An Evaluation of the Performance Diagnostic Checklist-Human Services on the Timeliness of Employees in a School for Students with Autism Spectrum Disorder

By



Todd A. Merritt

Submitted to the graduate degree program in the Department of Applied Behavioral Science and the Graduate Faculty of the University of Kansas in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

_____

Chair: Florence D. DiGennaro Reed, Ph.D., BCBA-D

_____

Claudia Dozier, Ph.D., BCBA-D

_____

Jan Bowen Sheldon, Ph.D., J.D.

_____

Derek D. Reed, Ph.D., BCBA-D

_____

Jason Travers, Ph.D., BCBA-D

Date Defended: July 20, 2017

The dissertation committee for Todd A. Merritt certifies that this is the approved version of the following dissertation:

An Evaluation of the Performance Diagnostic Checklist-Human Services on the Timeliness of Employees in a School for Students with Autism Spectrum Disorder

_____

Chair: Florence D. DiGennaro Reed, Ph.D., BCBA-D

Date approved: July 20, 2017

Abstract

The current study aims to reduce tardiness of four direct care staff employed at a school that provides educational services to children with autism. The Performance Diagnostic Checklist – Human Services (PDC-HS; Carr, Wilder, Majdalany, Mathisen, & Strain, 2013) was administered to the participants and their supervisors and identified deficits in the *task clarification and prompting; resources, materials, and processes;* and *performance consequences, effort, and competition* sections of the assessment. During baseline, three of four participants were never on time for work and one participant was occasionally on time for work. The number of min that participants arrived to work late during baseline ranged from 0 to 156 min ($M$ = 17.15 min). Several indicated interventions were implemented using a multiple baseline across participants or ABCDAC designs; the most effective intervention included task clarification, a problem-solving discussion, tokens exchangeable for back-up reinforcers, and weekly graphic feedback. Three of four participants demonstrated an increase in the number of days they were on time for work as evidenced by an increase in the slope of their data paths. Additionally, all participants showed a decrease in the number of min late to work ranging from 0 to 43 min ($M$ = 5.38 min). Improvements maintained slightly when the intervention was discontinued for three of four participants. These results suggest that the PDC-HS identified the variables maintaining participants' tardiness and an indicated intervention effectively addressed tardiness with some improvements maintaining after the intervention was discontinued. Moreover, social validity data were high indicating high acceptability for the interventions, particularly the component containing praise and a token.

Acknowledgements

This project and the completion of my graduate school career would not have been possible without the many people who have counseled and provided support over the years.

I would like to thank the KU Performance Management Lab (Denys Brand, Tyler Erath, Amy Henley, and Matt Novak) for being ever welcoming and inquisitive. Thank you for your input, contributions, and time, both in-person and from afar.

Thank you also to my committee members, Drs. Claudia Dozier, Derek Reed, Jan Sheldon, Jason Travers, and Jomella Watson-Thompson for the advice, challenging questions, and scholarly discussion.

The study would not have been possible without the QSAC Whitestone Day School. Thank you for allowing me to complete my project on such a pertinent yet challenging topic. Special thanks to Lindsay Maffei-Almodovar and Cynthia Martinez for their specific contributions to the project and support on a daily basis.

I am especially grateful to Noel and my parents, Glenn and Joni Merritt. I can only imagine how exhausting it must have been to go through the ups and downs of my graduate career. Your patience and support throughout this time has been invaluable. Hope you are ready for the next adventure!

Finally, I have the utmost respect and appreciation for Dr. Florence DiGennaro Reed. Your faith in me from when you first took me on as a student to your never-ending encouragement throughout the project have helped me to become the professional that I am today. You believed in me when I doubted myself and I will forever strive to be a mentor of your caliber.

TABLE OF CONTENTS

## List of Tables and Figures

## List of Appendices

**An Evaluation of the Performance Diagnostic Checklist-Human Services on the Timeliness of Employees in a School for Students with Autism Spectrum Disorder**

Employee tardiness is a performance problem faced by many organizations. In fact, CareerBuilder.com conducted a nationwide survey by interviewing 3,259 hiring managers and human resource professionals and 8,038 employees within the United States and found that 20% of workers said they arrive late to work at least once per week. Results further revealed that 12% of workers arrive late to work at least twice per week. Although the reasons for lateness varied across employees, the survey found common reasons for lateness include traffic, sleep, childcare, and public transportation. Regardless of the reason for an employee's tardiness, this performance problem may have a variety of adverse effects on an organization and the services it provides.

The cost of employee tardiness has been quantified by some organizations to include organizational expenses such as the cost of benefits, office space, overhead, consumable materials, and other costs. This interpretation of tardiness implies that even when an employee is not working, the organization still has various expenses that it must pay on behalf of the employee. Although the cost of these variables may differ from company to company, Peters-Atkinson (2012) found that one company used a 2.71 multiplier to provide an estimate of the cost of their employees' tardiness. Using this multiplier, if an employee earns $10/hr and is 15 min late to work, the employee costs the organization approximately $6.78 ($10/hr x .25 [15 min is 1/4 of 1 hr.] = $2.50, $2.50 x 2.71 multiplier = $6.775) each day that he or she is late. At a cost of $6.78 for each employee, an organization with 40 employees late in one week would lose $271.20, or approximately $14,141.15 per year, which is a significant amount for most non-profit organizations.

Aside from the financial aspect of employee tardiness, tardiness may also have adverse effects on staff morale and the quality of services the organization provides. Employee tardiness may cause employees to miss important information related to their job responsibilities if that information is shared with staff before a tardy employee arrives. Organizations that provide services to people with intellectual and developmental disabilities are commonly required to maintain certain staff to consumer ratios that may be mandated by legal documents such as an Individualized Education Program (IDEA, 2004). An employee's tardiness may cause other employees to work additional time, producing higher levels of stress, and increased turnover rates. When tardy, employees may not have sufficient time to prepare materials needed for the individual being served, which may result in a deterioration of service quality. Additionally, the organization may simply be out of compliance with mandated staffing ratios, putting the organization at risk with governing agencies, and increasing the risk that an employee or consumer will be injured.

Although a variety of detrimental effects exist when an employee is tardy to work, a review of the literature found very few studies that have directly addressed tardiness. Between the months of January and April 2016, I conducted bibliographic searches in peer-reviewed journals from PsycINFO with no date restrictions. See Appendix A for the search and screening procedures and inclusionary criteria. The search identified four articles that summarize results of interventions implemented specifically to address staff tardiness (i.e., Fienup, Luiselli, Joy, Smyth, & Stein, 2013; Landau, 1993; Newby & Robinson, 1983; O'Brien, Sperduto, & Goff, 1984).

Landau (1993) evaluated the effectiveness of a change in an attendance control policy (i.e., progressive disciplinary system with specific criteria related to absenteeism and tardiness

and disciplinary action) within a privately held, family-owned clothing manufacturing plant. Specifically, Landau measured the number of full days lost per week (absenteeism) and the number of days' employees reported to work late (tardiness) as a percentage of total working days. An employee was considered late if he or she arrived three or more minutes after the start of his or her scheduled start time. Using an ABC experimental design, the organization implemented a stricter disciplinary system followed by the addition of an incentive system for employee attendance and timeliness to work. Landau found that the disciplinary system combined with the incentive system produced greater reductions in employee absenteeism and tardiness than the stricter disciplinary system did alone. Although the intervention reportedly produced reductions in employee absenteeism and tardiness, because an ABC experimental design was used, no causal conclusions can be made.

In another study, Newby and Robinson (1983) evaluated the effects of grouped and individual feedback on employee performance within a large, family-owned drug store. The authors examined employee punctuality, which was measured by the number of minutes an employee was late, among other measures of efficiency. A modified withdrawal design (ABCAD) was used to evaluate the various components of the intervention (i.e., grouped feedback, individual feedback, and reinforcement plus individual feedback). Newby and Robinson found that individual feedback produced improvements across all target behaviors when compared to group feedback; however, individual feedback combined with reinforcement produced even greater improvements across all target behaviors. Although individual feedback and individual feedback combined with reinforcement both produced improvements across all target behaviors, due to the experimental design that was used and no replication of intervention components taking place, no causal conclusions can be made.

Of the four published studies that addressed staff tardiness, only one used an assessment to inform the intervention. Fienup, Luiselli, Joy, Smyth, and Stein (2013) used an adapted version of the Functional Assessment Interview (O'Neill et al., 1997) to gather information on antecedents, consequences, and functional alternatives for meeting timeliness within a private human services organization. The Functional Assessment Interview is an informant-based method of assessment that is commonly used with people with intellectual and developmental disabilities to gather information on a target behavior, setting events, antecedent conditions, consequent conditions, and functional alternative behaviors. The assessment has not been validated for analyzing organizational variables because, to date, this is the only study that has used the assessment in this way. Although the adapted functional assessment interview was not validated for the researchers' purpose, they indicated it was chosen over the PDC because it incorporated a broader range of antecedent and consequence influences and was a good fit with the philosophy and practice standards of the organization. Results of the Functional Assessment Interview identified restroom breaks between meetings, lack of expectations for staff to arrive to meetings on time, and absence of feedback regarding meeting timeliness as the reasons for the late start to meetings. Based on these results, the experimenters implemented an intervention consisting of advanced notice of meeting times, a policy regarding the length of meetings, and staff reinforcement for arriving to meetings on time. Using a multiple baseline design across meetings (i.e., staff, intern, and regional team meetings), the experimenters reported that the intervention produced moderate improvements in timeliness across all types of meetings. Unfortunately, a number of limitations with the study design and procedures exist. Although the experimenters used an assessment to inform the selected interventions, the adapted assessment was not validated for the way in which it was used in this study. Additionally, the experimenters

introduced interventions simultaneously in two out of three meeting types, which disrupts the staggered introduction of the independent variable in the multiple baseline design. The third meeting type had only one baseline data point, which occurred after interventions were implemented for the previous multiple baseline panels (i.e., meeting types). Finally, the data are highly variable across all meeting types and phases of the study. For example, the baseline data for one of the meeting types approximates a decreasing trend prior to intervention, which is the direction intended during intervention. These collective limitations prevent the experimenters from demonstrating a functional relation between the independent and dependent variables.

Given the limited research to date, identifying the reasons for and solutions to employee tardiness is a worthwhile endeavor. Applying the science of behavior to this socially relevant performance problem has potential value to both organizations and employees.

**Overview of Organizational Behavior Management**

Applied Behavior Analysis (ABA) is a scientific approach for discovering environmental variables that reliably influence socially significant behavior and developing a technology of behavior change that makes practical use of those discoveries (Baer, Wolf, & Risley, 1968). Within the file of ABA, there is a sub-discipline of Organizational Behavior Management (OBM) that refers to the application of behavior analytic principles to organizational settings (Bucklin, Alvero, Dickinson, Austin, & Jackson, 2000). Although the sub-discipline of OBM did not *officially* start until the 1960s, various events in other fields influenced the development of OBM (Wilder, Austin, & Casella, 2009). For example, the mechanical engineer Frederick Taylor—the father of scientific management—was the first to propose a scientific approach to management in the early 1900s. Taylor believed scientific study and analysis could be used to determine the best way to perform a job at maximum efficiency (Blake & Moseley, 2010). As

OBM became more widespread, the *Journal of Organizational Behavior Management* was established in 1977, which is the only professional journal devoted to behavior management in organizations and continues to be the main outlet for the sub-discipline today (Wilder et al., 2009). Organizational behavior management contains three sub-fields: behavior-based safety, behavioral systems analysis, and performance management.

Behavior-based safety focuses on analyzing and altering an employee's environment to decrease work-related injuries and increase safe behavior within the workplace. When developing interventions, behavior-based safety practitioners view the behavior of the employee as a function of his or her history of reinforcement and current environmental contingencies affecting the employee's behavior (Wilder & Sigurdsson, 2015). Behavior-based safety interventions have addressed numerous dependent variables including number of lost-workdays, rate of absenteeism, and number of injuries, incidents, or accidents within various settings, such as construction and mining companies, food manufacturing plants, shipyards, and urban transit industries (Sulzer-Azaroff & Austin, 2000). For example, Williams and Geller (2000) developed a critical behavior checklist to evaluate the extent to which employees in a soft-drink bottling facility emitted safe behavior when completing tasks chosen by the facility's safety manager and safety steering committee. The critical behavior checklist included items such as wearing eye protection, bending knees when lifting heavy objects, driving fork-lifts slowly at intersections, and using the handrail when travelling up or down stairs. A 1-hr workshop (that covered principles of behavioral safety education and training and practical applications of behavior-based safety) combined with weekly feedback produced increases in safe behavior across four groups of employees.

Behavioral systems analysis involves the analysis of various components of an organizational system at the performer, process, and organizational levels, as well as how those components interact with and affect each other to produce the greatest benefit (Sigurdsson & McGee, 2015). One of the main differences between behavioral systems analysis and the other sub-fields of OBM is that it may include performance management interventions, but may also involve multilevel interventions consisting of changes in company policies, strategy development and/or realignment, organizational restructuring, and others (Diener, McGee, & Miguel, 2009). This level of organizational analysis allows the identification of areas of improvement that will produce the largest impact and facilitate increased maintenance of the improvements (Diener et al., 2009). Although behavioral systems analysis is considered to be a sub-discipline of OBM, experimental research supporting its effectiveness is currently non-existent.

To aid in the completion of a behavioral systems analysis, Diener, McGee, and Miguel (2009) present the Behavioral Systems Analysis Questionnaire, which includes questions about the organization at a general level, adopted processes, and employee- or performer-level behavior. At the organizational level, sample questions address an organization's mission statement; who receives the products and services produced by the organization; and the collection of satisfaction data about quality, timeliness, cost, and customer service. Through the completion of the questionnaire, a practitioner may be able to accurately pinpoint where performance problems exist and make recommendations for performance improvement. The authors acknowledge that the questionnaire is the first attempt to standardize the behavioral systems analysis process and is yet to be validated.

In a case study, Diener et al. (2009) used the Behavioral Systems Analysis Questionnaire to analyze the systems within a private consulting firm to improve the quality of the firm's services and profitability. Beginning at the organizational level, the primary focus was to clarify how products and services were made available, sold, and delivered and how those processes were measured and subsequently managed. Once this information was collected, an analysis was done at the process level to ensure desired business results were achieved through a well-planned and managed workflow. Analysis at the process level of an organization examines the inputs (e.g., resources, materials, technology required to complete a task) and outputs (i.e., result of task completion) to ensure tasks that relate to the business results (i.e., receipt of product or service to customer) are completed appropriately and efficiently. If desired process results were not occurring, then the process may be broken down and analyzed more thoroughly for points of intervention. Finally, an analysis was done at the performer level to ensure contingencies were in place to support the performer. Although the authors use the case study to demonstrate how the questionnaire can be applied to various levels of an organization to pinpoint performance problems and make recommendations, they present no data or results to document the effectiveness of their recommendations.

Performance management focuses on the analysis of antecedents and consequences operating on the behavior of employees and employers and the development of interventions designed to affect these variables to change employee performance (Sigurdsson & McGee, 2015). Performance management interventions comprise a majority of interventions in OBM and have produced successful results in organizations in areas such as customer service, distribution and transportation, engineering, information management, manufacturing, research and development, sales, and vendor performance (Daniels & Daniels, 2006). A review

conducted by VanStelle et al. (2012) found that 67% of studies published in the *Journal of Organizational Behavior Management* between 1998 and 2009 were conducted at the performer level and focused directly on the performance of individual workers, suggesting that performance management interventions comprise most of the literature within OBM. For example, Squires et al. (2007) implemented interventions consisting of task clarification, visual prompts, and performance feedback to increase the number of customers greeted and offered an upsell in a locally owned restaurant. A multiple baseline design across behaviors with an embedded reversal showed the feedback intervention to be most effective in increasing the occurrence of both behaviors across all participants. Because the focus of performance management is on the analysis of antecedent and consequent conditions, practitioners may include an assessment of employee behavior to inform the development of an intervention for a target behavior.

**Functional Behavior Assessment**

A standard practice in many areas of ABA is to complete a functional behavior assessment (FBA) on a target behavior prior to intervention (Bailey & Burch, 2002). A functional behavior assessment is the process through which environmental factors that contribute to the maintenance of a target behavior are identified (BACB® Practice Guidelines, 2014). Functional behavior assessment methodology includes indirect assessments (e.g., questionnaires, checklists, structured interviews), descriptive assessments (e.g., ABC data collection, narrative recording, scatterplot data), and analog functional analyses (i.e., the practitioner directly manipulates environmental events) (Neef & Peterson, 2007). The purpose of FBA is to identify the environmental variables responsible for maintaining a target behavior

and, subsequently, implement an intervention that addresses these variables to produce meaningful changes in the occurrence of a target behavior.

The completion of an FBA aids a behavior analyst with identifying intervention(s) that may produce greater effects in a more efficient manner (Neidert, Dozier, Iwata, & Hafen, 2010). In his discussion of the significance of functional analysis methodology to the field of ABA, Mace (1994) described how the field previously relied on superimposing reinforcement contingencies, punishment contingencies, or both onto current environmental contingencies or unknown processes that maintain the target behavior. Superimposing contingencies in this manner produces a reliance on highly potent reinforcers or punishers to override the environmental variables maintaining target behavior. The development of FBA methodologies produced a shift in intervention development and treatment philosophy toward an analytic treatment model, which enables a behavior analyst to select intervention components that weaken the maintaining environmental variables and establish or strengthen the response-reinforcer relationship for an appropriate alternative or replacement behavior (Mace, 1994).

**Staff-level functional behavior assessment.** A variety of staff-level assessments have been developed within the sub-discipline of OBM. These assessments target the performance of staff and variables maintaining work performance problems. In business, a root-cause analysis identifies the cause of employee performance issues when they influence the safety, health, environmental, quality, reliability, or production areas of an organization (Rooney & Vanden Heuvel, 2004). A root cause is a specific underlying cause that can be reasonably identified and controlled by management, and for which effective recommendations for preventing recurrences can be generated. The analysis typically involves four major activities: data collection, causal factor charting, root cause identification, and recommendation generation and implementation.

Data are collected on the performance issue until complete information has been identified. After data regarding the cause of the performance problem are collected, a sequence diagram is drafted to identify all of the causal factors, which provides a structure for practitioners to organize and analyze the data that have been collected on the performance problem. After all of the causal factors have been identified, the root cause identification process begins, where the underlying reasons for each causal factor are identified and a Root-Cause Map is completed. Recommendations and interventions are then generated through analysis of the Root Cause Map. Although the root cause analysis *approximates* FBA methodologies, behavior analytic principles were not incorporated in its development. Additionally, the analysis provides a framework for the practitioner when analyzing the problem, but no *formal* structure is recommended other than the four activities described previously, which may limit the integrity with which practitioners apply the analysis to an organization's problem.

The completion of a staff-level FBA prior to identifying and implementing interventions may benefit organizations and OBM practitioners by facilitating the development of function-based interventions that result in quicker-acting and longer-lasting effects than non-functional interventions (Austin, Carr, & Agnew, 1999). Various assessment procedures may help to identify reasons for staff performance problems including diagnostic algorithms, the PIC/NIC analysis, and the Performance Diagnostic Checklist.

***Diagnostic Algorithms.*** Similar to an indirect assessment in FBA, a diagnostic algorithm provides the OBM practitioner with specific questions to ask supervisors and managers (hereafter, supervisors) to analyze an employee's performance problem (Austin, 2000). Through a structured interview with a supervisor and/or a target employee, the practitioner is able to generate hypotheses as to the cause of the problem and potential intervention(s). As cited by

Austin (2000), diagnostic algorithms may include the Problem Diagnosis Algorithm developed by Kent, the brief algorithm proposed by Bailey and Austin, and the Performance System Analysis Worksheet by Brethower. The brief algorithm provides questions for the practitioner to ask in a particular sequence that correspond with increasing intervention intrusiveness or cost. Questions initially ask about the delivery of positive consequences for desired behavior, employee feedback, and reinforcement for competing behaviors. Issues raised in these initial questions can be addressed relatively quickly and with minimal resources. Later questions assess whether the environment is conducive to top performance, if the employee has the skills to perform their responsibilities, or if the employee has any personal problems that may require counseling or other assistance. Issues raised in these latter questions require relatively costly and more intrusive solutions such as training, hiring new employees with relevant skills, or providing counseling to current employees. Although these diagnostic models provide a structured interview for the practitioner to follow, both the questions and the order of the questions were developed based on the experiences of their respective authors and are not empirically based (Austin, 2000). Additionally, the aforementioned diagnostic algorithms are described and reviewed in textbooks, but do not yet have empirical evidence supporting their effectiveness.

***PIC/NIC Analysis.*** The PIC/NIC Analysis is a framework developed by Daniels and Daniels (2006) that hypothesizes antecedent and consequent events operating on an individual's behavior and specifies whether the consequences are positive or negative, occur immediately or in the future, and are certain or uncertain. The name of the analysis is meant to convey that positive/immediate/certain and negative/immediate/certain consequences are more powerful than other types, such as positive/future/uncertain consequences. Information may be gathered through interviews or observations and, through completion of this analysis, the practitioner is

able to identify and, subsequently, modify environmental conditions to increase or decrease a behavior of interest. For example, Doll, Livesey, McHaffie, and Ludwig (2007) used the PIC/NIC Analysis in combination with the Performance Diagnostic Checklist (see section that follows for information about the latter assessment) to understand the organizational environment, pinpoint target behaviors, and analyze environmental conditions prior to implementing interventions focused on improving employees' (excluding owners and managers) cleaning behaviors in a ski shop. The PIC/NIC Analysis identified that existing antecedents and consequents were inadequate to promote the occurrence of cleaning behaviors. The researchers determined that antecedent conditions were inadequate because managers failed to provide formal training and visual prompts for cleaning. Consequents were determined to be inadequate because the analysis determined that positive consequences, such as supervisor praise or feedback, were not provided; employees received only negative consequences for cleaning in the form of time away from helping customers and socializing and exerting physical labor, among others. After baseline, the researchers implemented an intervention containing task clarification, a behavior checklist posted in a visible location, and graphic and written group feedback on cleaning behaviors. In a third phase, the researchers changed the feedback to provide daily task-specific information. Although the final intervention package produced improvements in all of the cleaning tasks, use of an ABC design prevents causal conclusions about the effects of the intervention. Additionally, the PIC/NIC Analysis provides a framework for the OBM practitioner to utilize when analyzing environmental variables, similar to the root cause analysis described previously, but there is no formal questionnaire to guide the interview or observation process, which may limit the integrity of the analysis both within and across practitioners. Finally, the analysis is primarily a *conceptual* analysis rather than a *scientific* analysis; it simply

provides a way of organizing the influences on behavior for a better understanding of why people emit specific behaviors (Daniels & Daniels, 2006).

***Performance Diagnostic Checklist.*** To address the limitations of existing assessment methods, Austin generated the Performance Diagnostic Checklist (PDC) through a series of publications. First, in an effort to determine the process by which professionals solve problems, Austin (1996) asked 10 expert management consultants and 10 experienced managers to think aloud when presented with a variety of problems, some of which were performance problems within an organization. Participants were given one sentence presenting an organizational problem and were asked to develop recommendations for the manager to implement that would resolve the problem. Participants were allowed to ask the researcher questions to gain additional information to aid in the development of their recommendations. The researcher responded to participant questions from a pre-determined script. If there was no scripted answer to a question, the researcher stated "I do not have that information." A summarization of findings from the interviews revealed professionals' problem-solving process involved a series of questions categorized into four distinct categories: *antecedents, equipment and processes, knowledge and skills*, and *consequences*.

Austin, Carr, and Agnew (1999) further delineated the purpose of each of these categories. *Antecedents* assess the clarity of the instructions provided to the employee and the presence of adequate prompts to evoke desired performance, clearly established and attainable goals, and organizational rules influencing employee performance. Questions in the *equipment and processes* section examine variables associated with the functioning and physical arrangement of equipment required to complete tasks and the adequacy of processes at various levels within the organization (i.e., organizational, departmental, and performer). The *knowledge*

*and skills* area assesses employee knowledge of the task, physical skills required to complete the task, and capacity to learn the skills necessary to complete the task in a reasonable amount of time. Finally, the *consequences* area assesses the feedback the employee receives on his or her performance, competing contingencies within the workplace that favor other behaviors, response effort required to complete the task, and aversive stimuli associated with the task.

Austin (2000) presented the PDC, based on his previous research, which is an informant method of functional assessment for use in an organizational setting to address employee performance problems (Appendix B). The PDC provides a series of questions that a practitioner answers by interviewing the employees' supervisor(s) and directly observing employee behavior. Although the questions are presented in a systematic order, there are currently no guidelines for conducting the PDC, which permits flexibility with its administration, but can be also problematic with the reliability and validity of the assessment. Through the completion of the assessment, the practitioner identifies variables maintaining a performance problem and uses this information to develop an intervention to ameliorate the employee's performance issues.

*PDC literature review.* Between the months of January and April 2016, I conducted bibliographic searches in peer-reviewed journals from PsycINFO with no date restrictions. (See Appendix A for the search and screening procedures and inclusionary criteria.) The search identified 15 articles (totaling 16 studies) that summarize results of investigations using the PDC in a variety of settings including retail, restaurants, and human services. See Appendix C for summary information about each of these studies. Of the 16 studies that used the PDC, 44% ($n$ = 7) of the studies report interventions that took place in retail settings (Doll, Livesey, McHaffie, & Ludwig, 2007; Eikenhout & Austin, 2005; Loughrey, Marshall, Bellizi, & Wilder, 2013; Pampino Jr., MacDonald, Mullin, & Wilder, 2004; Rohn, Austin, & Lutrey, 2002; Shier, Rae, &

Austin, 2003). Within retail settings, 43% ($n$ = 3) of studies targeted customer service behaviors (Eikenhout & Austin, 2005; Loughrey et al., 2013; Rohn et al., 2002), such as appropriate interactions with customers, offering promotional options to customers, and accurate cash register totals. For example, Loughrey et al. studied the extent to which employees promoted credit cards within one location of a women's lingerie and clothing chain. The PDC was completed during an interview with the general manager, a floor manager, and one of the target sales associates. Results of the PDC identified limitations with the presence of job or task aids in the immediate environment (*antecedents and information*), employees' having adequate knowledge to engage in the target behavior (*knowledge and skills*), feedback from supervisors (*consequences*), and employees' ability to see the effects of their performance (*consequences*). Prompts consisting of small cards that described the critical pitch components were placed discreetly next to each cash register to address the lack of antecedents and information. Less experienced employees viewed video models of various customer interactions and role played interactions to increase employees' knowledge and skills of the task. To address the consequences associated with the task, managers gave behavior-specific verbal feedback to employees on customer interactions and provided each employee with individual graphic feedback on the percentage of customers asked to enroll. All components of the intervention package were implemented in a nonconcurrent multiple baseline design across two participants. Both participating employees exceeded the goal set for the percentage of customers asked to enroll in the credit card immediately following implementation of the intervention package. In addition, managers reported they found the intervention to be effective, beneficial, easy to implement, and enjoyable for their employees and indicated that it would continue to be

implemented. The target employees rated the intervention as enjoyable, helpful, and effective and also that they would continue to use it at the store.

