

The Use of the Performance Diagnostic Checklist-Human Services to Assess and
Improve the Job Performance of Individuals with Disabilities

by

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Abstract

Title: The Use of the Performance Diagnostic Checklist-Human Services to Assess and Improve the Job Performance of Individuals with Disabilities

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Employers often do not have the means to identify the specific variables that influence poor work performance, particularly for employees with disabilities. The Performance Diagnostic Checklist-Human Services (PDC-HS) is a tool designed to identify these variables and potential solutions to employee performance problems. Although the PDC-HS has been used with a variety of employees, it has not been examined for use with individuals with disabilities. This study evaluated the effectiveness of the PDC-HS with adults with disabilities in an integrated workforce, to increase the productivity of two employees when required to perform a pricing task. Results showed that the PDC-HS indicated that employee performance deficits were due to a lack of appropriate training in the work environment. A PDC-HS indicated intervention, training, was effective to increase accurate pricing.

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Dedication

To all of the individuals who have dedicated their lives to enriching the lives of others. For my sweet friend, Sarah, thank you for helping me find my passion, and for your continuous reminders of the importance of hard work and kindness

Chapter I:

Introduction

Although support from state legislators and employers of individuals with disabilities has dramatically increased over the last decade, nearly 76% of adults with intellectual disabilities are unemployed (Migliore, Mank, Grossi, & Rogan, 2007). Those who are employed often work in non-integrated settings such as sheltered workshops. Since the 1930's employment opportunities for individuals with disabilities have largely been limited to this type of setting (Migliore, 2007).

Sheltered workshops, which are also called workshops, industries, industrial workshops, training workshops, vocational workshops, and rehabilitation workshops, can be identified through the activities carried out by employees (Migliore, 2007). These include activities that are relatively easy to learn and perform, such as assembling, packing, piecemeal construction, and tasks associated with agriculture. The authors go on to explain that the majority of sheltered workshops pay their employees less than minimum wage, although benefits at some workshops such as job training and leisure events may partially make up for the low pay. Some view these sheltered workshops as places for individuals with disabilities to gain the skills necessary to perform well in an outside employment setting, however it is often the case that individuals who end up in these workshops stay for years or even decades. Migliore et al. (2007) suggest that these

workshops do not provide conditions, which prepare employees for regular jobs; therefore regular employers often do not hire them.

Opportunities for individuals with disabilities through integrated employment are less common than those at a sheltered workshop, and depending on the individual and specific jobs sought, training and supports may be necessary to gain and sustain integrated employment (Mavranouzouli, Megnin-Viggars, Cheema, Howlin, Baron-Cohen, Pilling, 2014). Previous research has indicated that integrated employment has advantages over sheltered opportunities such as better financial outcomes, increased opportunities for personal growth, higher satisfaction of families with people with disabilities, and greater social integration of people with disabilities in the community (Migliore, 2007). Access to assessment tools that have been demonstrated to be effective in identifying performance problems and suggesting appropriate interventions for employees in the workplace could increase the likelihood of employers hiring and retaining individuals with disabilities.

Individuals with Disabilities in the Workplace

Migliore et al. (2007) conducted a survey to investigate the preferences of adults with intellectual disabilities, their families, and staff in sheltered workshops. They surveyed 210 adults with disabilities from 28 workshops and their respective caregivers (N=185), as well as 224 staff members within the workshops at which the individuals worked. For each group a survey was developed which included a structured interview for

adults with disabilities and written surveys for families and staff members. Survey items focused on the decision to seek employment in the workshop, preferences about employment, and perceptions about their ability to perform in an outside employment setting. Families and staff also answered questions regarding these topics. Many people who support the idea of employing individuals with disabilities in an integrated workforce responded that they believe that individuals with disabilities can be successful and would prefer to work in an integrated workforce. However, they also believe that these employees require support (Migliore et al., 2007). Mawhood and Howlin (1999) found that individuals who participated in supported employment were more likely to find paid employment, yet the number of supported employment or sheltered workshop opportunities is limited and increasing these numbers would require significant financial resources. Nevertheless, economic analyses have indicated that supported employment is a cost-effective intervention for adults with autism and related disabilities, at least as compared to standard care in the United Kingdom (Mavranzouli, 2014).

Ellenkamp, Brouwers, Embregts, Joosen, and Weeghel (2015), focused on work-environment related factors, such as those that can be influenced by an employer or have to do with the work setting, that contribute to persons with disabilities obtaining and maintaining work in competitive employment. They searched five databases specifically looking for articles that included persons with intellectual disabilities in paid work,

competitive employment, or labor and supported employment. Of the 1,932 articles that met their search criteria, 26 met the inclusion criteria. Outcomes of studies reviewed were classified into four categories: (1) employer decisions and opinions; (2) job content requirement and performance; (3) interaction in workplace culture; and (4) support from job coaches. Of the 26 studies, five studies provided insight into prospective employers. These indicated that employers concerns when hiring individuals with disabilities are on safety, productivity, attendance, and the availability of supportive services for individuals.

A number of skills by individuals with intellectual disabilities have been targeted for improvement to increase chances for competitive employment. For example, it is been suggested that adults with autism spectrum disorder (ASD) lack the executive functioning (e.g., planning and self monitoring) skills necessary for success in an integrated employment position (Ozonoff, 2005). Some job placement programs focus on directly teaching these skills.

Organizational Behavior Management

The field of Organizational Behavior Management (OBM) has primarily focused on improving performance problems within the workplace for typical employees and employers. However, as employers begin to hire adults with disabilities and integrate their workforce, the diagnostic procedures and interventions used to address performance problems should be equally applicable to individuals with disabilities.

