically monitoring and providing on-the-job feedback to the staff during visits to the classroom regarding the degree to which observed materials and activities met the criteria. The process for providing the feedback was developed by the behavior analyst and consisted of identifying and praising functional task involvement of students as well as identifying nonfunctional involvement and offering suggestions for altering the latter based on the established guidelines. The feedback was provided vocally immediately after each of the supervisor's observations. How to provide feedback in this manner was described by the behavior analyst and then practiced by the three team members prior to initiating the process with classroom staff. The behavior analyst also observed with the supervisor initially for interobserver agreement purposes.

The intervention was accompanied by an increase in student participation in functional education tasks from a baseline average of less than 40 % of the time the students were on task in each classroom to an average of at least 79 % per classroom (year 1, 1985 target demonstration on Fig. 1; see Reid et al. 1985, for more detailed data). A maintenance process was then implemented in which the supervisor continued to monitor and provide feedback to staff approximately once per week for 12 weeks and then approximately monthly for up to 45 weeks. As existing staff left the target setting and were replaced by new staff during the 45-week period, they were trained on the job by the supervisor through the ongoing feedback process. That is, she identified functional and nonfunctional tasks observed, praised the former, and provided

Fig. 1 Percentage of student on-task behavior with functional tasks for target site observations and normative observations

suggestions for improving the latter. Involvement in functional tasks maintained at or above the levels during the formal intervention across the maintenance phase.

The research in which the initial intervention occurred also included a social validity component that supported the overall importance of the types of tasks scored as functional for people with severe disabilities relative to the tasks scored as nonfunctional. The social validity assessments involved surveying the opinions of a variety of groups of people, including lay persons, direct support staff, vocational program directors, and professional clinicians. Given the supportive results of the social validity assessment (see again Reid et al. 1985, for elaboration), as well as the existing literature and research upon which the criteria for functional versus nonfunctional tasks were based as noted earlier, these criteria were the basis for all subsequent interventions and maintenance data associated with the case example.

Extension of Initial Intervention

In light of the success of the initial intervention in the target setting, a systematic extension of the intervention was then conducted with five additional classrooms in the educational program. The extension occurred as part of a large-scale application of the collaborative team approach that also involved two other education programs serving adolescents and adults with severe disabilities (Parsons et al. 1987). The intent was to demonstrate that the same staff training and feedback approach used in the initial intervention could be applied on a large-scale basis to increase student involvement in functional tasks. Concerning the target setting (school A in the Parsons et al. 1987 investigation), the same collaborative team (behavior analyst, program supervisor, curriculum specialist) implemented the intervention. Intervention procedures were the same as described previously, but directed at the remaining classrooms in the target setting.

As described in Parsons et al. (1987), percentage of student involvement in functional educational tasks increased from an overall baseline average of 36 to 92 % during the intervention (year 3, 1987 target school-wide on Fig. 1). The increase maintained across follow-up periods of 19 to 24 months across classrooms. The same monitoring and feedback system described previously with the initial intervention was conducted by the program supervisor during the maintenance period.

Follow-Up Observations to Evaluate Maintenance

Following the school-wide intervention with staff as just described, two long-term follow-up observations were conducted to evaluate maintenance. Due to the extended length of the follow-up period (30 years) and the focus on supervisor implementation of the feedback-based maintenance intervention, a description is warranted regarding the specific supervisory

roles of the two initial intervention team members who functioned as staff supervisors. As often occurs in organizational settings over extended time periods, there were changes in supervisors across the 30-year period. In the target setting, both the behavior analyst and supervisor who were involved in the demonstration and extension interventions assumed different roles a few months after the school-wide intervention within the human service agency of which the target setting was a part. The latter roles involved no clinical or supervisory responsibility with the target setting. At that point, the curriculum specialist from the initial intervention team assumed the position as supervisor of the target setting and continued in that role for 11 years. During this time period, both the behavior analyst and original supervisor left the human service agency. Throughout that time period, the supervisor (again, former curriculum specialist member of the initial collaborative team) continued the monitoring and feedback system on a monthly basis. She was then promoted within the agency to another position with no supervisory authority over the target setting. Subsequently, two other persons functioned as supervisors of the target setting respectively across a 4-year period. No evidence was obtained to indicate that the latter two supervisors, neither of whom was involved in any of the previous staff interventions, carried out the monitoring and feedback process for functional skill involvement. The original supervisor (again, a member of the initial collaborative team) was then reemployed as supervisor of the target setting and has since continued in that role. Upon her reemployment as the program supervisor, the same monitoring and feedback process used during the initial maintenance phases was then reimplemented and has remained in effect.