The remaining studies (*n* = 4) that took place in retail settings addressed cleaning and maintenance behaviors (Doll et al., 2007; Pampino Jr. et al., 2004; Shier et al., 2003), such as table busing time, completion of specific tasks related to maintaining the appearance of the job setting, or unpacking inventory shipments. For example, Shier et al. measured store appearance and cleanliness in five departments (i.e., deli, meat, frozen goods, produce, and front-end) of a grocery store. A checklist was developed for each department and included items such as wiped countertops free from dust, food crumbs, debris, and smudge marks; glass doors free from smudge marks; and vents free of debris and garbage. The PDC was completed through direct observations and interviews with the store manager; results identified that there were no task or job aids (*antecedents and information*) and, although the managers reported that employees were verbally recognized for exceptional performance or "written up" for violations of the store policy, the researchers never observed this taking place during data collection (*consequences*). To address antecedents, job aids in the form of a self-monitoring checklist and task clarification that specified criteria for store cleanliness and appearance were administered. Additionally, graphic performance feedback was provided weekly to improve the consequent conditions associated with the department's cleanliness. Using a multiple baseline design across store departments, Shier et al. documented increased cleanliness of each participating department. The authors did not describe any measures of the social validity of the intervention or its effects.

Approximately 25% (*n* = 4) of the studies report using the PDC in restaurants (Amigo, Smith, & Ludwig, 2008; Austin, Weatherly, & Gravina, 2005; Pampino Jr., Heering, Wilder, Barton, & Burson, 2004; Rodriguez et al., 2006). A majority of these studies (*n* = 3) focused on

cleaning or maintenance behaviors similar to studies conducted in retail settings (Amigo et al., 2008; Austin et al., 2005; Pampino Jr. et al., 2004). For example, Austin et al. (2005) targeted employee closing tasks that the authors detailed on a checklist for the server and dishwasher areas within a fine dining restaurant. Although the checklist was developed by the authors, it was not described in detail other than noting there were 25 items on the server checklist and 26 items on the dishwasher checklist. The PDC was conducted by interviewing the restaurant owner and visually inspecting work areas, although it is not clear what the practitioner examined during visual inspection. Results of the PDC indicated that workers were unaware of the exact closing duties (*antecedents and information*) and there were few, if any, consequences delivered for completing closing tasks (*consequences*). To address the inadequate antecedents and information and increase employees' awareness of closing duties, checklists were developed and posted in the work environment. Moreover, a procedure consisting of weekly posted graphic feedback and at least weekly verbal feedback was implemented to improve consequent conditions associated with the tasks. Employees were separated into two groups (i.e., servers and dishwashers) and interventions were implemented using a multiple baseline design across groups of employees. The intervention package produced improvements in the percentage of closing tasks completed across both groups of employees. Although the authors did not describe any formal social validity measures, they anecdotally reported that management expressed satisfaction with the ease and effectiveness of the intervention and its continued implementation up to nine months after data collection ended.

Rodriguez et al. (2006) also used the PDC to increase employees' offering of promotional stamps at two sites of a restaurant franchise. The PDC was administered to one manager and one employee in each store. Results of the PDC suggested a lack of *antecedents and information* in

both stores, but the authors did not report any other specific details. Issues were also identified with the availability of the stamps and stamp cards due to the machine that dispensed the stamps requiring repairs (*equipment and processes*), but the authors did not state how stamps or stamp cards were accessible when the machine was broken. Finally, lack of programmed consequences for offering or not offering stamps (*consequences*) was identified as a variable maintaining the performance problem. To address the inadequate antecedents and information, an intervention was implemented, which consisted of task clarification in the form of a posted memo, a self-monitoring system where the employee recorded the number of times he or she offered a promotional stamp, and a goal of offering a stamp on at least 80% of opportunities. Additionally, to address the problems with equipment and processes, the promotional stamp machine was repaired and more stamps and stamp cards were made available. Finally, graphic feedback consisting of line graphs was posted immediately after the observations in the employee-only section of the restaurant to address the lack of consequences. The authors did not specify if the graphic feedback displayed individual or group performance or how frequently observations took place. Rodriguez et al. used a multiple baseline experimental design across stores to demonstrate the intervention produced improvements in the offering of promotional stamps for all employees. Social validity questionnaires were distributed to two employees and the manager at each store to determine if the outcomes produced by each intervention component, other than the equipment modification and goal setting, were socially significant. The authors stated that goal setting was not assessed because the intervention component occurred with the graphic feedback, due to the target criterion being drawn on the graph, and social validity measures of graphic feedback would capture goal setting as well. The results of the social validity questionnaires were mixed across intervention components and stores with

each intervention component receiving a rating of 2.5 or higher on a 5-point Likert-scale where a higher rating indicated higher social validity.

Outside of retail and restaurant settings, 31% ($n$ = 5) of studies used the PDC in human service settings (Berc, Doucette, DiGennaro Reed, Neidert, & Henley, 2014; Gravina, VanWagner, & Austin, 2008; Hybza, Stokes, Hayman, & Schatzberg, 2013; Lebbon, Austin, Rost, & Stanley, 2011; Miller, Carlson, & Sigurdsson, 2014), such as university-based child care or autism treatment facilities, special education school, or a day treatment center for adults with disabilities. These studies targeted a variety of behaviors, such as treatment integrity of discrete trial teaching procedures, safety of consumer transfer lifts in a day treatment setting, cleaning or maintenance behaviors, and customer-service behaviors. As an example, Hybza et al. (2013) completed the PDC within a school district in Florida to target the number of school psychologists who completed timely (i.e., weekly) documentation for Medicaid billing to ensure the district met the state's billing deadline for reimbursement. The PDC was administered through direct observations of procedures and interviews with several school psychologists, the supervisor of psychological services, and an employee of the Medicaid budget department. Results of the PDC revealed there were no prompts or reminders for the school psychologists to submit billing (*antecedents and information*), no goals set for the completion of billing (*antecedents and information*), infrequent and inconsistent feedback on billing performance (*consequences*), and no information about the results of submitted billing (i.e., disbursement of dollars reimbursed) (*consequences*). To address the lack of antecedents and information contributing to the performance problem, the supervisor set an initial goal for school psychologists to complete billing by the end of each week and provided weekly prompts to assist with goal attainment. To increase the consequences associated with the task, written and graphic

feedback were delivered every two weeks via email and supervisors provided written statements of encouragement, praise, or need for improvement. Following the implementation of the performance improvement package using a multiple baseline design across three large service areas of a county school system, both the number of school psychologists who submitted timely documentation for Medicaid billing and the number of dollars billed to Medicaid increased. A social validity questionnaire completed by the participating school psychologists found that they understood the procedures and appreciated information about billing activity, but somewhat disagreed with the goal that was set and may not continue to bill on a weekly basis.

**Performance Diagnostic Checklist – Human Services.** Although the PDC has been successfully adopted in human service settings, Carr, Wilder, Majdalany, Mathisen, and Strain (2013) revised the assessment to better align with the unique needs of this type of organizational setting where employees are responsible for providing care to others. The authors began the revision process by applying questions from the PDC to common performance problems in human-service settings (e.g., failure to report problems to supervisors, poor attendance, tardiness). After identifying the areas needed for revision, the PDC's section titles, section order, question wording, and question order were revised and reviewed by the authors and 11 behavior analysts who were asked to pilot the assessment and provide input. The revisions to the PDC completed by Carr et al., with the input from the other professionals, led to the development of the Performance Diagnostic Checklist – Human Services (PDC-HS; Appendix D).

The PDC-HS is organized similarly to the PDC and consists of 20 questions arranged into four sections, including training; task clarification and prompting; resources, materials, and processes; and performance consequences, effort, and competition. Each section includes four to six questions asked by a behavior analyst during an interview with an employee's direct

supervisor or manager. The *training* area assesses whether an employee received formal training, can describe the target task and when it should be performed, if the employee has been able to complete the task at a previous point in time, and whether the employee can perform the task at the appropriate speed. *Task clarification and prompting* assesses an employee's understanding of the task's purpose, whether a job aid is available and visible, if he or she receives reminders, and if the environment is well suited for task completion. The *resources, materials, and processes* area assesses whether staffing in the organization is sufficient; if required materials are available, well designed, and organized; and whether there are additional tasks that must be completed before the target task. Finally, *performance consequences, effort, and competition* assesses whether an employee is ever directly monitored or receives feedback about his or her performance, if outcomes are seen by the employee, if the task requires a high response effort, or if there are competing tasks.

Thirteen of the PDC-HS questions may be answered by the supervisor, whereas seven of the questions are to be answered through direct observation of the target employee(s). The questions that are able to be answered through direct observation are indicated by an asterisk on the assessment and include those that can be easily observed when completing the assessment (e.g., presence of job aids in the immediate environment, employee's ability to state the purpose of the task). Questions that may be answered by the supervisor address items that may not be easily or directly observed (e.g., sufficient numbers of staff trained, do other tasks take precedence over the target task). All responses are scored using a "yes" and "no" format; each item scored as a "no" provides an opportunity for intervention, with priority given to areas in which multiple items are scored "no." In addition to the PDC-HS assessment, Carr et al. (2013) provided an intervention-planning resource that lists sample interventions for each item on the

assessment and citations to published studies that support the effectiveness of each intervention within a table. This resource is meant to guide users to examples of function-based and empirically supported interventions for employees. Appendix D also contains the intervention planning resource and references.

The PDC-HS differs from the PDC in a number of ways. The *antecedents and information* section of the PDC asks questions about whether the employee has received a written job description, if he or she is aware of the organization's mission, and if there are frequently updated, challenging, and attainable goals; none of which are addressed by the PDC-HS. Additionally, the PDC section of *equipment and processes* asks whether (1) there are obstacles that are keeping the employee from completing the task; (2) processes are arranged in a logical manner, without unnecessary repetition, and are maximally efficient; and (3) required equipment is reliable, in good working order, and ergonomically correct. The revisions to the PDC-HS for this same section resulted in questions asking if there are a sufficient number of trained staff and if required materials are readily available, well-designed, and well-organized. Although the PDC and PDC-HS attempt to assess the same general "functions", human service settings warrant questions that assess unique elements or features of this type of the workplace. Other revisions to the PDC involve minor rephrasing of questions and an alternative order of questions to better align with the revised PDC-HS section titles.

Carr et al. (2013) also tested the effectiveness of the PDC-HS by targeting the percentage of tasks completed on a treatment room cleanliness checklist in a university-based autism treatment center. A behavior analyst individually interviewed three supervisors using the PDC-HS and conducted direct observations. The PDC-HS identified lack of proper training on participant duties (*training*) and lack of feedback on performance (*performance consequences,*

*effort, and competition)* as the variables responsible for the participants' performance problems. The authors used a multiple baseline design across treatment rooms to evaluate the effects of an intervention package based on the results of the PDC-HS. An intervention consisting of training and graphic feedback produced improvements in the percentage of tasks completed across all treatment rooms. Carr et al. also assessed a non-indicated intervention that included task clarification and increased availability of materials. The non-indicated intervention did not improve the percentage of tasks completed, suggesting the PDC-HS was able to identify the variables maintaining the performance problems. Although social validity was not formally assessed, staff members who participated in both the PDC-HS interviews and intervention evaluation anecdotally reported the PDC-HS and resulting intervention to be useful.

In a follow-up study, Ditzian, Wilder, King, and Tanz (2015) examined the utility of the PDC-HS to address a performance issue in an autism treatment facility; namely, employees' failure to secure therapy room doors after passing through the doors. The PDC-HS was administered to three supervisors and identified a lack of consequences as the primary variable contributing to the employees' poor performance. To address this function, the researchers implemented an indicated intervention incorporating individual verbal and graphic feedback (i.e., bar graph delivered at the beginning of each session that depicted the participant's performance from the previous session) delivered by the employee's supervisor using a multiple baseline design across participants. Ditzian et al. showed an increase in the percentage of opportunities in which therapy room doors were closed by all participants after the introduction of the intervention. A non-indicated intervention consisting of a written prompt did not produce improvements in the two employees' performance. Although the intervention produced an improvement in the securing of therapy room doors, the authors did not specify the specific

variable that contributed to the performance problem beyond a general lack of consequences. Additionally, the authors did not describe how (e.g., individual performance vs. group performance, posted vs. providing copies) or how frequently (e.g., daily, weekly, monthly) graphic feedback was provided. Ditzian et al. also did not report any social validity measures on the intervention or its effects. These findings provide additional support for the utility of the PDC-HS in identifying variables maintaining performance problems. To date, Carr et al. (2013) and Ditzian et al. are the only studies that have published results using the PDC-HS.

**Limitations of the Performance Diagnostic Checklist and Performance Diagnostic Checklist – Human Services.** Although the PDC and PDC-HS show promise in identifying effective interventions, both assessments have several limitations that are described below. First, the PDC organizes the variables that may influence an employee performance problem into four distinct categories including *antecedents and information, equipment and processes, knowledge and skills, and consequences*. Items listed in the *consequences* category (e.g., response effort required to complete a task, performance monitoring, or aversive stimuli present in the environment) may not actually function as consequent stimuli and may be more appropriate under a different category. Carr et al. (2013) may have attempted to address this issue by revising the *consequences* category to *performance consequences, effort, and competition* to capture a wider array of variables.

The PDC and PDC-HS are designed to be completed through interview, direct observation, and reviewing permanent records (e.g., training records), but little information is available to guide an interviewer's practice. Specific guidelines are lacking to determine how many supervisors should be interviewed before the assessment is complete. Many organizations have multiple levels of supervisory staff who may have access to different information that

relates to the performance problem of interest for a particular employee or group of employees. To obtain the most representative results, it is unclear how many supervisors and/or how many levels of supervisors should be interviewed. From a cost-benefit perspective, this issue is also important so that practitioners do not spend unnecessary time or resources to complete interviews when they are unnecessary.

Relatedly, both assessments lack detail about how to confirm information obtained through interviews by conducting observations of employees. The PDC recommends providing data in support of answers, if possible, and the administration guidelines for the PDC-HS indicate that seven questions should be answered through direct observation (denoted with an asterisk on the assessment). It is unclear how many observations are necessary to generate sufficient information for developing an indicated intervention. Moreover, the administration guidelines do not provide information about how to reduce reactivity (e.g., observing a supervisor giving feedback may change the supervisor's behavior) or subjectivity while completing the observations, both of which could negatively influence assessment results. Even fewer details are available to guide an OBM practitioner's efforts to review permanent products.

The scoring procedures for both the PDC and PDC-HS present several additional limitations. Both assessments use a "yes/no" dichotomous scoring system; whereas a Likert scale may allow for additional information or analyses to determine which variables are most likely to influence the performance problem. A dichotomous scoring system requires questions to be answered in one of two ways even when interviewees may think the answer is somewhere between the two, which a Likert scale would be able to better capture. Additionally, the administration guidelines of the PDC-HS state that intervention selection should prioritize sections in which multiple items are scored "no," but lack specific guidelines as to how many

items must be scored “no” to warrant intervention. Ditzian et al., (2015) administered the PDC-HS to three supervisors who provided varied responses such that at least one “no” response was provided on every section of the assessment. The authors implemented an intervention that addressed issues identified in the *performance, consequences, effort, and competition* section only, but did not explain their reasoning for doing so. Selection of the intervention may have been determined by the relatively higher percentage of questions scored “no” in this section compared to other sections, agreement among the three respondents on this section compared to others, or for another reason entirely. Finally, it is not clear how to aggregate PDC or PDC-HS findings across a group of employees who will experience the same, organization-wide intervention. The selected intervention may be indicated for a subset of employees, but not for others, depending on individual assessment results.

Finally, the psychometric properties of both assessments have not been adequately measured. Psychometric properties determine the degree to which an assessment’s findings can be interpreted with confidence (Cooper, Heron, & Heward, 2007). The reliability and validity of the PDC and PDC-HS should be evaluated using traditional test-score theory and factor analysis.

Although the PDC and PDC-HS have several limitations, research to date suggests their results adequately inform intervention selection. Additional research is warranted to assess their effectiveness in identifying the variables that maintain employee performance problems, ensure the assessments are technically sound, develop more clear guidelines as to how the assessment or interview is to be conducted, and determine how results are to be interpreted.

**Magnitude of Effects**

Quantifying the magnitude of improvement produced by an intervention allows one to make more precise statements about the size of an intervention’s effect. To accomplish this task,

researchers have developed a variety of calculations to determine the size of an intervention's effects and often rely on overlap-based effect sizes. For example, the percentage of data points exceeding the median is one calculation used to determine the magnitude of effects (Ma, 2006). With an intervention that is intended to increase the level of the dependent variable, this effect size involves calculating the percentage of intervention data points exceeding the median of the baseline phase. Another effect size involves determining the percentage of all non-overlapping data points, which is computed by calculating the percentage of intervention data points in the direction of the intended effect that do not overlap with baseline data points (Parker, Hagan-Burke, & Vannest, 2007). With the percentage of all non-overlapping data calculation, the number of data points that remain after removing the overlapping data points is divided by the total number of data points in the intervention phase. Recently, Parker and Vannest (2009) developed the Nonoverlap of All Pairs (NAP) effect size to improve upon previously existing calculations. The NAP is calculated by comparing each phase A (i.e., baseline) data point to each phase B (i.e., intervention) data point. The number of comparison pairs showing no overlap is divided by the total possible number of comparisons. Specifically, each phase A data point that overlaps with a phase B data point is given a score of one, a tie is scored as half a point, and nonoverlapping data points are scored as 0. The totals for each phase A data point are added. This sum is then subtracted from the total possible number of pairs between phase A and phase B, then divided by the total possible number of pairs between phase A and phase B and multiplied by 100. To aid with the calculation process, Parker and Vannest also provide a visual for readers to follow (Appendix E).

The primary researcher calculated the NAP for interventions in 15 of the 17 articles that used the PDC and PDC-HS; two articles were excluded because the data were not compatible

with NAP calculation methodologies (e.g., cumulative record does not provide the opportunity for data to overlap). Across the 15 included articles, 19 figures were analyzed by hand (See Table 1). Using the NAP calculation, an effect size ≤ 65% is considered to be small whereas an effect size between 66% and 92% is considered medium. An effect size ≥ 93% is considered large. The NAP calculations across the 19 figures ranged from 66.2% to 100%. Additionally, 68.4% of figures had NAP calculations equal to or greater than 93%, which is considered a large effect size (Parker & Vannest, 2009). No interventions were categorized as having a small effect (i.e., a NAP of 65% or less). Moreover, the non-indicated interventions (those that were not based on the results of the PDC-HS) implemented by Carr et al. (2013) and Ditzian et al. (2015) obtained effect sizes of 33.5% and 53.7%, respectively. Collectively, these calculations provide further evidence that interventions based on the results of the PDC and PDC-HS produce relatively large effects. Although assessment-based OBM interventions produce large effects, conducting functional assessments using the PDC or PDC-HS is not standard practice within the field at this time (Johnson, Casella, McGee, and Lee, 2014), suggesting additional research is necessary.

**Conclusions and Purpose**

As found by the survey conducted by CareerBuilder.com, staff tardiness continues to be a problem within organizations and remains an important topic of study given the potential adverse effects. There has been limited research conducted that specifically addresses staff tardiness and only one study incorporated a staff-level functional assessment to inform an intervention designed to reduce tardiness. The PDC-HS is an assessment specifically for use in human service organizations (Carr et al., 2013; Ditzian et al., 2015) that has limited, but emerging empirical support. To date, no studies have used the PDC or PDC-HS to target tardiness. The

purpose of the current study is to evaluate the effectiveness of an intervention informed by the PDC-HS on staff tardiness within a human service setting. Social validity of the intervention components was also assessed.

## Methods

### Participants

Teacher's assistants and teacher's aides (hereafter, referred to as TAs) of a not-for-profit school that serves individuals with autism in the northeastern United States were recruited for participation in the study. The researcher provided potential participants with a copy of the consent form (Appendix F), read a brief script (Appendix G), and presented an opportunity for TAs to ask questions in a group meeting. Interested TAs returned the signed consent form to the researcher by handing the form directly to him or placing it on his desk. Next, the researcher reviewed the school's records to ensure interested TAs worked at the school for at least two weeks and had arrived 10 min or more late to work at least three times in a 2-week period. The two-week employment requirement was selected because the organization will sometimes have employees who begin the position and resign within a short period of time. The researcher was able to determine if potential participants arrived late to work by reviewing the organization's time clock records. If an interested TA did not meet both inclusionary criteria, he or she was not included in the study. If an interested TA met the inclusionary criteria, the researcher met individually with the participant's supervisor to discuss his or her role in the assessment and obtain consent for his or her participation (Appendix H).

Twelve TAs signed the consent forms and returned them to the researcher, seven of whom met the inclusionary criteria. Four of the seven participants who met the inclusionary criteria were selected to participate in the study. Three participants who met inclusionary criteria

were not selected for participation because their tardiness was on a decreasing trend prior to intervention and thus did not warrant intervention. All of the selected participants were female and had a high school degree. Mandi, a 24-year-old female TA (i.e., Teacher's Aide), worked for the organization for 4 years and was the only participant with a formal disciplinary history related to timeliness. Specifically, Mandi received a formal verbal warning due to tardiness several months prior to the study. Alison, a 27-year-old female TA (i.e., certified Teacher's Assistant), worked for the organization for 1 year and 9 months and had previously received a written memo from a supervisor regarding timeliness to work (Appendix I). The memo was issued from a supervisor to clarify the expectations of arriving to work on time. Susie was 24 years of age at the start of the study, was a TA (i.e., certified Teacher's Assistant), and had worked for the organization for 1 year and 4 months. Finally, Naomi was a 43-year-old female TA (i.e., Teacher's Aide) who worked for the organization for 4 months.

Figure 1 depicts participants' tardiness history. The percentage of days and sum of minutes late per week are summarized for a random one-week sample per month preceding informed consent procedures. These data reveal that all four participants have a history of being tardy beginning within the first two months of employment.

Three classroom teachers directly supervised these four participants, all of whom consented to participate. The supervisors ranged in age from 26 to 33 years ($M$ = 29.3 years), had worked for the organization between 1 year 8 months and 2 years 10 months, and had either bachelor's or master's degrees in special education.

**Setting and Time-Clock System**

The study took place in a school that is part of a not-for-profit organization that provides services to people with autism and their families. The school employees provide instructional

services based on the principles of applied behavior analysis to students with autism. Open for 12 months of the year, the school serves approximately 74 students between 5 and 21 years within 12 classrooms. Eleven classrooms have a 6:1:3 ratio (six students, one teacher, and three TAs) and one classroom has an 8:1:3 ratio (eight students, one teacher, and three TAs). Approximately 36 TAs typically work for the school.

All TAs who work for the school are scheduled to begin their shift at 8:00 am. When a TA arrives to work, it is his or her responsibility to prepare the classroom and any required materials for the day. Some supervisors will use this time in the morning to hold brief meetings or review various procedures with TAs. Additionally, at approximately 8:15 am, TAs begin assisting students off of their bus and to their designated classrooms. It is critical that TAs are present to assist students with this transition to ensure each classroom has enough staff to provide adequate supervision, maintain compliance with state policies regarding staff to student ratios, and ensure sufficient staff support in the event of dangerous problem behavior.

**Policy**

The organization's employee policy manual specifies, "Employees are expected to report for work whenever scheduled and to be at their work station at the starting time" (Appendix J). These procedures and guidelines are verbally reviewed with all incoming employees by the Human Resources department in the organization's orientation. In addition, employees are required to sign in and out of the orientation to verify their attendance. New employees are typically required to attend the orientation before they can begin working in their assigned department. For those employees who begin working in their assigned department prior to attending orientation, the employee attends the next available orientation.

The school's site-specific policy and procedures manual states that the work shift begins at 8:00 am and that employees are considered late any time after 8:00 am (Appendix K). A copy of the school's policy and procedures manual is provided to all employees on their first day of employment at the school. Each employee signs an attestation form upon receipt of the policy and procedures manual and returns the signed form to a supervisor (Appendix L). Additionally, a supervisor at the school verbally reviews the policy and procedures manual with the employee on his or her first day. The employee is then advised to read through the manual more thoroughly as time permits and speak to a supervisor if he or she has any questions.

At the school, disciplinary action related to attendance or tardiness is typically implemented when a supervisor notices persistent or excessive issues with a TA's tardiness or absenteeism. The supervisor will then discuss the TA's attendance with other supervisors at the school. If all supervisors agree, then the supervisor will work with the organization's Human Resources department to implement the appropriate level of disciplinary action up to, and including, termination.

**Data Collection Procedures and Dependent Variables**

The organization uses a time-clock system to monitor the time that an employee works. Upon arriving at the school, the employee swipes his or her assigned card through a small machine mounted on a wall near the main entrance of the building. The machine records the time to the nearest minute by rounding down to the whole minute (e.g., 7:59 and 50 seconds is recorded as 7:59) in an electronic database. The same procedure is followed when the employee leaves the school at the end of his or her shift. The electronic database requires login credentials and is accessible from any computer that has the organization's time-clock program installed and

is connected to the internet. The electronic database is reviewed and approved on a bi-weekly basis by the employee's supervisor(s).

The primary dependent variable is the cumulative number of days participating TAs arrived on time for work (i.e., by 8 am). To allow for a comparison of data across phases, the slope of the data path was calculated for each phase by dividing the difference in y-coordinates by the difference in x-coordinates. The secondary dependent variable is the number of minutes late participating TAs arrived to work (i.e., after 8 am). Data were collected by accessing the organization's time-clock system on a daily basis.

**Inter-scorer Agreement**

A second observer simultaneously collected data on the experimenter's administration of the PDC-HS during 33.3% of TA interviews and 40% of classroom teacher interviews. The observers were in agreement when they independently scored an interviewee's response similarly (i.e., as yes or no; see Appendices M and N). Inter-scorer agreement was calculated by dividing the number of agreements by the number of agreements plus disagreements and multiplying by 100. The inter-scorer agreement for both the TA and teacher PDC-HS results is 100%.

A second observer also collected data on participants' timeliness for 50% of weeks for all participating TAs by reviewing the time-clock record and recording the number of minutes that participants arrived late to work and the number of days where the participant did not report to work (e.g., holiday, school vacation, absence) (Appendix O). The independent observer accessed the participants' time-clock records at a later date when she had the time to do so and not at a regularly scheduled frequency. The observers were in agreement when they independently scored the number of minutes late to the exact minute and when they

independently scored the same days that the participant did not report to work. The dates selected for inter-scorer agreement were randomly selected on a per-pay-period basis (i.e., two consecutive weeks). The researcher selected the dates by flipping a coin to determine which pay period was selected each month (heads = first pay period of the month; tails = second pay period of the month). Inter-scorer agreement was calculated on the number of minutes late per day by dividing the number of agreements by the number of agreements plus disagreements and multiplying by 100. Inter-scorer agreement for the number of minutes late per day for all participants ranged between 97.5% and 100% (*M* = 98.2%; Table 2).

**Procedures**

A multiple baseline design across participants was used to evaluate the effects of intervention on three participants' on-time work arrival (Alison, Susie, Naomi). I used an ABCDAC design with Mandi. The analysis consists of baseline, implementation of one or more interventions, removal, and subsequent re-implementation of the intervention. An assessment preceded baseline and intervention.

**Pre-intervention assessment.** The researcher administered the PDC-HS to all of the participating TAs (Appendix P) and their direct supervisors (Appendix Q) in separate, individual, private interviews. On average, meetings lasted 15 min. For assessment items that required direct observation, the researcher directly observed the participant and scored the data sheet. For example, when asked if the participant was familiar with the organization's expectations in terms of arriving to work on time, the participant was then asked to state what those expectations were. The same procedure was followed when the participant was asked if she knew why she was supposed to arrive to work on time. Additionally, whenever possible, the primary researcher accessed permanent products to verify responses to assessment questions. For example, all

participants signed attestation forms in their employee file to verify they had previously received and reviewed the school's policies and procedures manual that outlines when TAs are supposed to arrive to work. The organization's time-clock system was also reviewed to verify that the TA was able to arrive to work on time and any feedback in the form of documented disciplinary history was accessed from the TA's employee file. The PDC-HS results were available to the research team only and were not shared with participating TAs or supervisors.