Performance analysis is the assessment portion of OBM. It is a process of problem solving based on behavioral approaches to management, and was developed to assist managers in assessing the environmental variables which contribute to performance problems in the workplace (Austin, 2000).

In order to pinpoint performance problems efficiently, several methods of performance analysis have been developed that allow a consultant or an employer to assess the likely causes of a problem performance and correct them using empirically based interventions. Specific methods for pinpointing performance problems can be grouped into one of three categories: informant methods, descriptive methods, and experimental methods. Informant methods of assessment for individual performance problems provide insight based on interviews with managers or supervisors within the organization. Descriptive methods of assessment utilize direct observation of the performance problem when it's occurring in order to determine the environmental factors contributing to the problem. Experimental methods of assessing performance problems have been developed within OBM; they require observation and manipulation of environmental factors in order to determine the environmental variables maintaining problematic performance.

The most common method of assessment is informant-based tools. One tool in particular has been developed to assess performance in a variety of settings. Based on a study that examined the process of question asking by experts and managers when problem solving in the workplace, Austin

(2000) developed the Performance Diagnostic Checklist (PDC). Questions were developed in four areas including antecedents (e.g., Are there job or task aids in the employees immediate environment?), equipment and processes (e.g., If equipment is required, is it reliable?), knowledge and skills (e.g., Can the employees physically demonstrate completion of the task? Have they mastered the task? If fluency is necessary, and are they fluent?), and consequences (e.g., Is there performance monitoring?).

The PDC has been examined in several studies since its initial development. Primarily, it has been applied in the retail, food, and service industries targeting cleaning and maintenance tasks. Austin, Weatherly, and Gravina (2005) used the PDC to evaluate employee performance at a privately owned restaurant. The authors were also interested in increasing the completion of cleaning tasks upon closing by staff members, and the PDC indicated that restaurant staff were unaware of the specific closing duties, and that there were few consequences delivered for completion of these duties. Based on these results, task clarification as well as task lists in the appropriate areas were developed and used with employees, and verbal along with graphed feedback were introduced by management to increase staff member cleaning completion.

The PDC and other diagnostic tools have been modified to meet the needs of different work environments. The Performance Diagnostic Checklist- Human Service (PDC-HS) was developed to evaluate the performance of employees who are responsible for the care and education of

others (Carr, Wilder, Majdalany, Mathisen, & Strain, 2013). The PDC-HS was developed as a tool to assess performance problems and determine appropriate interventions within clinics, schools, group homes, and sheltered workshops. Like the PDC, the PDC-HS also assesses the environmental determinants of poor employee performance, but in a human service setting. The PDC-HS consists of 20 questions, 13 based on interview and 7 based on direct observation of the performance problem, concentrated on various aspects of performance: training; task clarification and prompting; resources, materials and processes; and performance consequences, effort, and competition.

To assess the utility of the PDC-HS, Carr et al. (2013) used it at a university-based autism treatment center, where 15 staff members, who were graduate student employees, were required to clean and arrange their treatment rooms at the end of each treatment session. Cleaning duties were broken down into tasks and organized into checklists that were placed in the designated room for the checklist. Staff members were required to initial each cleaning task after they completed it, with the percentage of tasks correctly completed on the treatment room-cleaning checklist at the end of each day being the primary dependent variable. This meant that the task specified by the cleaning checklist needed to be completed as well as initialed to be considered complete. Following baseline data collection for the cleaning checklists, the PDC-HS was administered individually to three supervisors who had initially indicated issues with treatment room

cleanliness. Based on the results of the PDC-HS, interventions were developed in areas specific to training and performance consequences; treatment for this included training and posted, graphed feedback. In order to demonstrate that the intervention derived from the PDC-HS was more effective than an arbitrarily selected intervention, Carr et al. also introduced task clarification and increased availability of materials for two rooms at the center, before applying the training and posted, graphed feedback. For one room, it was reported that the baseline levels of cleaning tasks completed were around 18%. When the non-indicated interventions (task clarification and increased availability of materials) were applied there was a 12% increase in completion of cleaning tasks, but when the indicated interventions were applied (training and feedback) mean levels of cleaning tasks completed improved to 80%. These data suggest that the PDC-HS identified an effective intervention and that, without it, a less effective intervention might have been used.

In another study, Ditzian, Wilder, King, and Tanz (2015) utilized the PDC-HS with three supervisors and four staff members at a treatment center for children with autism. They targeted the problem of staff in the facility improperly securing therapy room doors, a problem that could lead to safety concerns. After collecting baseline data on door closing, Ditzian et al. administered the PDC-HS, which indicated that there were problems with a lack of consequences for employee performance. Based on these outcomes, an intervention was devised that utilized graphed feedback at the beginning

of each session. When the intervention was implemented, performance improved. Ditzian et al. also compared the effects of a non-indicated intervention for this problem with two employees, and demonstrated that this intervention, consisting of a written prompt, was ineffective. The outcomes of both of these studies suggest that informant assessment tools, such as the PDC-HS, may be a viable approach to performance analysis in many human service organizations.

Research on Peer Training among Individuals with Disabilities

There is little research on teaching individuals with disabilities to work with their peers, particularly in employment settings. In one study, Lerman, Hawkins, Hoffman, and Caccavale (2013) demonstrated that individuals with autism spectrum disorder (ASD) could learn how to implement discrete trial training (DTT) with young children with ASD, despite being required to perform skills that they might find difficult (e.g., sustained eye contact and multitasking). For the study, five adults with a diagnosis of Asperger syndrome or pervasive developmental disorder not otherwise specified participated in two experiments in which they were trained to work with young children with autism as behavior technicians. For both experiments the five adults worked with 11 children who had a diagnosis of ASD and attended an early intervention program.