First Long-Term Follow-Up The first long-term follow-up occurred 20 years after the initial (demonstration) intervention with staff during the time the original program supervisor had been reemployed in the target setting. An investigation was conducted involving a sample of four classrooms in the target setting that focused on classroom management procedures pertaining to how classroom staff interacted with students to affect on-task behavior (Parsons et al. 2004). As part of the initial baseline observations, data were recorded on student involvement in functional tasks using the same basic definitions and observation process as described previously (see Parsons et al. 2004, for information on methodology and results). The baseline data revealed that functional task involvement was 100 % in each of the four classrooms (year 20, 2004 target follow-up on Fig. 1), which compared quite favorably with the last intervention and maintenance data from the previous school-wide intervention. Because functional task involvement was not observed to be problematic, the intervention in Parsons et al. did not focus on functional task involvement. However, baseline data from

that investigation allowed for a follow-up evaluation of a sample of four classrooms from the target setting.

Second Long-Term Follow-Up The second long-term follow-up occurred 30 years after the initial staff intervention, which represents the primary data-based focus of the case example. At this point, the original program supervisor (during her second tenure as the supervisor as described earlier) was implementing the feedback system on a quarterly basis with each classroom in the target setting. She also provided feedback more frequently (i.e., monthly) when a quarterly observation indicated that respective classrooms had lower levels of participant involvement in functional tasks. Sixty-six adult students were served in the classrooms of the target setting at the time of the 30-year follow-up, only 10 of whom were present during the initial intervention. None of the classroom teachers who were present during the initial intervention were still present during the follow-up. As indicated previously, as existing teachers left respective classrooms and new teachers were employed, they were trained in the provision of functional student tasks on the job by the program supervisor.

The follow-up observation was conducted by the supervisor in each of the 10 classrooms of the target setting at that time. Interobserver agreement checks were conducted during 70 % of the observations by two other observers. Neither of the latter observers worked in the target setting during the earlier demonstration or school-wide interventions but had been trained to conduct observations of functional task involvement in the same manner as described previously. Interobserver agreement was calculated on a student-by-student basis for occurrence, nonoccurrence, and overall agreement for both student on task and functional task involvement using the formula of number of agreements divided by number of agreements plus disagreements, multiplied by 100 %. For on-task behavior, occurrence agreement averaged 92 % (range, 80 to 100 %), nonoccurrence averaged 87 % (range, 75 to 100 %), and overall agreement 95 % (range, 92 to 100 %). For functional task involvement, respective averages were 92 % (range, 80 to 100 %), 87 % (range, 75 to 100 %), and 95 % (92 to 100 %). Results of the follow-up observations revealed 100 % functional task involvement in each of the 10 classrooms (year 31, 2015 target follow-up on Fig. 1).

Normative Comparison Evaluations

During the time period encompassed by the case example, there were several opportunities to conduct normative comparisons of the functional task involvement of students in the target setting with that of adolescents and adults with severe disabilities in other classrooms and center-based programs. The purpose of the normative comparison evaluations was several-fold. First, it allowed an evaluation of the amount of

functional task involvement in the target setting during baseline prior to the initial intervention and the school-wide intervention to increase the involvement. Such an evaluation could provide social validation for the need to improve functional task involvement as the focus of the intervention with staff (Hawkins 1991) beyond the reported need reflected in the literature at that time as discussed previously. Second, the normative evaluations could provide a type of social validation for the amount of improvement that accompanied the intervention with staff (Kennedy 1992). Third, normative comparisons during the long-term follow-up observations in the target setting allowed an evaluation of whether the importance of actively focusing on functional task involvement remained relevant over that time period based on the type of involvement of people with severe disabilities in classrooms and center-based programs in other program sites.

The first normative comparison occurred during the time between the initial demonstration intervention and the school-wide intervention. The comparison involved adolescents in 45 different sites (see Green et al. 1986, for elaboration). Results indicated that the baseline levels of functional task involvement in the target setting prior to the initial staff intervention (34 %) and immediately prior to the school-wide intervention (36 %) were very similar to the normative average (37 %) at that time (1986 norm on Fig. 1). These results suggested that adolescents and adults with severe disabilities in many program sites were spending approximately two thirds of their on-task time engaging in tasks considered non-functional, which also suggested that intervention was warranted. The normative comparisons also indicated that after the staff intervention in both the initial demonstration and school-wide application, the average levels of functional task involvement were well above the normative average.

The second normative comparison was conducted after the school-wide intervention and 3 years prior to the first long-term follow-up, involving 100 sites serving adults with severe disabilities (Reid et al. 2001). Results of that evaluation indicated that even though the comparison average of functional task involvement in the normative sample (75 %; 2001 norm on Fig. 1) was above that of the earlier normative evaluation, the first long-term follow-up results for a sample of classrooms in the target setting indicated a level of functional task involvement (100 %) above the normative average. The third normative comparison occurred during the same time period as the second long-term follow-up in the target setting, involving 78 program sites (Reid 2015). That evaluation indicated that the average in the target setting (100 %; year 31, 2015 target follow-up on Fig. 1) also was above the normative average (52 %; 2015 norm on Fig. 1).