Figure 2 displays the results of the PDC-HS interviews for all participants. The x-axis depicts the section of the PDC-HS and the y-axis depicts the percentage of questions that were scored as a "no." The black histograms represent the responses from the TA and the gray histograms represent the responses from the TA's supervisor (i.e., classroom teacher). There were no questions scored "no" in the training category for any of the participants. Although some variability was observed across participants, respondents indicated interventions were necessary in the *task clarification and prompting; resources, materials, and processes;* and *performance consequences, effort, and competition* sections of the PDC-HS (by indicating "no" to questions of the PDC-HS).

The PDC-HS results for Alison revealed deficits in the *resources, materials, and processes* and *performance consequences, effort, and competition* sections. Alison identified issues with required materials being helpful in ensuring she arrived to work on time; ability to complete necessary tasks or responsibilities before leaving for work in a timely manner such that she arrives to work on time; and being the sole person responsible for completing required tasks prior to leaving or arriving to work (*resources, materials, and processes)*. Alison also indicated that arriving to work was not easy and did not take priority over other tasks (*performance consequences, effort, and competition*). Alison's supervisor identified issues with Alison not

being the sole person responsible for completing required tasks prior to leaving or arriving to work (*resources, materials, and processes*). In addition to the items Alison flagged in the *performance consequences, effort, and competition* section of the PDC-HS, her supervisor indicated that Alison only received feedback about arriving to work on time once per month, which was viewed as an inadequate amount of feedback and thus, scored as a "no." Based on these results, interventions were warranted in both the *resources, materials, and processes*, and *performance consequences, effort, and competition* sections of the PDC-HS.

The PDC-HS results for Susie identified deficits in the *task clarification and prompting; resources, materials, and processes;* and *performance consequences, effort, and competition* sections. Susie indicated she did not receive reminders about arriving on time prior to arrival (*task clarification and prompting*); materials required for her to arrive to work on time were not organized in a way that makes arriving to work on time easy (*resources, materials, and processes*); and that arriving to work on time was not easy and she received feedback from a supervisor about arriving to work on time on only one occasion, which was viewed as an inadequate amount of feedback, resulting in the item being scored "no" (*performance, consequences, effort, and competition*). Susie's supervisor indicated the environment in which Susie travels to work is not well-suited for arriving to work on time (*task clarification and prompting*) and that Susie was not directly monitored when arriving to work nor did she receive feedback about arriving to work on time (*performance consequences, effort, and competition*). Based on these results, interventions were warranted in the *task clarification and prompting; resources, materials, and processes*; and *performance consequences, effort, and competition* sections of the PDC-HS.

The PDC-HS results for Naomi revealed deficits in the *task clarification and prompting* and *performance consequences, effort, and competition* sections. Naomi indicated she did not receive reminders about arriving on time prior to arrival (*task clarification and prompting*). Additionally, Naomi indicated that she was not directly monitored when arriving to work and only received feedback about arriving to work on time once, which was viewed as an inadequate amount of feedback and, thus, scored as a "no" (*performance consequences, effort, and competition*). Naomi's supervisor indicated the environment in which Naomi travels to work is not well-suited for arriving to work on time (*task clarification and prompting*) and that Naomi was not directly monitored when arriving to work nor did she receive feedback about arriving to work on time (*performance consequences, effort, and competition*). Based on these results, interventions were warranted in the *task clarification and prompting and performance consequences, effort, and competition* sections of the PDC-HS.

The PDC-HS results for Mandi identified deficits in the *task clarification and prompting; resources, materials, and processes;* and *performance consequences, effort, and competition* sections. Mandi indicated she did not receive reminders about arriving on time prior to arrival (*task clarification and prompting*); materials required for her to arrive to work on time were not organized in a way that makes arriving to work on time easy (*resources, materials, and processes*); and that arriving to work on time was not easy and she did not receive feedback from a supervisor about arriving to work on time (*performance, consequences, effort, and competition*). Mandi's supervisor indicated the environment in which Mandi travels to work is not well-suited for arriving to work on time (*task clarification and prompting*). Additionally, Mandi's supervisor indicated Mandi was never directly monitored when arriving to work; she never saw the effects of arriving to work on time; arriving to work on time was not easy; arriving

to work on time does not take priority over other competing tasks; and feedback was provided to Mandi only when there were problems in the classroom prior to her arrival, which was viewed as an inadequate amount of feedback and, thus, scored as a "no" (*performance consequences, effort, and competition*). Based on these results, interventions were warranted in the *task clarification and prompting; resources, materials, and processes*; and *performance consequences, effort, and competition* sections of the PDC-HS.

**Baseline.** During baseline, participants reported to work as they typically would and were subject to the organization's disciplinary policy. The organization follows a progressive disciplinary process with multiple levels, including verbal and written warnings, probation, suspension, and termination (see Appendix R). The researcher did not implement an intervention to address participant tardiness during this phase.

**Intervention A.** Across all participants, the PDC-HS interviews identified deficits in three areas: *task clarification and prompting; resources, materials, and processes;* and *performance consequences, effort, and competition.* As a result, the intervention contains components that address deficits in all three areas and was individually implemented with three out of the four participants.

To address deficits in the *task clarification and prompting* area, the researcher scheduled an individual meeting with each participant to review the organization's expectations regarding arriving to work on time, provide a written summary of these expectations (Appendix S), and ask the participant to sign the summary indicating that she understands the expectations. Additionally, the researcher provided the participant an opportunity to ask questions and answered these questions.

Next, the researcher conducted an individualized problem-solving discussion about variables influencing tardiness raised during the PDC-HS interview to address deficits in *resources, materials, and processes*. Because many of these challenges occur in the participants' homes, which were outside of the researcher's control, the discussion entailed brainstorming ways for the participant to better prepare herself to be on time for work (e.g., prepare clothes the night before, ensure an alarm is set). A worksheet (Appendix T) was prepared prior to the meeting that included issues identified in both the participants' and their associated supervisors' interviews. The researcher reviewed the issue that was identified with the participant and asked the participant if she could think of any potential ways to resolve the issue. Depending on the participant's response, the researcher provided additional solutions for the participant. All potential solutions were written down on the worksheet and the researcher talked with the participant to determine which solution she was going to implement. Additionally, an opportunity was provided for the participant to discuss any other potential barriers that were not previously identified in the PDC-HS interview. The researcher also asked the participant to provide some type of permanent product (e.g., picture) of the solution being implemented if she was comfortable doing so. If the participant was willing to do so, but did not provide the permanent product within one week, the researcher asked the participant again if she was able to do so. If the participant still did not provide the permanent product, the researcher did not pursue the permanent product any further to avoid putting the participant in an uncomfortable situation. A copy of the completed worksheet was provided to the participant for her records.

The problem-solving discussion with Alison reviewed ways to enhance the helpfulness of materials she relied upon for waking in the morning because she reported her alarm did not reliably sound despite setting it the previous night. Potential solutions involved determining why

the phone alarm did not reliably sound, purchasing an alarm clock and placing it across the room from her bed, or changing the alarm sound to a more "annoying" or unpleasant tone. Alison agreed to first resolve any issues with her phone alarm and if unsuccessful, she would purchase an alarm clock. The problem-solving discussion then addressed two difficulties Alison experienced with completing necessary tasks or responsibilities before departing for work. First, Alison's mother required the assistance of a home-health aide who often arrived late for her shift, which prevented Alison from leaving for work. The agreed-upon solution included asking a neighbor or her sister to assist her mother on these days. Second, Alison's sister (Susie, who also participated in this study) often made food in the morning that caused a late departure for work. Alison indicated a potential solution would be to purchase lunch in the community near work in lieu of packing food. Finally, Alison communicated deadlines associated with another job required her to stay up late at night, which resulted in her oversleeping the following morning and arriving late to work. The solution Alison identified was to speak with relevant parties about being assigned a more manageable workload.

The problem-solving discussion for Susie only entailed a discussion of two issues identified with materials not being organized in a way that makes arriving to work on time easy. Susie's metro card (provides access to public transportation) was often misplaced and, when receiving a ride to work, the individual providing the ride was occasionally late. Susie indicated she would keep her metro card in her wallet to ensure it was always in the same place and that she would no longer wait to receive a ride to work on days the individual providing the ride was also running late.

Naomi's PDC-HS results did not identify any deficits in the *resources, materials, and processes* section so the problem-solving discussion was not technically required. To ensure the

intervention package was implemented in the same way for all participants, the researcher brought a template of the problem-solving worksheet to the meeting with Naomi and asked if there were any new issues that arose since the interview. At this time, Naomi indicated that traffic can sometimes be a barrier to her on-time arrival to work. The agreed-upon solution for this barrier involved Naomi downloading and using a GPS application on her phone that provides real-time data about traffic conditions and adjusts her route accordingly.

The problem-solving discussion with Mandi involved addressing two issues with materials not being organized in a way that makes arriving to work on time easy. Mandi reported difficulty with finding a parking spot and wishing to drink tea before departing for work, both of which influenced tardy work arrival. The solution identified for finding a parking spot involved Mandi parking a few blocks away from the school and walking to the building rather than circling the school waiting for a parking spot to become available. When discussing the potential solutions for Mandi being able to drink her tea in the morning, she reported she was no longer drinking her tea in the morning due to recent allergies. During the problem-solving discussion, Mandi also reported traffic is sometimes an issue. Through the discussion, Mandi agreed that she could leave her home earlier in the morning so that delays with traffic would not prevent her from being on time for work.

To address deficits identified in the *performance consequences, effort, and competition* area of the PDC-HS, the researcher provided two types of feedback to participants. First, on the last day of the work week the researcher met with participants individually to briefly present time-series weekly graphic feedback containing the percentage of days tardy and the sum of minutes late per week (See appendix U for a sample of the graphic feedback). A copy of the graphic feedback was provided to the participant to keep and another copy of the graphic

feedback was signed, dated, and returned to the primary researcher. Meetings lasted approximately 5 min and the graphic feedback was accompanied with a brief review of the participant's performance from the primary researcher. Specifically, the researcher oriented the participant to the graph, provided praise for any improvements, discussed the week's performance as it compared to baseline and a goal of being late a maximum of 20% of days per week, and provided the participant an opportunity to ask any questions that she may have. If the participant was not present on Friday or the last day of the work week, the primary researcher sent a text message picture of the graph to the participant with a written message that reviewed the participant's performance. The graph was then reviewed in-person with the participant on the next day she reported to work. Additionally, the primary researcher provided daily verbal feedback to the participant on days when she was late to work. Daily verbal feedback consisted of the researcher privately meeting with the participant during the work day to provide corrective feedback with a reminder of the organization's requirements for arriving to work on time (e.g., I noticed you were late today, remember that you should try to be here by 8:00 am). Three of four participants experienced intervention A.

**Intervention B.** Due to limited (Mandi) or a lack of sustained (Alison, Susie) effectiveness of intervention A, the PDC-HS results were reviewed and the intervention was modified. Corrective feedback was discontinued in lieu of delivery of praise and a token for on-time arrival. The token was administered as part of an existing token economy in place at the school, which permitted employees to exchange tokens for gift cards, leaving work early, and putative preferred items or activities (See appendix V for the token exchange menu). The tokens were raffle tickets, and were traditionally distributed by supervisors for exemplary employee performance, which did not include timely arrival to work. Supervisors distributed tokens by

writing an employee's name it and giving the token to the employee. Supervisors could administer tokens at their own discretion with no explicit guidelines about the reinforcement schedule.

For the purposes of the study, the primary researcher wrote the participant's name on a token and delivered it to her on each day that she was on time for work. Weekly graphic feedback continued to be provided at the end of the week similar to intervention A. Because Naomi did not experience intervention A, she received task clarification and participated in the problem-solving discussion when she began intervention B. All four participants experienced intervention B.

**Intervention C.** Because Mandi was still not arriving to work on time but had some improvement with her timeliness when exposed to interventions A and B, the intervention was modified exclusively for her. Mandi was still expected to arrive to work by 8:00 am as per the organization's policies and procedures; however, during this phase she received praise and a token for arriving to work by 8:20 am. This criterion was selected for Mandi by averaging the number of minutes she was late during intervention B ($M$ = 15.8 min.) and setting the criterion just above this value so she would be more likely to come into contact with the contingency. Mandi was the only participant who experienced intervention C.

**Maintenance.** During maintenance, daily verbal and weekly graphic feedback were no longer provided to the participants. Participants reported to work as they typically would, and the researcher did not implement an intervention to address participant tardiness during this phase. Three of four participants experienced maintenance.

**Procedural Fidelity**

A second independent observer collected procedural fidelity data on the administration of the PDC-HS during 33.3% of TA interviews and 40% of classroom teacher interviews to ensure all of the questions were asked as written. The observer recorded whether each question was asked during the interview (e.g., yes or no) using a fidelity data sheet (Appendices M and N). Procedural fidelity for the TA interviews averaged 97.5% (range, 95% to 100%). Procedural fidelity for the teacher interviews was 100%.

A second independent observer collected procedural fidelity data on the implementation of the interventions on 100% of opportunities. The independent observer observed the permanent products of the signed summary of expectations to determine whether it was reviewed with participants (Appendix S). Additionally, the participant signed and dated the problem-solving discussion form (Appendix T), allowing an independent observer to review the permanent product and score whether the discussion occurred. A copy of the weekly graphic feedback was signed and dated by the participant and returned to the primary researcher after it was reviewed with the participant. The participant independently scored whether the graph was presented to the participant, praise was provided for improvements, most recent performance was discussed relative to baseline performance, most recent performance was discussed when compared to a goal (i.e., late to work on 20% or less of opportunities), and an opportunity for questions was provided (Appendix U). Finally, procedural fidelity was collected on the daily verbal feedback by having the participant initial, date, and score a data sheet to indicate whether the feedback was delivered (Appendices W, X, and Y). Procedural fidelity on all components of the intervention throughout all phases was 100%.

**Social Validity**

Questionnaires were distributed to all participants to determine whether the interventions were considered acceptable as a measure of social validity (Appendix Z). Each respondent anonymously rated all intervention components that she experienced on the same questionnaire and turned the completed questionnaire into the researcher's mailbox. Naomi was provided with a modified questionnaire that did not include corrective feedback because she did not experience intervention A. A 6-point Likert-type rating scale was used where a rating of 1 indicated the participant strongly disagreed and a rating of 6 indicated the participant strongly agreed. Higher scores represent higher intervention acceptability.

## Results

### Cumulative Days on Time

Figure 3 displays the multiple baseline design graph for Alison, Susie and Naomi and Figure 4 displays the withdrawal (i.e., ABCDAC) design graph for Mandi. Both figures depict the cumulative number of days on time for each participant on the left panel. The right panel of the figures displays the cumulative records for each phase overlaid on each other for comparison purposes. Table 3 summarizes the slope of the line (*m)* for each phase. Slope was calculated by dividing the change in y-coordinates (i.e., rise) by the change in x-coordinates (i.e., run). Alison was tardy every day during baseline ($m = 0$). Implementation of intervention A produced immediate improvements in Alison's timeliness to work ($m = .583$ for the entire phase); however, these improvements did not maintain over time as evidenced by the decreased slope at the end of this phase. Intervention B also produced immediate improvements in Alison's timeliness to work ($m = .533$) relative to her on-time arrival at the end of the preceding phase. During intervention B, Alison received disciplinary action due to inconsistent attendance; disciplinary action was not provided for tardiness. Alison's close family member experienced

serious medical issues that affected her ability to make it to work on time during intervention B, which is denoted on the figure. During maintenance, Alison's timeliness to work was variable. Her slope in this phase (*m* = .375) was slightly lower than that observed during interventions A and B, but higher than baseline.

The outcomes for Susie are similar to Alison's data. Susie was tardy every day during baseline (*m* = 0). Intervention A produced immediate improvements in Susie's timeliness to work (*m* = .52 for the entire phase); however, these improvements did not maintain over time as evidenced by the decreased slope at the end of this phase. Intervention B produced immediate improvements in Susie's timeliness to work (*m* = .6) relative to her on-time arrival at the end of the preceding phase. During this phase, Susie also received disciplinary action due to chronic attendance issues, but not tardiness. Because Alison and Susie are related, Susie's tardiness was also influenced by the serious medical issues experienced by a close family member. During maintenance, Susie's timeliness to work was variable. Her slope in this phase (*m* = .429) was slightly lower than that observed during interventions A and B, but higher than baseline.

Naomi's timeliness to work was variable during baseline (*m* = .233). She was occasionally, but not reliably, on time for work. Additionally, Naomi received disciplinary action during baseline due to inconsistent attendance; disciplinary action was not provided for tardiness. Implementation of intervention B produced a substantial increase in Naomi's timeliness to work (*m* = .789). During maintenance, Naomi's on-time arrival became more variable (*m* = .25) and only slightly higher than baseline.

During baseline, Mandi was never on time for work (*m* = 0). Implementation of intervention A produced a very minor and almost negligible improvement in her timeliness to work (*m* = .125). Mandi's timeliness to work decreased during intervention B (*m* = .118).

Mandi was the only participant who experienced intervention C in which the criterion for on-time arrival was modified. Based on the 8:20 am arrival criterion, she demonstrated an increase in her timeliness to work (*m* = .25); however, relative to the organization's 8:00 am criterion, Mandi was never on time during this phase (*m* = 0). Mandi was never on time for work after the intervention was removed (*m* = 0). Re-introduction of intervention B produced a minor improvement in Mandi's timeliness to work (*m* = .125).

**Number of Minutes Late**

Figure 5 displays the number of min participants arrived late to work. The line graphs in the left panel display the number of min participants were late for work each day they reported to work. The right panel displays the mean number of min participants were late to work during each phase of the study and the 95% confidence interval.

During baseline, the mean number of min Alison arrived late to work was 9.4 (range: 1-19 min). Interventions A (*M* = 2.75, range: 0-17 min) and B (*M* = 4.63, range: 0-43 min) produced decreases in the mean number of min late relative to baseline. During maintenance, the mean number of min increased (*M* = 6.75, range: 0-25 min), but was not as high as the initial baseline.

The mean number of min Susie arrived late to work during baseline was 9.7 (range: 2-19 min). Interventions A (*M* = 4.24, range: 0-28 min) and B (*M* = 4.6, range: 0-43 min) produced decreases in the number of min late relative to baseline. During maintenance, there was a slight increase in the number of min late (*M* = 5.47, range: 0-22 min), but not as high as the initial baseline.

During baseline, the mean number of min Naomi arrived late to work was 11.5 (range: 0-156 min). Intervention B produced a substantial decrease in the number of min late (*M* = .68,

range: 0-9 min). Maintenance produced an increase in the number of min late (*M* = 15.19, range: 0-152 min) above what was seen in the initial baseline.

The mean number of min Mandi arrived late to work during baseline was 40.35 (range: 11-141 min). Interventions A (*M* = 18.35, range: 0-43 min) and B (*M* = 15.77, range: 0-33 min) produced a substantial decrease in the mean number of min late relative to baseline. Intervention C produced a decrease in the mean number of min late (*M* = 7.45, range: 0-17 min) relative to the goal of being to work by 8:20 am; however, based on the 8:00 am criterion, there was an increase in the mean number of min late (*M* = 27.2, range: 17-37 min) relative to interventions A and B. When the interventions were removed, there was an increase in the number of min late (*M* = 31.78, range, 15-46 min), but not as high as the initial baseline. Implementation of intervention B again produced a decrease in the mean number of min late (*M* = 17.5, range: 0-24 min) relative to both baselines.

**Social Validity**

Table 4 displays the results of the social validity questionnaires. Higher scores represent greater acceptability. Overall, the mean rating for all intervention components was high (*M* = 4.82, mean range: 4.19-5.45), suggesting participants found the interventions to be fair, appropriate, and acceptable. Additionally, all participants thought their tardiness was severe enough to warrant the use of each intervention component and that the intervention should prove effective in changing tardiness. Despite these high mean ratings, one participant provided low ratings for all interventions except for praise and token as well as corrective feedback; the latter intervention she did not experience (i.e., Naomi did not experience intervention A).

## Discussion

The current study evaluated the use of the PDC-HS to inform an intervention to address an employee performance problem in a human service setting. Multiple interventions were developed based on the variables identified as maintaining employee tardiness in the PDC-HS interviews, and the effectiveness of the interventions was evaluated through a combination of experimental designs (i.e., multiple baseline across participants and ABCDAC designs). During intervention, I observed an increase in the number of days three of four participants arrived to work on time, as well as a reduction in the mean number of min late on days they were tardy. Mandi showed no meaningful improvements in her on-time arrival to work across all phases; however, the number of min she was late to work each day decreased during intervention, with the greatest reduction observed during intervention B. Additionally, during intervention participants were observed running to the time-clock machine as an attempt to "swipe in" on time or reported paying large amounts of money (e.g., $50) for a car service to arrive on time to work during inclement weather. Although the participants may have still arrived to work after the 8:00 am criterion, these efforts suggest an additional level of effectiveness of the intervention.

The results of this study suggest that an intervention based on the outcomes of the PDC-HS effectively reduced aspects of tardiness with four employees working in a human service setting. These findings are remarkable when considering several additional variables. First, all of the participants had a 1- to 2.5-yr history of tardiness at this agency suggesting they experienced a lengthy history of reinforcement for this performance problem, which likely interfered with the intervention's effectiveness. Next, participants were paid at or just above the state-regulated minimum wage for a position that entails numerous challenges (e.g., responding to dangerous problem behavior) and high burnout. Finally, the school is located in a densely populated, urban environment where delays with one's commute routinely occur due to the

volume of vehicles on the highways, accidents, road construction, and interruptions with public transportation. The present findings, in light of these additional factors, support the effectiveness of the PDC-HS and an indicated intervention to address tardiness. The increase in timeliness made a substantial difference to the program by helping to ensure adequate staffing was provided, students received appropriate services, and allowed for the completion of various administrative or clinical tasks before student arrival.

The results of the present study support previous research indicating the PDC-HS effectively identifies the variables maintaining employee performance problems in human service settings (Carr et al., 2013; Ditzian et al., 2015). Specifically, the present study adds to the use of pre-intervention staff-level FBAs in the OBM literature. The incorporation and evaluation of staff-level FBAs in the OBM literature is a critical step in the development of an indicated (i.e., function-based) intervention that may result in quicker-acting and longer-lasting effects than a non-indicated intervention (Austin et al., 1999). Although Austin et al. discussed the need for an assessment of variables maintaining employee performance problems almost two decades ago, the use of these assessments remains rare in the OBM literature (Johnson et al., 2014). Additionally, to date there are only two published studies that have evaluated the use of the PDC-HS (Carr et al., 2013; Ditzian et al., 2015). The present study evaluates an employee performance problem that has not previously been addressed by the PDC-HS, further expanding the utility of the assessment and suggesting its continued use in human service settings.

The current findings also add to the literature on staff tardiness. A review of the literature found only four studies that have specifically addressed tardiness (i.e., Fienup et al., 2013; Landau, 1993; Newby & Robinson, 1983; O'Brien et al., 1984). Of these four studies, Fienup et al. was the only study that used a pre-intervention assessment to inform components of

the adopted intervention. As discussed previously, a study conducted by CareerBuilder.com found that 20% of employees reported they arrive late to work at least once per week and 12% revealed they arrive to work late at least twice per week suggesting that tardiness is a pervasive performance problem experienced by many organizations. Although all organizations experience financial costs associated with employee tardiness, adverse side effects specific to human service settings exist. For example, employees may be unable to maintain mandated staff-to-consumer ratios, there may be a greater chance that an employee or consumer will be injured, or there may be a deterioration in the quality of services provided due to lack of time to prepare required materials or review important procedures and protocols. The current study demonstrates the use of a pre-intervention assessment (i.e., PDC-HS) to inform an intervention that effectively improved employee timeliness (i.e., Alison, Susie, Naomi) or degree of timeliness (i.e., all participants) in a human service setting.

The current results should be considered in light of the stated goal that participants arrive to work on time at least 80% of days each week (i.e., 4 days). Participants were not expected to be on time for work on 100% of opportunities given their tardiness histories and because work did not occur in isolation from their lives. For example, participants were required to transport children to a specific location on given days (e.g., school, childcare, summer camp), meet individuals in their home before they could depart for work (e.g., home attendant, nanny), or attend early-morning medical appointments to prevent missing a full day of work. In addition, the community in which the school is located experiences rush-hour delays on roadways and with public transportation, such as subways. I developed a goal for tardiness with an understanding that these and other personal responsibilities could reasonably interfere with an on-time work arrival *some* of the days. Thus, the data reveal that Naomi's intervention B slope

was almost identical to the goal slope (*m* = .80), and Alison's and Susie's slopes during interventions A and B were much closer to 0.80 relative to their baseline slopes.

Several interesting findings and events warrant discussion. It is possible that the participants' history of tardiness may have influenced the present findings. A review of Figure 1 reveals that Alison, Susie, and Naomi had somewhat variable tardiness throughout their employment, whereas Mandi's tardiness was particularly chronic. Since her start date, Mandi was tardy for 100% of days during a randomly selected one-week sample each month with only two exceptions, which were early in her employment tenure. Mandi's history of reinforcement for tardiness may have decreased the effectiveness of the intervention. Mandi may have had a morning routine with contingencies operating on her behavior with which the contingencies put in place through the interventions were unable to compete. For example, Mandi may have preferred seeing a family member off to school or work, finishing a news broadcast or television show, participating in a morning workout class, or engaging in any other activity that took place in the morning that was more reinforcing than the consequences of arriving on time for work.

A lack of intervention effectiveness may have also been influenced by behavioral momentum. Behavioral momentum refers to the persistence of behavior in the face of altered environmental conditions (Nevin, Mandell, & Atak, 1983). The greater the rate of reinforcement, the greater the behavioral momentum (Mace et al., 1988). When examining Mandi's chronic tardiness history, behaving in her usual morning routine (including tardy work arrival) may have persisted due to a high rate of reinforcement operating on her behavior throughout the routine. Intervention C may have been one approach to address behavioral momentum as it relates to Mandi's on-time arrival to work. Although Mandi was still not able to reliably meet the 8:20 am criterion, finding a time by which Mandi was able to reliably arrive to

work may have allowed for her behavior to come under the control of the contingency (i.e., receipt of praise and token). The target criterion could have then been systematically decreased until reaching the 8:00 criterion. Alternatively, a more potent reinforcer may have been able to better compete with the contingencies operating on Mandi's morning routine. Future research could examine interventions with employees who have varying histories of reinforcement to determine if behavioral momentum may explain the present findings or if different interventions would be effective despite a lengthy history of reinforcement. Additionally, developing systems that address tardiness in a timely manner, thereby preventing lengthy histories of reinforcement, may benefit organizations. In the present setting, for example, the time clock system could be adjusted to automatically generate and provide reports to supervisors when an employee meets certain tardiness criteria. The supervisor could then implement an intervention to address the tardiness sooner in an employee's tenure.

Participants may have created rules counter to those outlined in the employee policy manual. Rules are verbal, contingency-specifying stimuli that set the occasion for discriminated responding (Skinner, 1969). Although the school's employee policy manual states that the work shift begins at 8:00 am and employees are considered to be late any time after 8:00 am, the employee does not receive a reduction in pay until he or she is more than 7 min late (Appendix K). This alternative criterion for a reduction in pay may have resulted in participants creating a self-generated rule in direct contrast to workplace policy (i.e., late arrival begins at 8:07 am), but consistent with the actual contingencies (e.g., reduction in pay). For example, when providing task clarification to Naomi, she stated that she thought she could arrive to work a few minutes after 8:00 am, suggesting that she created an alternative rule to the employee policy manual.