For experiment 1, three adults were taught to implement incidental teaching (IT) for mand training with two children. The adult implementation of the IT procedure was evaluated by an independent observer who scored

each individual step of each IT trial; the dependent variable was the percentage of correct response components across all trials during the session, which lasted five minutes. The effects of training on accurate adult implementation of the IT procedure were evaluated in a multiple baseline design. During baseline sessions the participant was provided with all the materials necessary to run the IT procedure, and they were provided with the instruction “We need to know if our training will help you, so first we need to know how you would naturally teach the learner to ask for his toys (snacks)”. For training, the experimenter provided the participant with a written and verbal instruction for the IT procedure and modeled the correct use of the IT procedure with a research assistant using prepared scripts. The experimenter also answered any questions asked by the participant. Next, the participant engaged in role-play with the research assistant and provided feedback after each trial; this was repeated until the participant completed all response components correctly. Lerman et al. found that each participant required a total of three hours of training with the experimenter before meeting the criteria to work with children, and that for all participants implementation of the IT procedure increased following training and maintained with delayed feedback.

As an extension of experiment 1, experiment 2 was intended to teach adults with ASD to implement discrete trial training (DTT) with multiple children who engaged in problem behavior, and assess the possible emergence of generalization across targets during training. Similar to

experiment 1, a trained observer scored each component of the DTT procedure as correct, incorrect, or no opportunity per trial, and evaluated the outcome of training, which was structured in the same way as the training in experiment 1. Results of experiment 2 indicate that all four participants' performance of the DTT procedure increased to between 80% and 100% accuracy following training. Lerman et al. also demonstrated generalization of the procedure across targets and children for all four participants. Overall, these results demonstrate that the training strategies typically used with behavior technicians can be successful in training adults with ASD who are interested in employment opportunities.

Previous research has demonstrated the impact of supported employment and specific teaching strategies, such as video modeling and behavior skills training (BST) on the quality of life for individuals in supported employment settings. Despite legislation, the number of individuals with disabilities within the workforce is low and research on employees with disabilities in regular work settings has been minimal (Ellenkamp, 2015). It is clear that when employers consider hiring individuals with disabilities they are faced with the question of whether or not they can support and benefit from employing that individual. Research has yet to examine the use of the PDC-HS, a common OBM tool, to identify performance problems among individuals with disabilities in the workplace and support the development of these individuals. The current study examined the utility of the PDC-HS with adults with disabilities in the

workforce to assess performance problems exhibited by their peers. A second purpose was to evaluate a PDC-HS-based intervention to improve the job performance of individuals with disabilities in the workforce.

Chapter II

Method

Setting and Participants

The study was conducted at a privately owned and operated thrift shop, at which individuals with disabilities are employed and/or volunteer in order to gain on-the-job training and experience. These individuals had the support of managers, job coaches and other employees. The thrift shop has 9 employees and 30 volunteers who work in and across the different sections of the store including the furniture department, the clothing department and the café. Employee participants were recruited based on individual interest in gaining further on-the-job support, as well as from input by store managers and direct observation of employee performance. Six employees with disabilities and two managers/job coaches without disabilities participated. Employee participants included Bruce, Micheal, Sam, Taylor, Steve, and Penny. Employee participant ages ranged between 26 and 45 and all identified as having an intellectual disability, however the impact of each individual's disability varied. Bruce, Micheal, Sam, Taylor and Penny all had good language skills, communicating in fluid, multiple word sentences while remaining on topic. Steve communicated primarily by responding to initiations from others with 2 to 4 word responses. Steve's responses are sometimes unrelated to the conversation topic and are impeded by poor articulation. Each participant had received a high school diploma or equivalent certificate before seeking further job training at the

current location, with some concurrently receiving other training outside of their work in the shop.

For the purpose of the study, the participants were separated into dyads with one individual serving as the employee, the individual in need of performance improvement, and the other serving as the supervisor, responsible for observing behavior, completing the PDC-HS, and implementing the intervention; these roles were held constant throughout the investigation. Dyad 1 consisted of Micheal acting as the supervisor for Bruce. Dyad 2 consisted Taylor acting as the supervisor for Sam. Dyad 3 consisted of Penny supervising Steve. The supervisor of each dyad was selected based on job coach and store manager input as well as through direct observation of employee performance by the researcher, and all of the participants serving as supervisors had been paid employees of the thrift shop for between 1 and 2 years. These individuals had expressed interest in expanding their roles in the thrift shop to include employee management, and worked in positions in which they would likely supervise others.

Ruth and Arnold, store managers/job coaches working in the store, also participated. Ruth, a job coach who also managed the laundry room (where clothing pricing occurs) worked with dyads 1 and 2. Arnold, a manager who oversees the intake of donations, worked with dyad 3. Store manager involvement included identifying participants and assisting in data collection, as well as completing a PDC-HS questionnaire for each dyad they worked with. These data served as a measure of reliability with which

to compare the results of the supervisor assessment; the supervisor in each dyad and the store manager completed a PDC-HS.

Dependent Variables

Store managers and job coaches identified the behaviors that served as dependent variables. The employees in dyads 1 and 2 could price clothing for the sale floor, however both made repeated mistakes and did not meet the criterion necessary to sell the items. Thus, the dependent variable for dyads 1 and 2 was the accuracy of price tag completion. Price tags are required to have 5 pieces of information written on them, some of which must be written twice, once above and once below the tag's perforation, for receipt purposes. In order for an item of clothing to be considered accurately priced, 8 different spaces had to be completed accurately based on the item being priced. This included the following information above the perforation: 1) employee initials, 2) the date, 3) the gender/age of the item (men, women, kids), 4) the size of the item, and 5) the price. Information that was to be written below the perforation included the gender, the size, and the price of the item, all of which must again be written on the item's tag before it could be placed on sale.