In summary, results of the normative evaluations indicated that prior to the two interventions in the target setting, the level of student involvement in functional tasks was similar to that in other classrooms and center-based programs for adolescents

and adults with severe disabilities. In contrast, after the interventions and during the long-term follow-up observations, the level was well above the normative averages. The normative observations further indicate that although student involvement in functional tasks is currently not as infrequent as it was in the 1980s, it is still sufficiently low to warrant concern. The most recent observations (2015 norm on Fig. 1) suggest that across typical classrooms and center-based programs, approximately only half of on-task time among program participants involves functional tasks. One interpretation of these results, as well as our experience and that of others (Brown and Kessler 2014) in different center-based programs serving adults with severe disabilities, is that providing functional tasks for participating individuals is likely to be problematic unless specific action is directed to helping staff promote functional task involvement. Within the target setting in the case example, that action involved regular supervisor monitoring and provision of feedback regarding student involvement in functional versus nonfunctional tasks.

General Discussion and Recommendations for Practitioners

Results of the case example indicated that the collaborative team approach involving a behavior analyst, program supervisor, and other professional staff person (curriculum specialist) within the education program was accompanied by increases in participant involvement in functional activities following the demonstration and school-wide interventions. More importantly for the specific focus here, implementation of the staff monitoring and feedback by the latter two team members was accompanied by maintained increases during long-term follow-up observations including 30 years after the initial intervention. The program supervisor continued the monitoring and feedback following the interventions and the curriculum specialist did likewise during her later tenure as supervisor, and then the former supervisor conducted the monitoring and feedback during her second tenure as supervisor.

The collaborative team approach for intervening with staff performance represents a type of participative management approach (Reid et al. 2012; Chapter 3) by the behavior analyst. Instead of the behavior analyst developing the staff intervention (i.e., the staff training component) and then requesting assistance from the regular supervisor to provide feedback as often occurs with interventions by behavior analysts, the supervisor (and curriculum specialist who assisted the supervisor in determining the focus of classroom activities) participated with the behavior analyst in developing the training intervention and maintenance process. Participative management approaches to working with staff have been characterized by increased acceptance among participating team

members of expected work duties, or what is commonly known as “buy in” (Mayer et al. 2014, Chapter 3). Such acceptance may enhance the team members’ likelihood of subsequently performing the team-developed work duties relative to approaches in which a behavior analyst requests them to perform certain work duties after the behavior analyst has determined what duties are desired. As a result, and what occurred in the case example is that team members can be more likely to view the new duties as part of their ongoing responsibilities in contrast to carrying out what they may perceive as the behavior analyst’s duties, or something in addition to their own duties that the behavior analyst wants them to perform. Consequently, a recommendation for behavior analysts to help promote supervisory monitoring and feedback for areas of staff performance targeted by the behavior analyst is to involve supervisors and related personnel indigenous to an agency in all aspects of initially developing, implementing, and maintaining a staff intervention.

In considering the recommendation for involving supervisors in developing and carrying out interventions for promoting staff work behavior targeted by a behavior analyst, and particularly with maintenance interventions when the behavior analyst is only present periodically or not at all, attention is often warranted on ways to avoid drift among supervisors when observing and evaluating staff performance. Some research has shown that drift away from initially developed target behaviors for staff and monitoring processes occurs among supervisors such that periodic integrity checks on the supervisors’ monitoring and feedback are needed to avoid unwanted changes (Green et al. 2002). Hence, it is recommended that, when possible, behavior analysts arrange to conduct interobserver agreement checks occasionally during supervisory monitoring of staff behavior. Such checks may be conducted periodically by the behavior analyst if feasible. Alternatively, other personnel indigenous to the agency could be trained on the definitions and observation process. The latter approach occurred with the case example. Relatedly, the interobserver agreement checks conducted during the two long-term follow-up observations in the case example suggested that the supervisor’s ongoing monitoring adhered to the target definitions for what constituted functional task involvement.

The collaborative team approach also represented a type of pyramidal training process (Parsons et al. 2013). In the initial intervention, the behavior analyst worked with the other two team members in how to use behavioral staff training procedures as well as to systematically monitor and provide feedback to staff. The latter team members then carried out the intervention with the behavior analyst’s oversight. One advantage of a pyramidal training process is that it can help maintain target skills of the new staff trainers—the skills they are training to others (van den Pol et al. 1983). In the case example,

providing feedback to classroom staff required the supervisors to use the definitions and examples of functional versus nonfunctional tasks for their student activities. This process may also have helped avoid drift by the two supervisors.