Future research could examine clarifying or restructuring policies and procedures to prevent misunderstandings or the generation of rules that differ from expectations.

Intervention maintenance was assessed for three participants and the findings were mixed. Alison and Susie maintained on-time arrival to work at almost the same slope observed during both interventions, which is a considerable improvement compared to baseline. The maintained improvement is impressive considering their baseline performance and history of tardiness (Figure 1). In contrast to Alison and Susie, Naomi's tardiness during the maintenance phase was similar to what was observed during baseline. These mixed findings may be due to differing functions of participant tardiness, despite the results of the PDC-HS. For example, task clarification and the problem-solving discussion might be responsible for Alison's and Susie's performance improvements, neither of which could be removed during maintenance (i.e., once these components are introduced, they cannot be discontinued). Both of these components could have resulted in the participants acquiring new knowledge or changing their behavior in ways that were not affected by the removal of feedback and a token during maintenance. For example, Alison and Susie reported changing their mode of transportation to a car service instead of relying on other means of public transportation (i.e., bus and train) to get to work. In contrast, it may be that Naomi's performance improvements are a result of the reinforcement contingencies associated with the feedback and/or token system. Evidence for the latter interpretation is available in the social validity ratings. Although participants anonymously completed the social validity questionnaire, Naomi did not receive corrective feedback (i.e., intervention A), which allowed for her ratings to be identified when aggregating the responses. Naomi rated the praise and token intervention components as relatively more fair, effective, and acceptable than each of

the other components, which may indicate she was highly motivated by the receipt of praise and a token.

The differing intervention lengths may be another explanation for the mixed findings during maintenance. Alison and Susie participated in the interventions for a longer period (55 work days across interventions A and B) relative to Naomi (19 work days), which may have produced a more permanent change in their behavior. Quite possibly, there may be a minimum number of days employees must experience the intervention before behavior is maintained; the schedule of reinforcement may need to be thinned prior to removal, or intervention components must be removed sequentially (e.g., daily verbal feedback first and weekly graphic feedback later). During maintenance Alison also communicated that she suspected her performance was still being monitored, which may have contributed to maintained performance. Finally, experiencing the intervention may have resulted in participants creating new rules about on-time arrival that were insensitive to changing contingencies (e.g., Henley, Hirst, DiGennaro Reed, Becirevic, & Reed, 2017; Miller, Hirst, Kaplan, DiGennaro Reed, & Reed, 2014). The creation of these new rules may have contributed to the continued, though less frequent, on-time arrival to work during maintenance.

A number of potential, but uncontrolled, socially-mediated contingencies may have impacted participant performance. First, Alison and Susie are sisters and often commute to work together. It is possible that Alison or Susie could have prompted one another (e.g., reminder to use alarm, ensuring one another is awake in the morning) to be on time for work or provided some form of reinforcement for a change in behavior that resulted in more frequent on-time arrival to work. Second, participants may have come into contact with reinforcement for being on time to work that was not planned as part of the interventions. Many employees will converse

or have breakfast with their colleagues when first arriving to work. An individual who is routinely late to work is excluded from these potentially enjoyable activities. Participants' on-time arrival to work could have precipitated these or similar social interactions, which may have further reinforced their timely arrival. Their direct supervisors (i.e., classroom teachers) also could have provided praise or other potential reinforcers for being on time. Conversely, on numerous occasions, Mandi's supervisor was observed making repeated statements in front of other employees expressing surprise and shock that Mandi was at work so early; these statements may have served as a punisher for Mandi's timeliness.

The interventions included planned contingencies operating on the participants' timeliness to work. First, intervention A involved the researcher providing corrective feedback to the participant on days when she was late to work. Although corrective feedback may operate on participants' performance in different ways (e.g., negative reinforcement, positive punishment, discriminative stimulus, motivating operation), all three of the participants who experienced intervention A sought feedback from the researcher on days they were late to work, suggesting that the corrective feedback was not functioning in the way it was planned (i.e., negative reinforcer). If the intent of the corrective feedback was to establish a negative reinforcement contingency, there may have been a way to increase the aversiveness of the feedback or contingency to enhance its effectiveness (e.g., delivering the corrective feedback in a stern manner, implementing a response cost procedure where a token was removed from the employee's possession on days when she was late to work). Second, intervention B involved praise and receipt of a token as part of the school's token economy as an attempt to reinforce participants' timeliness to work. When the token economy was first introduced to the school, a survey was distributed to employees to identify potential backup reinforcers for which the tokens

could be exchanged. This survey was completed one time over a year before the study began and was distributed by email to the TAs' supervisors, who were instructed to seek input from their staff. Participants may have not participated in the survey (due to supervisors not obtaining their input or not being employed by the school at the time of the survey) or may have satiated on the items or activities available for purchase. A more recent assessment of participant preferences may have resulted in the tokens being of greater reinforcing value. The researchers also did not control for the provision of tokens by supervisors to the participants for behaviors other than being on time for work. As part of the school's employee token economy, employees may receive tokens for a variety of different reasons. Thus, participants likely received tokens for other work-related behaviors in this open economy, which may have decreased the reinforcing value of the token for arriving to work on time.

Delay discounting may have played a role in the effectiveness of intervention B. Delay discounting refers to the decrease in the subjective value of a reward as the delay to or effort required for its receipt increases (Reed, Kaplan, & Brewer, 2012). During intervention B, participants received one token for each day they were on time for work. The most commonly purchased backup reinforcer cost 10 tokens, which would require a participant to be on time for 10 work days before coming into contact with the backup reinforcer if she did not receive tokens for other behaviors. There may have been too long of a delay for the tokens to effectively serve as a reinforcer for the participants' timeliness to work. Additionally, some of the participants reported that they sometimes arrive late to work because they pressed snooze on their alarms too many times or simply laid in bed past the time that they needed to get up. These anecdotal reports suggest that extra sleep or time in bed available immediately served as a more effective reinforcer than the later receipt of a praise statement and token that could then be exchanged for

an alternative reinforcer at an even later date. Additionally, there may be highly motivating reinforcers that take place outside of work for which the researcher or supervisor cannot control. For example, Mandi anecdotally reported that she once was on time for work because she did not "go out" over the weekend and was not tired. This statement suggests preferred activities that take place in the evenings or on weekends may result in a participant staying up late, thereby creating an establishing operation for lying in bed. In this example, the consequence for lying in bed would serve as a more powerful reinforcer than receipt of a token for arriving to work on time.

Due to the nature of the dependent variable, many of the environmental variables responsible for the performance problem occurred outside of the work place and simply could not be controlled. For example, inclement weather, delays with public transportation, road construction, car accidents, and familial medical issues were all reported to cause participants to be late for work at different times throughout the course of the study. Although some participants were encouraged to use navigation applications on their mobile phone to better guide them to work or leave their home earlier in the morning so they are prepared for potential delays, participants continued to report these uncontrollable variables delaying their arrival to work. Also, both Alison and Susie reported one of their family members experiencing serious medical issues that required the family member to be hospitalized. Throughout the duration of the family member's hospital stay Alison and Susie stated they were sleeping at the hospital, causing a change in their morning routine (e.g., no alarm clock, alternative commute), which may have impacted their ability to make it to work on time.

The initial effects obtained with both Alison and Susie immediately following the implementation of each intervention appear to dissipate over time. Immediately following the

introduction of intervention A, there is a period of 15 consecutive work days where the slope of their data paths is equivalent to the goal (*m* = .80). Following this 15-day period, their slopes decreased (Alison *m* = .22, Susie *m* = .10) until the intervention was modified. Similar findings were observed following the implementation of intervention B, although the reduction in timeliness during this phase corresponds with the medical issues that were reported with their family member. One interpretation of these findings is that the participants satiated on the contingencies put in place as part of the interventions. Another interpretation is that after experiencing the contingencies, participants may have determined that the effort required to arrive on time to work was too great for the consequences they received.

Lastly, the organization had a progressive disciplinary system in place throughout all phases of the study, but there were no clear guidelines that determined when an employee should receive disciplinary action. This lack of guidelines may have decreased the effectiveness of the interventions, because, prior to the interventions there were no specific consequences for employee tardiness. Additionally, had there been clear guidelines that determined when an employee received disciplinary action due to tardiness, it is possible that the disciplinary system alone may have prevented the tardiness from becoming an issue and the interventions would not have been necessary. Alternatively, having specific guidelines in place may have increased the effectiveness of intervention A by allowing the corrective feedback to establish a negative reinforcement contingency as intended. Finally, both due to the lack of guidelines and the human subject's committee protection of the participants by preventing the researcher for recommending disciplinary action due to tardiness, Mandi never received disciplinary action. Because there was no meaningful change in her on-time arrival to work, disciplinary action is

warranted and she should continue to progress through the disciplinary process until a change in her behavior is achieved.

**Limitations**

A number of limitations in the current study warrant future research. The PDC-HS is an informant assessment used to identify variables maintaining an employee performance problem. Informant assessments present a number of limitations, two of which are described next. First, informants may not accurately recall information that relates to the performance problem. Respondents may only recall specific instances where the performance problem occurred or did not occur. Future research should assess respondent accuracy. Second, the information acquired through an informant assessment allows for a hypothesis of the variables maintaining the performance problem and does not demonstrate a functional relation to verify the hypothesis is correct. Although a hypothesis may provide a starting point for an analysis, future research should investigate ways to demonstrate a functional relation by manipulating environmental variables that impact the performance problem similar to a functional analysis of problem behavior (Iwata, Dorsey, Slifer, Bauman, & Richman, 1982/1994).

The PDC-HS administration guidelines state the assessment is intended to be administered to the employee's immediate supervisor (Carr et al., 2013). In the present study, however, the PDC-HS was administered to both target employees and their immediate supervisors. Although the results were somewhat similar, differences between the two classes of respondents were observed for three of four participants. I deviated from the administration guidelines because the participants' supervisors were likely not aware of many of the variables related to tardiness because they take place outside of the work setting. Therefore, interventions were based on information obtained from both the target employee and her supervisor to account

for all potential variables impacting employee performance. Aggregating and evaluating responses from the target employee and his or her supervisor has not yet been evaluated in the literature. Future research should compare the effectiveness of interventions based on information obtained from the target employee, his or her supervisor, and both respondents. The current study also used the same intervention components for all participants instead of implementing individualized intervention components tailored to the specific deficit identified by the respondent, aside from the problem-solving discussion where solutions were brainstormed for participant-specific problems identified in the *resources, materials, and processes* section of the PDC-HS interview. Better effects may have been obtained if interventions were based on the unique needs and variables identified for each participant.

The results of the PDC-HS interviews identified deficits in three of four areas of the PDC-HS across all four participants. The interventions were developed to address all three areas simultaneously. It is not clear if all components of the interventions were needed to improve the participants' timeliness or if one of the PDC-HS areas contributed to the performance problem more than others. Future research should conduct a component analysis to determine if all components of the interventions are necessary. Specific to the administration of the PDC-HS, future research should also evaluate various scoring criteria (e.g., yes/no vs. Likert scale) for the items on the assessment and clarify the guidelines for intervention selection. Although the interventions developed for this study addressed all of the areas indicated to be of concern through the interviews, it is possible some components of the intervention were unnecessary. Future research should seek to develop more specific guidelines for practitioners to follow when developing interventions.

Another limitation of the study is that the effectiveness of a non-indicated intervention was not assessed. Previous studies (i.e., Carr et al., 2013; Ditzian et al., 2015) included a non-indicated intervention to demonstrate that the assessment was able to effectively identify the variables maintaining the employee's performance problem. Because none of the respondents indicated that tardiness was maintained by lack of training, an intervention in this area of the PDC-HS could have been implemented (e.g., providing a demonstration of someone swiping their swipe card through the time clock machine prior to 8:00 am, asking a participant to practice swiping her swipe card through the time clock machine) as an attempt to validate the information obtained through the interviews. Future research should continue to validate the results of the PDC-HS by evaluating the effectiveness of indicated and non-indicated interventions.

Specific to the intervention components implemented as part of the present study, the problem-solving discussion was included to address deficits identified in the *Resources, Materials, and Processes* section of the PDC-HS. Because many of the activities described in the items in this section occur outside of the workplace, the discussion was an attempt to help the participant brainstorm, select, and implement solutions to the barriers to on-time arrival. Although participants were repeatedly asked to provide documentation (e.g., picture) to verify that solutions were implemented in the home, none of the participants provided the requested verification. Although I observed a change in tardiness for all participants, it is possible that solutions identified in the problem-solving discussion were never or only partially implemented by participants. Future research should address this issue (e.g., provide materials, schedule a video conference, establish contingencies of reinforcement specifically for implementing agreed-upon solutions). However, presence of particular materials does not guarantee participants will utilize them to facilitate on-time work arrival.

There are limitations with respect to features of the reliability and fidelity data collection system. First, inter-scorer agreement of the PDC-HS interviews was collected on the dichotomous "yes/no" scoring system and not the specific details of the interviewee's response. The observer was present for the interview, listened to the content of what the participant shared, and made her own determination as to whether the assessment item should be scored as a "yes" or a "no." Although an intervention is indicated when any item within a section of the PDC-HS is scored as a "no," the details of an interviewee's response may inform the specific intervention(s) that are selected. Future research should explore ways to collect inter-scorer agreement on the content of the interviewee's response by either audio or video recording the interview. Second, each participant collected her own procedural fidelity data for the task clarification, problem-solving discussion, and daily and weekly feedback components of the intervention as an attempt to maintain participant confidentiality. Although the researcher often turned away or took a few steps back as an attempt to prevent measurement reactivity, it is possible that his presence still influenced the participant's scoring.

As part of intervention B, tokens from the school's employee token economy were provided on a fixed ratio 1 (FR 1) schedule of reinforcement for participants' arriving to work on time. Thus, each participant received reinforcement (i.e., one token) for each day she was on time for work. Although there are no specific criteria for an employee to receive a token through the school's token economy, providing tokens to all employees for arriving to work on time on a daily basis may not be an ideal or sustainable system to implement school-wide or to maintain for an extended period of time. Future research could examine thinning the schedule of reinforcement to an intermittent schedule (e.g., variable ratio 5, fixed ratio 5) that may be more sustainable. Additionally, the token economy was incorporated into intervention B in part

because it was already in place at the current setting. Future research could examine other positive (e.g., monetary incentives) or negative (e.g., staying past the end of one's shift the number of minutes that the employee was late) reinforcers.

## References


Amigo, S., Smith, A., & Ludwig, T. (2008). Using task clarification, goal setting, and feedback to decrease table busing times in a franchise pizza restaurant. *Journal of Organizational Behavior Management, 28*(3), 176-187. doi:10.1080/01608060802251106

Austin, J. (1996). *Solving performance problems: Organizational troubleshooting in expert consultants and experienced managers* (Unpublished doctoral dissertation). Florida State University, Tallahassee.

Austin, J. (2000). Performance analysis and performance diagnostics. In J. Austin & J. E. Carr (Eds.), *Handbook of applied behavior analysis* (pp. 321-349). Retrieved from https://books.google.com/

Austin, J., Carr, J. E., & Agnew, J. L. (1999). The need for assessment of maintaining variables in OBM. *Journal of Organizational Behavior Management, 19*(2), 59-87. doi:10.1300/J075v19n02_05

Austin, J., Weatherly, N. L., & Gravina, N. E. (2005). Using task clarification, graphic feedback, and verbal feedback to increase closing-task completion in a privately owned restaurant. *Journal of Applied Behavior Analysis, 38*(1), 117-120. doi:10.1901/jaba.2005.159-03

Baer, D. M., Wolf, M. M., & Risley, T. R. (1968). Some current dimensions of applied behavior analysis. *Journal of Applied Behavior Analysis, 1*, 91-97.

Bailey, J. S., & Burch, M. R. (2002). *Research methods in applied behavior analysis.* Thousand Oaks, CA: Sage Publications, Inc.

Behavior Analyst Certification Board, Inc. (BACB) (2014). *Applied behavior analysis treatment of autism spectrum disorder: Practice guidelines for healthcare funders and managers: second edition.* Littleton, CO: Author.

Berc, H., Doucette, J. L., DiGennaro Reed, F. D., Neidert, P. L., & Henley, A. J. (2014). Improving the quality of parent-teacher interactions in an early childhood classroom. *Behavior Analysis in Practice, 7,* 47-50. doi:10.1007/s40617-014-0012-5

Blake, A. M., & Moseley, J. L. (2010). One hundred years after the principles of scientific management: Frederick Taylor's life and impact on the field of human performance technology. *Performance Improvement, 49*(4), 27-34. doi:10.1002/pfi.20141

Bucklin, B. R., Alvero, A. M., Dickinson, A. M., Austin, J., & Jackson, A. K. (2000). Industrial-organizational psychology and organizational behavior management: an objective comparison. *Journal of Organizational Behavior Management, 20*(2), 27-75. doi:10.1300/j075v20n02_03

CareerBuilder.com. (2009). *One-in-five workers are late to work at least once a week, CareerBuilder.com survey finds*. Retrieved from http://www.careerbuilder.com/share/aboutus/pressreleasesdetail.aspx?id=pr483&sd=2%2F25%2F2009&ed=12%2F31%2F2009

Carr, J. E., & Wilder, D. A. (2016). The performance diagnostic checklist – human services: A correction. *Behavior Analysis in Practice, 9*(1), 63. doi 10.1007/s40617-015-0099-3

Carr, J. E., Wilder, D. A., Majdalany, L., Mathisen, D., & Strain, L. A. (2013). An assessment-based solution to a human-service employee performance problem: An initial evaluation of the Performance Diagnostic Checklist – Human Services. *Behavior Analysis in Practice, 6*(1), 16-32.

Cooper, J. O., Heron, T. E., & Heward, W. L. (2007). Improving and assessing the quality of behavioral measurement. In Cooper, J. O., Heron, T. E., & Heward, W. L. (Eds.), *Applied*

*behavior analysis* (2nd ed.) (pp. 102-124). Upper Saddle River, NJ: Pearson Education, Inc.

Daniels, A. C., & Daniels, J. E. (2006). *Performance management: Changing behavior that drives organizational effectiveness. Fourth Edition, Revised.* Atlanta, GA: Performance Management Publications.

Diener, L. H., McGee, H. M., & Miguel, C. F. (2009). An integrated approach for conducting a behavioral systems analysis. *Journal of Organizational Behavior Management, 29*(2). 108-135. doi: 10.1080/01608060902874534

Ditzian, K., Wilder, D. A., King, A., & Tanz, J. (2015). An evaluation of the performance diagnostic checklist – human services to assess an employee performance problem in a center-based autism treatment facility. *Journal of Applied Behavior Analysis, 48*(1), 199-203. doi: 10.1002/jaba.171

Doll, J., Livesey, J., McHaffie, E., & Ludwig, T. D. (2007). Keeping an uphill edge: managing cleaning behaviors at a ski shop. *Journal of Organizational Behavior Management, 27*(3), 41-60. doi: 10.1300/J075v27n03_04

Eikenhout, N. & Austin, J. (2005). Using goals, feedback, reinforcement, and a performance matrix to improve customer service in a large department store. *Journal of Organizational Behavior Management, 24*(3), 27-62. doi: 10.1300/J075v24n03_02

Fienup, D. M., Luiselli, J. K., Joy, M., Smyth, D., & Stein, R. (2013). Functional assessment and intervention for organizational behavior change: improving the timeliness of staff meetings at a human services organization. *Journal of Organizational Behavior Management, 33*(4), 252-264. doi: 10.1080/01608061.2013.843435

Gravina, N., VanWagner, M., & Austin, J. (2008). Increasing physical therapy equipment preparation using task clarification, feedback, and environmental manipulations. *Journal of Organizational Behavior Management, 28*(2), 110-122. doi:10.1080/01608060802100931

Henley, A. J., Hirst, J. M., DiGennaro Reed, F. D., Becirevic, A., & Reed, D. D. (2017). Function-altering effects of rule phrasing in the modulation of instructional control. *Analysis of Verbal Behavior, 33*(1), 24-40. doi:10.1007/s40616-016-0063-5

Hybza, M. M., Stokes, T. F., Hayman, M., & Schatzberg, T. (2013). Increasing Medicaid revenue generation for services by school psychologists. *Journal of Organizational Behavior Management, 33*(1), 55-67. doi:10.1080/01608061.2012.758011

Individuals with Disabilities Education Improvement Act, 20 U.S.C. § 1400. (2004).

Iwata, B. A., Dorsey, M. F., Slifer, K. J., Bauman, K. E., & Richman, G. S. (1982). Toward a functional analysis of self-injury. *Analysis and Intervention in Developmental Disabilities, 2,* 3-20.

Iwata, B. A., Dorsey, M. F., Slifer, K. J., Bauman, K. E., & Richman, G. S. (1994). Toward a functional analysis of self-injury. *Journal of Applied Behavior Analysis, 27*(2), 197-209.

Johnson, D. A., Casella, S. E., McGee, H., & Lee, S. C. (2014). The use and validation of preintervention diagnostic tools in organizational behavior management. *Journal of Organizational Behavior Management, 34*(2), 104-121. doi:10.1080/01608061.2014.914009

Landau, J. C. (1993). The impact of a change in an attendance control system on absenteeism and tardiness. *Journal of Organizational Behavior Management, 13*(2), 51-70.

Lebbon, A., Austin, J., Rost, K., & Stanley, L. (2011). Improving safe consumer transfers in a day treatment setting using training and feedback. *Behavior Analysis in Practice, 4*(2), 35-43.

Loughrey, T. O., Marshall, G. K., Bellizzi, A., & Wilder, D. A. (2013). The use of video modeling, prompting, and feedback to increase credit card promotion in a retail setting. *Journal of Organizational Behavior Management, 33*(3), 200-208. doi:10.1080/01608061.2013.815097

Ma, H. (2006). An alternative method for quantitative synthesis of single-subject researches: percentage of data points exceeding the median. *Behavior Modification, 30*(5), 598-617. Doi:10.1177/0145445504272974

Mace, F. C. (1994). The significance and future of functional analysis methodologies. *Journal of Applied Behavior Analysis, 27*(2), 385-392.

Mace, F. C., Hock, M. L., Lalli, J. S., West, B. J., Belfiore, P., Pinter, E., & Brown, D. K. (1988). Behavioral momentum in the treatment of noncompliance. *Journal of Applied Behavior Analysis, 21*(2), 123-141.

Miller, J. R., Hirst, J. M., Kaplan, B. A., DiGennaro Reed F. D., & Reed, D. D. (2014). Effects of mands on instructional control: a laboratory simulation. *The Analysis of Verbal Behavior, 30*, 100-112. doi:10.1007/s40616-014-0015-x

Miller, M. V., Carlson, J., & Sigurdsson, S. O. (2014). Improving treatment integrity in a human service setting using lottery-based incentives. *Journal of Organizational Behavior Management, 34*(1), 29-38. doi:10.1080/01608061.2013.873381

Neef, N. A., & Petereson, S. M. (2007). Functional behavior assessment. In Cooper, J. O., Heron, T. E., & Heward, W. L. (Eds.), *Applied behavior analysis (2nd ed.).* (pp. 499-524). Upper Saddle River, NJ: Pearson Education, Inc.

Neidert, P. L., Dozier, C. L., Iwata, B. A., & Hafen, M. (2010). Behavior analysis in intellectual and developmental disabilities. *Psychological Services, 7*(2), 103-113.

Nevin, J.A., Mandell, C., & Atak, J. R. (1983). The analysis of behavioral momentum. *Journal of the Experimental Analysis of Behavior, 39*(1), 49-59.

Newby, T. J., & Robinson, P. W. (1983). Effects of grouped and individual feedback and reinforcement on retail employee performances. *Journal of Organizational Behavior Management, 5*(2), 51-68.

O'Brien, R. M., Sperduto, W. A., & Goff, A. B. (1984). An undergraduate practicum in organizational behavior management: course description and project outcomes. *Teaching of Psychology, 11*(3), 149-153.

O'Neill, R. E., Horner, R. H., Albin, R. W., Sprague, J. R., Storey, K., & Newton, J. S. (1997). *Functional assessment and program development for problem behavior: A practical handbook* (2nd ed.). Pacific Grove, CA: Brooks/Cole.

Pampino Jr., R. N., Heering, P. W., Wilder, D. A., Barton, C. G., & Burson, L. M. (2004). The use of the performance diagnostic checklist to guide intervention selection in an independently owned coffee shop. *Journal of Organizational Behavior Management, 23*(2/3), 5-19. doi:10.1300/J075v23n02_02

Pampino Jr., R. N., MacDonald, J. E., Mullin, J. E., & Wilder, D. A. (2004). Weekly feedback vs. daily feedback. *Journal of Organizational Behavior Management, 23*(2/3), 21-43. doi:10.1300/J075v23n02_03

Parker, R. I., Hagan-Burke, S., & Vannest, K. (2007). Percentage of all non-overlapping data (PAND): an alternative to PND. *The Journal of Special Education, 40*(4), 194-204.

Parker, R. I., & Vannest, K. (2009). An improved effect size for single-case research: nonoverlap of all pairs. *Behavior Therapy, 40*, 357-367.

Peters-Atkinson, K. (2012). *The cost of employee tardiness.* Retrieved from http://mondaymornings.madisoncres.com/the-cost-of-employee-tardiness/

Reed, D. D., Kaplan, B. A., & Brewer, A. T. (2012). Discounting the freedom to choose: implications for the paradox of choice. *Behavioural Processes, 90*, 424-427.

Rodriguez, M., Wilder, D. A., Therrien, K., Wine, B., Miranti, R., Daratany, K., ... Rodriguez, M. (2006). Use of the performance diagnostic checklist to select an intervention designed to increase the offering of promotional stamps at two sites of a restaurant franchise. *Journal of Organizational Behavior Management, 25*(3), 17-35. doi:10.1300/J075v25n03_02

Rohn, D., Austin, J., & Lutrey, S. M. (2002). Using feedback and performance accountability to decrease cash register shortages. *Journal of Organizational Behavior Management, 22*(1), 33-46. doi:10.1300/J075v22n01_03

Rooney, J. J., & Vanden Heuvel, L. N. (2004). Root cause analysis for beginners. *Quality Progress*, 45-53.

Shier, L., Rae, C., & Austin, J. (2003). Using task clarification, checklists and performance feedback to improve the appearance of a grocery store. *Performance Improvement Quarterly, 16*(2), 26-40.

Sigurdsson, S. O., & McGee, H. M. (2015). Organizational behavior management: systems analysis. In H. S. Roane, J.E. Ringdahl, & T. S. Falcomata (Eds.), *Clinical and*

*organizational applications of applied behavior analysis* (pp. 627-648). Retrieved from https://books.google.com/

Skinner, B. F. (1969). *Contingencies of reinforcement: a theoretical analysis.* New York, NY: Appleton-Century-Crofts.

Squires, J., Wilder, D. A., Fixsen, A., Hess, E., Rost, K., Curran, R., & Zonneveld, K. (2007). The effects of task clarification, visual prompts, and graphic feedback on customer greeting and up-selling in a restaurant. *Journal of Organizational Behavior Management, 27*(3), 1-13. doi: 10.1300/J075v27n03_01

Sulzer-Azaroff, B., & Austin, J. (2000). Does BBS work? Behavior based safety & injury reduction: a survey of the evidence. *Professional Safety, 45*(7), 19-24.