For dyad 3, Steve did not reliably open the door for customers and employees when he was assigned to work as a door greeter. Door greeting was defined as any opportunity to open the front door of the store for customers and other employees as they approach the store entrance, and closing it after they had entered. If more than one person came through the

door at a time it was considered one opportunity until at least 5 seconds of the door being closed had passed before another person entered, marking the next opportunity (e.g., a group of two customers only counted as one opportunity).

Data Collection and Interobserver Agreement

Checklists describing all identified target behaviors were created for each of the two identified tasks, clothing pricing and door greeting (see Appendix A and B). Each checklist included 5-10 specific steps that the employee participant was required to complete in order to complete one opportunity of the task. For garment pricing the task list included each piece of information that the employee was required to write for one garment (described above). For door opening this was defined as opening the door each time a customer or an employee approached the front door to enter the shop, and holding it open until they were inside. The specific dependent variable for each was the percentage of independent correct task opportunities completed by each participant. Each session consisted of 10 opportunities (i.e., ten items of clothing, and ten greeting opportunities). Data were collected during or directly following the completion of each task by a trained data collector who recorded accuracy of task completion using the checklist created for each individual task.

Interobserver agreement (IOA) data were collected for at least 30% of sessions for each participant. To collect these data a second independent observer, trained on the data collection procedures, directly observed

participant performance. Some sessions were video recorded and/or permanent products were saved for review at a later date. IOA was determined by comparing data from two observers on a trial-by-trial basis. For dyad 1, IOA data were collected for 30% of sessions with 98% agreement. For dyad 2, IOA data were collected for 41% of sessions with 100% agreement. For dyad 3, IOA data were collected for 50% sessions with 100% agreement.

Experimental Design

A concurrent multiple baseline design across participants was used to evaluate the effectiveness of the PDC-HS indicated intervention for dyads 1 and 2. For dyad 3, a withdrawal design was attempted. However, issues with intervention implementation did not allow for treatment data to be collected following PDC-HS administration (see discussion); only baseline data were collected for dyad 3.

Procedure

After performance problems were identified for dyads 1 and 2, the acting supervisor of each dyad worked with the experimenter to create a single task analysis for clothing pricing; this task list was used with both dyads. Baseline data were then collected separately for each dyad. Baseline sessions were conducted by having each participant price 10 items of clothing at a time. All materials necessary to price items were provided. After pricing all of the items, regardless of accuracy, the employees were provided neutral feedback for task completion. All sessions for dyads 1 and

2 were conducted either in the laundry room of the thrift shop, where pricing typically occurs, or at a small table in the employee break room that is often used as a workspace if there is an overflow of items. After baseline data were collected, the PDC-HS (see Appendix C) was completed by the supervisor of dyads 1 and 2, Michael and Taylor, respectively. These supervisors each conducted direct observations of their employee's performance and the permanent products (i.e., priced items).

For dyad 3, the acting supervisor and the experimenter determined the definition of an appropriate greeting. Baseline data were collected on Steve's current performance as a door greeter. Sessions consisted of ten opportunities to open the door, no session lasted more than 15 minutes and opportunities occurred at least every 3 minutes. Store employees who regularly complete this task work in 30 minute continuous shifts. Following the completion for the baseline phase Penny and Arnold were administered the PDC-HS; both had directly observed Steve's performance and were familiar with his abilities.

PDC-HS

The store manager/job coach, Ruth, who worked with dyads 1 and 2 and directly observed Bruce and Sam's performance and permanent products, also completed the PDC-HS (see Appendix C) for each participant after the baseline phases for these dyads were completed. By having an acting supervisor and an actual store manager/job coach complete the PDC-HS for the same employee, the investigator was able to assess the reliability

of acting managers' assessment outcomes by comparing them with the current manager (see Figure 1).

Next, using the PDC-HS results, an intervention specific to the problem area for each dyad was designed and implemented. For dyads 1 and 2, the PDC-HS results indicated that clarifying the specifications of item pricing would likely improve employee performance. The experimenter designed a pricing training using a behavior skills training (BST) model for the acting supervisors to use with their employees. The supervisors were trained in how to deliver the training by the experimenter and treatment integrity data were collected on the supervisor's implementation of the training. The training consisted of step-by-step instructions to include the 8 pieces of information to be written on each price tag. After training was completed for each employee, participant treatment sessions were conducted to determine its effectiveness in improving item pricing. Treatment sessions were conducted identically to baseline sessions.

For dyad 3, PDC-HS results indicated a need for intervention using task clarification and prompting to improve Steve's performance. Several interventions were developed and probed to improve performance. However, due to time constraints, none of these were formally assessed.

Treatment Integrity

When the acting supervisor conducted the pricing training, the experimenter collected data on the accuracy of steps completed by the supervisor when delivering the training to the employee as a measure of

treatment integrity. Steps were specific to the different requirements of a price tag, as they fit within the BST model of tell, show, watch, review. The supervisors then implemented the training with the experimenter in analogue sessions until they could implement the training with 80% treatment integrity. The experimenter collected treatment integrity data on the supervisor's implementation of the training, using a task analysis while the supervisors delivered the training to the employee. Taylor implemented training for Sam with 100% treatment integrity. Michael implemented the same training with 68% treatment integrity despite meeting a minimum 80% probe prior to implementing. The experimenter was present to assist in Michael's training of Bruce. A visual inspection of the training components indicated that Michael did not provide accurate feedback to Bruce when Bruce made mistakes during the practice phases. For both dyads 1 and 2, employee participants were provided with between 2 and 5 practice pricing sessions in which they were provided immediate specific feedback, until performance improved to at least 80% independent accuracy within the training probe.