It should also be noted that during the initial intervention, the behavior analyst held a role in the agency that included some supervisory authority over the two other team members. Specifically, the behavior analyst did not directly supervise the two team members but did have supervisory authority over their supervisor. Such a relationship may have further enhanced the participation of the two team members. However, the behavior analyst was not present in the agency during the long-term follow-up period and had no supervisory or consultative role with the two team members during their tenures as the program supervisor. Hence, the initial relationship alone would not explain their continued use of the monitoring and feedback system with staff.

Another consideration with the results of the case example is that the primary dependent variable for evaluating the staff interventions and long-term follow-up was functional task involvement of *students*. The focus of much of the research with human service staff has been on *staff* performance, with an implication of desired outcomes for their students or clients (Oorsouw et al. 2009). Behavioral researchers in the staff area have consistently recommended though that when intervening with staff performance, measures also be included on changes in student or client functioning (Greene et al. 1978; Finn and Sturmey 2009; Petscher and Bailey 2006). The primary reason for the recommendation is that usually the rationale for changing staff work behavior is to have a desired or therapeutic impact on the individuals with disabilities with whom they work and evidence is needed to ensure that staff behavior change beneficially affects the latter individuals. Additionally, well-documented changes in student or client behavior may function to help reinforce and maintain the targeted changes in staff behavior (Guercio and Dixon 2011). Behavior analysts can help in this regard by assisting agency supervisors and related personnel in clearly attending to the effects of interventions with staff on student or client outcomes through the use of objective and systematic monitoring systems (e.g., graphs of student or client outcome attainment). Consequently, it is recommended that when striving to change staff behavior with the intent of enhancing student or client welfare, behavior analysts attempt to promote supervisor involvement in monitoring not only staff behavior but measures of client welfare as well and to show how such measures are affected by changes in staff behavior. In the current case, although the primary data focused on what the students were doing, the target definitions also allowed for embedded observations of relevant staff

activity. That is, the definition for functional task involvement of the students required that the task in which they were engaged *and* the materials they were using be functional. When the supervisor observed nonfunctional task involvement, she could pinpoint if the activity was nonfunctional and/or the materials were nonfunctional (see Table 1). This allowed the supervisor to provide feedback about what behavior the staff needed to change—to change the activity they provided for the students and/or the materials they were using.

An additional consideration pertains to a qualification with describing the role of the supervisors' monitoring and feedback on the long-term follow-up results that indicated maintenance of functional task involvement. It cannot be concluded experimentally that the monitoring and feedback resulted in the maintained behavior change, only that high levels of functional task involvement accompanied the supervisors' monitoring and feedback. However, some indirect support for the role of monitoring and feedback in maintaining the staff performance for providing functional student tasks would seem to stem from research noted previously that showed that, without explicit maintenance procedures, staff performance following intervention often does not maintain (McSween and Matthews 2005; Mozingo et al. 2006; Williams et al. 2002). Similarly, there have been a number of research demonstrations of the effects of feedback on maintaining staff performance at least in the short term as also noted earlier (Alvero et al. 2001). In this regard, providing feedback would seem to meet the criteria for representing best practices when attempting to promote staff application of acquired work skills in human service agencies (Mayer et al. 2014, Chapter 3). Still, though by its nature time-consuming to conduct, research would be desirable to experimentally evaluate different procedures for maintaining staff performance over very extended time periods.

Although the case example does not provide an experimental evaluation of the effect of providing feedback on long-term maintenance of staff performance, it does appear to address a noted void in evaluating OBM applications. As indicated previously, there have been calls for dissemination of long-standing OBM successes through extended follow-up reports (Austin 2000; McSween and Matthews 2005). Although such reports may involve somewhat relaxed scientific standards in terms of not explicitly demonstrating rigorous experimental control, they can represent a useful type of field research (Austin 2000). More specifically, these types of reports can help show how initial interventions with staff that have been experimentally evaluated can be maintained in natural settings in which the interventions are intended to be used. The 30-year follow-up data presented in the case example

would seem to represent such a report. In turn, the demonstration of long-term improvement in service provision would appear to offer important empirical support for applied behavior analysis as a professional discipline and specifically for its capacity to promote lasting behavior change (Mayer et al. 2014).

Compliance with Ethical Standards

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Conflict of Interest All authors declare no conflict of interest.

Human and Animal Rights and Informed Consent This article does not contain any studies with animals performed by any of the authors; all procedures with human participants were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki declaration and comparable ethical standards.

Informed consent Informed consent was obtained in accordance with the institutional research committee standards.

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