VanStelle, S. E., Vicars, S. M., Harr, V., Miguel, C. F., Koerber, J. L., Kzbour, R., & Austin, J. (2012). The publication history of the *Journal of Organizational Behavior Management*: an objective review and analysis: 1998-2009. *Journal of Organizational Behavior Management, 32*(3), 93-123. doi: 10.1080/01608061.2012.675864

Wilder, D. A., Austin, J., & Casella, S. (2009). Applying behavior analysis in organizations: organizational behavior management. *Psychological Services, 6*(3), 202-211. doi: 10.1037/a0015393

Wilder, D. A., & Sigurdsson, S. O. (2015). Applications of behavior analysis to improve safety in organizations and community settings. In H.S. Roane, J. E. Ringdahl, & T. S. Falcomata (Eds.), *Clinical and organizational applications of applied behavior analysis* (pp. 583-604). Retrieved from https://books.google.com/

Williams, J. H., & Geller, E. S. (2000). Behavior-based intervention for occupational safety: critical impact of social comparison feedback. *Journal of Safety Research, 31*(3), 135-142.

Table 1.

*Summary of Nonoverlap of All Pairs (NAP) for Each Figure across All Articles.*

| Figures | Average Percentage Across All Phases | Effect Size |
|---|---|---|
| Amigo et al. (2008) | | |
| Figure 1 | 66.2% | Medium |
| Figure 2 | 71.2% | Medium |
| Austin et al. (2005) | | |
| Figure 1 | 99.6% | Strong |
| Berc et al. (2014) | | |
| Figure 1 | 88.0% | Medium |
| Carr et al. (2013) | | |
| Figure 2 | 100.0% | Strong |
| Ditzian et al. (2015) | | |
| Figure 2 | 98.2% | Strong |
| Eikenhout & Austin (2005) | | |
| Figure 1 | 99.7% | Strong |
| Figure 2 | 99.8% | Strong |
| Figure 3 | 99.7% | Strong |
| Gravina et al. (2008) | | |
| Figure 1 | 79.5% | Medium |
| Hybza et al. (2013) | | |
| Figure 2 | 92.6% | Strong |
| Lebbon et al. (2011) | | |
| Figure 1 | 80.2% | Medium |
| Loughrey et al. (2013) | | |
| Figure 1 | 100.0% | Strong |
| Miller et al. (2014) | | |
| Figure 1 | 95.2% | Strong |
| Pampino Jr. et al. (2004)1 | | |
| Figure 2 | 100.0% | Strong |
| Pampino Jr. et al. (2004)2A | | |
| Figure 2 | 99.4% | Strong |
| Pampino Jr. et al. (2004)2B | | |
| Figure 3 | 89.0% | Medium |
| Rodriguez et al. (2006) | | |
| Figure 1 | 93.1% | Strong |
| Shier et al. (2003) | | |
| Figure 1 | 97.0% | Strong |

Table 2.

*Inter-scorer agreement on tardiness data for all participants.*

| Participant Name | Percentage Agreement on Number of Minutes Late | Percentage of Work Days Scored |
|---|---|---|
| Alison | 97.6% | 52.5% |
| Susie | 97.5% | 50.0% |
| Naomi | 100.0% | 50.0% |
| Mandi | 98.0% | 50.0% |

Table 3.

*Slope calculations for cumulative record data paths for all phases.*

| Intervention Phase | Alison | Susie | Naomi | Mandi |
|---|---|---|---|---|
| Baseline | 0.000 | 0.000 | 0.233 | 0.000 |
| Intervention A | 0.583 | 0.520 | NA | 0.125 |
| Intervention B | 0.533 | 0.600 | 0.789 | 0.118 |
| Intervention C | NA | NA | NA | 0.250 |
| Maintenance/Baseline | 0.375 | 0.429 | 0.250 | 0.000 |
| Intervention B | NA | NA | NA | 0.125 |

Table 4.

*Social validity ratings of intervention components.*

| Questionnaire Items | Task Clarification | | Problem-Solving Discussion | | Weekly Graphic Feedback | | Corrective Feedback | | Praise and Token | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Mean | Range | Mean | Range | Mean | Range | Mean | Range | Mean | Range |
| This would be an acceptable intervention for staff tardiness | 4.50 | 4-6 | 5.25 | 3-6 | 4.75 | 2-6 | 5.67 | 5-6 | 5.50 | 4-6 |
| This intervention should prove effective in changing staff tardiness | 3.75 | 2-5 | 4.75 | 3-6 | 4.25 | 2-6 | 5.33 | 4-6 | 5.25 | 3-6 |
| I would suggest the use of this intervention for other staff | 4.25 | 2-6 | 4.50 | 3-6 | 4.00 | 2-6 | 5.33 | 5-6 | 5.25 | 4-6 |
| My tardiness was severe enough to warrant the use of this intervention | 5.00 | 3-6 | 5.00 | 3-6 | 4.50 | 3-6 | 5.33 | 4-6 | 5.25 | 4-6 |
| Most staff would find this intervention suitable for addressing their tardiness | 4.50 | 2-6 | 5.00 | 3-6 | 4.25 | 2-6 | 5.33 | 5-6 | 6.00 | 6 |
| I would be willing to use this intervention again in the future | 4.25 | 2-6 | 4.75 | 2-6 | 4.00 | 2-5 | 5.00 | 4-6 | 5.75 | 5-6 |
| This intervention would not result in negative side effects for staff | 4.50 | 2-6 | 4.75 | 2-6 | 3.75 | 2-5 | 4.67 | 4-5 | 5.25 | 4-6 |
| The intervention is a fair way to handle my tardiness | 5.00 | 2-6 | 4.75 | 2-6 | 4.50 | 2-6 | 6.00 | 6 | 4.75 | 2-6 |
| I like the procedures that were used in this intervention | 4.25 | 1-6 | 4.75 | 2-6 | 4.25 | 1-6 | 5.33 | 4-6 | 5.75 | 5-6 |
| This intervention is a good way to handle issues related to tardiness | 4.50 | 1-6 | 4.50 | 2-6 | 4.25 | 1-6 | 5.00 | 4-6 | 5.75 | 5-6 |
| **Overall Mean** | **4.44** | **1-6** | **4.80** | **2-6** | **4.19** | **1-6** | **5.23** | **4-6** | **5.45** | **2-6** |

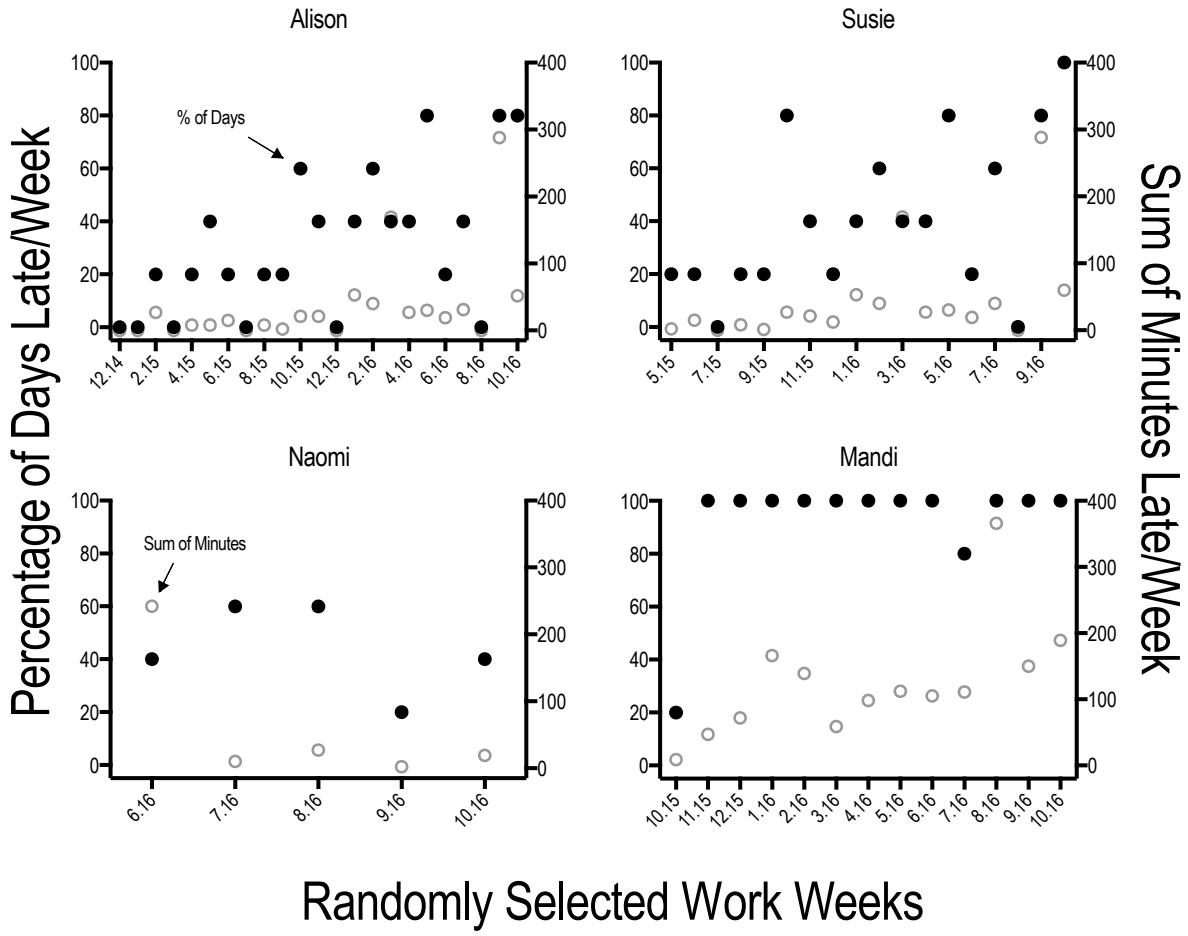



*Figure 1.* Tardiness history for all participants.

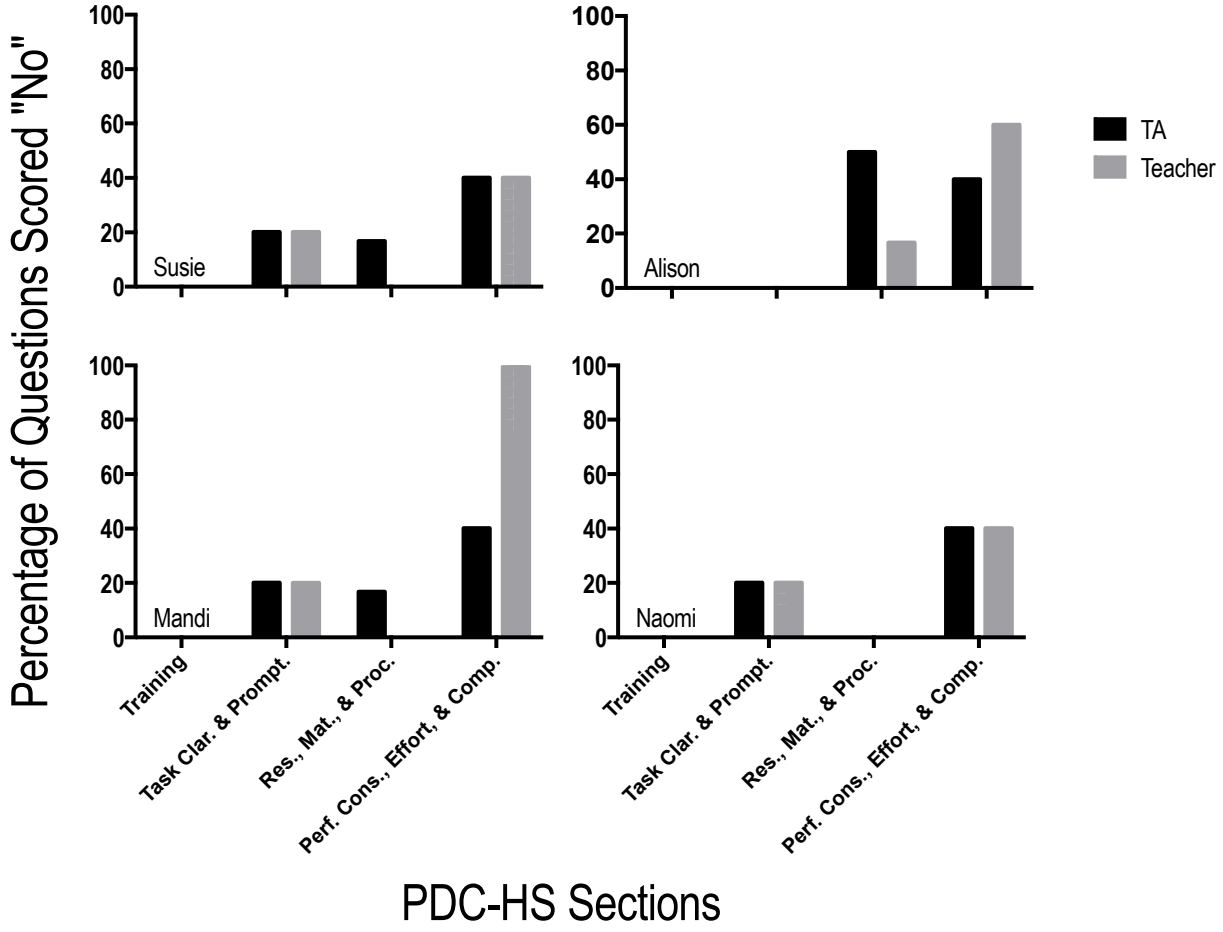



*Figure 2.* Results of the TA and supervisor PDC-HS interviews for all participants.

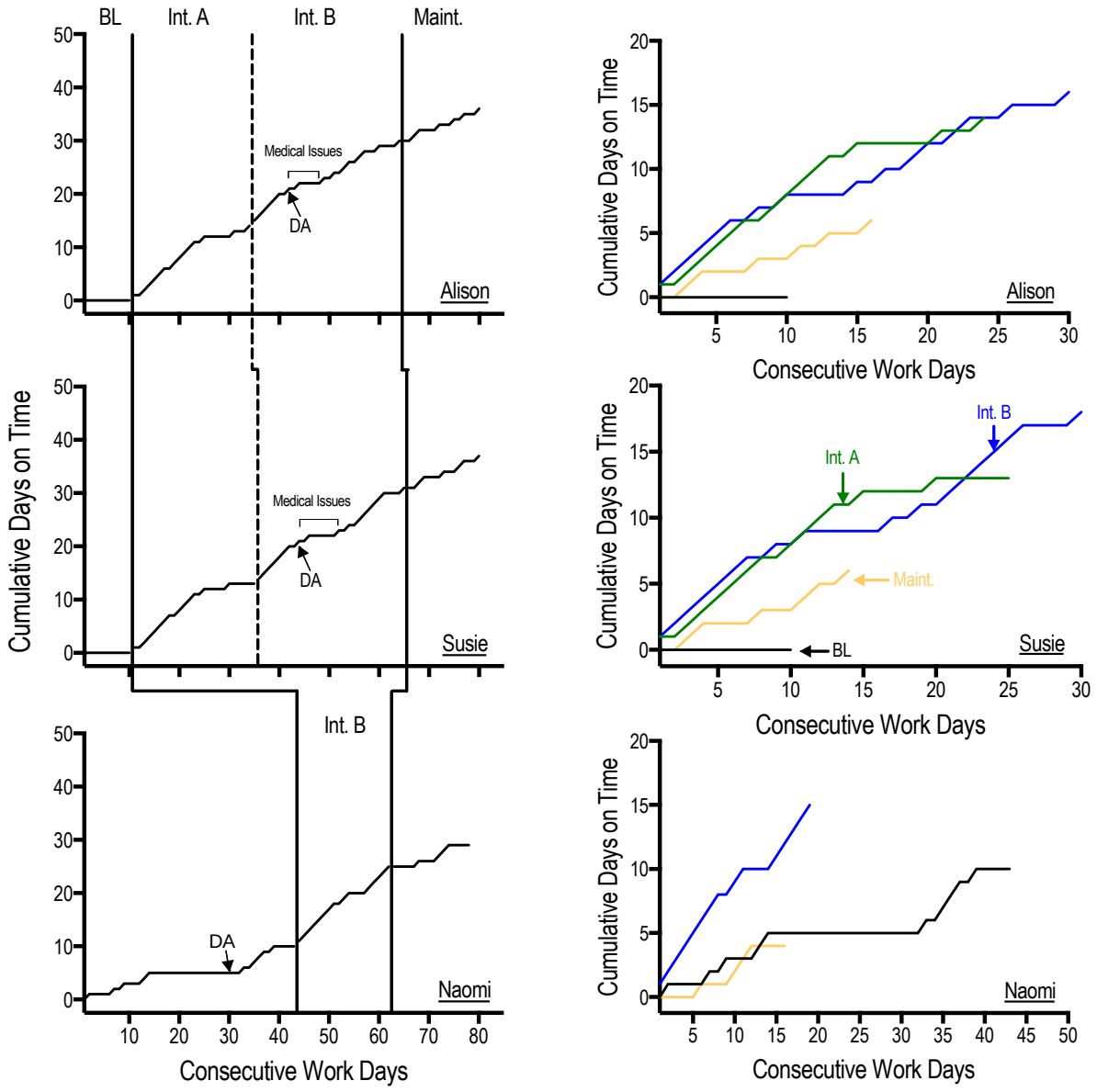



*Figure 3.* Cumulative days on time for Alison, Susie, and Naomi in a multiple baseline design and with experimental phases overlaid. BL – Baseline, Int. A – Intervention A, Int. B – Intervention B, Maint. – Maintenance, DA – Disciplinary Action.

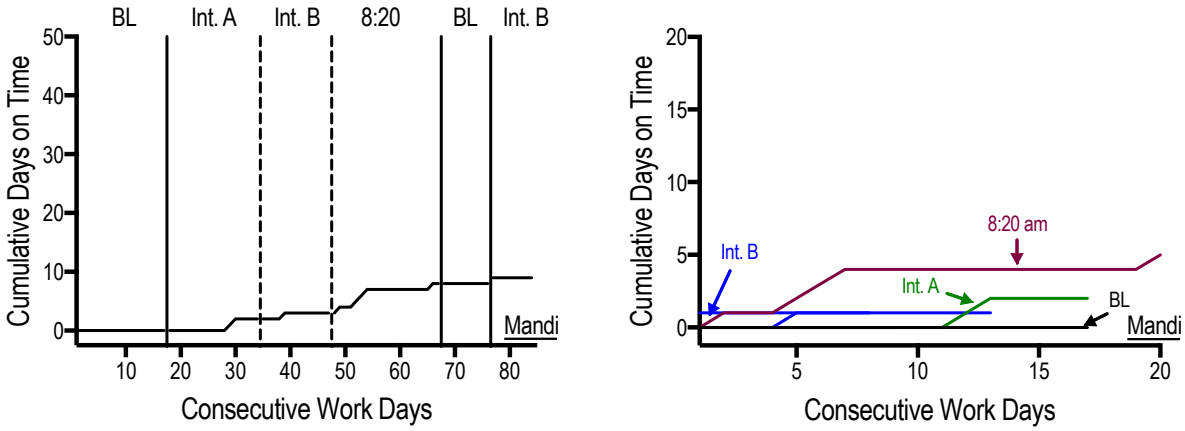



*Figure 4.* Cumulative days on time for Mandi in a withdrawal design and with experimental phases overlaid. BL – Baseline, Int. A – Intervention A, Int. B – Intervention B, 8:20 – 8:20 am arrival criterion.

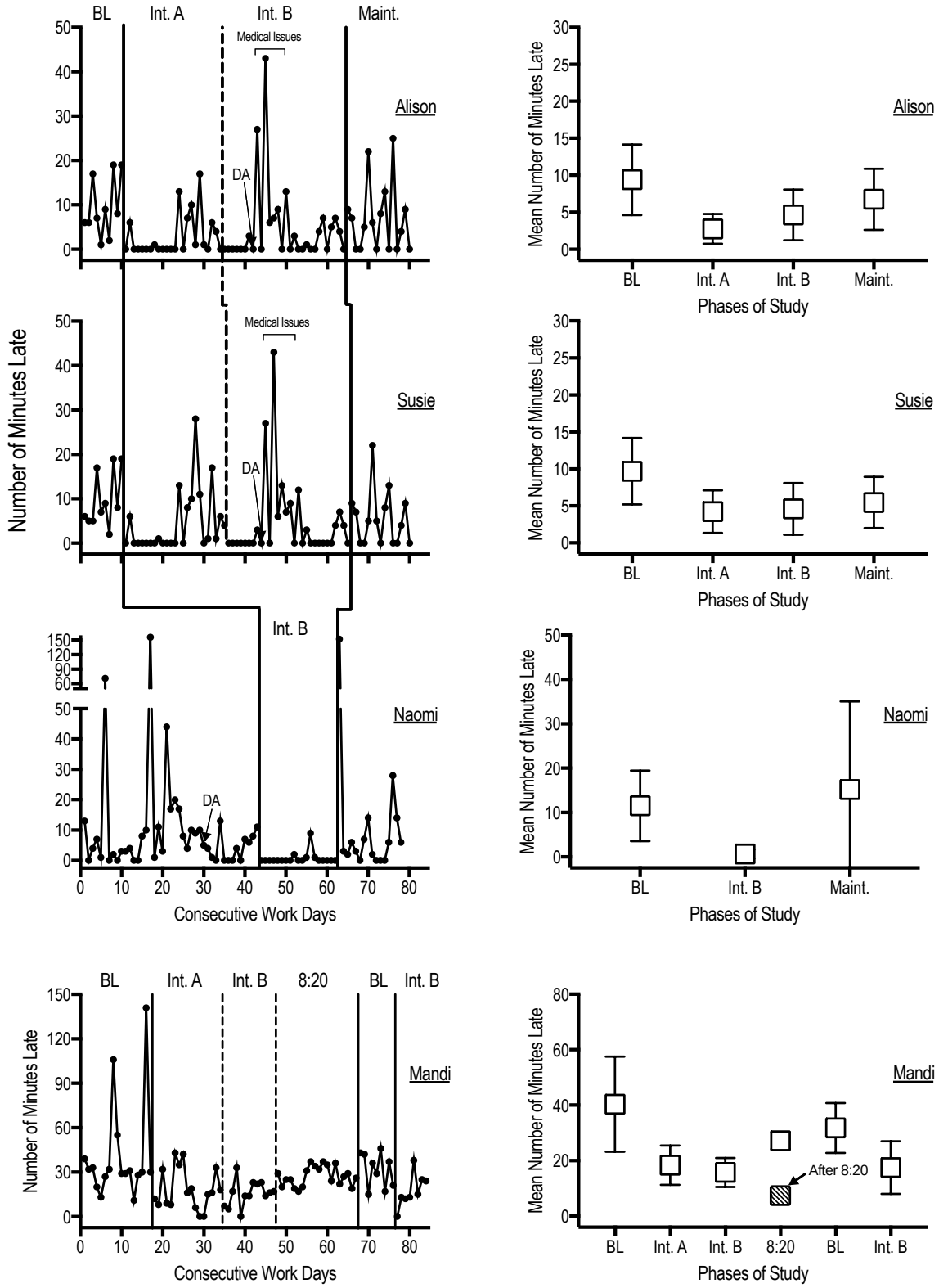



*Figure 5.* Daily and average number of minutes late for all participants. BL – Baseline, Int. A – Intervention A, Int. B – Intervention B, 8:20 – 8:20 am arrival criterion.

Appendix A

- Database Search (*n* = 215)
    - PsycINFO (Keywords Appear Anywhere)
        - Staff Tardiness *or* Employee Tardiness (*n* = 128)
        - Staff Performance *and* Tardiness (*n* = 7)
        - "Organizational Behavior Management" *and* Tardiness (*n* = 8)
        - "Organizational Behavior Management" *and* Staffing (*n* = 5)
        - "Organizational Behavior Management" *and* "Functional Analysis" (*n* = 12)
        - "Pre-intervention Analysis" (*n* = 4)
        - "Performance Diagnostic Checklist" (*n* = 20)
        - "Behavioral Systems Analysis" (*n* = 31)
- Screening Procedure (Published in English, Peer Reviewed, Empirical) - abstracts only (*n* = 93)
        - Staff Tardiness *or* Employee Tardiness (*n* = 59)
        - Staff Performance *and* Tardiness (*n* = 2)
        - "Organizational Behavior Management" *and* Tardiness (*n* = 5)
        - "Organizational Behavior Management" *and* Staffing (*n* = 4)
        - "Organizational Behavior Management" *and* "Functional Analysis" (*n* = 4)
        - "Pre-intervention Analysis" (*n* = 1)
        - "Performance Diagnostic Checklist" (*n* = 15)
        - "Behavioral Systems Analysis" (*n* = 3)
- Remove Duplicate Records (*n* = 87)
- Inclusionary Criteria – full articles (*n* = 19)
    - Experimental (single-subject design, group design)
    - Addressed staff tardiness OR used PDC to inform OBM intervention
- Reference Review of Included Articles (*n* = 4).
- Final Article Total (*n* = 23)
    - A total of 24 studies across the 23 articles

Appendix B

## Performance Diagnostic Checklist

Answer each of the following questions, providing data in support of your answer if possible.