Social Validity

The social validity of the PDC-HS as an assessment tool for individuals with disabilities in the workplace was evaluated through the use of a questionnaire (see Appendix D) that was completed by the supervisors and managers following the completion of data collection. Questions were focused on the impact of peer assessment and intervention of a performance

problem, the perceived effect of the intervention on overall employability for individuals, and the intrusiveness of the assessment measure and the intervention.

Following the completion of data collection, the questionnaire was provided to each of the acting supervisors and managers who participated. All respondents indicated that they felt that they had an excellent understanding of the purpose of the PDC-HS. They also reported that they felt that they could easily implement the PDC-HS in a similar work setting, however one acting manager and one supervisor said that they were not sure if they would feel comfortable implementing an indicated intervention. All of those who completed the questionnaire agreed that the PDC-HS made a positive contribution to those employees with whom it was applied, and that all outcomes have had and will continue to have a positive impact on the business. For half of the respondents, it was reported that the changes made by the application of the PDC-HS and interventions were neither good nor bad for the employees and the company, while the other half reported that observed outcomes were a good or excellent change.

Chapter III

Results

Figure 1 depicts results of the PDC-HS for dyads 1 and 2 as completed by the acting supervisor and store manager/job coach. For both dyads, the PDC-HS indicated that training, or a need for training on how to accurately price items, was the main variable that was contributing to low levels of performance for both employees within the dyads (top two panels of Figure 1). For dyad 1, Micheal's (the acting supervisor) responses revealed that 75% of the questions in the *training* section suggested a problem. All of Ruth's responses to the *training* questions suggested a problem. The *consequences, effort, and competition* section was the second highest section for both Micheal and Ruth. For Micheal, 40% of the questions in the *consequences, effort and competition* section suggested a problem, and for Ruth, 20% of questions suggested a problem. For the sections *task clarification and prompting* and *resources, materials and processes*, both Micheal and Ruth indicated that 0% and 16% of questions, respectively, were problematic. Micheal and Ruth's responses matched in the *task clarification and prompting* and *resources, materials, and processes* sections of the PDC-HS. Their responses differed for question 2 of the *training* section, and question 3 of the *consequences, effort, and competition* section.

For dyad 2, 100% of the questions in the *training* section suggested a problem, as answered by Taylor (acting supervisor). Seventy five percent

of questions in the *training* section indicated a problem for Sam's pricing performance, according to Ruth (store manager). For Taylor and Ruth, 40% of the questions in the *task clarification and prompting* section suggested a problem. Sixteen percent of questions in the *resources, materials and processes* section suggested a problem, according to responses by both Taylor and Ruth. For the *consequences, effort and competition* section 20% and 60% indicated a problem, as suggested by Taylor and Ruth, respectively. Taylor and Ruth's responses matched in the *task clarification and prompting* and *resources, materials, and processes* sections of the PDC-HS. Their responses differed for question 2 of the *training* section, and questions 1, 3, and 5 of the *consequences, effort, and competition* section.

Figure 2 depicts results of the PDC-HS for dyad 3 based on questions answered by the acting supervisor and store manager/job coach. For Steve, the PDC-HS indicated that *task clarification and prompting* were the likely variables that were contributing to low levels of performance. For Penny (acting supervisor), 80% of the questions in the *task clarification and prompting* section suggested a problem. For Arnold, the store manager, 40% of questions in the *task clarification and prompting* section for Steve's door opening indicated a problem. Penny and Arnold both indicated that the *resources, materials, and processes* as well as the *consequences, effort, and competition* sections were likely not contributing to the problem performance. For Penny, 50% of the questions in the *training* section suggested a problem. For Arnold, 25% of questions in this section suggested

a problem. Penny and Arnold's responses matched in the *resources, materials, and processes* and *consequences, effort, and competition* sections of the PDC-HS. Their responses differed for question 3 of the *training* section, and questions 4 and 5 of the *task clarification and prompting* section.

Figure 3 depicts results of the treatment evaluation for dyads 1 and 2 on item pricing. Dyad 1 did not correctly price any items during baseline. During the intervention phase (i.e., following training), performance for dyad 1 ranged between 80-100% accuracy when pricing clothing items. The mean percentage of items priced correctly for dyad 1 was 90%. For dyad 2, baseline levels were also at zero as no items were correctly priced. Following training, pricing accuracy increased to 100% for the first session and maintained for the remainder of the investigation.

Baseline data for dyad 3 were between 0% and 20% of opportunities to open the door each session (see Figure 4). Multiple interventions were probed, however no improvement in performance was observed.

The social validity questionnaire results indicated that the PDC-HS was a useful assessment tool, with all participants responding to the question, "the PDC-HS is easily incorporated into the business" as excellent. Although there was no performance improvement for dyad 3, respondents to the social validity questionnaire all responded with excellent when asked, "to what extent were the changes that were made useful to the business?" All respondents also indicated that they felt that they could

accurately use the PDC-HS with a similar performance issue, with either excellent or good responses. However, two respondents reported that they were neutral, or unsure, as to whether or not they felt they had the necessary materials to implement an intervention, while the rest of the respondents indicated that they felt excellent about this.

Chapter IV

Discussion

The results of this study show that individuals with disabilities can accurately observe and assess performance within a work setting using the PDC-HS. This outcome was verified through the simultaneous completion of the PDC for the same employee by a non-disabled store manager. Results suggest that interventions indicated by the PDC-HS were successful for 2 out of 3 individuals with disabilities to improve problem performance in the workplace. This experiment demonstrated that with minimal training on how to administer and determine interventions based on PDC-HS outcomes, employers and employees with and without disabilities successfully assessed and improved performance without the need for additional personnel, such as a one-on-one job coach.

This study extended the findings of the applicability of the PDC-HS to another population of employees, specifically individuals with disabilities. The PDC-HS can provide supervisors with information about the variables in the work environment that contribute to inadequate employee performance, which may help to alleviate many of the documented concerns employers have when hiring an individual with a disability. If similar results are found in other work settings that employ individuals with disabilities, the PDC-HS might be used with this population in a variety of settings and could eventually help alleviate some of the overcrowding in sheltered workshops. By increasing the number of

employers employing individuals with disabilities, and by increasing the employability of the individuals with disabilities through training in a work setting, both businesses and the individuals themselves may benefit both financially and with regard to independence.

This study extended the findings of the applicability of the PDC-HS to another type of job task, clothing pricing. The task of clothing pricing is one that can be evaluated directly in person or indirectly through examination of permanent products. For this study, this allowed several managers and supervisors to review employee work with minimal interruption for the employee being assessed. This is an advantage of informant tools such as the PDC-HS; they allow managers to assess employee performance with minimal interruption of activities.

This study extended the applicability of PDC-HS indicated interventions for improving employee performance with a new population. Specifically, for two participants, a BST model to train accurate completion of clothing pricing was effective to improve performance. This intervention was shown to be socially valid by both supervisors who delivered the training, as well as by the store manager who participated with dyads 1 and 2.

Several PDC-HS indicated treatments were probed to improve Steve's (dyad 3) door greeting performance. Although a formal evaluation was not conducted, probes of various interventions suggest that they were ineffective. It is possible that the interventions that were indicated by the

PDC-HS were ineffective due to Steve's language abilities. In the current study, initially the acting supervisor was trained to implement directed rehearsal to increase performance, however in training sessions no progress was observed. When Steve was asked questions to assess his comprehension during training sessions he was only able to explain using 2-3 words. Following this attempted training probe, a dry erase board was added to the environment. That is, when the supervisor began the sessions she wrote something on the board to prompt Steve (e.g., "time to greet", or "opening the door"). However, it is not clear if Steve could read and comprehend the written directions. The addition of this environmental prompt did not improve Steve's performance.

Following the white board intervention probe, a green colored signal was added to increase the saliency of the written direction (i.e., the prompt was written on a neon green white board). No performance changes were seen with the addition of a colored signal to the greeting environment. In addition to pre-session directed rehearsal, and the presentation of the green signal, a bracelet (that was also green) was added to the intervention. This was added in another attempt to signal the requirement of engaging in opening the door when assigned to that task. Following the attempted use of the bracelet, the acting supervisor Penny began to engage the experimenter in conversations regarding her disappointments in the lack of progress, the experimenter noted that Penny's levels of enthusiasm and engagement decreased, and Penny began avoiding sessions.

Two other interventions were developed by the experimenter to improve Steve's performance. One included an audio signal, made by a remote motion sensor, prior to someone opening the door on his or her own (most stores have chimes that sound when the customer opens the door themselves; this signal was intended to engage Steve in opening the door prior to customer entry). Another intervention that was considered involved physical prompting and reinforcement delivery in addition to directed rehearsal. Both of these interventions were not implemented with Steve due to social validity concerns, specifically with regard to the use of physical prompting and tangible reinforcement, as well as due to the complexity of the interventions and the resources available to Penny, who was implementing the interventions along with completing her own daily tasks.

Penny was able to implement the intervention with no integrity errors. However, it was apparent to the investigator (based on questions and training interactions) that she was not prepared to break down the task even further as a job coach would, using strategies such as physical prompting. It was also noted that the time commitment interfered with her other assigned duties, given that sessions took 20-30 minutes to train and at least 15 minutes to collect data on performance.

Although Penny experienced some emotional responding throughout the course of probe sessions, she reported that she found the overall experience of working with Steve increased her confidence working with other employees in the shop and that she was interested in learning other

techniques for best supervising employees. Micheal and Taylor, the acting supervisors from dyads 1 and 2, also reported increased confidence in directing peers and other employees. These reports further support the use of OBM-based tools with individuals with disabilities as potentially increasing independence as well as confidence in the workplace.

Ineffective interventions within dyad 3 limit the results of this study, however this is not necessarily an indication that the results of the PDC-HS assessment of Steve's performance was inaccurate. It is possible that one or more of these interventions would have been effective had they been evaluated more formally. Since the experimenter interpreted the results of the PDC-HS and developed the interventions for each participant, it is unknown if the supervisors themselves would have been able to develop the interventions as indicated by the PDC-HS.

Another limitation of this study is the lack of consistently high levels of treatment integrity during the implementation of trainings delivered by the acting supervisors. Despite accurate assessment of the employee's performance using the PDC-HS, treatment integrity across supervisors varied. Additional training was necessary to increase treatment integrity to 80% before training resumed. Future research should examine the validity and effectiveness of peer applied interventions among individuals with disabilities, as well as the effectiveness of the suggested interventions of the PDC-HS with individuals with disabilities in analog as well as applied settings.

In settings such as the one in which the present investigation was conducted, the PDC-HS can provide individuals with disabilities the opportunity to evaluate and improve peer performance across a variety of tasks. This could create opportunities for individuals with disabilities to gain independence within the work place, while effectively engaging with peers to create a positive change for their companies, creating social opportunities these individuals lack (Migliore et al., 2007). Future research on this topic should examine other dependent variables, such as customer greeting, cash register operation, inventory counting, and cleaning tasks. It is possible that the PDC-HS will also be useful with these tasks. Future research should also examine the use of the PDC-HS among individuals with a variety of language skills.

Future research should continue to expand the applicability of existing OBM tools, and modify tools that have been successfully applied to best support the populations with who they are used. In the current study, the PDC-HS was utilized with a novel population of employees, individuals with disabilities. The tool was not initially intended for use with this population and although it was effective in improving the performance of two participants, the tool itself might best serve the population with some additional revisions. For example, future researchers who apply this tool with individuals with disabilities should consider modifying the complexity of the language used in each question. In the current study, the experimenter scored the assessment results and interpreted them to determine appropriate

areas for intervention. Future researchers should also attempt to simplify the scoring procedure, specifically the reverse scored questions, and consider including a simple explanation of each recommended intervention.