**Antecedents and Information**

| Yes | No | |
|---|---|---|
| O | O | Is there a written job description telling exactly what is expected of the employee? |
| O | O | Has the employee received adequate instruction about what to do? (not training - explicit instructions like "I want you to do this, this, and this before we leave today....") |
| O | O | Are employees aware of the mission of the department/organization? Can they tell you what it is? |
| O | O | Are there job or task aids in the employees' immediate environment? Visible while completing the task in question? Reminders to prompt the task at the correct time/duration? |
| O | O | Is the supervisor present during task completion? |
| O | O | Are there frequently updated, challenging, and attainable goals set that employees are comfortable with/feel are fair? |

**Equipment and Processes**

| Yes | No | |
|---|---|---|
| O | O | If equipment is required, is it reliable? In good working order? Ergonomically correct? |
| O | O | Is the equipment & environment optimally arranged in a physical sense? |
| O | O | Are larger processes suffering from certain incomplete tasks along the way (process disconnects)? |
| O | O | Are these processes arranged in a logical manner, without unnecessary repetition? Are they maximally efficient? |
| O | O | Are there any other obstacles that are keeping the employee from completing the task? |

**Knowledge and Skills**

| Yes | No | |
|---|---|---|
| O | O | Can the employee tell you he/she is supposed to be doing and how to do it? Have they mastered the task? If fluency is necessary, are they fluent? |
| O | O | Can the employee physically demonstrate completion of the task? Have they mastered the task? If fluency is necessary, are they fluent? |
| O | O | Does the employee have the capacity to learn how to complete the job? |

**Consequences**

| Yes | No | |
|---|---|---|
| O | O | Are there consequences delivered contingent on the task?<br>-frequency? (list)_____<br>-immediacy? (list)_____<br>-consistency/probability? (list)_____<br>-positive or negative? (circle one)<br>-Are there premack reinforcers? |
| O | O | Do employees see the effects of performance? (How? Natural /arranged) |
| O | O | Do supervisors deliver feedback? (How? Written / verbal; direct /indirect) |
| O | O | Is there performance monitoring? (Self / supervisor direct / supervisor indirect) |
| O | O | Is there a response effort associated with performing? |
| O | O | Are there other behaviors competing with the desired performance? |

# Appendix C

| Author(s) and Year | Participants | Setting | Assessment Used (if any) | Independent Variable(s) | Dependent Variable(s) | Measurement System | Exp. Design | Social Validity | Results |
|---|---|---|---|---|---|---|---|---|---|
| Amigo, Smith, and Ludwig (2008) | Four servers and one manager | Pizza Restaurant | Modified PDC and ABC Analysis | Task clarification and goal setting via memo.<br>Weekly individual verbal and graphic feedback and group graphic feedback. | Table busing time | Duration in seconds | ABC | No | Improvements were seen after task clarification and goal setting. Further improvements when feedback was implemented. Feedback removed for follow up resulted in near baseline levels of performance. |
| Austin, Weatherly, and Gravina (2005) | Seven dishwashers and 11 servers | Fine Dining Restaurant | PDC | Posted checklist, group verbal feedback from management "sporadically" throughout the week and weekly group graphic feedback. | Closing task completion | Percentage of checklist tasks completed as observed by permanent products | MBL across groups of employees. | No | PDC informed interventions produced improvement in task completion. |
| Berc et al. (2014) | Seven undergraduate teachers | University-based early childhood classroom | PDC | Task clarif. (review of task analysis)<br>Video-based training package containing models, guided notes, and a quiz.<br>Group verbal and graphic feedback. | Accuracy of parent-teacher interactions | Percentage of task analysis steps accurately implemented | Concurrent MBL design across teacher shifts | Yes | Task clarification was ineffective, so it was only implemented with one of the groups.<br>Video-based training package produced improvements in both groups, one group reached criterion.<br>Feedback implemented only with remaining group brought them to criterion. |
| Carr et al. (2013) | 15 graduate student employees | University-based EIBI autism treatment center | PDC-HS | PDC-HS indicated intervention - individual training and graphic feedback posted prior to each shift<br>PDC-HS non-indicated interventions task clarification and increased availability of materials for two rooms only. | Treatment room cleanliness | Percentage of tasks correctly completed | Concurrent MBL design across treatment rooms | No (anec. only) | PDC-HS indicated interventions improved performance.<br>PDC-HS non-indicated interventions did not improve performance. |
| Ditzian et al. (2015) | Four female staff therapists | University-based EIBI autism treatment center | PDC-HS | PDC-HS indicated intervention verbal and graphic feedback at the beginning of each session.<br>PDC-HS non-indicated intervention written prompt. | Doors closed after passing through | Percentage of opportunities the door was closed after passing through | Concurrent MBL across participants | No | PDC-HS indicated intervention produced improvements.<br>PDC-HS non-indicated intervenion was ineffective. |

| Author(s) and Year | Participants | Setting | Assessment Used (if any) | Independent Variable(s) | Dependent Variable(s) | Measurement System | Exp. Design | Social Validity | Results |
|---|---|---|---|---|---|---|---|---|---|
| Doll et al. (2007) | Seven employees (excluding owneers and managers) | Retail Ski Shop | PDC to identify areas in need of improvement. ADI's PIC/NIC for intervention package. | Behavior checklist reviewed with staff and posted in a visible place (task clarification and prompt) and weekly graphic feedback. Daily written feedback posted by checklist and graphic feedback removed. | Store cleaning behaviors | Yes/No ratings on completion of cleaning tasks based on permanent products. | ABC | Infor. Interv. | Initial interventions produced improvements across all five targeted behaviors. Written feedback produced futher improvements and 100% completion for 6 out of behaviors. Similar improvements were also found in two non-targeted behaviors. |
| Eikenhout and Austin (2005) | 115 employees (45 cashiers, 70 salespersons) | Department store | PDC | Group graphic feedback posted three times each week. Removed graphic feedback (returned to baseline). Weekly group goals for customer service behaviors, weekly verbal and written feedback, group graphic feedback posted three times each week, sporadic immediate verbal feedback, group reinforcement contingency | Customer service behaviors (customer greeting, offering assistance, smiling, eye contact, and small talk) | Recorded whether the target behaviors occurred or did not occur during observed customer interactions. | ABAC | Anec. Reports | Graphic feedback produced improvements in target behaviors. Removal of graphic feedback resulted in a return to near basleline levels of target behaviors. Intervention package also produced improvements in target behaviors. |
| Fienup et al (2013) | Pre-doc interns, Post-doc trainees, and BCBAs | Private Organization | Descriptive Analysis and adapted FAI | Completed direct observations and the Functional Assessment Interview as part of an FBA of the performance issues. Prompting (24-hour email reminder), task clarification (meeting agenda), goal setting (50-minute meeting policy), reinforcement (coupons entered into a drawing for a $25 gift card). | The number of minutes that meetings started late | Latency of meeting scheduled to meeting start time | MBL across meeting type | Inform. Only | The intervention package systematically decreased the number of minutes late across all meeting types. |

| Author(s) and Year | Participants | Setting | Assessment Used (if any) | Independent Variable(s) | Dependent Variable(s) | Measurement System | Exp. Design | Social Validity | Results |
|---|---|---|---|---|---|---|---|---|---|
| Gravina, VanWagner, and Austin (2008) | 2 full-time and 4 part-time workers | University-affiliated physical therapy clinic | PDC | Task clarification where researchers trained employees on how to complete each task, graphic feedback posted publicly, and environmental manipulations consisting of improving equipment storage and having items more accessible. Second intervention phase replaced graphic feedback with verbal feedback from the supervisor. | Pre-visit preparation tasks | Scored checklist completion for seven different tasks for each area | ABC | Yes | Intervention package produced systematic improvements across the different targeted areas. Verbal feedback maintained similar improvements. |
| Hybza et al. (2013) | 74 School Psychologists | Florida school district | PDC | Used PDC to identify function of performance problems. Goal setting email, weekly e-mail prompts from supervisors to complete target behavior, bi-weekly e-mail feedback (written statements and graphic) from supervisors. | Amount of billed medicaid dollars | Bi-weekly review of permanent product via Medicaid Tracking System | MBL across school district service areas | Yes | Performance improvement package increased both the amount of billed medicaid dollars and the number of School Psychologists who billed medicaid. |
| Landau (1993) | 309 non-managerial employees who were employed during the entire intervention | Clothing manufacturing plant | None | Task clarification and punishment - Change in policy from receiving disciplinary action for more than two days absent or more than four days tardy within a month to changed to more than one day absent and more than two days tardy. Reinforcement - point system for attendance and timeliness where points could be exchanged for cash incentives on an annual basis. | Absenteeism and tardiness (more than three minutes late) | Absenteeism was measured as the number of full days lost per week as a percentage of total working days. Tardiness was measured by the number of days employees reported to work late as a percentage of total working days. | ABC | No | Change in policy and inclusion of reinforcement procedures produced minimal, if any improvements in employee attendance and timeliness. |

| Author(s) and Year | Participants | Setting | Assessment Used (if any) | Independent Variable(s) | Dependent Variable(s) | Measurement System | Exp. Design | Social Validity | Results |
|---|---|---|---|---|---|---|---|---|---|
| Lebbon et al. (2011) | Three employees and one supervisor | University-based treatment center for adults with disabilities | PDC | Used PDC to identify function of performance problems.<br>1-hour employee training session on safe lifting and 1-hour supervisory training in the use of the checklist to observe employees and provide effective verbal feedback<br>Posting weekly graphic feedback and delivery of daily verbal feedback | Safety of two transfer lifts (pivot and trunk leg) | Used checklist to score each component of the transfer list as "safe" or "at-risk" | ABCAC | No | Training alone did not produce improvements in the safety of the transfer lifts.<br>The addition of observation and feedback produced improvements in the two targeted lifts. Minor improvements were also seen in a third lift. |
| Loughrey et al. (2013) | Two part-time sales associates | Women's lingerie and clothing chain | PDC | Used PIP to determine each employee's potential for improvement.<br>Used PDC to identify function of performance problems.<br>Video modeling, role play, visual prompts (i.e., four critical pitch components), individual verbal feedback, and individual graphed feedback. | Cashier credit card promotions | Percentage of customers asked to enroll | Nonconcurrent MBL across participants | Yes | Intervention package produced increases in target behavior for both employees. |
| Miller, Carlson, and Sigurdsson (2014) | Three participants (1:1 aide, TA, and Teacher) | Special Education School | PDC and ADI's PIC/NIC | Conducted both the PDC and the PIC/NIC.<br>Verbal and graphic feedback regarding previous session provided immediately before upcoming session, weekly performance goal of 80%, meeting the goal for three or more consecutive sessions resulted names being entered into a drawing for $25 gift cert. | Adherence to prompt hierarchy, accuracy of data collection, and completenes of activity prescription for next day | Prompting hierarchy was scored as percentage fidelity. Data recording and activity prescription were scored as being correct or incorrect. | Concurrent MBL across participants | Yes | Intervention package produced improvements for all participants. |

| Author(s) and Year | Participants | Setting | Assessment Used (if any) | Independent Variable(s) | Dependent Variable(s) | Measurement System | Exp. Design | Social Validity | Results |
|---|---|---|---|---|---|---|---|---|---|
| Newby and Robinson (1983) | 15 part-time employees | Family-owned drug store | None | B1 - Public posting of group feedback for all three target behaviors.<br>B2 - Public posting of individual feedback for all three target behaviors.<br>C - B2 intervention and reinforcement consisting of movie tickets and soda vouchers when certain criteria were met on an individual basis, also publicly posted the names of the individuals who received the tickets/vouchers. | Accuracy of cashiering compared to cash register totals. Punctuality of employees. Turning in money in the correct order at the end of shift. | Accuracy of cashiering measured by the percentage of discrepancy. Pushing of time clock handle (1 minute late was considered late). Utilized a checklist to determine if money was in the correct order. | A,B1,B2,A,C | No | All three target behaviors improved with the individual feedback and individual feedback plus reinforcement conditions. Minimal, if any, improvements were seen during the group feedback condition. |
| O'Brien, Sperduto, and Goff (1984) | Five female counselors | Sleep-away camp | None | Feedback (sign-in procedure implemented and individual arrival times and group punctuality percentages were posted) and reinforcement consisting of access to water skiing for perfect punctuality. | Tardiness to work | Used sign-in sheet to track arrival times | ABAB | No | Intervention packaged produced improvements, return to baseline produced decreases in punctuality, and implementation of intervention package again produced improvements. |
| Pampino Jr. et al. (2004) | Owner and four employees (5 part. Total) | Independently owned coffee shop | PDC | Used PDC with owner and employees to identify function of performance problems.<br>Task clarification (review of checklist with demonstrations/ models of requested tasks), training in the use of the checklist, employee lottery implemented by peer review system (one ticket for 90-99% of task completion, 2 tickets for 100%), public posting of the number of lottery tickets each indiv. earned. | Percentage of closing tasks completed | 95-item checklist split into two task groups (stocking and cleaning) | MBL across task groups | Yes | Intervention package produced systematic improvements across the two task groups. |

| Author(s) and Year | Participants | Setting | Assessment Used (if any) | Independent Variable(s) | Dependent Variable(s) | Measurement System | Exp. Design | Social Validity | Results |
|---|---|---|---|---|---|---|---|---|---|
| Pampino Jr. et al. (2004A) | Three sales associates | Framing and Art Store | PDC | Completed the PDC with one of the store owners. Intervention consisted of task clarification (reviewed defined duties and checklists), goal setting (100% task completion on 3 out of 7 days), access to preferred items contingent on goal attainment, and weekly verbal and graphic feedback based on group performance. | General maintenance tasks (i.e., unpacking inventory shipments, notifying customers when orderes arrived via phone, and store maintenance) | Daily percentage of required secondary duties completed | MBL across dependent measures (28 duties divided into two groups of 14) | No | Intervention package produced systematic improvements across the two task groups. |
| Pampino Jr. et al. (2004B) | Three sales associates | Framing and Art Store | None. Exper. 2 was a continuatio n of exp. 1 in a new setting with minor modificatio ns to interv. Package. | Checklist was slightly revised for new setting layout (as compared to exp. A). Goal setting was switched to 7 out of 7 days at 90% task completion. Feedback was given to individuals daily (group graphic performance was reviewed with individuals on a daily basis) | General maintenance tasks (i.e., unpacking inventory shipments, notifying customers when orderes arrived via phone, and store maintenance) | Daily percentage of required secondary duties completed | AB design was used with same procedures as exp. A except change in goal. Following the AB, a MBL was used when daily feedback replaced weekly feedback. | Yes | Experiment two produced improvements with intiial intervention package, but further improvements were seen when the feedback was delivered daily. |

| Author(s) and Year | Participants | Setting | Assessment Used (if any) | Independent Variable(s) | Dependent Variable(s) | Measurement System | Exp. Design | Social Validity | Results |
|---|---|---|---|---|---|---|---|---|---|
| Rodriguez et al. (2006) | Store 1 had 8 employees, 1 store manager and 1 assistant manager. Store 2 had 10 employees and a store manager. | Two stores of a restaurant franchise | PDC | Task clarification (memo posted in salient location), self-monitoring (form employees used to record how many times the stamp was offered), equipment modification (repairing stamp machin), goal setting (stamp offered on 80% of opportunities), and graphic feedback (posted in the restaurant). | Percentage of opportunities in which a promotional stamp was offered. | Scored each employee-customer order-related event and whether a promotional stamp was offered. | MBL across stores | Yes | Intervention produced improvements across both restaurants. |
| Rohn, Austin, & Lutrey (2003) | Eight part-time, college-aged customer service representatives | Retail store in an urban midwestern shopping mall | PDC questions | Accountability (CSR assigned to a sales terminal for the entirety of his/her shift), verbal feedback delivered immediately after counting, and daily graphic feedback posted | Accuracy of cash on hand compared to cash register totals | Difference between sales report and cash counted | ABAB | Yes | Intervention packaged increased cash register accuracy during the intervention phase. Return to baseline saw a decrease in accuracy, implementing the intervention a second time produced similar improvements in accuracy. |
| Shier, Rae, & Austin (2003) | 25 employees throughout the store | 5 out of 8 departments in a small chain grocery store | PDC | Task clarification (supervisor reviewed checklist items with employees), checklists (posted for employees to access and used for self-monitoring of task completion), and posted feedback (weekly graphic feedback by department). | Store maintenance and cleanliness | Checklist completion for each department | MBL across departments | No | The intervention package produced mild systematic improvements across departments. |

Appendix D

PDC-HS

## *Performance Diagnostic Checklist – Human Services*

Employee's Name: _____ Interviewer: _____ Date: _____

Describe Performance Concern: _____

Instructions: Answer the questions below about the employee's specific performance problem (not the employee in general). The problem should be operationalized as either a behavioral excess or deficit. Items with an asterisk (*) should be answered only after the information is verified through direct observation.

### TRAINING

| | | |
|---|---|---|
| 1 | ❍ Yes ❍ No | Has the employee received formal training on this task? If yes, check all applicable training methods: ❍ Instructions ❍ Demonstration ❍ Rehearsal |
| 2* | ❍ Yes ❍ No | Can the employee accurately describe the target task and when it should be performed?* |
| 3 | ❍ Yes ❍ No | Is there evidence that the employee has accurately completed the task in the past? |
| 4* | ❍ Yes ❍ No ❍ N/A | If the task needs to be completed quickly, can the employee perform it at the appropriate speed?* |

### TASK CLARIFICATION & PROMPTING

| | | |
|---|---|---|
| 1 | ❍ Yes ❍ No | Has the employee been informed that he/she is expected to perform the task? |
| 2* | ❍ Yes ❍ No | Can the employee state the purpose of the task? |
| 3* | ❍ Yes ❍ No | Is a job aid (e.g., a checklist, data sheet) for completing the task visibly located in the task area? |
| 4 | ❍ Yes ❍ No | Is the employee ever verbally, textually, or electronically reminded to complete the task? |
| 5 | ❍ Yes ❍ No | Is the task being performed in an environment well-suited for task completion (e.g., not noisy or crowded)? |

### RESOURCES, MATERIALS, & PROCESSES

| | | |
|---|---|---|
| 1 | ❍ Yes ❍ No | Are there sufficient numbers of trained staff available in the program? |
| 2* | ❍ Yes ❍ No ❍ N/A | If materials (e.g., teaching stimuli, preferred items) are required for task completion, are they readily available (e.g., easy to find, nearby)? If no materials are required, proceed to question 5.<br><br>List materials below and indicate their availability.<br><br>Item 1: _____ Item 2: _____<br>Item 3: _____ Item 4: _____ |

| | | |
|---|---|---|
| 3* | ❍ Yes ❍ No<br>❍ N/A | Are the materials necessary to complete the task well designed for their intended purpose? |
| 4* | ❍ Yes ❍ No<br>❍ N/A | Are the materials necessary to complete the task well organized for their intended purpose? |
| 5 | ❍ Yes ❍ No | Can the task be completed without first completing other tasks?? If not, indicate below the tasks that must be completed first.<br><br>Task 1: _____ Task 2:_____<br>Task 3: _____ Task 4: _____ |
| 6 | ❍ Yes ❍ No<br>❍ N/A | If you answered NO for Question 5, are other employees responsible for completing any of the earlier tasks in the process? If so, indicate the employee(s) below.<br><br>Task 1: _____ Task 2: _____<br>Task 3: _____ Task 4: _____ |

## PERFORMANCE CONSEQUENCES, EFFORT, & COMPETETION

| | | |
|---|---|---|
| 1 | ❍ Yes ❍ No | Is the employee ever directly monitored by a supervisor? If so, indicate the frequency of monitoring.<br><br>❍ hourly ❍ daily ❍ weekly ❍ monthly ❍ Other: _____ |
| 2 | ❍ Yes ❍ No | Does the employee ever receive feedback about the performance? If yes, indicate below.<br><br>By whom? _____ How often? _____<br>Delay from task? _____<br><br>Check all that apply:<br>Feedback Focus: ❍ Positive ❍ Corrective<br>Feedback Type: ❍ Written ❍ Verbal ❍ Graphed ❍ Other:<br>_____ |
| 3 | ❍ Yes ❍ No | Does the employee ever see the effects of accurate task completion? If yes, how?<br>_____ |
| 4 | ❍ Yes ❍ No | Is the task simple or does it involve relatively low response effort? |
| 5 | ❍ Yes ❍ No | Does the task generally take precedence over other potentially competing tasks? If not, indicate these competing tasks below.<br><br>Task 1: _____ Task 2: _____<br>Task 3: _____ Task 4: _____ |

## INTERVENTION PLANNING

Instructions: Each item scored as *NO* on the PDC-HS should be considered as an opportunity for intervention with priority given to areas in which multiple items are endorsed. Interventions may be implemented concurrently or consecutively, with the latter option being preferred for settings in which staff resources are limited. Sample interventions and illustrative literature citations for each area are provided below.

| Area | Item # | Sample Intervention(s) | Literature Citations |
|---|---|---|---|
| Training | 1, 2, 3, 4 | Behavioral skills training (i.e., instructions, modeling, rehearsal, feedback) | · Barnes, Dunning, & Rehfeldt (2011)<br>· Nabeyama & Sturmey (2010) |
| | | Improved personnel selection | · Gatewood, Feild, & Barrick (2008) |
| Task Clarification & Prompting | 1, 2 | Task clarification & checklists | · Cunningham & Austin (2007)<br>· Gravina, VanWagner, & Austin (2008)<br>· Bacon, Fulton, & Malott (1982) |
| | 3, 4 | Prompts | · May, Austin, & Dymond (2011)<br>· Petscher & Bailey (2006) |
| | 5 | Change/alter task location | · Green, Reid, Passante, & Canipe (2008) |
| Resources, Materials, & Processes | 1 | Adjust staffing | · Strouse, Carroll-Hernandez, Sherman, & Sheldon (2003) |
| | 2, 3, 4 | Improve access to (2), redesign (3), or reorganize (4) task materials | · Casella, Wilder, Neidert, Rey, Compton & Chong (2010) |
| | 5, 6 | Reassess task process and personnel | · Diener, McGee, & Miguel (2009)<br>· McGee & Diener (2010) |
| Performance Consequences, Effort, & Competition | 1 | Increased supervisor presence | · Brackett, Reid, & Green (2007)<br>· Mozingo, Smith, Riordan, Reiss, & Bailey (2006) |
| | 2 | Performance feedback | · Arco (2008)<br>· Green, Rollyson, Passante, & Reid (2002) |
| | 3 | Regularly highlight task outcomes | · Methot, Williams, Cummings, & Bradshaw (1996) |
| | 4 | Reduce task effort | · Casella, Wilder, Neidert, Rey, Compton, & Chong (2010) |
| | 5 | Reduce aversive task properties | · Green, Reid, Passante, & Canipe (2008) |

## REFERENCES


Arco, L. (2008). Feedback for improving staff training and performance in behavioral treatment programs. *Behavioral Interventions, 23*, 39–64.

Bacon D. L., Fulton, B. J., & Malott R. W. (1982). Improving staff performance through the use of task checklists. *Journal of Organizational Behavior Management, 4(3/4)*, 17–25.

Barnes, C. S., Dunning, J. L., & Rehfeldt, R. A. (2011). An evaluation of strategies for training staff to implement the picture exchange communication system. *Research in Autism Spectrum Disorders, 5*, 1574–1583.

Brackett, L., Reid, D. H., & Green, C. W. (2007). Effects of reactivity to observations on staff performance. *Journal of Applied Behavior Analysis, 40*, 191–195.

Casella, S. E., Wilder, D. A., Neidert, P., Rey, C., Compton, M., & Chong, I. (2010). The effects of response effort on safe performance by therapists at an autism treatment facility. *Journal of Applied Behavior Analysis, 43*, 729–734.

Cunningham, T. R., & Austin, J. (2007). Goal setting, task clarification, and feedback to increase the use of the hands-free technique by hospital operating room staff. *Journal of Applied Behavior Analysis, 40*, 673–677.

Diener, L. H., McGee, H. M., & Miguel, C. F. (2009). An integrated approach for conducting a behavioral systems analysis. *Journal of Organizational Behavior Management, 29*, 108–135.

Gatewood, R. D., Feild, H., S., & Barrick, M. (2008). *Human resource selection* (6th ed.). Independence, KY: Cengage Learning.

Gravina, N., VanWagner, M., & Austin, J. (2008). Increasing physical therapy equipment preparation behaviors using task clarification, graphic feedback and modification of work environment. *Journal of Organizational Behavior Management, 28*, 110–122.

Green, C. W., Rollyson, J. H., Passante, S. C., & Reid, D. H. (2002). Maintaining proficient supervisor performance with direct support personnel: An analysis of two management approaches. *Journal of Applied Behavior Analysis, 35*, 205-208.

Green, C., Reid, D., Passante, S., & Canipe, V. (2008). Changing less-preferred duties to more-preferred: A potential strategy for improving supervisor work enjoyment. *Journal of Organizational Behavior Management, 28*, 90–109.

May, R. J., Austin, J. L., & Dymond, S. (2011). Effects of a stimulus prompt display on therapists' accuracy, rate, and variation of trial type delivery during discrete trial teaching. *Research in Autism Spectrum Disorders, 5*, 305–316.

McGee, H. M., & Diener, L. H. (2010). Behavioral systems analysis in health and human services. *Behavior Modification, 34*, 415–442.

Methot, L., Williams, L., Cummings, A., & Bradshaw, B. (1996). Effects of a supervisory performance feedback meeting format on subsequent supervisor-staff and staff-client interactions in a sheltered workshop and a residential group home. *Journal of Organizational Behavior Management, 16(2)*, 3–25.

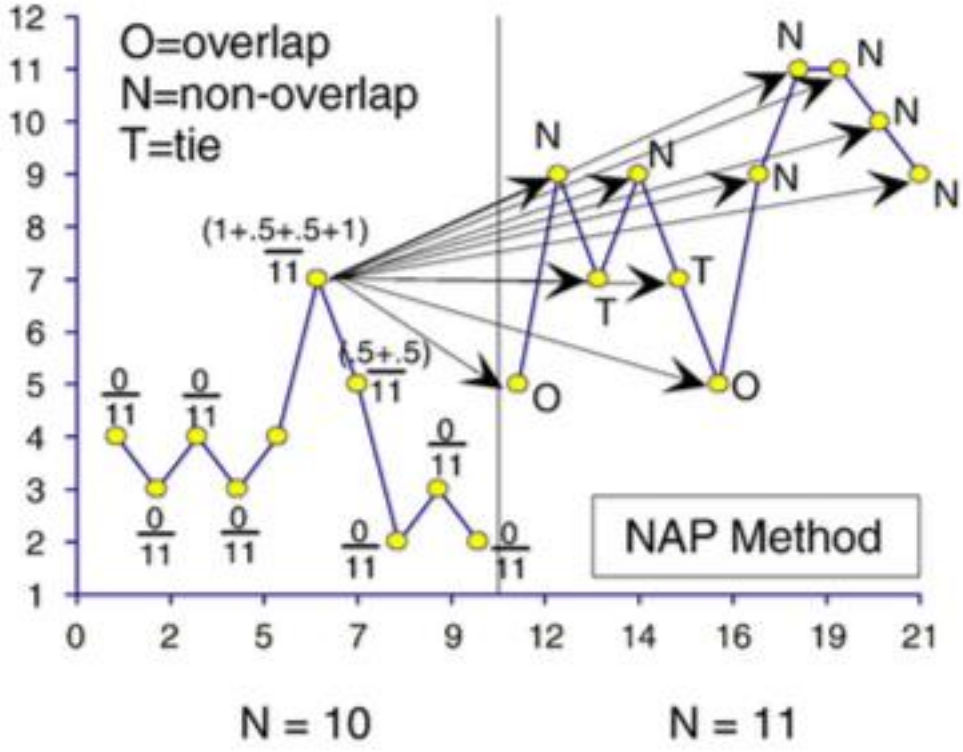
Mozingo, D. B., Smith, T., Riordan, M. R., Reiss, M. L., & Bailey, J. S. (2006). Enhancing frequency recording by developmental disabilities treatment staff. *Journal of Applied Behavior Analysis, 39*, 253–256.

Nabeyama, R., & Sturmey, P. (2010). Using self-recording, feedback, modeling, and behavioral rehearsal for safe and correct staff guarding and ambulation distance of students with multiple physical disabilities. *Journal of Applied Behavior Analysis, 43*, 341–345.

Petscher, E. S., & Bailey, J. S. (2006). Effects of training, prompting, and self-monitoring on staff behavior in a classroom for students with disabilities. *Journal of Applied Behavior Analysis, 39*, 215–226.

Strouse, M. C., Carroll-Hernandez, T. A., Sherman, J. A., & Sheldon, J. B. (2003). Turning over turnover: The evaluation of a staff scheduling system in a community-based program for adults with developmental disabilities. *Journal of Organizational Behavior Management, 23*, 45–63.

Appendix E


O=overlap
N=non-overlap
T=tie
(1+.5+.5+1)/11
(.5+.5)/11
0/11
NAP Method
N = 10
N = 11

# Appendix F

An Evaluation of the Performance Diagnostic Checklist-Human Services

INTRODUCTION

The Department of Applied Behavioral Science at the University of Kansas supports the practice of protection for human subjects participating in research. The following information is provided for you to decide whether you wish to participate in the present study. You may refuse to sign this form and not participate in this study. You should be aware that even if you agree to participate, you are free to withdraw at any time. If you do withdraw from this study, it will not affect your relationship with this unit, the services it may provide to you, or the University of Kansas.

PURPOSE OF THE STUDY

The purpose of the current study is to evaluate the use of the Performance Diagnostic Checklist-Human Services assessment.

PROCEDURES

If you choose to participate in this study, you will be asked to continue to report to work and perform your responsibilities as you typically do. The Performance Diagnostic Checklist-Human Services is an assessment tool developed to help employees in human services settings improve their performance. This assessment tool uses an interview format, that I will conduct in separate meetings with you and your supervisor at different times in a private location. Completion of the interview is anticipated to take approximately 15-20 minutes. Following completion of the interview, the researchers will develop supports to help you better perform your responsibilities. Possible interventions may include performance feedback, training, task clarification, and other research-supported techniques. Supports implemented will depend upon the results of the assessment tool.