Specifically with interventions, future researchers may need to consider the use of other interventions that have been evaluated and used with the current population to improve performance, such as physical prompting and immediate delivery of tangible reinforcement.

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Figure 1. Results of the PDC-HS across acting supervisors and store manager for dyads 1 and 2.

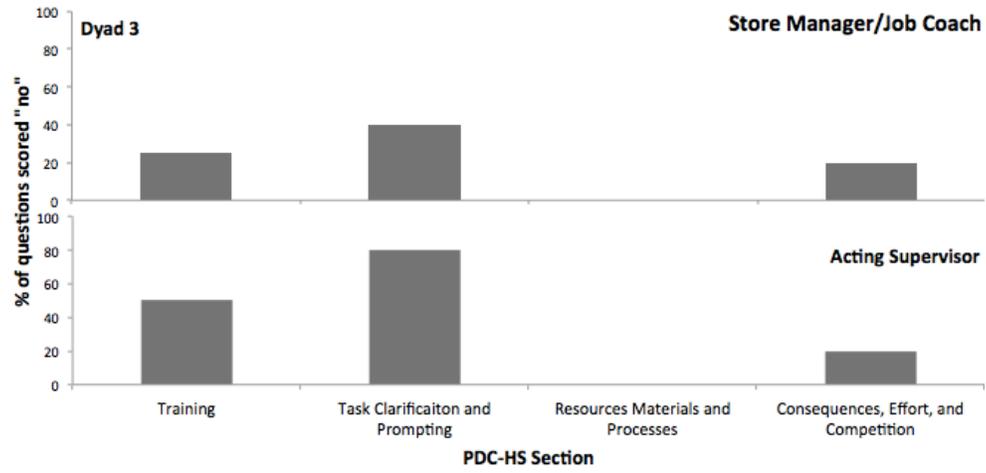


Figure 2. Results of the PDC-HS across the acting supervisor and store manager for dyad 3.

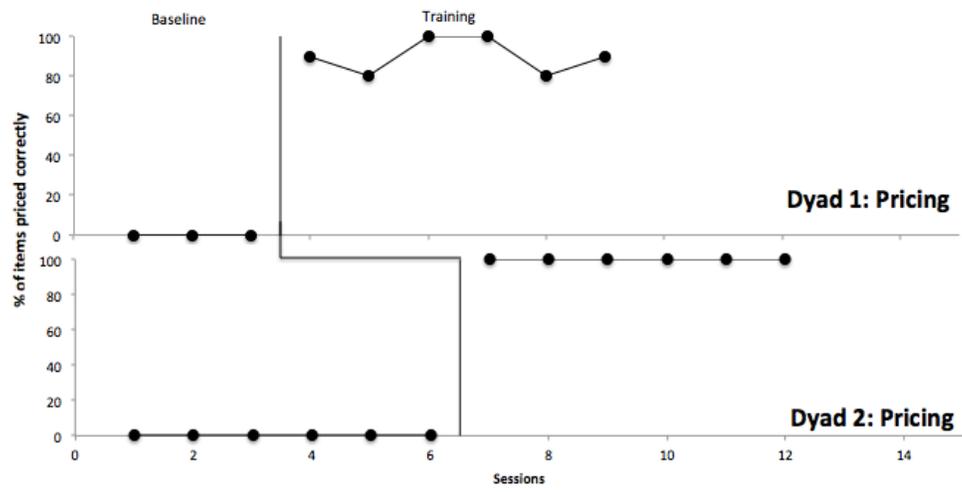


Figure 3. Baseline and intervention data for dyads 1 and 2.

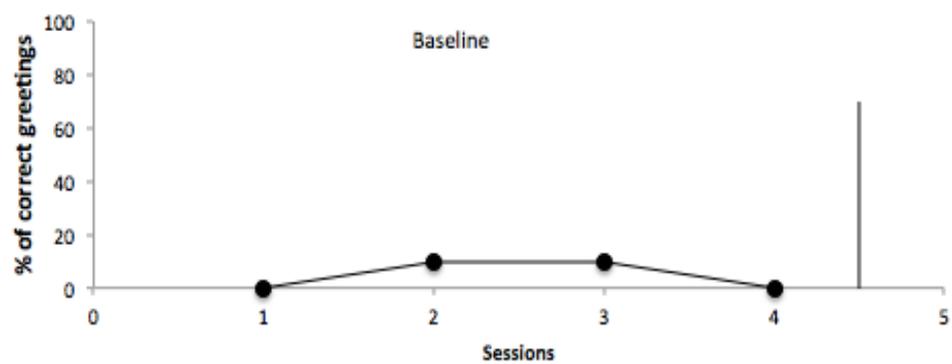


Figure 4. Baseline data for dyad 3.

Appendix A

Name of Collector: _____ Date: _____ Session #: _____
 Name of Pricer: _____ Time: _____ Phase: _____

Item Number	Date	Initial	Price		Size		Type		Tag	Is it able to go on the Floor?
	Location	Top	Top	Bottm	Top	Bottm	Top	Bottm	Varies	
1										Yes No
2										Yes No
3										Yes No
4										Yes No
5										Yes No
6										Yes No
7										Yes No
8										Yes No
9										Yes No
10										Yes No

Total Correct: _____

Appendix B

Tell Steve it is time to work the door, and model what he is supposed to do. Take data on the first 5 opportunities to open the door, either for customers or promisers. Put a (+) in the box if he opens the door independently, put a (-) if he does not open the door or does so incorrectly. **Do not give any directions or feedback**

Name of Collector: _____ Date: _____

Opportunity	1	2	3	4	5	Total
Open's Door						

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

TASK CLARIFICATION & PROMPTING

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

RESOURCES, MATERIALS, & PROCESSES

1	<input type="radio"/> Yes <input type="radio"/> No	Are there sufficient numbers of trained staff available in the program?
2*	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> N/A	<p>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.</p> <p>List materials below and indicate their availability.</p> <p>Item 1: _____ Item 2: _____</p> <p>Item 3: _____ Item 4: _____</p>
3*	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> N/A	Are the materials necessary to complete the task well designed for their intended purpose?
4*	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> N/A	Are the materials necessary to complete the task well organized for their intended purpose?
5	<input type="radio"/> Yes <input type="radio"/> No	<p>Can the task be completed without first completing other tasks?? If not, indicate below the tasks that must be completed first.</p> <p>Task 1: _____ Task 2: _____</p> <p>Task 3: _____ Task 4: _____</p>
6	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> N/A	<p>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.</p> <p>Task 1: _____ Task 2: _____</p> <p>Task 3: _____ Task 4: _____</p>

PERFORMANCE CONSEQUENCES, EFFORT, & COMPETITION

1	<input type="radio"/> Yes <input type="radio"/> No	Is the employee ever directly monitored by a supervisor? If so, indicate the frequency of monitoring.
---	---	---

		<input type="radio"/> hourly <input type="radio"/> daily <input type="radio"/> weekly <input type="radio"/> monthly <input type="radio"/> Other: _____
2	<input type="radio"/> Yes <input type="radio"/> No	Does the employee ever receive feedback about the performance? If yes, indicate below. By whom? _____ How often? _____ Delay from task? _____ Check all that apply: Feedback Focus: <input type="radio"/> Positive <input type="radio"/> Corrective Feedback Type: <input type="radio"/> Written <input type="radio"/> Verbal <input type="radio"/> Graphed <input type="radio"/> Other: _____
3	<input type="radio"/> Yes <input type="radio"/> No	Does the employee ever see the effects of accurate task completion? If yes, how? _____
4	<input type="radio"/> Yes <input type="radio"/> No	Is the task simple or does it involve relatively low response effort?
5	<input type="radio"/> Yes <input type="radio"/> No	Does the task generally take precedence over other potentially competing tasks? If not, indicate these competing tasks below. Task 1: _____ Task 2: _____ _____ 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) Improved personnel selection	<ul style="list-style-type: none"> • Barnes, Dunning, & Rehfeldt (2011) • Nabeyama & Sturmey (2010) • Gatewood, Feild, & Barrick (2008)

Task Clarification & Prompting	1, 2	Task clarification & checklists	<ul style="list-style-type: none"> • Cunningham & Austin (2007) • Gravina, VanWagner, & Austin (2008) • Bacon, Fulton, & Malott (1982)
	3, 4	Prompts	<ul style="list-style-type: none"> • May, Austin, & Dymond (2011) • Petscher & Bailey (2006)
	5	Change/alter task location	<ul style="list-style-type: none"> • Green, Reid, Passante, & Canipe (2008)
Resources, Materials, & Processes	1	Adjust staffing	<ul style="list-style-type: none"> • Strouse, Carroll-Hernandez, Sherman, & Sheldon (2003)
	2, 3, 4	Improve access to (2), redesign (3), or reorganize (4) task materials	<ul style="list-style-type: none"> • Casella, Wilder, Neidert, Rey, Compton & Chong (2010)
	5, 6	Reassess task process and personnel	<ul style="list-style-type: none"> • Diener, McGee, & Miguel (2009) • McGee & Diener (2010)
Performance Consequences, Effort, & Competition	1	Increased supervisor presence	<ul style="list-style-type: none"> • Brackett, Reid, & Green (2007) • Mozingo, Smith, Riordan, Reiss, & Bailey (2006)
	2	Performance feedback	<ul style="list-style-type: none"> • Arco (2008)
	3	Regularly highlight task outcomes	<ul style="list-style-type: none"> • Green, Rollyson, Passante, & Reid (2002)
	4	Reduce task effort	<ul style="list-style-type: none"> • Methot, Williams, Cummings, & Bradshaw (1996)
	5	Reduce aversive task properties	<ul style="list-style-type: none"> • Casella, Wilder, Neidert, Rey, Compton, & Chong (2010) • Green, Reid, Passante, & Canipe (2008)

Appendix D

Social Validity Questionnaire

PDC-HS and Training Questionnaire

As a supervisor and a member of the Thrift Shop Team, please reflect on your experience with the tool and intervention, specifically the *PDC-HS* and training, as you complete the following questions. Note: your responses are anonymous and will not affect your position. If you have any concerns please contact Madison Smith at Madison@fit.edu.

1	2	3	4	5	6
Excellent	Good	Neutral	Poor	Bad	Not Applicable

I understand what the PDC-HS is used for	1	2	3	4	5	6
What impact has this intervention had on the performance of those who were provided peer feedback?	1	2	3	4	5	6
What impact has the use of peer feedback had on the business?	1	2	3	4	5	6
The PDC-HS is easily incorporated into the business	1	2	3	4	5	6
I believe that I can accurately implement the PDC-HS in a similar business.	1	2	3	4	5	6
I have the necessary materials to implement the determined intervention accurately.	1	2	3	4	5	6
The time requirements of this are reasonable.	1	2	3	4	5	6
To what extent were the changes that were made useful for those your supervise?	1	2	3	4	5	6
To what extent were the changes that were made useful to you as an employee?	1	2	3	4	5	6
To what extent were the changes that were made useful to the business?	1	2	3	4	5	6

Please share any other information with us in the space below or on the back.