RISKS

Minimal to no risks are anticipated with participation in the study. **The results of this study will not be used for disciplinary action and will not affect your employment in any way.** QSAC's regular disciplinary procedures will remain in effect throughout the study and participation in the study will not increase employees' risk of disciplinary procedures. Study results will be shared in publications and presentations, which may make you feel uncomfortable; however, all identifiable information will be removed once the data are collected. There will be no way for people who read the publication or attend the presentations to determine that the data being presented belong to you.



KU Lawrence IRB # STUDY00004457 | Approval Period 8/31/2016 – 8/30/2017

BENEFITS

Your participation in this study will provide direct benefits to you because it will help improve your performance with your responsibilities at work. Your participation in this study will benefit society by providing information around the utility of the Performance Diagnostic Checklist-Human Services.

PAYMENT TO PARTICIPANTS

You will not be compensated for participating in this research.

PARTICIPANT CONFIDENTIALITY

Your name will not be associated in any publication or presentation with the information collected about you or with the research findings from this study. Instead, the researcher will use a participant number or a pseudonym rather than your name. Your identifiable information will not be shared unless required by law or you give written permission.

REFUSAL TO SIGN CONSENT AND AUTHORIZATION

You are not required to sign this Consent and Authorization form and you may refuse to do so without affecting your right to any services you are receiving or may receive from the University of Kansas or to participate in any programs or events of the University of Kansas. However, if you refuse to sign, you cannot participate in this study.

CANCELLING THIS CONSENT AND AUTHORIZATION

You may withdraw your consent to participate in this study at any time. You also have the right to cancel your permission to use and disclose further information collected about you, in writing, at any time, by sending your written request to tamerritt@ku.edu.

If you cancel permission to use your information, the researchers will stop collecting additional information about you. However, the research team may use and disclose information that was gathered before they received your cancellation, as described above.

QUESTIONS ABOUT PARTICIPATION

Questions about procedures should be directed to the researcher(s) listed at the end of this consent form.

PARTICIPANT CERTIFICATION:

I have read this Consent and Authorization form. I have had the opportunity to ask, and I have received answers to, any questions I had regarding the study. I understand that if I have any additional questions about my rights as a research participant, I may call (785) 864-7429 or (785)



KU Lawrence IRB # STUDY00004457 | Approval Period 8/31/2016 – 8/30/2017

864-7385, write the Human Research Protection Program (HRPP), University of Kansas, 2385 Irving Hill Road, Lawrence, Kansas 66045-7568, or email irb@ku.edu.

I agree to take part in this study as a research participant. By my signature I affirm that I am at least 18 years old and that I have received a copy of this Consent and Authorization form.

_____ _____

Type/Print Participant's Name Date

_____

Participant's Signature

Researcher Contact Information

Todd A. Merritt, M.A., BCBA
Principal Investigator
Department of Applied Behavioral Science
Dole Human Development Center
University of Kansas
1000 Sunnyside Avenue
Lawrence, KS 66045

Florence D. DiGennaro Reed, Ph.D., BCBA-D
Faculty Supervisor
Department of Applied Behavioral Science
Dole Human Development Center
University of Kansas
1000 Sunnyside Avenue
Lawrence, KS 66045



KU Lawrence IRB # STUDY00004457 | Approval Period 8/31/2016 – 8/30/2017

# Appendix G

Hi, everyone. I am excited to let you know that I am looking for people to participate in a research study I am conducting here at the Day School! The purpose of the study is to evaluate the use of an assessment tool to improve employee work performance. If you choose to participate, you will continue to report to work and complete your responsibilities as you typically do. At some point you and your supervisor will participate in individual interviews that are expected to last approximately 15-20 minutes. After the interviews are completed, supports will be put in place to help you better perform your responsibilities. You will not receive any compensation for participating in the study, but you will directly benefit by receiving supports that will help you to better perform your daily responsibilities. The results of the study will not be used for disciplinary action and will not affect your employment in any way. The study is not anticipated to last longer than three months.

I am going to pass around the consent form so everyone has a chance to read it. If you are interested in participating, please return the signed consent form to me. Does anybody have any initial questions for me? If you think you might be interested, but are hesitant to sign up now, feel free to come talk with me or send me an email, and I will be happy to talk with you about it. Thank you!

# Appendix H

An Evaluation of the Performance Diagnostic Checklist-Human Services

INTRODUCTION

The Department of Applied Behavioral Science at the University of Kansas supports the practice of protection for human subjects participating in research. The following information is provided for you to decide whether you wish to participate in the present study. You may refuse to sign this form and not participate in this study. You should be aware that even if you agree to participate, you are free to withdraw at any time. If you do withdraw from this study, it will not affect your relationship with this unit, the services it may provide to you, or the University of Kansas.

PURPOSE OF THE STUDY

The purpose of the current study is to evaluate the use of the Performance Diagnostic Checklist-Human Services assessment.

PROCEDURES

If you choose to participate in this study, you will be asked to participate in an interview to complete the Performance Diagnostic Checklist-Human Services. This checklist is an assessment tool developed to help employees in human services settings improve their performance. Completion of the interview is anticipated to take approximately 15-20 minutes. Following completion of the interview, the researchers will develop supports to help your staff better perform their responsibilities.

RISKS

Minimal to no risks are anticipated with participation in the study. **The results of this study will not be used for disciplinary action and will not affect your or your staff's employment in any way.** QSAC's regular disciplinary procedures will remain in effect throughout the study and participation in the study will not increase employees' risk of disciplinary procedures. Study results will be shared in publications and presentations, which may make you feel uncomfortable; however, all identifiable information will be removed once the data are collected. There will be no way for people who read the publication or attend the presentations to determine that the data being presented belong to you.

BENEFITS

Your participation in this study will provide direct benefits to you because it will help improve your staff's performance with their responsibilities at work. Your participation in this study will benefit society by providing information around the utility of the Performance Diagnostic Checklist-Human Services.



KU Lawrence IRB # STUDY00004457 | Approval Period 8/31/2016 – 8/30/2017

PAYMENT TO PARTICIPANTS

You will not be compensated for participating in this research.

PARTICIPANT CONFIDENTIALITY

Your name will not be associated in any publication or presentation with the information collected about you or with the research findings from this study. Instead, the researcher will use a participant number or a pseudonym rather than your name. Your identifiable information will not be shared unless required by law or you give written permission.

REFUSAL TO SIGN CONSENT AND AUTHORIZATION

You are not required to sign this Consent and Authorization form and you may refuse to do so without affecting your right to any services you are receiving or may receive from the University of Kansas or to participate in any programs or events of the University of Kansas. However, if you refuse to sign, you and your staff cannot participate in this study.

CANCELLING THIS CONSENT AND AUTHORIZATION

You may withdraw your consent to participate in this study at any time. You also have the right to cancel your permission to use and disclose further information collected about you, in writing, at any time, by sending your written request to tamerritt@ku.edu.

If you cancel permission to use your information, the researchers will stop collecting additional information about you. However, the research team may use and disclose information that was gathered before they received your cancellation, as described above.

QUESTIONS ABOUT PARTICIPATION

Questions about procedures should be directed to the researcher(s) listed at the end of this consent form.

PARTICIPANT CERTIFICATION:

I have read this Consent and Authorization form. I have had the opportunity to ask, and I have received answers to, any questions I had regarding the study. I understand that if I have any additional questions about my rights as a research participant, I may call (785) 864-7429 or (785) 864-7385, write the Human Research Protection Program (HRPP), University of Kansas, 2385 Irving Hill Road, Lawrence, Kansas 66045-7568, or email irb@ku.edu.



KU Lawrence IRB # STUDY00004457 | Approval Period 8/31/2016 – 8/30/2017

I agree to take part in this study as a research participant. By my signature I affirm that I am at least 18 years old and that I have received a copy of this Consent and Authorization form.

_____ _____

Type/Print Participant's Name Date

_____

Participant's Signature

Researcher Contact Information


Todd A. Merritt, M.A., BCBA
Principal Investigator
Department of Applied Behavioral Science
Dole Human Development Center
University of Kansas
1000 Sunnyside Avenue
Lawrence, KS 66045

Florence D. DiGennaro Reed, Ph.D., BCBA-D
Faculty Supervisor
Department of Applied Behavioral Science
Dole Human Development Center
University of Kansas
1000 Sunnyside Avenue
Lawrence, KS 66045





KU Lawrence IRB # STUDY00004457 | Approval Period 8/31/2016 – 8/30/2017

Appendix I

**M E M O R A N D U M**

**TO:**

**FROM:**

**DATE:**

**RE: Late Procedure**

---

You were observed to arrive late for your shift without notifying a supervisor. As a reminder, 8:01 is considered late. If you are going to be late, you are asked to call the front desk prior to the start of your shift. Please see your supervisor if you have any questions.

Appendix J

# XI. EMPLOYMENT PRACTICES

## 1. ATTENDANCE AND PUNCTUALITY

Good attendance and punctuality is required on the part of the Agency's employees. Unauthorized or excessive absences or tardiness will not be tolerated and may result in loss of compensation or termination.

Employees are expected to report for work whenever scheduled and to be at their work station at the starting time and at the prescribed time after meal breaks.

Employees should notify their supervisor at least 1 hour before their scheduled start time if they are unable to report for work or know they will be late. Failure to notify one's supervisor of any absence or delay will normally result in loss of compensation, disciplinary action up to and including termination.

Specific departments may have different procedures regarding notifying your worksite of an absence. Please see your direct supervisor or your site policy manual for specific instructions. (Residential and Day Hab staff should refer to the policy addendum in the appendix of this document).

QSAC may request verification of the circumstances surrounding any unscheduled absence.

Absences considered excessive when an employee calls out more than six times in 12 months.

Appendix K

# VI. PROCEDURE FOR STAFF ABSENCES & LATENESS

HOLIDAY/VACATION PAY

*Excerpt from July 1, 2014-June 30, 2017 CSEA Contract: School Holidays & Sick Pay for Day School Employees:*

Employees must work the last scheduled workday before the holiday and/or vacation break, and the next scheduled workday after the holiday and/or the vacation break, to receive holiday pay/vacation pay. Full-time employees of the school shall receive six (6) sick days which will accrue at the rate of three and a half (3.5) hours per month. More than two (2) absences (sick or LWOP) per month for consecutive months in the school can lead to disciplinary action.

TIME-OFF

*Excerpt from the QSAC EMPLOYEE POLICY MANUAL:* **Policy Regarding Time Off**

School staff are required to follow the school calendar which consists of a minimum of 210 teaching days. Day School/School staff will work at least an additional 10 days throughout the year which include staff development days, beginning of the year preparation, end of year clean up, etc.

*Preschool/School Teachers and Speech Therapists* will earn 12 sick days a year (July 1 - June 30). This time carries over to the following year.
*Teacher Assistants/Aides* should follow sick day policy as outlined in the Collective Bargaining Agreement. At this time Teacher Assistants/Aides will earn 6 sick days a year, 3.5 hours per month (July 1 - June 30). This time does not carry over.

School staff will receive approximately 30 vacation days as a result of the typical school recesses/vacation breaks. This time is accrued on a per payroll basis. **Staff must work an entire school year to receive all standard vacations**. If a staff person resigns any vacation they have received but have not accrued will be recouped in their last paycheck.

If the QSAC Day School/School closes due to inclement weather, etc. and QSAC office remains open, all Day School/School staff may be required to come to work. You will be instructed to go to the Day School/School site or the QSAC office. If you opt not to come to work, you can use a sick day.

PROCEDURE FOR STAFF ABSENCES AND LATENESS

Due to the strict staffing constraints provided by the State Education Department, staffing according to the mandated ratios specified for each classroom is critical. As a result, coverage due to staff absences must be planned as early in advance as possible.

CALL IN A TIMELY MANNER

All calls to notify the school of an absence must be made in a timely manner so that coverage staff can be assigned accordingly to classroom/student needs. All staff will call out to Todd Merritt between 6:45 am and 7:30 am at **(616) 293-8647**. Any changes made to the contact person for call outs will be posted by the time clock. Staff will be notified in advance when this occurs. Any call made after 7:45 a.m. will be considered late notification. When leaving messages, state your name and reason for absence clearly.

If staff becomes aware that s/he will not be able to come to work the next day, the staff should contact Todd/Cynthia immediately to allow for early assignment of coverage staff.

NO SHOW

Any absence without notifying the office is considered a *No Show*. No-Shows will result in disciplinary action. After three consecutive No-Shows, the staff person is considered to have resigned from his/her position.

REQUESTING TIME OFF

Staff personnel accrue 3.5 hours of SICK TIME per month that they work. At the Day School, time off can only be used for sick time. If staff personnel is aware of a medical appointment, s/he should notify the Program Director in advance so that staff coverage may be planned. The QSAC Request System, which is found on the QSAC website, should be filled out in a timely manner. Minimum notice requirements and other directions are indicated on the request form.

Staff personnel are responsible for being aware of how much SICK TIME they have accrued before completing the request form. If a staff person indicates SICK TIME for a day he/she was absent but no longer has any SICK TIME accrued, this may result in disciplinary action. Information for accrued SICK TIME is indicated on the staff person's pay stub.

LEAVE WITHOUT PAY

Any staff person who plans to be absent from the program must request Leave Without Pay. The online QSAC Time Off Request should be filled out, and the type of day should indicate "LWOP." This form should be submitted to the Program Director who will approve or not approve the leave depending on staffing needs. Approval of LWOP is discretionary based on the needs of the program.

LATENESS

As with calling out sick, calling in late should be made within the same guidelines (i.e., by 7:45 a.m.) so that staff coverage may be planned. Excessive lateness will result in disciplinary action.

# VII. TIME CLOCK SYSTEM

The work shift at the QSAC Day School is 8:00 a.m. to 3:30 p.m. Staff must clock in at 8am and clock out at 3:30pm. A 30-minute unpaid lunchtime is provided in the middle of the day. As a result, a full day is from 8:00 – 3:30, for a total of 7 working hours. QSAC policy mandates the grace period for lateness is 8:07am; anything after that time will be deducted at least 15 minutes. Any day taken as SICK TIME counts as 7 working hours for full time employees. Please note that the program starts at 8:00 am and you are considered late any time after 8:00am.

All staff personnel must swipe in upon arrival and swipe upon dismissal. This is done through the time clock. Staff members are not allowed to swipe in earlier than 7:53 a.m. or swipe out later than 3:37 p.m. Excessive errors in swiping in/out will result in disciplinary action.

Because errors with time clock may sometimes occur in reference to monitoring absences, lateness, number of hours worked, and ensuring correct pay, it is important to reduce human-error by consistently swiping in/out on a daily basis at the time of arrival and dismissal, respectively. If staff forget to swipe in or swipe out, they must complete the proper paper work consisting of a "Current Pay Period Missing Swipe Time Sheet" or a "Prior Pay Period Missing Swipe Time Sheet". Employees who complete the Current Pay Period Missing Swipe Time Sheet will be paid during the current pay period. Employees who complete the Prior Pay Period Missing Swipe Time Sheet will receive payment for the missing time within 2-3 weeks.

LEAVING EARLY

For various reasons, a staff person may find the need to leave the program early. Whenever possible, advance notification should be given to the Program Director or Senior ABA Coordinator(s) so that coverage may be planned. The staff person should be prepared to provide the aforementioned supervisor(s) with a rationale for leaving early. On the day they are leaving early the staff person **must** announce the departure to the Program Director, or Senior ABA Coordinator(s), and then swipe out at the time of departure.

The time clock timesheets will be checked for errors and accuracy and signed by the Program Director or Senior ABA Coordinator before submitting them to the Main Office/Fiscal Department.

Appendix L

QSAC Quality Services for the Autism Community
Serving New York City and Long Island

# ATTESTATION OF RECEIPT OF DAY SCHOOL PROFESSIONAL GUIDELINES AND EMERGENCY PROCEDURES

I have received and will review the Guidelines for Professional Behavior and Effective Clinical Practice as well Day School Emergency Procedures. I know that there is a copy of these policies and procedures in the main office and I have access to them at all times.

| Name of Policy | S taff Name | S ignature | Date |
|---|---|---|---|
| Guidelines for Professional Behavior | | | |
| Emergency Codes and Procedures (appendices) | | | |
| Best Practice guidelines | | | |

I will approach a supervisor with any questions or concerns that I have regarding and policy I may have or know of.

QSAC DAY SCHOOL
12 – 10 150th Street, Whitestone, NY 11357 ♦ (Tel) 718-728-8476, ext. 1400 ♦ (Fax) 718-747-6675

Appendix M

**(TA) Performance Diagnostic Checklist – Human Services (TA)**
T. Merritt Dissertation Interview Script

Employee's Name: _____ Interviewer: _____ Date: _____

Introductory Script

Hi! First, I just want to thank you again for agreeing to participate in my study! I am excited to begin and I hope that you are too! As I mentioned before, you and your classroom teacher will participate in individual interviews to help identify the supports that will help you better perform your responsibilities. This is your interview and today I am going to focus on arriving to work on time. Throughout the interview, I will ask you a variety of questions. The responses that you provide will be confidential and I hope that you feel as though you can answer the questions honestly. Do you have any questions for me before we get started? Alright, first question!

## Training

1. Have you received any training or information as to when you are supposed to arrive to work?
    a. Question asked: Yes No
    b. Participant response: Yes No
2. Are you familiar with QSAC's expectations in terms of arriving to work on time?
    a. Question asked: Yes No
    b. Participant response: Yes No
3. Verify through time clock records – does not need to be asked.
    a. Date of verification: _____
4. Not applicable.

## Task Clarification & Prompting

1. Have you been informed that you are expected to arrive to work on time?
    a. Question asked: Yes No
    b. Participant response: Yes No
2. Do you know why you are supposed to arrive to work on time?
    a. Question asked: Yes No
    b. Participant response: Yes No

**(TA) Performance Diagnostic Checklist – Human Services (TA)**
T. Merritt Dissertation Interview Script

3. Do you use any aids to arrive to work on time (e.g., alarm, traffic app, transit app)?
    a. Question asked: Yes No
    b. Participant response: Yes No
4. Do you ever receive reminders about arriving on time prior to arrival (e.g., text messages, phone calls, verbal reminder the day before)?
    a. Question asked: Yes No
    b. Participant response: Yes No
5. Is the environment in which you travel to work well-suited for you to arrive on time (e.g., reliable driver, bus runs as scheduled)?
    a. Question asked: Yes No
    b. Participant response: Yes No

## Resources, Materials, & Processes

1. Not applicable
2. What materials are required for you to arrive to work on time (e.g., car keys, metro card, swipe card, parking spot, bus)?
    a. Question asked: Yes No
    b. Are those materials readily available to you?
        i. Question asked: Yes No
        ii. Participant response: Yes No N/A
3. Are any of these materials particularly helpful in ensuring you arrive to work on time?
    a. Question asked: Yes No
    b. Participant response: Yes No N/A
4. Are those materials organized in a way that makes arriving to work on time easy?
    a. Question asked: Yes No

b. Participant response: Yes No N/A

5. Are you able to easily complete necessary tasks/responsibilities before you leave for work in a timely manner such that you arrive to work on time?
   a. Question asked: Yes No
   b. Participant response: Yes No
6. If other tasks need to be completed prior to leaving or arriving to work, are you responsible for completing the tasks on your own?
   a. Question asked: Yes No
   b. Participant response: Yes No N/A

## Performance Consequences, Effort, & Competition

1. Does your classroom teacher or classroom supervisor ever directly monitor when you arrive to work?
   a. Question asked: Yes No
   b. Participant response: Yes No
2. Do you ever receive feedback about arriving to work on time?
   a. Question asked: Yes No
   b. Participant response: Yes No
3. Do you ever see the effects of arriving to work on time?
   a. Question asked: Yes No
   b. Participant response: Yes No
4. Is arriving to work on time easy?
   a. Question asked: Yes No
   b. Participant response: Yes No

**(TA) Performance Diagnostic Checklist – Human Services (TA)**

T. Merritt Dissertation Interview Script

5. Does arriving to work on time take priority over other tasks (e.g., sleeping, getting coffee/breakfast, talking with friends)?
    a. Question asked: Yes No
    b. Participant response: Yes No

Appendix N

**(Teacher) Performance Diagnostic Checklist – Human Services (Teacher)**

T. Merritt Dissertation Interview Script

Employee's Name: _____ Interviewer: _____ Date: _____

Introductory Script

Hi! First, I just want to thank you again for agreeing to participate in my study! I am excited to begin and I hope that you are too! As I mentioned before, you and *the individual* will participate in individual interviews to help identify the supports that will help *him/her* better perform *his/her* responsibilities. This is your interview and today I am going to focus on *the individual* arriving to work on time. Throughout the interview, I will ask you a variety of questions. The responses that you provide will be confidential and I hope that you feel as though you can answer the questions honestly. Do you have any questions for me before we get started? Alright, first question!

## Training

1. Has *the individual* received any training or information as to when he/she is supposed to arrive to work?
   a. Question asked: Yes No
   b. Participant response: Yes No Don't know
2. Can *the individual* state what QSAC's expectations are in terms of arriving to work on time?
   a. Question asked: Yes No
   b. Participant response: Yes No Don't know
3. Not applicable – will be verified with TC-1 records as can be seen on TA form.
4. Not applicable.

## Task Clarification & Prompting

1. Has *the individual* been informed that *he/she* is expected to arrive to work on time?
   a. Question asked: Yes No
   b. Participant response: Yes No Don't know
2. Does *the individual* know why *he/she* is supposed to arrive to work on time?
   a. Question asked: Yes No
   b. Participant response: Yes No Don't know

3. Does *the individual* use anything to help *him/her* arrive to work on time (e.g., alarm, traffic app, transit app)?
    a. Question asked: Yes No
    b. Participant response: Yes No Don't know
4. Does *the individual* ever receive reminders about arriving on time prior to arrival (e.g., text messages, phone calls, verbal reminder the day before)?
    a. Question asked: Yes No
    b. Participant response: Yes No Don't know
5. Is the environment in which *the individual* travels to work well-suited for arriving to work on time (e.g., reliable driver, bus runs as scheduled)?
    a. Question asked: Yes No
    b. Participant response: Yes No Don't know

## Resources, Materials, & Processes

1. Not applicable
2. What materials are required for *the individual* to arrive to work on time (e.g., car keys, metro card, swipe card, parking spot, bus)?
    a. Question asked: Yes No
    b. Are those materials readily available to *him/her*?
        i. Question asked: Yes No
        ii. Participant response: Yes No Don't know
3. Are any of these materials particularly helpful for *the individual* to arrive to work on time?
    a. Question asked: Yes No
    b. Participant response: Yes No N/A Don't know

4. Are those materials organized in a way that makes arriving to work on time easy for *the individual*?
    a. Question asked: Yes No
    b. Participant response: Yes No N/A Don't know
5. Is *the individual* able to easily complete necessary tasks/responsibilities before leaving for work in a timely manner such that *he/she* arrives to work on time?
    a. Question asked: Yes No
    b. Participant response: Yes No Don't know
6. If other tasks need to be completed prior to *the individual* leaving or arriving to work, is *the individual* responsible for completing the tasks on *his/her* own?
    a. Question asked: Yes No
    b. Participant response: Yes No N/A Don't know

## Performance Consequences, Effort, & Competition

1. Do you or your classroom supervisor ever directly monitor when *he/she* arrives to work?
    a. Question asked: Yes No
    b. Participant response: Yes No Don't know
2. Does *the individual* ever receive feedback about arriving to work on time?
    a. Question asked: Yes No
    b. Participant response: Yes No Don't know
3. Does *the individual* ever see the effects of arriving to work on time?
    a. Question asked: Yes No
    b. Participant response: Yes No
4. Is arriving to work on time easy for *the individual*?

a. Question asked: Yes No

b. Participant response: Yes No Don't know

5. Does arriving to work on time take priority over other competing tasks (e.g., sleeping, getting coffee/breakfast, talking with friends) for *the individual*?

a. Question asked: Yes No

b. Participant response: Yes No N/A Don't know

# Appendix O

IOA Observer Initials: ____________ Participant Initials: _______________

| | | | | | | Sum of Min. Late | % of Days Late |
|---|---|---|---|---|---|---|---|
| Date | | | | | | | |
| Minutes Late | | | | | | | |

| | | | | | | Sum of Min. Late | % of Days Late |
|---|---|---|---|---|---|---|---|
| Date | | | | | | | |
| Minutes Late | | | | | | | |

| | | | | | | Sum of Min. Late | % of Days Late |
|---|---|---|---|---|---|---|---|
| Date | | | | | | | |
| Minutes Late | | | | | | | |

| | | | | | | Sum of Min. Late | % of Days Late |
|---|---|---|---|---|---|---|---|
| Date | | | | | | | |
| Minutes Late | | | | | | | |

| | | | | | | Sum of Min. Late | % of Days Late |
|---|---|---|---|---|---|---|---|
| Date | | | | | | | |
| Minutes Late | | | | | | | |

| | | | | | | Sum of Min. Late | % of Days Late |
|---|---|---|---|---|---|---|---|
| Date | | | | | | | |
| Minutes Late | | | | | | | |

| | | | | | | Sum of Min. Late | % of Days Late |
|---|---|---|---|---|---|---|---|
| Date | | | | | | | |
| Minutes Late | | | | | | | |

| | | | | | | Sum of Min. Late | % of Days Late |
|---|---|---|---|---|---|---|---|
| Date | | | | | | | |
| Minutes Late | | | | | | | |

| | | | | | | Sum of Min. Late | % of Days Late |
|---|---|---|---|---|---|---|---|
| Date | | | | | | | |
| Minutes Late | | | | | | | |

Appendix P

**(TA) Performance Diagnostic Checklist – Human Services (TA)**

T. Merritt Dissertation Interview Script

Employee's Name: _____ Interviewer: _____ Date: _____

Introductory Script

Hi! First, I just want to thank you again for agreeing to participate in my study! I am excited to begin and I hope that you are too! As I mentioned before, you and your classroom teacher will participate in individual interviews to help identify the supports that will help you better perform your responsibilities. This is your interview and today I am going to focus on arriving to work on time. Throughout the interview, I will ask you a variety of questions. The responses that you provide will be confidential and I hope that you feel as though you can answer the questions honestly. Do you have any questions for me before we get started? Alright, first question!

## Training

1. Have you received any training or information as to when you are supposed to arrive to work?
    a. Yes No
    b. If yes, what training have you received?
        i. _____ _

        _____

2. Are you familiar with QSAC's expectations in terms of arriving to work on time?
    a. Yes No
    b. If yes, what are they?
        i. _____

        _____

3. Verify through time clock records – does not need to be asked.
    a. Date of verification: _____
4. Not applicable.

## Task Clarification & Prompting

1. Have you been informed that you are expected to arrive to work on time?
    a. Yes No

1

b. If yes, how were you informed, when, and by whom?

i. How: _____ _____

ii. When: _____ _____

iii. By Whom: _____ _____

2. Do you know why you are supposed to arrive to work on time?

a. Yes No

b. If yes, please describe some of the reasons.

i. Reason 1: _____ _____

ii. Reason 2: _____ _____

iii. Reason 3: _____ _____

3. Do you use any aids to arrive to work on time (e.g., alarm, traffic app, transit app)?

a. Yes No

b. If yes, what do you use?

i. _____

ii. _____

4. Do you ever receive reminders about arriving on time prior to arrival (e.g., text messages, phone calls, verbal reminder the day before)?

a. Yes No

b. If yes, please describe the type of reminder and how frequently.

i. Reminder format 1: _____ _____Frequency: _____

ii. Reminder format 2: _____ _____Frequency: _____

iii. Reminder format 3: _____ _____Frequency: _____

5. Is the environment in which you travel to work well-suited for you to arrive on time (e.g., reliable driver, bus runs as scheduled)?

a. Yes No

b. If no, what are the issues?

i. Issue 1: _____ _____

ii. Issue 2: _____ _____

iii. Issue 3: _____ _____

## Resources, Materials, & Processes

1. Not applicable
2. What materials are required for you to arrive to work on time (e.g., car keys, metro card, swipe card, parking spot, bus)?

a. Material 1: _____ _____

b. Material 2: _____ _____

c. Material 3: _____ _____

d. Material 4: _____ _____ _____

e. Material 5: _____ _____

i. Are those materials readily available to you?

1. Yes No N/A

ii. If no, what is the issue?

1. Material 1 issue: _____ _____

2. Material 2 issue: _____ _____

3. Material 3 issue: _____ _____

4. Material 4 issue: _____ _____

5. Material 5 issue: _____ _____

3. Are any of these materials particularly helpful in ensuring you arrive to work on time?

a. Yes No N/A

b. If no, what materials are the issue and why?

i. Material 1: _____ _____

ii. Material 2: _____ _____

iii. Material 3: _____ _____

iv. Material 4: _____ _____

v. Material 5: _____ _____

4. Are those materials organized in a way that makes arriving to work on time easy?

a. Yes No N/A

b. If no, what and why?

i. Material 1: _____ _____ _____

ii. Material 2: _____ _____

iii. Material 3: _____ _____

iv. Material 4: _____ _____ _____

v. Material 5: _____ _____

5. Are you able to easily complete necessary tasks/responsibilities before you leave for work in a timely manner such that you arrive to work on time?

a. Yes No

b. If no, what are the barriers to completing these tasks?

Task 1: _____ Task 2: _____

Task 3: _____ Task 4: _____

Task 5: _____ Task 6: _____

Task 7: _____ Task 8: _____

6. If other tasks need to be completed prior to leaving or arriving to work, are you responsible for completing the tasks on your own?

**(TA) Performance Diagnostic Checklist – Human Services (TA)**
T. Merritt Dissertation Interview Script

a. Yes No N/A

b. If no, who is responsible?

Task 1: _____ Task 2: _____

Task 3: _____ Task 4: _____

Task 5: _____ Task 6: _____

Task 7: _____ Task 8: _____

## Performance Consequences, Effort, & Competition

1. Does your classroom teacher or classroom supervisor ever directly monitor when you arrive to work?

   a. Yes No

   b. If your classroom teacher does, approximately how often?

      i. Daily

      ii. Weekly

      iii. Monthly

      iv. Other: _____

   c. If your classroom supervisor does, approximately how often?

      i. Daily

      ii. Weekly

      iii. Monthly

      iv. Other: _____

2. Do you ever receive feedback about arriving to work on time?

   a. Yes No

   b. If yes, please describe:

      i. By whom? _____ __

5

ii. Approximately how often? _____ _

iii. Delay from arrival? _____ __

iv. Feedback focus: Positive Corrective

v. Feedback type: Written Verbal Graphic Other: _____

3. Do you ever see the effects of arriving to work on time?

   a. Yes No

   b. If yes, how? _____ _____ _____

4. Is arriving to work on time easy?

   a. Yes No

   b. If not, what makes it difficult? _____ _____

5. Does arriving to work on time take priority over other tasks (e.g., sleeping, getting coffee/breakfast, talking with friends)?

   a. Yes No

   b. If not, what are the other competing tasks?

   Task 1: _____ Task 2: _____

   Task 3: _____ Task 4: _____

   Task 5: _____ Task 6: _____ _____

Appendix Q

**(Teacher) Performance Diagnostic Checklist – Human Services (Teacher)**
T. Merritt Dissertation Interview Script

Employee's Name: _____ Interviewer: _____ Date: _____

Introductory Script

Hi! First, I just want to thank you again for agreeing to participate in my study! I am excited to begin and I hope that you are too! As I mentioned before, you and *the individual* will participate in individual interviews to help identify the supports that will help *him/her* better perform *his/her* responsibilities. This is your interview and today I am going to focus on *the individual* arriving to work on time. Throughout the interview, I will ask you a variety of questions. The responses that you provide will be confidential and I hope that you feel as though you can answer the questions honestly. Do you have any questions for me before we get started? Alright, first question!

## Training

1. Has *the individual* received any training or information as to when he/she is supposed to arrive to work?
    a. Yes No Don't know
    b. If yes, what training has *he/she* received?
        i. _____

        _____ _____

2. Can *the individual* state what QSAC's expectations are in terms of arriving to work on time?
    a. Yes No Don't know
3. Not applicable – will be verified with TC-1 records as can be seen on TA form.
4. Not applicable.

## Task Clarification & Prompting

1. Has *the individual* been informed that *he/she* is expected to arrive to work on time?
    a. Yes No Don't know
    a. If yes, how was *he/she* informed, when, and by whom?
        i. How: _____ _____ _
        ii. When: _____ _____
        iii. By Whom: _____ _____

1

**(Teacher) Performance Diagnostic Checklist – Human Services (Teacher)**

T. Merritt Dissertation Interview Script

2. Does *the individual* know why *he/she* is supposed to arrive to work on time?

    b. Yes No Don't know

    a. If yes, how do you know?

        i. Reason: _____ _____

3. Does *the individual* use anything to help *him/her* arrive to work on time (e.g., alarm, traffic app, transit app)?

    c. Yes No Don't know

    a. If yes, do you know what *he/she* uses?

        i. _____

        ii. _____

4. Does *the individual* ever receive reminders about arriving on time prior to arrival (e.g., text messages, phone calls, verbal reminder the day before)?

    d. Yes No Don't know

    a. If yes, please describe the type of reminder and how frequently.

        i. Reminder format 1: _____ _____Frequency: _____

        ii. Reminder format 2: _____ _____Frequency: _____

        iii. Reminder format 3: _____ _____Frequency: _____

5. Is the environment in which *the individual* travels to work well-suited for arriving to work on time (e.g., reliable driver, bus runs as scheduled)?

    e. Yes No Don't know

    a. If no, what are the issues?

        i. Issue 1: _____ _____

        ii. Issue 2: _____ _____

        iii. Issue 3: _____ _____

**(Teacher) Performance Diagnostic Checklist – Human Services (Teacher)**
T. Merritt Dissertation Interview Script

## Resources, Materials, & Processes

1. Not applicable
2. What materials are required for *the individual* to arrive to work on time (e.g., car keys, metro card, swipe card, parking spot, bus)?
    a. Material 1: _____ _____
    b. Material 2: _____ _____
    c. Material 3: _____ _____
    d. Material 4: _____ _____
    e. Material 5: _____ _____
        i. Are those materials readily available to *him/her*?
            1. Yes No N/A Don't know
        ii. If no, what is the issue?
            1. Material 1 issue: _____ _____
            2. Material 2 issue: _____ _____
            3. Material 3 issue: _____ _____
            4. Material 4 issue: _____ _____
            5. Material 5 issue: _____ _____
3. Are any of these materials particularly helpful for *the individual* to arrive to work on time?
    a. Yes No N/A Don't know
    b. If no, what materials are the issue and why?
        i. Material 1: _____ _____
        ii. Material 2: _____ _____
        iii. Material 3: _____ _____
        iv. Material 4: _____ _____

v. Material 5: _____ _____

4. Are those materials organized in a way that makes arriving to work on time easy for *the individual*?

   a. Yes No N/A Don't know

   b. If no, what and why?

      i. Material 1: _____ _____

      ii. Material 2: _____ _____

      iii. Material 3: _____ _____

      iv. Material 4: _____ _____

      v. Material 5: _____ _____

5. Is *the individual* able to easily complete necessary tasks/responsibilities before leaving for work in a timely manner such that *he/she* arrives to work on time?

   a. Yes No Don't know

   b. If no, what are the barriers to completing these tasks?

   Task 1: _____ Task 2: _____

   Task 3: _____ Task 4: _____

   Task 5: _____ Task 6: _____

   Task 7: _____ Task 8: _____

6. If other tasks need to be completed prior to *the individual* leaving or arriving to work, is *the individual* responsible for completing the tasks on *his/her* own?

   a. Yes No N/A Don't know

   b. If no, who is responsible?

   Task 1: _____ Task 2: _____

   Task 3: _____ Task 4: _____

   Task 5: _____ Task 6: _____

**(Teacher) Performance Diagnostic Checklist – Human Services (Teacher)**
T. Merritt Dissertation Interview Script

Task 7: _____ Task 8: _____

## Performance Consequences, Effort, & Competition

1. Do you or your classroom supervisor ever directly monitor when *he/she* arrives to work?
    a. Yes No
    b. If you do, approximately how often?
        i. Daily
        ii. Weekly
        iii. Monthly
        iv. Other: _____
    c. If your classroom supervisor does, approximately how often?
        i. Daily
        ii. Weekly
        iii. Monthly
        iv. Other: _____
2. Does *the individual* ever receive feedback about arriving to work on time?
    a. Yes No
    b. If yes, please describe:
        i. By whom? _____ __
        ii. Approximately how often? _____ _
        iii. Delay from arrival? _____ __
        iv. Feedback focus: Positive Corrective
        v. Feedback type: Written Verbal Graphic Other: _____

5

**(Teacher) Performance Diagnostic Checklist – Human Services (Teacher)**

T. Merritt Dissertation Interview Script

3. Does *the individual* ever see the effects of arriving to work on time?

    a. Yes No

    b. If yes, how? _____ _____

4. Is arriving to work on time easy for *the individual*?

    a. Yes No Don't know

5. Does arriving to work on time take priority over other competing tasks (e.g., sleeping, getting coffee/breakfast, talking with friends) for *the individual*?

    a. Yes No Don't know

    b. If not, what are the other competing tasks?

    Task 1: _____ Task 2: _____

    Task 3: _____ Task 4: _____

    Task 5: _____ Task 6: _____

Appendix R

## 2. DISCIPLINARY PHILOSOPHY

QSAC uses progressive discipline to ensure staff compliance with performance standards, ethics and conduct. It is intended that the discipline be administered fairly, without prejudice and only for cause.

**DISCLAIMER: If any material in this policy manual contradicts policies in the Collective Bargaining Agreement, then the policies of the QSAC EMPLOYEE POLICY MANUAL are superseded for Collective Bargaining Unit employees by the policies in the Collective Bargaining Agreement.



Disciplinary actions are of several levels, including verbal and written warnings, probation, suspension and termination. The frequency and/or severity of misconduct determines which level of disciplinary action is required.

Progressive discipline is not required for all offenses or for staff during the Introductory Period. QSAC reserves the right to terminate employees for commission of serious infractions, regardless of progressive discipline guidelines or counseling.

Appendix S

**Task Clarification**

T. Merritt Dissertation

1. Due to the strict staffing constraints provided by the State Education Department, staffing according to the mandated ratios for each classroom is critical.
2. Your work shift is 8:00 am to 3:30 pm.
3. You must clock in at 8:00 am to be considered on time.
4. The program starts at 8:00 am and you are considered late any time after 8:00 am.
5. The appropriate supervisor must be notified by phone of an absence or lateness between 6:45 am and 7:30 am.
6. When "calling out," be sure to state your name and the reason for the absence or lateness.
7. Excessive lateness will result in disciplinary action.

Participant Signature: _____ Date: _____

Primary Researcher Signature: _____ Date: _____

Appendix T

**Problem Solving Worksheet**
T. Merritt Dissertation

**Participant Initials:** _____ **Date:** _____

**Problem identified during PDC-HS interview:** _____

_____

**Potential solutions:**

1. _____

_____

2. _____

_____

3. _____

_____

**Problem identified during PDC-HS interview:** _____ _____

_____

**Potential solutions:**

1. _____

_____

2. _____

_____

3. _____

_____ _____

1

**Problem Solving Worksheet**
T. Merritt Dissertation

**Problem identified during PDC-HS interview:** _____

_____

**Potential solutions:**

1. _____ _____

_____

2. _____

_____

3. _____

_____

**Problem identified during PDC-HS interview:** _____

_____ _____

**Potential solutions:**

1. _____

_____

2. _____ _____

_____

3. _____

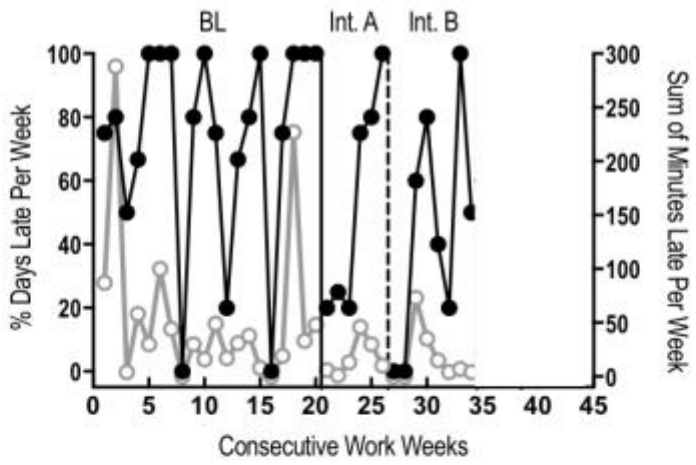
_____

Participant Signature: _____ Date: _____

Primary Researcher Signature: _____ Date: _____

2

Appendix U




**Please initial and date to indicate you received a copy of the graph:**

**Initial: _____ Date: _____**

**Was praise provided for improvements? Yes No**

**Was your performance discussed relative to baseline? Yes No**

**Was performance discussed relative to a goal of being late a maximum of 20% of days per week? Yes No**

**Was an opportunity for you to ask questions provided? Yes No**

Appendix V


THINGS TO BUY
Gift Card 50.00
Gift Card 25.00
Gift card 10.00
VIP swipe
Leave early
Coffee
Opt out of staff meeting
Run a staff meeting
Public shout out (your or student)
Free pass from Supervisor
Extra time w/superivsor
50
25
15
5
10
2
5
5
5
10
5
0
10
20
30
40
50
60
# Tokens (cost)

# Appendix W

**Daily Verbal Feedback Treatment Integrity Checklist**
T. Merritt Dissertation

Participant initials: __________

| | |
|---|---|
| **Date of feedback:** | |
| **Verbal reminder of arriving to work by 8:00 am** | Yes No |
| **Observer initials** | |

| | |
|---|---|
| **Date of feedback:** | |
| **Verbal reminder of arriving to work by 8:00 am** | Yes No |
| **Observer initials** | |

| | |
|---|---|
| **Date of feedback:** | |
| **Verbal reminder of arriving to work by 8:00 am** | Yes No |
| **Observer initials** | |

| | |
|---|---|
| **Date of feedback:** | |
| **Verbal reminder of arriving to work by 8:00 am** | Yes No |
| **Observer initials** | |

| | |
|---|---|
| **Date of feedback:** | |
| **Verbal reminder of arriving to work by 8:00 am** | Yes No |
| **Observer initials** | |

| | |
|---|---|
| **Date of feedback:** | |
| **Verbal reminder of arriving to work by 8:00 am** | Yes No |
| **Observer initials** | |

| | |
|---|---|
| **Date of feedback:** | |
| **Verbal reminder of arriving to work by 8:00 am** | Yes No |
| **Observer initials** | |

| | |
|---|---|
| **Date of feedback:** | |
| **Verbal reminder of arriving to work by 8:00 am** | Yes No |
| **Observer initials** | |

| | |
|---|---|
| **Date of feedback:** | |
| **Verbal reminder of arriving to work by 8:00 am** | Yes No |
| **Observer initials** | |

| | |
|---|---|
| **Date of feedback:** | |
| **Verbal reminder of arriving to work by 8:00 am** | Yes No |
| **Observer initials** | |

# Appendix X

| | |
|---|---|
| **Date of feedback:** | |
| **Token provided** | Yes No |
| **Praise for arriving by 8 am** | Yes No |
| **Observer initials** | |

| | |
|---|---|
| **Date of feedback:** | |
| **Token provided** | Yes No |
| **Praise for arriving by 8 am** | Yes No |
| **Observer initials** | |

| | |
|---|---|
| **Date of feedback:** | |
| **Token provided** | Yes No |
| **Praise for arriving by 8 am** | Yes No |
| **Observer initials** | |

| | |
|---|---|
| **Date of feedback:** | |
| **Token provided** | Yes No |
| **Praise for arriving by 8 am** | Yes No |
| **Observer initials** | |

| | |
|---|---|
| **Date of feedback:** | |
| **Token provided** | Yes No |
| **Praise for arriving by 8 am** | Yes No |
| **Observer initials** | |

| | |
|---|---|
| **Date of feedback:** | |
| **Token provided** | Yes No |
| **Praise for arriving by 8 am** | Yes No |
| **Observer initials** | |

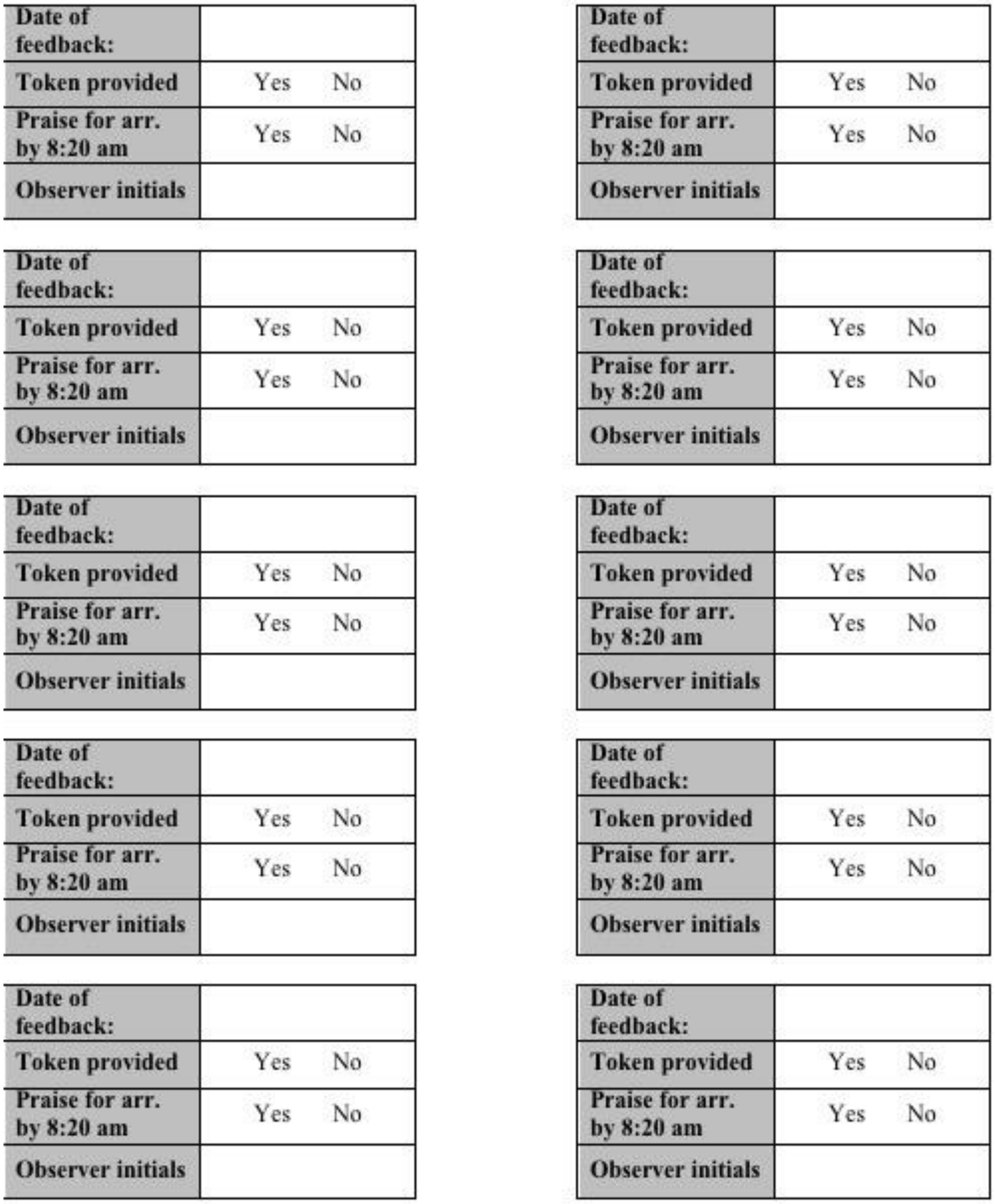
| | |
|---|---|
| **Date of feedback:** | |
| **Token provided** | Yes No |
| **Praise for arriving by 8 am** | Yes No |
| **Observer initials** | |

| | |
|---|---|
| **Date of feedback:** | |
| **Token provided** | Yes No |
| **Praise for arriving by 8 am** | Yes No |
| **Observer initials** | |

| | |
|---|---|
| **Date of feedback:** | |
| **Token provided** | Yes No |
| **Praise for arriving by 8 am** | Yes No |
| **Observer initials** | |

| | |
|---|---|
| **Date of feedback:** | |
| **Token provided** | Yes No |
| **Praise for arriving by 8 am** | Yes No |
| **Observer initials** | |

# Appendix Y



| | |
|---|---|
| **Date of feedback:** | |
| **Token provided** | Yes No |
| **Praise for arr. by 8:20 am** | Yes No |
| **Observer initials** | |

| | |
|---|---|
| **Date of feedback:** | |
| **Token provided** | Yes No |
| **Praise for arr. by 8:20 am** | Yes No |
| **Observer initials** | |

| | |
|---|---|
| **Date of feedback:** | |
| **Token provided** | Yes No |
| **Praise for arr. by 8:20 am** | Yes No |
| **Observer initials** | |

| | |
|---|---|
| **Date of feedback:** | |
| **Token provided** | Yes No |
| **Praise for arr. by 8:20 am** | Yes No |
| **Observer initials** | |

| | |
|---|---|
| **Date of feedback:** | |
| **Token provided** | Yes No |
| **Praise for arr. by 8:20 am** | Yes No |
| **Observer initials** | |

| | |
|---|---|
| **Date of feedback:** | |
| **Token provided** | Yes No |
| **Praise for arr. by 8:20 am** | Yes No |
| **Observer initials** | |

| | |
|---|---|
| **Date of feedback:** | |
| **Token provided** | Yes No |
| **Praise for arr. by 8:20 am** | Yes No |
| **Observer initials** | |

| | |
|---|---|
| **Date of feedback:** | |
| **Token provided** | Yes No |
| **Praise for arr. by 8:20 am** | Yes No |
| **Observer initials** | |

| | |
|---|---|
| **Date of feedback:** | |
| **Token provided** | Yes No |
| **Praise for arr. by 8:20 am** | Yes No |
| **Observer initials** | |

| | |
|---|---|
| **Date of feedback:** | |
| **Token provided** | Yes No |
| **Praise for arr. by 8:20 am** | Yes No |
| **Observer initials** | |

Appendix Z

## Social Validity Questionnaire

T. Merritt Dissertation

Date Completed: _____

The purpose of this questionnaire is to get information that will help in the selection of interventions that address staff performance problems. Please circle the number that best describes your agreement with each statement about each intervention.

Intervention key:

- Task Clarification - written and verbal reminder of what the organization's expectations are around arriving to work on time
- Problem Solving Discussion - brainstorming and discussing solutions to potential issues that may contribute to being tardy
- Weekly Graphic Feedback – review of employee's tardiness for the week
- Corrective Feedback – receive corrective feedback for tardiness
- Praise and Token – receive praise and a token provided for arriving to work on time

**1- strongly disagree 2-disagree 3-slightly disagree 4-slightly agree 5-agree 6-strongly agree**

This would be an acceptable intervention for staff tardiness.

| | |
|---|---|
| Task clarification | 1 2 3 4 5 6 |
| Problem solving discussion | 1 2 3 4 5 6 |
| Weekly graphic feedback | 1 2 3 4 5 6 |
| Corrective feedback | 1 2 3 4 5 6 |
| Praise and token | 1 2 3 4 5 6 |

This intervention should prove effective in changing staff tardiness.

| | |
|---|---|
| Task clarification | 1 2 3 4 5 6 |
| Problem solving discussion | 1 2 3 4 5 6 |
| Weekly graphic feedback | 1 2 3 4 5 6 |
| Corrective feedback | 1 2 3 4 5 6 |
| Praise and token | 1 2 3 4 5 6 |

I would suggest the use of this intervention for other staff.

| | |
|---|---|
| Task clarification | 1 2 3 4 5 6 |
| Problem solving discussion | 1 2 3 4 5 6 |
| Weekly graphic feedback | 1 2 3 4 5 6 |
| Corrective feedback | 1 2 3 4 5 6 |
| Praise and token | 1 2 3 4 5 6 |

My tardiness was severe enough to warrant the use of this intervention.

| | |
|---|---|
| Task clarification | 1 2 3 4 5 6 |
| Problem solving discussion | 1 2 3 4 5 6 |
| Weekly graphic feedback | 1 2 3 4 5 6 |
| Corrective feedback | 1 2 3 4 5 6 |
| Praise and token | 1 2 3 4 5 6 |

## Social Validity Questionnaire

T. Merritt Dissertation

Most staff would find this intervention suitable for addressing their tardiness.

| | |
|---|---|
| Task clarification | 1 2 3 4 5 6 |
| Problem solving discussion | 1 2 3 4 5 6 |
| Weekly graphic feedback | 1 2 3 4 5 6 |
| Corrective feedback | 1 2 3 4 5 6 |
| Praise and token | 1 2 3 4 5 6 |

I would be willing to use this intervention again in the future.

| | |
|---|---|
| Task clarification | 1 2 3 4 5 6 |
| Problem solving discussion | 1 2 3 4 5 6 |
| Weekly graphic feedback | 1 2 3 4 5 6 |
| Corrective feedback | 1 2 3 4 5 6 |
| Praise and token | 1 2 3 4 5 6 |

This intervention would not result in negative side effects for staff.

| | |
|---|---|
| Task clarification | 1 2 3 4 5 6 |
| Problem solving discussion | 1 2 3 4 5 6 |
| Weekly graphic feedback | 1 2 3 4 5 6 |
| Corrective feedback | 1 2 3 4 5 6 |
| Praise and token | 1 2 3 4 5 6 |

The intervention is a fair way to handle my tardiness.

| | |
|---|---|
| Task clarification | 1 2 3 4 5 6 |
| Problem solving discussion | 1 2 3 4 5 6 |
| Weekly graphic feedback | 1 2 3 4 5 6 |
| Corrective feedback | 1 2 3 4 5 6 |
| Praise and token | 1 2 3 4 5 6 |

I would suggest this intervention for use with other staff.

| | |
|---|---|
| Task clarification | 1 2 3 4 5 6 |
| Problem solving discussion | 1 2 3 4 5 6 |
| Weekly graphic feedback | 1 2 3 4 5 6 |
| Corrective feedback | 1 2 3 4 5 6 |
| Praise and token | 1 2 3 4 5 6 |

I liked the procedures that were used in this intervention.

| | |
|---|---|
| Task clarification | 1 2 3 4 5 6 |
| Problem solving discussion | 1 2 3 4 5 6 |
| Weekly graphic feedback | 1 2 3 4 5 6 |
| Corrective feedback | 1 2 3 4 5 6 |
| Praise and token | 1 2 3 4 5 6 |

This intervention is a good way to handle issues related to tardiness.

| | |
|---|---|
| Task clarification | 1 2 3 4 5 6 |
| Problem solving discussion | 1 2 3 4 5 6 |
| Weekly graphic feedback | 1 2 3 4 5 6 |
| Corrective feedback | 1 2 3 4 5 6 |
| Praise and token | 1 2 3 4 5 6 |

Comments regarding this form or the intervention you experienced: