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Trainee Perceptions of Structured On-the-Job Training (OJT): The Impact of Trainer Experience and Use of Structured OJT Guides

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Trainee Perceptions of Structured On-the-Job Training (OJT): The Impact of

Trainer Experience and Use of Structured OJT Guides

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Biography

The author was born in Philadelphia, Pennsylvania on February 3, 1992. She

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Table of Contents

List of Tables

List of Figures

Abstract

This research study investigated the influence of trainer experience on the trainer's use of directive behaviors and communication clarity in structured on-the-job training (OJT) and how those variables, in turn, impacted trainee perceptions. It was predicted that trainer experience would be positively related to trainer characteristics (directive behaviors and communication clarity), and that the use of structured OJT guides would have a conditional impact on this relationship. It was also predicted that trainer characteristics would be positively related to trainee perceptions. Finally, it was predicted that the conditional relationship of trainer experience and use of structured OJT guides would influence trainee perceptions via trainer characteristics. To test the hypotheses, data were collected from 76 current and recent technical trainees and trainers at electrical utilities across the United States and Canada. Trainer experience was found to not have a significant relationship with either directive behaviors or communication clarity. The use of structured OJT guides did, however, emerge as having a significant independent influence on trainer characteristics. Lastly, trainer characteristics (directive behaviors and communication clarity) were positive predictors of perceptions of the trainer and the overall training effectiveness. This study demonstrated that while experience may not be the most important factor for an OJT trainer to possess in terms of influencing the training session and perceptions of the trainee, the use of structured OJT guides is important for creating a productive and effective training environment.

Introduction

Training is a means by which knowledge transfer takes place in organizations (Kraiger, 2014) and is used to enhance individual (Blume et al., 2010), team (Salas et al., 2008) and organizational effectiveness (Sung & Choi, 2014). In today's world, the nature of work is rapidly changing due to the development of new technologies and training can help organizations adapt appropriately (Cascio & Montealegre, 2016; Montealegre & Cascio, 2017; Sartori et al., 2018). Particularly in highly regulated and technical industries, organizations have a great incentive to ensure their employees are properly trained to attain valued business outcomes such as quality, safety, productivity, and efficiency (Salas et al., 2012). Since organizations devote numerous resources to corporate training programs while also facing unprecedented technological changes and global competition (Cascio & Montealegre, 2016), there is a growing need to understand the factors and nuances that yield desired training outcomes.

One key aspect of training outcomes to consider is trainee perceptions (Sitzmann & Weinhardt, 2017). Positive perceptions of training enhance the relational aspects of the learning process and maximize the potential for training motivation and transfer (Kerssen-Griep et al., 2008; Witt & Kerssen-Griep, 2011). Information obtained from trainee perceptions of the trainer and training can also provide useful feedback for the design and improvement of training initiatives (Sitzmann & Weinhardt, 2017).

Training can be delivered through various methods; a very common approach used in many industries is on-the-job training (also known as OJT)

(Jacobs, 2014). On-the-job training delivers the content to be learned directly in the work setting via a trainer, therefore acting as a quicker mechanism for employees to acquire the appropriate knowledge, skills, and behavior for the job. OJT is less disruptive to organizational productivity compared to classroom or online training (Jacobs, 2003). On-the-job training is a widely used training intervention as it is strongly related to transfer of training and firm performance (Jacobs, 2003; Saks & Burke-Smalley, 2014). While research exists on OJT effectiveness (Choi et al., 2015; van der Klink & Streumer, 2002), less is known about how OJT trainer characteristics and OJT influences trainee perceptions.

One major issue that plagues organizations that conduct on-the-job training is the loss of valuable skills and knowledge from an aging experienced workforce as they retire (Burmeister & Deller, 2016; Joe et al., 2013; Sumbal et al., 2019). While this issue is relevant to all organizations that train new hires in some capacity, it is particularly salient for organizations that utilize OJT (Jacobs, 2003; Johnson & Leach, 2001). Business realities such as lack of funding to hire the "ideal" trainer usually force companies to find someone internally to train newcomers (Johnson & Leach, 2001). Frequently workplaces turn to the most experienced individuals (whether that be skilled mid-career employees or soon-to-be retirees) to provide formal and informal on-the-job training, as they are typically viewed as having more expertise and proficiency in their job functions (Johnson & Leach, 2001). These companies depend upon older and more experienced workers to act as on-the-job trainers and transfer their skills and knowledge to newcomers and trainees (Burmeister & Deller, 2016; Matuso,

2014). The dependence on internal SMEs to act as trainers is convenient for organizations, as finding experienced current employees is easier than hiring an outside resource (Johnson & Leach, 2001).

As these experienced trainers leave, they take with them their valuable skills and knowledge accrued over the years (Sumbal et al., 2019). This ultimately poses unique challenges and can negatively influence knowledge transfer capabilities as companies are left struggling to fill the gap with a new trainer who may not be as experienced (Calo, 2008; Hedge et al., 2006). While retirement in general is an issue that all organizations contend with (Burmeister & Deller, 2016), this loss of institutional knowledge is a bigger concern for organizations in today's world that operate in industries facing unprecedented technological advances and a shrinking skills base (DeLong, 2004). For example, electric (Lave et al., 2007), oil and gas (Sumbal et al., 2017), and manufacturing (Sumbal et al., 2019) industries all are currently experiencing this dilemma.

Training is more frequently being considered a two-way dynamic process between trainers and trainees, with trainers enacting a vital role as change agents for the organizations and facilitating the learning process to impact behavior (Analoui, 1994; Glerum et al., 2020; Steiner et al., 1991). Particularly in one-on-one training such as OJT, trainers have a direct influence on the learning process (Jacobs, 2017). OJT trainers are there to provide guidance, social support, and model effective behavior for the trainee during the learning process (Choi et al., 2015; Jacobs, 2003). Given the dilemma of experienced employees leaving (i.e., OJT trainers leaving) and the fact that the trainer has a major influence in the one-

on-one OJT process, there is a need to further explore how the trainer's experience impacts the training dynamic and the trainee's perceptions.

In much of the existing trainer literature, conclusions about trainer characteristics are often drawn from the educational (e.g., Kandiller & Ozler, 2015; Harris et al., 2014) and laboratory (e.g., Towler & Dipboye, 2006; Towler, 2009) contexts, not from OJT settings. Workplace learning and college-based learning processes are inherently different, however (Hodkinson, 2005). Therefore, there is a need to not only further explore structured OJT trainer characteristics but also to empirically examine the impact of the OJT trainer in real world organizational settings. Despite existing research, gaps in our understanding of the role of the trainer in training exist (Glerum et al., 2021). Several questions need further research. Does having more experience make someone a more effective on-the-job trainer in the eyes of the trainee? Do trainees view trainers who have had more experience as better OJT trainers?

Answers to these questions can help organizations understand how vital it is to have a highly experienced employee as the OJT trainer or if possession of other traits is more important. If experience is not necessarily the most important trait for an OJT trainer, then organizations can leverage the use of less experienced employees possessing other requisite characteristics as trainers.

This dissertation explores the role of trainer experience in the context of OJT by investigating the impact on trainer characteristics (use of directive behaviors and communication clarity) and trainee perceptions, with the use of structured OJT guides as a potential conditional variable.

First, an overview of on-the-job training is presented, including why it is commonly used in organizations and how experienced internal employees often are used as OJT trainers. An argument is made as to the importance of implementing a structured OJT methodology, versus an unstructured approach. This beginning section will highlight the importance of the trainer in the OJT context. Second, a discussion of experience is presented, including why it is a multifaceted and complex construct, why organizations highly value job experience, and how experience can both positively and negatively influence training. This dissertation will argue that the trainer's experience will be related to their use of directive behaviors and communication clarity during training and in turn ultimately impact trainee perceptions. The use of structured OJT guides as will be introduced as a moderating variable in these relationships.

On-the-Job Training

This research study specifically examines the trainer and trainee variables in the on-the-job training (OJT) setting. Contrary to classroom and online training courses that deliver the content in a separate setting, OJT utilizes an experienced job incumbent to transfer skills and knowledge to a trainee directly in the work environment in real time (Ahadi & Jacobs, 2017; Cerasoli et al., 2018; Johnson & Leach, 2001).

Scholars have developed practical guides on implementing on-the-job training in organizations (e.g., Johnson & Leach, 2001; Kim & Lee, 2001), however there is a paucity of empirical research specifically focused on on-the-job training (Matuso, 2014). The following sections explain why OJT is heavily

used in certain industries and organizations, the structured OJT methodology, and why a structured approach to OJT is needed.

Why OJT is Used in Organizations

On-the-job training is used for several reasons. First, training someone directly on the job may be more appropriate if it is difficult to simulate or communicate job-related information in a traditional training environment (Ahadi & Jacobs, 2017). Some jobs to be learned are better taught when the learner can interact with the task environment and experience the actual working conditions to gain mastery of the skill or job (Derouin et al., 2005). Particularly in industrial and technical industries such as electric system operations or product manufacturing, an on-the-job training program tends to be the most efficient and effective way to train new employees (Jacobs & Ba-Rahmah, 2012; van der Klink & Streumer, 2002). In these instances, training programs tend to be apprenticeship -based and are typically centered around the job task list; learning is centered around giving the trainee the ability to manipulate equipment, tools, data, and other resources to successfully perform these job tasks (i.e., task-based training) (Jacobs, 2003).

Another reason organizations utilize on-the-job training is because it is a highly effective method for bridging the gap between learning and actual behavior on the job, also known as training transfer (Grossman & Salas, 2011). Research has shown that the more similar the training environment is to the work setting, there will be an increase in transfer of training (Ford et al., 2018; Grossman & Salas, 2011; Hughes et al., 2018). Trained skills are much more likely to transfer

to job performance when they are learned and practiced in an environment that closely resembles the actual workplace (Hughes et al., 2018). High-fidelity simulations are also commonly used as they allow trainees to implement learned behaviors in an appropriate environment relevant to the job (Burke & Hutchins, 2007; Grossman & Salas, 2011).

Another reason OJT is commonly used is due to the swiftly changing workplace demands and technology organizations constantly face (Van der Klink & Streumer, 2002). Whether it is a new type of machinery, procedure, or software update, industries often need to get their employees up to speed and performance-ready quickly to keep pace with the dynamic changes of the work and demand for a more flexible and competent workforce (Van der Klink & Streumer, 2002). Employees are now expected to acquire the appropriate knowledge, skills, and abilities for the job in a relatively short period of time and OJT is a quicker mechanism to do so (Grossman & Salas, 2011; Salas & Stagl, 2009). It is usually not feasible or realistic for organizations to send their employees to a classroom or online training as they are more resource and time intensive. Rather than sending new hires and trainees to a classroom training or spending time taking an online course, new knowledge and skills can be acquired directly in the job setting via an OJT trainer, providing support for training transfer (De Grip & Sauermann, 2013; Kim & Lee, 2001; Van der Klink & Struemer, 2002). OJT can be deployed rapidly and is less likely to disrupt organizational productivity by taking individuals away from the desk or job site (Kim & Lee, 2001).

Lastly, OJT can indicate early skill deficits with trainees (Kraiger & Aguinis, 2001). Because employees are learning while "doing", trainers can directly see how quickly a trainee is acquiring the skill and knowledge and what areas need more time and attention. Training transfer, the notion of applying what is learned during training back on the job, is a primary concern for organizations (Ford et al., 2018). If a trainee is having issues applying the skills and knowledge during an OJT session, there is more opportunity for the trainer to intervene in real-time and provide feedback (e.g., Koskela & Palukka, 2011).

Structured vs. Unstructured On-the-Job Training

On-the-job training can be structured or unstructured (Jacobs, 2003). Most on-the-job training that occurs in organizations is more unstructured and informal; trainees learn through trial and error, observing someone perform the task without clear guidance, or from someone who may not be fully qualified or prepared to be a trainer (Jacobs, 2003; Jacobs, 2014; Williams, 2001). An unstructured approach to OJT is more informal and tends to be haphazard, such as job shadowing or the "sink or swim" method of letting employees perform the work without any proper training (Ahadi & Jacobs, 2017; Jacobs, 2014; Martin et al., 2014). While very common, unstructured OJT tends to lack clear instructions and proper practice time for trainees, both necessary components in workplace learning and training transfer (Bell & Kozlowski, 2002; Blume et al., 2017; Russ-Eft, 2002; Williams, 2001). When programs are completely unstructured, they may not be meeting the current training needs of the organization (Jacobs & Bu-Rahmah, 2012). A danger of utilizing an unstructured approach to training on-the-job is that the trainee's

learning is left to chance by what their given trainer decides is important to teach or their specific view of task performance instead of the ideal way a newcomer should learn.

Furthermore, an unstructured training approach may perpetuate bad habits if there is no proper criterion against which to evaluate learning and disseminate consistent information to new employees. Because it is not planned around the needs of the learner (Jacobs, 2003), trainees may feel anxious if their trainer does not consider their previous knowledge and experience (Lee, 2020; Martocchio, 1994; Warr & Downing, 2000). Most OJT efforts that are unstructured lack written documentation, a formal trainer selection process, and consistency in processes, materials, methods, and evaluation (Johnson & Leach, 2001; Matuso, 2014).

The Structured OJT (S-OJT) Methodology

When OJT is structured, there is a deliberate and planned process that typically involves the use of standardized guides or checklists, for example, learning objectives, and performance criteria to train and certify new employees (Ahadi & Jacobs, 2017). This methodology involves the trainer explaining the task to the learner, then the trainee is given the opportunity to practice via demonstration either in the job context or through simulation (Jacobs, 2003; Matuso, 2014). As part of this approach, the trainer provides specific, real-time feedback on the task performed (Choi et al., 2015; Jacobs & Jones, 1995). Following this methodology allows for consistency in training on job tasks (Choi

et al., 2015). However, as OJT typically is carried out on a one-on-one basis, it

can also be tailored to meet the trainee's needs, skills, and abilities (Jacobs, 2003).

Table 1

Technical Training Structured OJT Events (Jacobs, 2003)

Training Event	Training Activities
1. Prepare the trainee	a. Explain the purpose and rationale of the training. b. Determine whether the trainee has the prerequisites. c. Explain general safety and quality requirements. d. Explain how the training will be done. e. Ask if trainee has any questions about the training.
2. Present the training	a. Position the trainee. b. Present an overview of the operation, equipment, or workflow. c. Present an overview of the unit of work. d. Tell and show each behavior. e. Explain specific safety and quality points. f. Summarize the entire unit of work.
3. Require a response	a. Ask the trainee to provide an overview of the operation, equipment, or workflow. b. Ask the trainee to present an overview of the unit of work. c. Ask the trainee to tell and show each behavior. d. Ask the trainee to explain safety and quality points. e. Ask the trainee to summarize the entire unit of work.
4. Provide feedback	a. Inform the trainee about the adequacy of responses. b. Provide coaching and guidance at points of error. c. Point out embedded cues in the work setting.
5. Evaluate performance	a. Evaluate the trainee's self-report. b. Evaluate performance test results. c. Document the trainee's performance.

According to Jacobs (2003), there are five key training events in the

structured OJT process: preparing the trainee, presenting the content, requiring a

response, providing feedback, and evaluating performance. A detailed list of

actions provided by Jacobs (2003) involved in this process is listed in Table 1.

There are other models of how to implement a structured on-the-job training process (such as that outlined by Rothwell and Kazanas, 2004), however these other iterations have essentially the same steps and events. Carrying out these training events involves many elements necessary for adult learning such as gaining attention, informing learners of objective, and providing learning guidance and feedback (Driscoll, 2000).

Social learning theory can help explain the effectiveness of on-the-job training (Bandura, 1971, 1977, 1986). Social learning theory suggests human behavior is influenced not just by thoughts and affect but also by observation and direct experience (Bandura, 1977). Training an individual on-the-job using a structured approach introduces the trainee to the task or topic, provides them an opportunity to observe ideal performance, and then gives them the opportunity to practice in real-time, with the trainer giving feedback on the skills learned along the way (Latham & Saari, 1979; Wexley & Latham, 1991).

The Use of Experienced Incumbents as OJT Trainers

Often OJT typically is not carried out by professional trainers with a background in adult learning and instructional design, but rather incumbents or managers who may not have the necessarily skills to plan and execute training effectively (Johnson & Leach, 2001; Williams, 2001; McGuire & Gubbins, 2010). Many organizations use incumbent employees for OJT, defined as individuals that currently perform the job or have performed the job in the past (Johnson & Leach, 2001; McGuire & Gubbins, 2010; Williams, 2001). Incumbent experienced

employees are commonly used in OJT, as converting a resident employee into a trainer saves time and money for organizations (Jacobs, 2003).

Organizations highly value knowledge and experience (Bunderson, 2003; Ericsson et al., 2007; Salas & Rosen, 2010; Treem, 2016), which are often the main criteria for finding an OJT trainer. While experience does not guarantee that an individual will become an expert (Persky & Robinson, 2017; Ericsson et al., 2007), work or job experience is often used as a proxy for domain expertise (Dreyfus & Dreyfus, 1986). In other words, organizations may just look for the individual who is the most experienced to be an on-the-job trainer rather than find an expert.

In most companies, "experience" is viewed simply as a time-based construct; with the passage of time comes the buildup of job-related knowledge (Quiñones et al., 1995; Tesluk & Jacobs, 1998). However, operationalizing experience just using job or organizational tenure alone "ignores the fact that individuals with equal amounts of tenure in the same job can differ considerably with respect to the content, quality, and breadth of their experiences" (De Pater et al., 2009, p. 298). Recent research suggests that it is necessary to examine other factors of experience rather than just number of years in a position (Huang, Chen, & Lai, 2013; Quiñones, 2004; Quiñones et al., 1995; Tesluk & Jacobs, 1998). The next section discusses work experience as a multidimensional construct and the implications for its measurement.

Defining and Measuring Work Experience

How do we define work experience? As a concept, work experience refers to the accumulation over time of work-related and job-specific knowledge and skills (Dierdorff & Surface, 2008; Quiñones et al., 1995; Tesluk & Jacobs, 1998). The construct of experience seems straightforward; however, researchers have posited that is multifaceted and complex and cannot be measured simply via job tenure (Quiñones et al., 1995; Quiñones, 2004; Tesluk & Jacobs, 1998).

Much research uses job tenure, organizational tenure, and seniority interchangeably, yet a closer examination of the variable suggests that it can vary by level of specification (e.g., task, job, work group, organization) as well as measurement (e.g., amount, time, type, density) (Quiñones et al., 1995; Quiñones, 2004; Tesluk & Jacobs, 1998). Work experience can also be measured in terms of quantity (amount) as well as quality (type and breadth) (Tesluk & Jacobs, 1998).

Job experience, for example, is a distinct type of experience compared to task experience or organizational experience. Job experience is usually measured via job tenure, the number of years within the current job role (Ford, Quinones, Sego, & Sorra, 1992). Organizational experience, a separate component of experience, provides knowledge of a company's values and expected behaviors necessary to assume an organizational role (Tesluk & Jacobs, 1998). The literature on organizational socialization helps explain how one accumulates organizationally specific experiences (Chatman, 1991; Feldman, 1976; Van Maanen & Schein, 1979). Organizational socialization enables employees to function within an organization's culture by becoming familiar with the systems

and processes and developing relationships with coworkers (Chatman, 1991; Feldman, 1976; Van Maanen & Schein, 1979). Therefore, one with experience within the same organization should be more knowledgeable about procedures and processes compared to someone who recently started the same job. Alternatively, employees who have worked in an organization for a long period of time may still have low job or group tenure if they have had frequent promotions or transfers over the years.

Tesluk & Jacobs (1998) argued that experiences may influence individuals differently, depending on the type and timing of those experiences. While akin to organizational experience, job experience can be accrued not simply by the passage of time, but also through shorter term job training and job rotation assignments. Especially when it comes to higher-level jobs, "experience should reflect the challenges and interactions that accrue above and beyond what is acquired through simple continued practice" (Tesluk & Jacobs, 1998; p. 325).

For this dissertation, experience will be operationalized using a composite of a few measures. Job tenure and organizational tenure data will be collected. Because today's worker changes organizations often, industry experience will also be collected. Time is one of the measurement modes identified by Quiñones et al. (1995) and this study will collect trainer information at the job, organization, and industry levels of specificity.

In addition to the quantitative measures, a qualitative component will be included to capture the types of experiences individuals have in their jobs (Tesluk & Jacobs, 1998). Tesluk and Jacobs (1998) proposed that qualitative components

such as task variety, challenge, and complexity, may have a distinct effect relative to tenure on outcomes. Such components should be considered because it may indicate that a trainer with better quality experiences (not quantity) is different in the eyes of the trainee from another trainer with an otherwise equivalent amount of experience.

Challenging job experiences have been shown to contribute to employees' career development and promotability (Davies & Easterby-Smith, 1984; De Pater et al., 2009). Challenging job experiences can be defined as situations in which novel thinking is required and provide individuals with an opportunity to learn and develop new skills, abilities, insights, knowledge, and values (Davies & Easterby-Smith, 1984; De Pater et al., 2009; McCauley et al., 1994). According to De Pater et al. (2009), employee's likelihood of promotability was influenced by degree of time spent on challenging tasks over and above job tenure.

The extent to which OJT trainers have had challenging job experiences may be a more appropriate indicator of trainer effectiveness (according to the trainees' perceptions) as tenure alone will not necessarily reflect the development of expertise and broader skills (Harris et al., 2006). Job challenge could influence trainee perceptions because trainees may conceive an OJT trainer who takes on difficult tasks as someone who is more competent and capable. This assumption is supported by signaling theory (Bliege Bird & Smith, 2005; Spence, 1973), which suggests that individuals rely on observable characteristics and qualities to interpret others' behavior and disposition. Performing challenging tasks can be

considered a signal to trainees, and therefore may indirectly influence trainee perceptions.

Experience as an Asset

Research from the domain of cognitive psychology can help explain why work experience is a prioritized trait in the selection of OJT trainers. Experience is an important part of expertise development (Cornford & Athanasou, 1995; Kuhlman & Ardichvili, 2015; Salas & Rosen, 2010). While experience alone does not guarantee that one will become an expert (Ericsson et al., 2007), many organizations confound the two variables and thus place an emphasis on experience, particularly time-based measures (i.e., job tenure, organizational tenure).

There are many reasons why experience is a beneficial and ideal characteristic in a trainer. Development of expertise involves deliberate practice over time (i.e., experience on the job), occurring over several stages (Persky & Robinson, 2017). These goal-directed and sustained efforts enable individuals to gradually acquire highly specialized competencies (Ullén et al., 2016). Experience allows employees to build complex domain schemas and a broader knowledge base (Swanson & Falkman, 1997). This means that they have a greater array of situations to reference and apply to novel settings. Highly experienced individuals who are considered to have expertise tend to be advanced problem solvers due to the fact they have crafted their job over time and can interconnect many pieces of knowledge (Swanson & Falkman, 1997). A substantial knowledge base accrued

over time leads to better problem solving and performance (Persky & Robinson, 2017).

Also, possession of technical expertise can influence trainee perceptions, such as the trainer's credibility (Trautman & Klein, 1993). Arghode and Wang (2015) found in their collective case study that a competent trainer is one with subject matter expertise, and demonstration of competence impacted trainee engagement. Ghosh and colleagues (2012) found that trainer explanation of concepts were significant predictors of trainee satisfaction.

Experience as a Deficit

Alternatively, prioritizing work experience in the search for an OJT trainer may possibly not be what is best for the learning of the trainee (Johnson & Leach, 2001). While there is research demonstrating the value of experience and expertise for employee performance (Ertmer et al., 2008), several have suggested that experience may have unfavorable consequences in the learning context (Dane, 2010; Desai, 2022; Fisher & Keil, 2016; Kalyuga, 2007; Trinh, 2019).

With experience comes differing perspectives and perceptions about the job, and therefore could impact how someone is as a trainer. Research from the job and task analysis (JTA) and training needs analysis (TNA) literature has revealed that incumbent job experience, among a variety of other factors, may influence how the job is perceived (Dierdorff & Surface, 2007; DuVernet et al., 2015). Incumbents may have different perceptions and perspectives of the job position in question, which can shape the way they rate and describe the work (Aamodt et al., 1982; Dierdorff & Surface, 2007; Morgeson & Campion, 1997;

Morgeson & Dierdorff, 2010). For example, job incumbents may have difficulty verbally describing tasks or lack motivation in providing reliable information (Morgeson & Dierdorff, 2010).

Secondly, with experience comes automation of overlearned processes. The heuristic shortcuts experienced individuals develop on how to perform a task may interfere with their ability to effectively communicate with and train a novice. Richman and Quiñones (1996) indicate that those less experienced with a task may be more accurate in estimating task frequency than those more experienced due to differences in cognitive processing; the authors propose that more experience with a task leads to more automatic processing of information (Richman & Quiñones, 1996). Just as experience does not guarantee that someone is an expert, possessing expertise and experience does not guarantee that an OJT trainer is proficient in teaching novices. The efficiency and complex knowledge OJT trainers have accumulated over the years may in fact make it more difficult to articulate processes and thinking strategies to trainees since it has become so intuitive (Persky & Robinson, 2017).

Large gaps in expertise between trainers (i.e., experts) and trainees (i.e., non-experts) can negatively impact knowledge transfer effectiveness (Chung et al., 2014). Strong knowledge in a domain or job may lead an individual to overestimate potential performance by a non-expert (Tverskey & Kahneman, 1973). Studies from the job and task analysis and training needs analysis domains reveal that task and job experience have an impact on the task analysis rating process (Dierdorff & Surface, 2007; Ford et al., 1993; Tross & Mauer, 2000). A

study by Hinds (1999), in which experts and non-experts had to provide time predictions for how long a non-expert would require to complete a given task, showed that non-experts were much more accurate in predicting how long the task would take to perform. These results suggest that experts have a more difficult time in envisioning non-expert performance (Camerer et al., 1989; Hinds, 1999).

In addition to automation of learned processes, experience and expertise are also associated with cognitive inflexibility (Canas et al., 2006; Frensch & Sternberg, 1989; Lewandowsky & Thomas, 2015). Cognitive inflexibility is another metacognitive bias which may prevent a smooth training process between an OJT trainer and trainee. When strong domain knowledge and expertise exists, it promotes a more fixed mental set, leading to more experienced individuals struggling to solve problems correctly (Wiley, 1998).

Differences in cognitive mental sets and learned processes can impact communication effectiveness and knowledge transfer between trainers and trainees. Experts may use jargon in work communication and, more generally, expert explanations can lack clarity (Eppler, 2007; Nückles et al., 2006; Wittwer et al., 2007).

Trainer Experience with Conducting OJT

Researchers have posited that certain competencies are essential for workplace trainers (Gauld & Miller, 2004; Kalargyrou & Woods, 2010; Leach, 1996; Ricks, Jr. et al., 2008). This dissertation will argue that the more training experiences an individual has as a trainer will lead to the accrual of these competencies. Selecting OJT trainers solely based on their job or organizational

tenure ignores the importance of many instructor-related skills needed to successfully guide the learning of the trainee (Johnson & Leach, 2001). It is important for trainers to not only possess the skills and expertise required for the job, but also possess competencies related to effective communication and social interaction (Leach, 1996).

A study by Leach (1996) found that exemplary trainers were the individuals who were able to translate their espoused personal characteristics into discrete tangible behaviors such as responsiveness, enthusiasm, and flexibility. Trainers who have training and teaching experience are more likely to know the difficulties trainees encounter when learning and are better at assessing trainees' existing knowledge (Persky & Robinson, 2017).

Gauld and Miller (2004) had trainers rate themselves on 20 trainer competencies such as active listening and providing positive reinforcement. Interestingly, most of the trainers (71.1%) did not feel that extensive knowledge of the subject was needed to be effective at the trainer role (Gauld & Miller, 2004). The results of this study suggest that there are other more important factors that contribute to trainer effectiveness.

Authors have examined various factors influencing training effectiveness from the perspective of the trainer, such as trainer directiveness (Harris et al., 2014), charisma (Towler et al., 2014), reputation (Towler & Dipboye, 2006), and expressiveness (Rangel et al., 2015; Towler & Dipboye, 2001). However, there is little evidence of how trainer training experience is specifically related to training outcomes. Of the current research on trainer characteristics, several research

studies used a qualitative approach for their research questions (e.g., Freitas & Silva, 2017; Hutchins, 2009; Hutchins et al., 2010), while other research reviews and suggests ideas for practical implication (e.g., Analoui, 1994; Williams, 2001). This dissertation posits that training experience (i.e., experience with conducting OJT as a trainer) will be related to training session characteristics.

Trainee Perceptions

Trainee perceptions of the trainer and the training have been found to be an indicator of key training outcomes (Glerum et al., 2021; Holladay & Quiñones, 2008; Sitzmann & Weinhardt, 2019). A meta-analysis conducted by Sitzmann and colleagues (2008) revealed that trainee reactions significantly predicted changes in motivation and self-efficacy from pre- to post-training. Motivation and self-efficacy are key indicators of trainee learning and retention as well as the conditions for knowledge transfer (Grossman & Salas, 2011).

According to Steiner and colleagues' (1991) attribution model of training, trainers and trainees make attributions about each other based on observable characteristics which in turn impact their behavior and reactions during training. As suggested by this model, trainees' reactions and perceptions of the trainer and training environment should be affected by their attributions. This research study will focus on the trainee perceptions of the trainer's credibility, trainer effectiveness, and overall training effectiveness.

Trainee perceptions of trainer credibility may possibly influence their own learning and training transfer. Instructor or trainer credibility has been conceptualized as a three-dimensional construct consisting of competence,

character, and caring (McCroskey & Teven, 1999). Competence refers to the perceived knowledge and expertise held by the trainer, character is the perceived honesty and trustworthiness, and goodwill is the extent to which a trainer demonstrates concern for the trainees' best interests (McCroskey & Teven, 1999). In the research literature, trainer and instructor credibility has been shown to have a consistent and moderate association with student and trainee learning outcomes (Finn et al., 2009; Schrodt et al., 2009). Harris et al. (2014) used trainee perceptions of trainer competence to investigate the relationships between the trainee's perceptions, trainees' motivational orientations, and satisfaction with the training. Results from this study indicated that the trainees' satisfaction is indeed a function of the trainer's competence, in addition to the trainees' motivational orientation (Harris et al., 2014).

Trainer Characteristics: Directive Behaviors and Communication Clarity

Both trainee and trainer individual characteristics influence behaviors and reactions during training (Holladay & Quiñones, 2008; Steiner et al., 1991), therefore when considering the role of trainer experience in training it is necessary to explore how those factors influence the trainer's behavior. Two factors of focus in this study are the trainer's use of directive behaviors and communication clarity.

A trainee's learning is highly dependent upon the instructional experience itself (Marcus & Shoham, 2014). Researchers have shown that trainer behaviors and delivery style in training plays an important role in influencing training outcomes such as trainee reactions and predicting training transfer (Brown et al.,

2005; Grohmann et al., 2014; Rangel et al., 2015; Towler & Dipboye, 2001). The sections below further outline these variables and why they are necessary to consider for OJT. First presented is the trainer's use of directive behaviors.

Trainer Use of Directive Behaviors

Trainers affect how trainees digest training content based on the training method, their teaching style, techniques, etc. (Ford et al., 2018; Grossman et al., 2013; Rangel et al., 2015; Towler, 2009). Effective assimilation of training content by trainees is critical for training transfer. One way learning can be enhanced is through the trainer's use of directive behaviors during structured OJT. Harris and colleagues (2014) defined trainer directiveness, the use of directive behaviors, as "the use of behaviors that aim to structure learning, clearly outline goals and provide feedback to trainees" (Harris et al., 2014, pg. 333). Trainer directive behaviors involve cueing the learner on task requirements, something critical for doing OJT on technical tasks. Trainer directiveness has been shown to have significant relationships with both training transfer and satisfaction (Harris et al., 2014). However, this construct has only been examined in the classroom setting and not in the context of OJT. During OJT, monitoring trainee progress, providing concrete feedback, tying the learning to the training objectives, and incorporating reflection are important actions to be taken by the trainer and can be represented via trainer directiveness (Matsuo, 2014).

There are several benefits to the use of directive behaviors by trainers. When trainers exhibited directive behaviors such as cognitive rehearsal and behavioral practice during training, the trainees became more engaged (Towler,

2009) and had higher learning and performance scores (Burke & Hutchins, 2007; Holladay & Quiñones, 2003). The use of directive behaviors, or a directive style, facilitates a more structured environment for the learner because it involves cueing the task requirements, monitoring performance, and providing meaningful feedback (MacKeracher, 2004; Wheelan, 1990). A directive approach aligns with the structured OJT methodology because it involves providing step-by-step instruction and guided feedback, which may be valuable and embraced by trainees who are learning a highly technical subject (Berghmans et al., 2012).

Prior studies have shown that when trainers incorporate cognitive rehearsal and behavioral practice (which is a core part of the structured OJT methodology), learning had a significant and positive relationship with training outcomes (e.g., Holladay & Quiñones, 2003). Likewise, providing feedback, reinforcement and remediation opportunities during learning resulted in significantly higher transfer scores on a work task (Lee and Kahnweiler, 2000).

It is predicted that a trainer's experience with conducting OJT will enhance the relationship between trainer job experience and trainer directive behaviors because more experience providing OJT training allows for a trainer to practice and refine their teaching process over time and see the positive impact of directive behaviors. The trainer's style and behaviors during the training may be a coachable attribute (Harris et al., 2014). If trainer directive behaviors are found to be an important part of influencing training effectiveness in structured OJT, then organizations who do not have the bandwidth to choose their own trainers can instead coach them on incorporating directiveness into their training sessions.

Trainer Communication Clarity

Trainer communication clarity is also expected to be related to a trainer's job experience and OJT experience. Research from the education field has shown that a teacher's clarity enhances the students learning and is a necessary condition for students to cognitively engage in a task (Bolkan, 2017; Chesebro, 2003; Seidel et al., 2010; Titsworth et al., 2015). When trainers and instructors are clear in their communication, the trainees and students are more likely to comprehend intended meaning (Chesebro, 2003; Chesebro & McCroskey, 1998, 2001; Powell & Harville, 1990).

Chesebro and McCroskey (1998) define instructor clarity as "the process by which an instructor is able to effectively stimulate the desired meaning of course content…through the use of appropriate structured" materials (Chesebro & McCroskey, 1998, p. 262). As Bandura's social learning theory (1971, 1977, 1986) indicates, in the learning process individuals are creating mental models of the information that is presented during training and integrating these mental models with their current base of knowledge.

It is predicted that trainer OJT experience will also enhance the relationship between trainer job experience and communication clarity because having had experience conducting OJT with other trainees previously allows for the trainer to become more confident and clearer in their communication style and delivery with trainees.

The Structured OJT Guide

The use of a structured OJT guide can potentially play a role in the effectiveness of a training session. A structured OJT guide may help mitigate against the negative effects of a trainer's job experience on training a new hire by scaffolding the learning and reducing the chances of the trainer teaching irrelevant or extraneous content. In other words, the structured OJT guide acts as a framework for the OJT session that outlines exactly the content that is needed to be learned.

As indicated previously, while job experience is highly valued by organizations and contributes to expertise, often experienced individuals have difficulty teaching novices due to differences in mental models of the job tasks (Aamodt et al., 1982; Dierdorff & Surface, 2007; Morgeson & Campion, 1997; Morgeson & Dierdorff, 2010), automation of learned processes (Richman & Quinones, 1996), cognitive inflexibility (Canas et al., 2006; Frensch & Sternberg, 1989; Lewandowsky & Thomas, 2015), and misjudgment of a trainee's capabilities (Camerer et al., 1989; Hinds, 1999).

Akin to a course lesson plan, the structured OJT guide outlines the learning objectives, task steps, and task details (i.e., conditions, tools used, procedures, criteria) for a given job task that aids the learning process. An example of an OJT guide for technical task-based training is represented in Figure 1 below.

Figure 1

Structured On-the-Job Training Guide Example

All information captured on an OJT guide is based on a job task analysis (JTA)

of the job position, information derived from subject matter expert input

(Morgeson & Campion, 2000; Schraagen, 2009). The task statement states the job

responsibility to be learned during the OJT session. It provides a clear objective to

both the trainee and trainer and thus helps ensure that the OJT training is

structured. It provides a focus for the training activity. The conditions, or

initiation cues, of when a task should be performed are also included on an OJT

guide in addition to the tools used to perform the task. An OJT guide should list

any applicable company, regional, national procedures or standards that govern

performance of the given task. The criteria documented on an OJT guide state the

rules or principles for assessing whether a task has been successfully completed.

A criterion may reflect a time limit or quantitative value (e.g., "Transmission

system is returned to within SOL or IROL limits within 30 minutes", or a process

(e.g., "Corrective actions initiated." Task steps on an OJT guide describe the

sequence of actions that need to be taken to complete the task. The elements

included on an OJT guide are summarized in Table 2.

Table 2

Components of an OJT Guide

OJT Guide Component	Description/Purpose	Example
Task Statement	The job responsibility to be learned during the OJT session.	As outgoing system operator, provide complete, accurate information on system status to incoming shift
Conditions	The initiating cues for the task, indicating when a task should be performed and what current circumstances could trigger a required action. There may be multiple conditions for a given task.	At the end of the shift
Tools	The tools required to perform the task.	Shift Turnover Log Email
References	User manuals, job aids, or other types of documents that may be used when performing a given task.	Shift Turnover Log job aid
Procedures	Controlled company, regional, or national standards that govern performance of the task.	PowerCo Shift Change procedure
Criteria	The rules or principles for assessing whether a task has been successfully completed.	All relevant information has been updated and alarms have been cleared prior to leaving and pertinent information has been relayed to incoming shift
Learning Objectives	The skill and knowledge required for the trainee to perform the task accurately.	Describe the outgoing operator's shift turnover responsibilities
Task Steps	The sequence of actions that need to be taken to complete the task.	Brief incoming shift of all pertinent system conditions and events that occurred

The OJT guide, given to both the trainer and trainee, provides focus for the training session and contributes to consistency in how the task is being taught across trainees. The OJT guide acts as a signaling device (Bolkan, 2017), calling to attention the most important information to be learned. Implementing a formal document to direct the training sessions can not only enhance consistency and standardization across training, but also ensure that the trainer is teaching a novice on the "ideal" or recommended way the task should be performed and not what they deem to be relevant to task performance. Ungan (2006) advocates for standardization via process documentation to get consistency in operations and performance of tasks. Often organizational knowledge is tacit, and thus externalizing the information by putting it on a process document (such as an OJT guide) leads to a higher likelihood of employees having a shared mental model of how the task should be performed.

Documentation of the job task helps create a planned training environment and has been shown to have a significant effect on structured OJT activities (Choi et al., 2015; Lee et al., 2013). Use of checklists, guides, etc. are considered helpful to trainees and incorporation of these training materials in OJT is viewed as meaningful (De Jong & Versloot, 1999). A structured OJT guide provides a clear direction for both the trainer and trainee to move towards during a given OJT session for a job task. Additionally, the OJT guide can later serve as a procedural job aid for the trainee, further supporting knowledge transfer (Duncan, 1985). Spaulding & Dwyer (1999, 2001) found that incorporate of job aids in learning

enhanced the learner's achievement as it helped the learners better process the information.

Situational strength theory (Mischel, 1977) may help explain why the use of a structured OJT guide during OJT can help mitigate against the possible negative impact of a trainer's job experience. Situational strength theory argues that the dominant force of personality versus the situation depends on the "strength" of a given situation (Mischel, 1977). Strong situations provide clear and specific cues to guide behavior, whereas weak situations there is more room for individual discretion and interpretation (Cooper & Withey, 2009; Meyer, Dalal, & Hermida, 2010; Mischel, 1977). An OJT guide enhances the situational strength in the form of task clarity, delineating the task's objectives, conditions, criteria, steps, etc. for the trainer and trainee. In weak situations, individuals are more likely to act independently; without an OJT guide to provide structure for training the task, the situation inherently becomes weaker and the potential detrimental effects of much experience and expertise can negatively impact training.

Rationale

This dissertation aims to expand upon the research on trainer characteristics by focusing on the role of job experience. This work will contribute to the literature by further investigating the influence of the trainer, an area that typically receives less attention compared to the learner perspective. Beyond scientific contributions, such research can better inform the design and development process of organizational training programs. Knowledge of trainer

experience can be used to enhance trainer professional development practices. If trainer experience is deemed a crucial factor in OJT, then organizations can use such information to improve the knowledge transfer process and use it as a talent management strategy (Calo, 2008). If results indicate that job experience is not as important, organizations can use such information to customize their trainer selection and development. Exploring trainer experience may also shed light on how it influences other trainer characteristics such as expressiveness, which can in turn impact training effectiveness (Towler & Dipboye, 2001). By exploring a new avenue of research in the training literature, this dissertation will bring both theoretical and practical value for researchers and practitioners alike.

Hypotheses

Below are the hypotheses for this research study. A larger diagram of the proposed relationships between these variables is presented in **Figure 2.**

Hypothesis 1*:* Trainer experience will be positively related to trainer characteristics (i.e., use of directive behaviors and communication clarity).

> *Hypothesis 1a*: Trainer experience predicts trainer directive behaviors such that higher trainer experience positively predicts trainer's use of directive behaviors in training.
>
> *Hypothesis 1b*: Trainer experience predicts trainer communication clarity such that higher trainer experience positively predicts trainer's communication clarity.

Hypothesis 2*:* The use of structured on-the-job training (OJT) guides in the training will have a conditional impact on trainer characteristics (i.e., use of directive behaviors and communication clarity) such that it will moderate the relationship between trainer experience and training characteristics. Specifically, the relationship between trainer experience and trainer characteristics will be positive when a structured OJT guide is used and negative when a structured OJT guide is not used.

Hypothesis 3*:* Trainer characteristics (i.e., use of directive behaviors and communication clarity) will be positively related to trainee perceptions.

> ***Hypothesis 3a***: Trainer directive behaviors positively predict trainee perceptions of trainer credibility such that more use of trainer directive behaviors will positively predict trainee perceptions of trainer credibility.

> ***Hypothesis 3b***: Trainer communication clarity positively predicts trainee perceptions of trainer credibility such that higher communication clarity will positively predict trainee perceptions of trainer credibility.

> ***Hypothesis 3c***: Trainer directive behaviors positively predict trainee perceptions of trainer effectiveness such that more use of trainer directive behaviors will positively predict trainee perceptions of trainer effectiveness.

> ***Hypothesis 3d***: Trainer communication clarity positively predicts trainee perceptions of trainer effectiveness such that higher communication clarity will positively predict trainee perceptions of trainer effectiveness.

Hypothesis 3e: Trainer directive behaviors positively predict trainee perceptions of overall training effectiveness such that more use of trainer directive behaviors will positively predict trainee perceptions of overall training effectiveness.

Hypothesis 3f: Trainer communication clarity positively predicts trainee perceptions of overall training effectiveness such that higher communication clarity will positively predict trainee perceptions of overall training effectiveness.

Hypothesis 4*:* The hypothesized model as a whole (H1, H2, and H3) will be significant; the conditional relationship of trainer experience and use of structured OJT guides will influence trainee perceptions via trainer characteristics (use of directive behaviors and communication clarity).

Figure 2

Empirical Model of The Relationship Between Trainer Characteristics, Use of Structured OJT Guides, and Trainee Perceptions
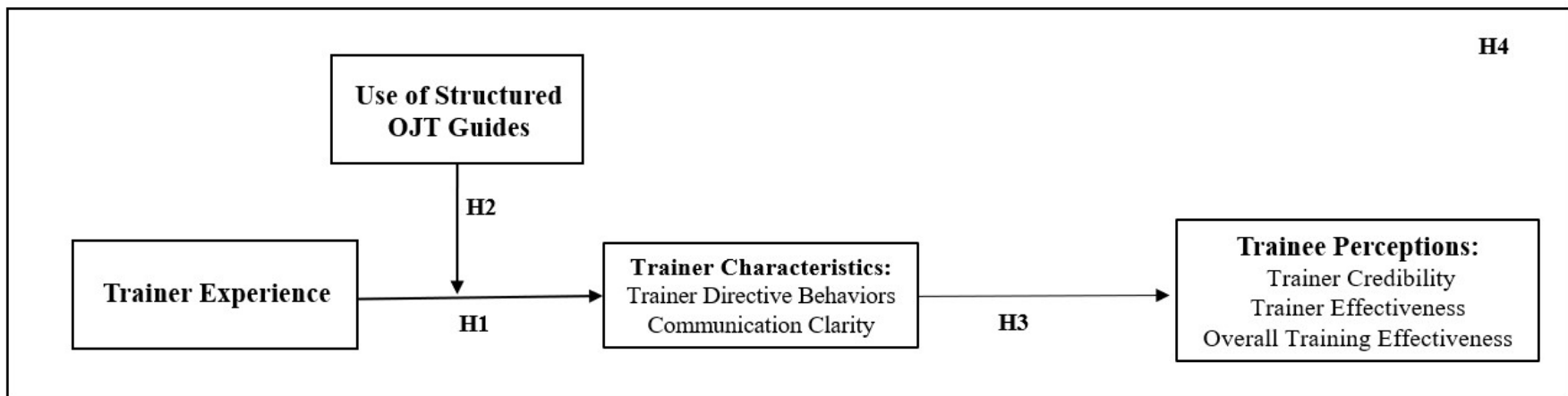
Method

Research Design

Survey data were collected and analyzed to rate the efficacy of OJT trainers via trainees' perceptions.

Participants

OJT trainers and current/previous OJT trainees (all aged 18 or older) from various electric transmission, distribution, and generation utility companies across the United States and Canada participated in this study. Three hundred and forty-one potential participants were invited to participate in the study via email (see Appendices A and B for the recruitment emails sent by the principal investigator), however all participation was voluntary and anyone who did not wish to participate was not penalized. A priori power analysis with an effect size of 0.2 (for the complete proposed model in Hypothesis 4) revealed a required sample size of 90 participants. One hundred and nine individuals agreed to complete the survey, however only 76 responses were collected. To be allowed to complete the OJT trainee survey, participants had to either be currently going through an on-the-job training program or had previously completed on-the-job training with a trainer. To complete the OJT trainer survey, participants must have had experience providing on-the-job training for new hires.

Participants who did not complete key variable measures were excluded from study analyses for those respective hypotheses. Of the total sample of individuals who responded to the survey regardless of level of completion, 80% were male.

There are a few reasons why this sample of participants was used for this research study. First, the electric industry heavily relies on OJT as the main method for training new hires. Second, the author of this dissertation is currently employed by a consulting company that works primarily with electric utility trainers and training administrators in the development and management of their training programs. This organization works with over 100 utilities, with established relationships that are conducive for data collection. This participant population not only enabled data collection feasibility but represents a unique and understudied industry in the training research literature.

Lastly, the results of this research can potentially benefit these electric utility training programs who need to be compliant with NERC standard PER-005-2 Operations Personnel Training (North American Electric Reliability Cooperation, 2009). Functional entities who have personnel that operate or direct the operation of the Bulk Electric System (BES), such as transmission system operators, are subject to PER-005-2, which requires the use of a Systematic Approach to Training (SAT) (North American Electric Reliability Cooperation, 2009). The ADDIE methodology is one of the most frequently used approaches and consists of five phases: Analysis, Design, Development, Implementation, and Evaluation (Allen, 2006). These utilities may be audited on their training practices and whether a Systematic Approach to Training (SAT) has been used to properly train their personnel. Due to the existence of PER-005-2, these organizations have an incentive to provide effective training for their operators and therefore can profit from the results of this research on OJT trainers.

Procedure

A letter of invitation was emailed to the primary contact (Appendix A) in the training departments of companies that have relationships with the author's consulting firm. Each contact person was a member of the system operations training department within their respective company, either acting as a training administrator, director, or trainer. The author's consulting firm was mentioned as a supporter of this study, but the recruitment email was sent from the principal investigator's DePaul email address and did not mention whatsoever any work or client relationships to reduce potential coercion to participate. The utilities were encouraged to participate with the incentive of receiving a summary of the research findings from the study and suggestions for using this information within their organizations.

This initial recruitment email requested participation in the survey as well as a list of email addresses of potential participants. In this initial email, the general purpose of the research study was explained as well as the estimated time for someone to complete the survey. The survey was estimated to take approximately 10-15 minutes to complete. It was also emphasized that this study was being conducted independently by the researcher and that the author's employer will not have any ownership or access to the data once collected. This recruitment email indicated that participation is completely voluntary, and all participants would be provided a unique ID code to input into the survey to provide anonymity and confidentiality. If the company wished to participate in the

study, all participating companies and provided email addresses were assigned unique ID codes prior to the principal investigator emailing participants.

Company ID codes, trainee ID codes, and trainer ID codes were all assigned ahead of time and kept in separate individual password-protected files stored on an encrypted drive. Only the principal investigator had access to the code key files.

Once all unique ID codes were assigned to companies and email addresses, the researcher emailed all individual potential participants with an invite to complete the survey (Appendix B). This recruitment email to the individual participants provided a general overview/explanation of the research study, the link to the survey, the assigned unique ID codes, and the estimated time to complete the survey.

Since this study is quantitative in nature, the data were collected via Qualtrics surveys. Upon opening the survey, participants were provided an overview of the study and the informed consent form. The informed consent form outlined the potential risks to the participants as well as how these risks will be mitigated by the confidential and anonymous nature of the survey. Since it was an online survey, agreement to the informed consent process was captured via a "Yes/No" survey item and not physical signatures (Appendix D). If the person did not wish to complete the survey or agree to the informed consent process, the survey immediately ended. After agreeing to the informed consent process by clicking "Yes", the participant could then begin the survey.

The same survey was be administered to both the trainers and trainees, with skip logic programmed into the beginning questions to determine the participant's role. One link was provided and the participant's response to the beginning set of questions determined whether they could see and respond to the trainee and/or trainer measures. Respondents were excluded if they were not current/recent OJT trainers and/or trainees. When trainees provided the name of the trainer at the end of the survey, the specific names were immediately erased by the principal researcher prior to data analysis and unique identifiers were assigned and used for the purposes of matching the data only. For data analysis, there then were no personally identifiable data and all data had assigned unique ID codes.

The survey began with a series of questions to garner information regarding the participant's experience and role as either an OJT trainer or trainee. It is likely that participants who are current or former OJT trainers have received OJT in their own initial training, thus the first question allowed for multiple response selections if applicable. Based on the response to the first question, the following set of questions asked about their experience as an OJT trainer and/or trainee (i.e., job tenure, organizational tenure, industry experience, etc.). Participants who indicated that they have been an OJT trainer were prompted to complete the Challenging Job Experiences measure, another way to measure someone's experience. Both trainers and trainees were presented with an example structured OJT guide and asked a series of questions related to the training's use of structured OJT guides and what structured OJT guide elements were used.

Participants who identified as trainees were prompted to complete the Trainer Communication Clarity scale and Source Credibility scales (Competence, Goodwill, and Character). Lastly, trainees were asked to complete the Trainee Posttraining Evaluation of the Trainer and Trainee Posttraining Evaluation of the Training scales. These various measures completed by the trainees are considered moderating and dependent variables in the research study, which explored trainee perceptions. Lastly, both trainers and trainees answered a series of demographic items at the end of the survey including gender, age, and race/ethnicity. Trainees were prompted at the end of the survey to provide the first and last name of their OJT trainer, however a note explained how the data will be immediately assigned unique ID codes to replace the OJT trainer names and no personally identifying information will be used in data analysis or reporting. A reminder email (Appendix C) was sent once a week for four weeks to the provided list of potential participants to encourage completion of the survey. Because the data response rate was initially slower than intended, the survey was kept open for an additional two weeks before the data collection phase of the research study ended.

Measures

Experience. As discussed previously, experience is a multifaceted construct that cannot simply be measured via job tenure alone. Experience in this study was measured using both quantitative components and qualitative components, as suggested by Tesluk and Jacobs (1998) and Quinones (2004). All work experience measures were completed by the OJT trainer and are listed in

Appendix E. For the trainer experience variable, a composite score was created by averaging responses for the four trainer experience questions ($\alpha = .73$).

Quantitative Measures of Experience

OJT Trainer Experience. OJT trainer experience was measured by the number of self-reported years in the OJT trainer role.

Job Tenure. Job tenure was measured by the number of self-reported years in their current job position.

Organizational Tenure. Organizational tenure was measured by the number of self-reported years in the current organization.

Industry Experience. Industry experience was measured by the number of self-reported years in the electric utility industry.

Qualitative Measures of Experience

Challenging Job Experiences. The extent to which OJT trainers have had challenging job experiences was measured using 10 items adapted from De Pater and colleagues (2009). Their challenging job experiences measure is derived from the job challenge profile (JCP, McCauley et al., 1999). The JCP distinguishes five clusters that represent different challenging aspects of work: (a) experiencing a job transition (i.e., having unfamiliar responsibilities), (b) creating change (i.e., breaking new grounds, solving problems), (c) managing at high levels of responsibility (i.e., having high stakes, a large scope and scale), (d) managing

boundaries (i.e., experiencing external pressure, exerting influence without authority), and (e) dealing with diversity (working across cultures, working with diverse work groups). Respondents were asked to indicate the extent to which they have experienced these challenging job aspects in their current jobs on a scale ranging from 1 = not at all to 5 = very often.

Use of Structured OJT Guides. Both trainers and trainees were asked whether structured on-the-job training (OJT) guides were used during their OJT sessions. An example structured OJT guide was presented along with definitions of each OJT guide component (e.g., task statement, conditions, tools, etc.). Respondents were asked "Did your OJT training sessions involve the use of structured OJT guides?" and the answer options included "Yes," "No," and "Sometimes" (α = .89). The use of structured OJT guides measure is listed in Appendix F.

Trainer Characteristics (Use of Directive Behaviors and Communication Clarity). Trainer characteristic information (in addition to experience) was collected from the trainees. The training characteristic variables that were explored in this study include the trainer use of directive behaviors and trainer communication clarity.

Trainer Use of Directive Behaviors. Trainer directive behaviors were measured by using a modified version of the six-item measure from Pearce and Sims (2002). This scale was adapted to fit the context of on-the-job training and includes two sub-components: (a) assigned goals and (b) instruction and command. Participants responded to questions such as

"My OJT trainer establishes my performance goals" and *"When it came to my on-the-job training, my OJT trainer gives me instructions on how to carry it out."* on a scale from 1 (definitely not true) to 5 (definitely true) (α = .83) . The Trainer Use of Directive Behaviors measure for this study is listed in Appendix G.

Trainer Communication Clarity. The trainer's communication clarity was rated by trainees and measured using an adapted version of the Teacher Clarity Short Inventory (TCSI) developed by Chesebro & McCroskey (1998). The adapted version included items such as *"My OJT trainer clearly defines major concepts"* and *"My OJT trainer is explicit in his or her instruction."* The trainees rated these 10 items on a scale from 1 (strongly disagree) to 5 (strongly agree) (α = .92). The Trainer Communication Clarity Scale is listed in Appendix H.

Trainee Perceptions. The three variables that were used to capture trainee perceptions of the OJT trainer included trainee perceptions of: (a) trainer credibility, (b) trainer effectiveness, and (c) overall training effectiveness. All these measures were to be completed by the trainees.

Trainee Perceptions of Trainer Credibility. Trainee perceptions of trainer credibility was measured using the Source Credibility Scale (McCroskey & Teven, 1999). Participants rated their OJT trainer using this 18-item semantic differential scale in terms of specific bipolar adjectives listed on a 7-point scale. Six items measured participants' perceptions of their OJT trainer on each of the three dimensions of the

credibility construct: competence (e.g., Untrained/Trained), character (e.g., Honest/Dishonest), and caring (e.g., Sensitive/Insensitive) (α = .89). The Source Credibility scale that was used in this study to measure perceptions of trainer credibility is listed in Appendix I.

Trainee Perceptions of Trainer Effectiveness. Trainee perceptions of trainer effectiveness was measured using the Trainee Posttraining Evaluation of the Trainer scale (Shapiro et al., 2007). The trainees rated the trainer on 10 items using a 7-point Likert-type rating scale ranging from 1 (strongly disagree) to 7 (strongly agree). Example items included "The trainer was motivating" and "The trainer was responsive" (α = .90). The Trainee Posttraining Evaluation of the Trainer scale is listed in Appendix J.

Trainee Perceptions of Overall Training Effectiveness. Perceived training effectiveness was measured using the Trainee Posttraining Evaluation of the Training scale (Shapiro et al., 2007). The trainees rated the training on 9 items using a 7-point Likert-type rating scale ranging from 1 (not very) to 7 (extremely). Example items include "How effective was the training you received?" and "How clear was the training you received?" (α = .89). The Trainee Posttraining Evaluation of the Training Scale that was used measure trainee perceptions of the overall training effectiveness is listed in Appendix K.

Demographics Variables. Both OJT trainer and trainee surveys included

demographic information questions including gender, race, and age. The

demographic measures that were included in the survey are listed in Appendix L.

Results

Several participants who completed the survey left large amounts of missing data, therefore the final sample size ended up being notably small (N = 76). Attempts to gather additional data from other eligible participants were unsuccessful, even though the survey was kept open for an additional two weeks. However, since this unique data could provide further insight and opportunities for future research, data analysis proceeded despite the small sample size.

Participants who did not complete key variable measures were excluded from study analyses using pairwise exclusion for those respective hypotheses. This method attempts to minimize the loss that occurs in listwise deletion but assumes that the missing data are missing completely at random (MCAR) ((Peugh & Enders, 2004). MCAR exists when the missing values are randomly distributed across all observations and do not depend on the observed data (Schafer & Graham, 2002). One caution when using this method is that the standard of errors uses the average sample size across analyses, which tends to produce standard of errors that are underestimated or overestimated (Peugh & Enders, 2004) and loss of statistical power. However, MCAR yields unbiased parameter estimates. A Little's MCAR missing value analysis test was conducted and found to be not significant; if the p-value for Little's MCAR test is not significant, then the data may be assumed to be MCAR (Little, 1988). While not a definitive test, it can help rule out if the data is missing not at random (MNAR), which means that the reason for the missing data depends on an unobserved variable.

In terms of the variables measured in this study, MCAR would mean that there may be no particular reason why some respondents completed measures on the trainer, S-OJT and their perceptions of the training. While the Little's test was not significant, missing at random (MAR) is more likely to have occurred in this study; this means that there is a systematic relationship between the propensity of missing values and the observed data, but not the missing data (Graham, 2009). For example, individuals who have had OJT more recently may be more likely to complete the various measures regarding their OJT trainer due to recency compared to individuals who went through OJT many years ago.

Given the sample size noted, results are discussed using scatterplots and then running correlations to test all hypotheses. Moderation and mediation hypotheses were analyzed using AMOS, however statistical power for those hypotheses is low due to the low number of observations. The limitations of this study will be addressed in the discussion section, however, it is important to address here, as it impacted the data analysis strategy used.

An original intention of the data analysis plan was to pair trainee and trainer response surveys to further support hypotheses. Due to the extremely small number of participant responses, matching of responses was not possible and was not a part of the data analysis process.

Prior to testing hypotheses, preliminary analyses examined descriptive statistics, including overall means, standard deviations, and frequencies for all main study variables. Further, items that required reversed coding were recoded, and items corresponding to the same scale were grouped together and their item

ratings were averaged to result in overall scale scores for each participant prior to analysis. Lastly, an alpha level of .05 was used as the significance criterion cut-off for correlations. For the trainer experience variable, a composite score was created by averaging responses for the trainer experience questions.

Sample size, standard deviations, and correlations of all main study measures and continuous variables are displayed in Table 3. The correlations between all main study variables are displayed in Table 4. Please refer to Appendix M to see the specific descriptive statistics for the constitutive questions included in analysis.

Table 3

Descriptive Statistics of Study Variables Used

	N	Min	Max	M	SD
Trainer Credibility	37	3.34	4.97	4.11	0.36
Trainer Credibility: Competence	37	3.20	5.40	4.25	0.49
Trainer Credibility: Character	37	3.17	4.83	3.77	0.36
Trainer Credibility: Goodwill	37	3.17	5.33	4.32	0.49
Training Characteristics	42	2.45	4.40	3.55	0.49
Training Characteristics: Trainer Directive Behavior	43	2.00	5.00	3.81	0.82
Training Characteristics: Communication Clarity	43	2.60	4.40	3.32	0.33
Use of Structured OJT Guides	76	0.00	5.00	3.41	1.94
Trainer Effectiveness	42	2.89	5.67	4.67	0.71
Training Effectiveness	42	2.00	7.00	5.25	1.25
Trainer Experience	43	2.75	7.00	5.0	1.07
How long ago were you an OJT trainee?	43	1	9	5.33	1.86
What is your age?	74	2	5	3.86	0.90
Valid N (listwise)	36				

Note. Trainer credibility, trainer effectiveness, and training effectiveness variables used a 7-point Likert scale. Training characteristics measures used a 5-point Likert scale. Trainer experience is in years. For age, 1 = 18 to 25 years, 2 = 26 to 35 years, 3 = 36 to 45 years, 4 = 46 to 55 years, and 5 = 56 years or older.

Table 4

Correlations Between Study Variables

Variables	1	2	3	4	5	6	7	8	9	10	11
1. Trainer Credibility	--										
2. Trainer Credibility: Competence	.67**	--									
3. Trainer Credibility: Character	.82**	.37*	--								
4. Trainer Credibility: Goodwill	.87**	.44**	.62**	--							
5. Training Characteristics	.25	.28	.11	.29	--						
6. Training Characteristics: Trainer Directed Behavior	.24	.19	.13	.30	.93**	--					
7. Training Characteristics: Communication Clarity	.24	.37*	.04	.24	.67**	.40**	--				
8. Use of Structured OJT Guides	.07	.07	.16	.07	.45**	.43**	.29	--			
9. Trainer Effectiveness	.38*	.54**	.20	.30	.73**	.65**	.59**	.36*	--		
10. Training Effectiveness	.17	.30	-.09	.20	.58**	.53**	.46**	.25	.61**	--	
11. Trainer Experience	.09	.01	.09	.003	-.03	-.04	.04	.33*	.10	.23	--

Note. * $p < .05$. ** $p < .01$.

Also prior to testing each hypothesis, the variance inflation factor (VIF) value from the collinearity diagnostics test was examined to detect multicollinearity. The VIF values suggested that multicollinearity did not exist (VIF < 10), and the tests could proceed. To assess linearity, scatterplots of the variables with superimposed regression lines were plotted in preliminary analysis. Visual inspection of these plots indicated a linear relationship between the variables. There was normality of the residuals and homoscedasticity.

Hypothesis 1

Hypothesis 1 made predictions about the relationship between trainer experience and training session characteristics. Specifically, trainer experience would be positively related to training session characteristics.

The Spearman correlation was examined as these variables did not pass the assumptions of normality required by the Pearson Correlation (a parametric test) (Spearman, 1904). While the dependent variable here is normally distributed, the measurement of trainer experience is ordinal and not normally distributed, requiring the use of the non-parametric test. There was no statistically significant correlation between trainer experience and training session characteristics (r = -0.03, p = .865) (Table 5). Overall, these results do not support Hypothesis 1, and in fact, are trending in the opposite direction compared to the prediction.

Table 5

Spearman Correlations for Hypothesis 1

			Trainer Experience	Training Characteristics
Spearman's rho	Trainer Experience	Correlation Coefficient	1.00	-.03
		Sig. (2-tailed)	.	.865
		N	43	42
	Training Characteristics	Correlation Coefficient	-.03	1.00
		Sig. (2-tailed)	.865	.
		N	42	42

Hypothesis 1a

Hypothesis 1a specifically predicted that trainer experience would predict trainer directive behaviors such that higher trainer experience positively predicts the OJT trainer's use of directive behaviors in training.

The Spearman correlation was examined as these variables did not pass the assumptions of normality required by the Pearson Correlation (a parametric test) (Spearman, 1904). While the dependent variable here is normally distributed, the measurement of trainer experience is ordinal and not normally distributed, requiring the use of the non-parametric test. There was no statistically significant correlation between trainer experience and trainer directive behavior (r = -0.04, p = 0.823) (Table 6). Overall, these results do not support Hypothesis 1a, and in fact, are trending in the opposite direction compared to the prediction.

Table 6

Spearman Correlations for Hypothesis 1a

			Trainer Experience	Training Characteristics: Trainer Directive Behavior
Spearman's rho	Trainer Experience	Correlation Coefficient	1.00	-.04
		Sig. (2-tailed)	.	.823
		N	43	43
	Training Characteristics: Trainer Directive Behavior	Correlation Coefficient	-.04	1.00
		Sig. (2-tailed)	.823	.
		N	43	43

Hypothesis H1b

Hypothesis 1b specifically predicted that trainer experience would predict trainer communication clarity such that higher trainer experience positively predicts the OJT trainer's communication clarity.

The Spearman correlation was examined as these variables did not pass the assumptions of normality required by the Pearson Correlation (a parametric test) (Spearman, 1904). While the dependent variable here is normally distributed, the measurement of trainer experience is ordinal and not normally distributed, requiring the use of the non-parametric test. There was no statistically significant correlation between trainer experience and trainer communication clarity ($r = 0.037$, $p = 0.814$) (Table 7). Overall, these results do not support Hypothesis 1b.

Table 7

Spearman Correlations for Hypothesis 1b

			Trainer Experience	Training Characteristics: Communication Clarity
Spearman's rho	Trainer Experience	Correlation Coefficient	1.00	.04
		Sig. (2-tailed)	.	.814
		N	43	42
	Training Characteristics: Communication Clarity	Correlation Coefficient	.04	1.00
		Sig. (2-tailed)	.814	.
		N	42	43

Hypothesis 2

Hypothesis 2 proposed the use of structured on-the-job training (OJT) as having a conditional impact on training characteristics such that it will moderate the relationship between trainer experience and training characteristics. Specifically, the relationship between trainer experience and training characteristics (trainer directive behaviors and communication clarity) was predicted to be positive when a structured OJT guide is used and negative when a structured OJT guide is not used.

The moderation analysis summary is presented in Table 8 below. Results from a moderation analysis indicate that the relationship between trainer experience and training characteristics is not conditional on the use of structured OJT guides (b = -.04, t = -0.22, p=.823), nor does trainer experience exert an independent influence on training characteristics (b = -.14, t = =0.90, p=.366).

Results, however, do indicate that the impact of the use of structured OJT guides does have a significant independent influence on training characteristics (b = .35, t = 2.22, p=0.026).

Table 8

Regression Weights from Hypothesis 2 Moderation Analysis

	Estimates	S.E.	C.R.	PLabel
Training Characteristics <--- Use of Structured OJT Guides	.35	.16	2.22	.026
Training Characteristics <--- Interaction	-.04	.16	-0.22	.823
Training Characteristics <--- Trainer Experience	-.14	.15	-0.90	.366

Note. Estimate = parameter estimate, S.E. = standard error, C.R. = critical ratio, Plabel = p-value.

Hypothesis 3

Hypothesis 3 predicted that training characteristics would be positively related to trainee perceptions.

Linear regression was used to examine the relationship between training characteristics and trainee perceptions. Table 9 shows the fitted ordinary least squares (OLS) model, examining the relationship between training characteristics and trainee perceptions. The model summary statistics illustrate that the Adjusted R^2 indicates that the model explains 49.8% of the variance found within the data.

Table 9

OLS Model Summary Statistics

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.72[a]	.51	.49	.46

a. Predictors: (Constant), Training Characteristics

The overall model results (Table 10) indicate that the overall fitted model is statistically significant ($R^2 = .49$, $F(1, 35) = 36.75$, p<.001). Results indicate that there is a statistically significant relationship between training characteristics and trainee perceptions. This result suggests that for a unit increase in measures of training characteristics there is a .98 unit increase in trainee's perceptions (Table 11).

Table 10

ANOVA Results for Hypothesis 3

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.81	1	7.81	36.75	<.001[b]
	Residual	7.44	35	.21		
	Total	15.24	36			

a. Dependent Variable: Trainee Perceptions
b. Predictors: (Constant), Training Characteristics

Table 11

OLS Model Coefficients for Hypothesis 3

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.22	.58		2.12	.04
	Training Characteristics	.98	.16	.72	6.06	<.001

a. Dependent Variable: Trainee Perceptions

Hypothesis 3a

Hypothesis 3a specifically predicted that trainer directive behaviors will positively predict trainee perceptions of trainer credibility such that more use of trainer directive behaviors will positively predict trainee perceptions of trainer credibility.

Linear regression was used to examine the relationship between trainer directive behaviors and trainee perceptions of trainer credibility. The fitted OLS model summary statistics illustrate that the Adjusted R^2 indicates that the model explains 1% of the variance found within the data (Table 12).

Table 12

OLS Model Summary Statistics for Hypothesis 3a

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.13[a]	.02	-.01	.36

a. Predictors: (Constant), Training Characteristics: Trainer Directive Behavior

The overall model results (Table 13) indicate that the overall fitted model is not statistically significant ($R^2 = .01$, $F(1, 35) = 0.62$. $p = 0.435$). Results indicate that there is not a statistically significant relationship between trainer directive behaviors and trainee perceptions of trainer credibility (Table 14). Hypothesis 3a is therefore not supported.

Table 13

ANOVA Results for Hypothesis 3a

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.08	1	.08	0.62	.435[b]
	Residual	4.53	35	.13		
	Total	4.61	36			

a. Dependent Variable: Trainer Credibility
b. Predictors: (Constant), Training Characteristics: Trainer Directive Behavior

Table 14

OLS Model Coefficients for Hypothesis 3a

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	3.90	.29		13.68	<.001
	Training Characteristics: Trainer Directive Behavior	.06	.07	.13	0.79	.435

a. Dependent Variable: Trainer Credibility

Hypothesis 3b

Hypothesis 3b specifically predicted that trainer communication clarity will positively predict trainee perceptions of trainer credibility such that higher communication clarity will positively predict trainee perceptions of trainer credibility.

Looking at the fitted OLS model results and Adjusted R^2 (Table 15), examining the relationship between communication clarity and trainer credibility, the model explains 2% of the variance found within the data.

Table 15

OLS Model Summary Statistics for Hypothesis 3b

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.12[a]	.01	-.02	.36

a. Predictors: (Constant), Training Characteristics: Communication Clarity

The overall model results (Table 16) indicate that the overall fitted model is not statistically significant (R^2 = .01, $F(1, 35)$ = 0.48, p=.492). Results also show in Table 17 that there is not a statistically significant relationship between communication clarity and trainer credibility (p=.492).

Table 16

ANOVA Results for Hypothesis 3b

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.06	1	.06	.48	.492[b]
	Residual	4.55	35	.13		
	Total	4.61	36			

a. Dependent Variable: Trainer Credibility
b. Predictors: (Constant), Training Characteristics: Communication Clarity

Table 17

OLS Model Coefficients for Hypothesis 3b

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	3.64	.68		5.35	<.001
	Training Characteristics: Communication Clarity	.14	.21	.12	.69	.492

a. Dependent Variable: Trainer Credibility

Hypothesis 3c

Hypothesis 3c specifically predicted that trainer directive behaviors will positively predict trainee perceptions of trainer effectiveness such that more use of trainer directive behaviors will positively predict trainee perceptions of trainer effectiveness.

Looking at the fitted OLS model results and Adjusted R^2 (Table 18), examining the relationship between trainer directive behavior and perceptions of

trainer effectiveness, the model explains 46% of the variance found within the

data.

Table 18

OLS Model Summary Statistics for Hypothesis 3c

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.69[a]	.47	.46	.53

a. Predictors: (Constant), Training Characteristics: Trainer Directive Behavior

Unlike Hypotheses 3a and 3b which were not statistically significant, the

overall model results for Hypothesis 3c show that the overall fitted model is in

fact statistically significant ($R^2 = .46$, $F(1, 40) = 35.68$, p<.001) (Table 19).

Table 19

ANOVA Results for Hypothesis 3c

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	9.87	1	9.87	35.68	<.001[b]
	Residual	11.06	40	.28		
	Total	20.92	41			

a. Dependent Variable: Trainer Effectiveness
b. Predictors: (Constant), Training Characteristics: Trainer Directive Behavior

Also, unlike Hypotheses 3a and 3b, results for Hypothesis 3c (Table 20)

show that there is a statistically significant relationship between trainer directive

behavior and trainer effectiveness ($p < 0.001$). This result indicates that a unit

increase in trainer directive behaviors will lead to a 0.59 unit increase in trainee's perceptions of trainer effectiveness.

Table 20

OLS Model Coefficients for Hypothesis 3c

Coefficients[a]

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	2.41	.39		6.21	<.001
	Training Characteristics: Trainer Directive Behavior	.59	.10	.69	5.97	<.001

a. Dependent Variable: Trainer Effectiveness

Hypothesis 3d

Hypothesis 3d stated that trainer communication clarity would positively predict trainee perceptions of trainer effectiveness such that higher communication clarity will positively predict trainee perceptions of trainer effectiveness.

Looking at the fitted OLS model summary statistics (Table 21), the Adjusted R^2 demonstrates that the model explains 27.0% of the variance found within the data.

Table 21

OLS Model Summary Statistics for Hypothesis 3d

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.54[a]	.29	.27	.61

a. Predictors: (Constant), Training Characteristics: Communication Clarity

The overall model results (Table 22) indicate that the overall fitted model is statistically significant (p < 0.001).

Table 22

ANOVA Results for Hypothesis 3d

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.03	1	6.03	16.20	<.001[b]
	Residual	14.89	40	.37		
	Total	20.92	41			

a. Dependent Variable: Trainer Effectiveness
b. Predictors: (Constant), Training Characteristics: Communication Clarity

The OLS Model Coefficients results (Table 23) indicate that there is a statistically significant relationship between communication clarity and perceptions of trainer effectiveness (R^2 = .27, $F(1, 40)$ = 16.20, p<.001). This result indicates that a unit increase in communication clarity will lead to a 1.31 unit increase in trainee's perceptions of trainer effectiveness.

Table 23

OLS Model Coefficients for Hypothesis 3d

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	*t*	Sig.
1	(Constant)	.35	1.08		.33	.745
	Training Characteristics: Communication Clarity	1.31	.33	.537	4.03	<.001

a. Dependent Variable: Trainer Effectiveness

Hypothesis 3e

Hypothesis 3e stated that trainer directive behaviors positively predict trainee perceptions of overall training effectiveness such that more use of trainer directive behaviors will positively predict trainee perceptions of overall training effectiveness.

The results in Table 24 below show the fitted OLS model, examining the relationship between trainer communication clarity and trainer effectiveness. The Adjusted R^2 from the model summary statistics indicate that the model explains 41% of the variance found within the data.

Table 24

OLS Model Summary Statistics for Hypothesis 3e

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.65[a]	.42	.41	.96

a. Predictors: (Constant), Training Characteristics: Trainer Directive Behavior

The overall model results (found in Table 25) indicate that the overall fitted model is statistically significant ((R^2 = .41, $F(1, 40)$ = 29.41, p<.001)

Results also indicate (Table 26) that there is a statistically significant relationship between trainer directed behavior and training effectiveness (p<.001). This result indicates that a unit increase in trainer directed behavior will lead to a .982 unit increase in trainee's perception of training effectiveness.

Table 25

ANOVA Results for Hypothesis 3e

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	26.98	1	26.98	29.41	<.001[b]
	Residual	36.70	40	.92		
	Total	63.68	41			

a. Dependent Variable: Training Effectiveness
b. Predictors: (Constant), Training Characteristics: Trainer Directive Behavior

Table 26

OLS Model Coefficients for Hypothesis 3e

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	*t*	Sig.
1	(Constant)	1.50	.71		2.13	.040
	Training Characteristics: Trainer Directive Behavior	.98	.18	.65	5.42	<.001

a. Dependent Variable: Training Effectiveness

Hypothesis 3f

The final subcomponent of Hypothesis 3, Hypothesis 3f, predicted that trainer communication clarity positively predicts trainee perceptions of overall training effectiveness such that higher communication clarity will positively predict trainee perceptions of overall training effectiveness.

Table 27 below shows the fitted OLS model, examining the relationship between trainer communication clarity and trainer effectiveness. These model summary statistics (the Adjusted R^2) show that the model explains 16% of the variance found within the data.

Table 27

OLS Model Summary Statistics for Hypothesis 3f

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.42[a]	.18	.16	1.15

a. Predictors: (Constant), Training Characteristics: Communication Clarity

The overall model results (Table 28) indicate that the overall fitted model is statistically significant (R^2 = .16, $F(1, 40)$ = 8.50, p = .006). Results indicate that there is a statistically significant relationship between communication clarity and training effectiveness (p=.006) (Table 29). This result indicates that a unit increase in communication clarity will lead to a 1.79 unit increase in trainee's perception of training effectiveness.

Table 28

ANOVA Results for Hypothesis 3f

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11.16	1	11.16	8.50	.006[b]
	Residual	52.53	40	1.31		
	Total	63.68	41			

a. Dependent Variable: Training Effectiveness
b. Predictors: (Constant), Training Characteristics: Communication Clarity

Table 29

OLS Model Coefficients for Hypothesis 3f

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	-.63	2.02		-.31	.759
	Training Characteristics: Communication Clarity	1.79	.61	.42	2.92	.006

a. Dependent Variable: Training Effectiveness

Hypothesis H4

The final hypothesis predicted that the entire model (H1, H2, and H3) would be significant; the conditional relationship of trainer experience and use of structured OJT guides will influence trainee perceptions via training characteristics. A moderated mediation path analysis was conducted to examine Hypothesis 4 (Figure 4).

Figure 3

Hypothesis 4 Moderated Mediation Path Analysis Results
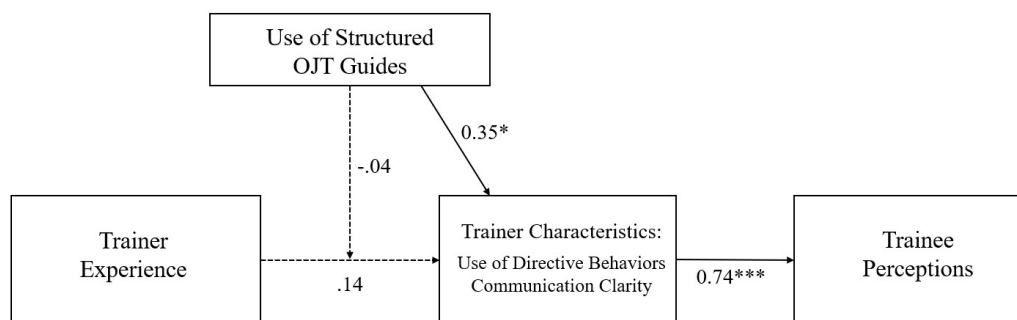
Note. Fit indices: $\chi2(3) = 6.67$, p = .15; CFI = .88, RMSEA = .12. Standardized beta coefficients are reported.
* p < .05. ** p < .01. *** p < .001.

Results indicate (Table 30) that the relationship between trainer experience and training characteristics is not conditional on the use of structured OJT guides (p=.823), nor does trainer experience exert an independent influence on training characteristics (p=.366). Results indicate, however, that the impact of the use of structured OJT guides does have a significant independent influence on training characteristics (p=.026). Results also indicate that training characteristics have a significant effect on trainee's perception (p<.001).

Table 30

Regression Weights from Hypothesis 4 Moderated Mediation Analysis

	Estimate	S.E.	C.R.	P-value
Training Characteristics <--- Use of Structured OJT Guides	.35	.16	2.22	.026
Training Characteristics <--- Trainer Experience	.14	.15	-.90	.366
Training Characteristics <--- Interaction	-.04	.16	-.22	.823
Trainee Perceptions <--- Training Characteristics	.74	.12	6.32	***

Note. Estimate = Regression weight, S.E. = standard error, C.R. = critical ratio

Looking to the chi-square information for the default model (Table 31), we see

that p=.083. Given the use of SEM procedures to engage in the moderation

analysis, the model interpretation is a bit different. Here, if the chi square value

(CMIN) p>.05, it means that the model is satisfactory. As a result, p=.083

indicates that the model fit is statistically satisfactory.

Table 31

Chi Square Values from Model Fit Summary of Hypothesis 4 Moderated Mediation Path Analysis

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	17	6.67	3	.083	2.22
Saturated model	20	.000	0		
Independence model	5	46.50	15	.000	3.10

Discussion

The current research examined the relationships between trainer experience, use of structured on-the-job training guides, and trainer characteristics on trainee perceptions of OJT. The results of this study open avenues for future research in the world of structured on-the-job training, an area underrepresented in the academic research literature on training (Ahadi & Jacobs, 2017). Information gleaned from this study can help organizations that use on-the-job training bolster their programs by adding structure to the training progress and enhance training effectiveness through trainee perceptions.

Hypothesis 1 considered how trainer experience would be related to and predict training session characteristics (i.e., trainer behaviors). It was found that trainer experience did not have a significant relationship with training characteristics. This suggests that while trainer experience may be an important factor in OJT, other variables are what directly impact a trainer's behavior. For example, it may be more beneficial to teach trainers on the structured OJT methodology (Jacobs, 2003) or the use of directive behaviors (Harris et al., 2014). While research exists on trainer characteristics (e.g., Gauld & Miller, 2004), this study opens up future avenues for exploration of the trainer experience variable.

Though Hypothesis 2 was not fully supported, the use of structured on-the-job training guides emerged as having a significant independent influence on trainer characteristics. While the relationship between trainer experience and trainer characteristics was not significant and was not conditional on the use of structured OJT guides, the fact that structured on-the-job training guides having

an independent influence on training characteristics is meaningful. This is an important finding, as empirical structured on-the-job training research has lagged behind training research focused on other training methods (e.g., computer-based, classroom, etc.) (Ahadi & Jacobs, 2017). It was argued in this study that structured on-the-job training guides are essential elements in scaffolding the learning process. It was not found to be a moderating factor, but this could be due to the constraints of the data analysis process from lack of responses. Given that it was found to have an independent influence on trainer characteristics, one could say that the trainer's ability to use directive behaviors and communication clarity was enhanced by having a structured guide to help them teach a new hire. The OJT guide acts as a signaling device (Bolkan, 2017), calling to attention the most important information to be learned.

In Hypothesis 3, it was found that training session characteristics (trainer directive behaviors and trainer communication clarity) were not predictors of trainee perceptions of trainer credibility (H3a and H3b). However, training characteristics were positive predictors of perceptions of trainer and overall training effectiveness (H3c through H3f). Considering these results, it is possible that trainees evaluate other factors when deeming a trainer's credibility versus their behaviors during the actual training sessions. For example, the trainer's reputation (Towler & Dipboye, 2006) or the training program's reputation (Switzer et al., 2005) may influence the trainee's perceptions of credibility above and beyond the directive behaviors or communication clarity.

The final hypothesis, Hypothesis 4, predicted that the hypothesized model would be significant such that the conditional relationship of trainer experience and use of structured OJT Guides will influence trainee perceptions via training characteristics. The results were found to be statistically significant, therefore this hypothesis was supported.

Although this research is preliminary and only offers insight into trending relationships between these variables, these efforts lay the groundwork for additional research on structured OJT. The next section outlines the strengths and limitations of this study followed by suggestions for future research.

Implications for Theory

This research makes several important theoretical contributions to the literature on on-the-job training. First, by linking the literature on structured OJT, trainer experience and characteristics, and trainee perceptions, this research further progresses investigations on training in the OJT setting. Notably, prior research on OJT is scant relative to other types of training (e.g., classroom, computer-based trainings, etc.), but introducing the concept of the structured OJT guide afforded a unique opportunity to examine its impact relative to trainer characteristics and trainee perceptions. This study provides evidence that the use of structured OJT guides can be beneficial in training contexts.

What was also learned from this study is that trainer experience may not necessarily be the most important factor when it comes to influencing the trainer's behavior and trainee perceptions. While experience is important, this study

showed that experience is a multi-faceted construct that needs further investigation on how it is measured (Tesluk & Jacobs, 1998).

Implications for Practice

The current study also provides important practical insights for organizations. First, because the use of structured OJT guides has an influence on training characteristics and indirectly trainee perceptions, it is important for training departments to not underestimate their value. Leaders of training organizations may want to take measures to encourage the development and use of not only a structured training process, but of structured OJT guides. Similarly, trainees should be made aware of the importance of the structured OJT guide and how it will benefit their learning.

Second, the results show that certain training characteristics (in this case trainer communication clarity and directive behaviors) have an impact on trainee perceptions of the trainer and training. Providing OJT trainers resources and training on how to increase their use of directive behaviors and enhance communication clarity will not only bolster their self-efficacy as trainers but also positively impact the trainee's perceptions (Grossman & Salas, 2011). Trainee perceptions and attitudes toward training are an important element of the transfer of training process as well as its impacts on pre-training motivation in the future (Chiaburu & Marinova, 2005; Sitzmann et al., 2008).

Strengths and Limitations

The sample and job setting used in this study can be seen as both a strength and limitation. Since the research question of interest was regarding on-the-job

training, which occurs directly in the work context, it was conductive to collect

data from trainers and trainees at organizations. However, organizational samples

are often from a narrowly defined group of individuals; all participants in this

study were mostly males from electric utilities, and this may hinder the

generalizability of the findings (Dipboye & Flanagan, 1979). The organizational

variety captured in the data can also be viewed as both a strength and limitation.

In this study, the data were not collected from merely one organization, but rather

from employees at electric utilities across the United States and Canada.

Organizations have unique cultures and climates and expanding the participant

pool to organizations across not only companies, but countries, enhanced the

design (Highhouse & Gillespie, 2010). The sample consisted purely of employees

at electric utilities, which may have a different organizational climate and culture

compared to other industries that use on-the-job training. It is possible that testing

the hypotheses across other industries could have produced different results than

those obtained here. Alternatively, organizational climate and culture variables

were not captured in this study, and those can impact training programs and

trainee perceptions (Lim & Morris, 2006).

This study, however, was also subject to several statistical and

methodological limitations. One of the primary limitations of this study was a

small sample size. The nature of the data collection approach and methodology

proved to be challenging, such as soliciting participation from busy employees. A

larger sample size would have provided the statistical power needed to detect

small effects and significant relationships among study variables. A larger sample size would have also provided greater flexibility to run more powerful analyses.

Although this study identified a few significant relationships among variables, the design of this study did not control for a variety of potential effects due to the extremely small dataset collected. For example, as stated earlier, organizational culture (Bunch, 2007; Chatterjee, Pereira, & Bates, 2018) and leadership support (Smith-Jentsch, Salas, & Brannick, 2001) could have an impact on trainee perceptions. Similarly, measures on trainee characteristics such as self-efficacy (Tai, 2006) and motivation were not captured. However, many trainees left scales related to the trainer perceptions purposefully blank, possibly indicating that it is a sensitive topic.

Since employees in an organization are more likely to consider how training outcomes relate to their performance within the organization, that could have impacted how they answered the survey questions. While it was emphasized that all responses would be assigned a unique identifier and it would be anonymous, participants may still have felt that there could have been negative consequences if they answered questions truthfully about their perceptions of their trainer and training. This is evident from looking at the data in which individual respondents made the choice to not answer specific questions of the survey. It also is possible that if many years have passed since an employee's initial on-the-job training, that they would not be able to accurately remember their trainer due to cognitive memory limitations (Huber & Power, 1985). For example, since only trainee's assessment of their trainer's experience was used, it may not be an accurate

representation of the trainer's experience if they do not know or do not remember. Future work examining structured OJT should strive to capture the trainer experience data from the trainer's themselves; while that was attempted in this study, matching the trainer and trainee datasets was not possible. In general, we need to reconsider how the measures and procedures of seeking feedback from trainees to improve the organizational systems.

Additionally, the current study could have used a stronger incentive to encourage study participation, such as monetary compensation or by mentioning the importance of compliance with PER-005-2 (Singer & Ye, 2013). Both monetary and non-monetary incentives increase overall response rates, however cash incentives have been shown to yield higher response rates (Ryu, Couper, & Marans, 2005). Employing a mixed methods approach (Johnson, Onwuegbuzie, & Turner, 2007) by interviewing willing participants following the survey could also have enhanced participation and yielded more information on the study hypotheses.

Lastly, in an ideal environment, the trainee perception information would be captured either during or immediately after the structured OJT sessions have occurred. In this study, some trainees did recently have OJT, however many respondents had not received initial training in quite some time. Due to these limitations, it is strongly recommended that future research be conducted.

Conclusion and Future Directions

Given the results and limitations of this research study, there are several paths that can be taken in future research to expand upon this work. Given that

trainer experience was not found to be significantly related to trainer behaviors, future studies can use the attributional model of training (Steiner et al., 1991) as a framework to determine empirically if the trainer and trainees' attributions are what directly impact trainer behavior. Additionally, work experience here was treated as a global composite variable, however future work is needed to assess if specific types of trainer work experience matter more than others. For example, longer tenure at an organization may be more important for OJT effectiveness compared to job tenure as time spent at an organization allows for the accrual of tacit and company-specific procedural knowledge (McAdam et al., 2007).

Future research can also explore how trainee motivation, self-efficacy, and other individual characteristics impact their perceptions of training and the trainer. Towler and Dipboye (2006) examined the effects of trainer reputation and trainees' need for cognition on training outcomes. While conducted via a laboratory study, the authors found that the interaction of trainer reputation and trainee need for cognition influenced trainee ratings (Towler & Dipboye, 2006). The reputation of a training program in general could also impact the trainee's self-efficacy and motivation before training even begins (Switzer et al., 2005). The current study did not include motivational and individual characteristics of the trainee and how that plays a role in structured OJT. While there is literature on motivation and individual characteristics in training in general (e.g., Sitzmann et al., 2008; Tziner et al., 2007, Velada et al., 2007), more research is needed in the structured on-the-job training context.

This study demonstrated the importance of structuring training, especially when that training occurs directly in the job context. This work contributes to the literature by further investigating the influence of the trainer on trainee perceptions, an area that typically receives less attention compared to the learner perspective. Beyond scientific contributions, such research can better inform the design and development process of organizational training programs. Knowledge of the impact of trainer characteristics and behaviors on trainee perceptions can be used to enhance trainer professional development practices.

References

Aamodt, M.G., Kimbrough, W.W., Keller, R.J., & Crawford, K.J. (1982).

    Relationship between sex, race, and job performance level and the

    generation of critical incidents. *Educational Psychology Review*, *2*(4),

    227-234.

Ahadi, S. & Jacobs, R.L. (2017). A review of the literature on structured on-the-

    job training and directions for future research. *Human Resource*

    Development Review, *16*(4), 323-349.

Allen, W.C. (2006). Overview and evolution of the ADDIE training system.

    Advances in Developing Human Resources, *8*(4), 430-441.

Analoui, F. (1994). Training and development: The role of trainers. *Journal of*

    Management, *13*(9), 61-72.

Anzai, Y., & Yokoyama, T. (1984). Internal models in physics problem

    solving. *Cognition and Instruction, 1*(4), 397-450.

Baldwin, T. T., & Ford, J. K. (1988). Transfer of training: A review and directions

    for future research. *Personnel Psychology, 41*(1), 63-105.

Bandura, A. (1977). *Social learning theory*. Prentice Hall.

Bandura, A. (1971). *Social learning theory.* General Learning Press.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive*

    theory. Prentice Hall.

Bell, B.S. & Kozlowski, S.W. (2002). Adaptive guidance: Enhancing self-

    regulation, knowledge, and performance in technology-based training.

    Personnel Psychology, *55*(2), 267-306.

Bell, B. S., Tannenbaum, S. I., Ford, J. K., Noe, R. A., & Kraiger, K. (2017). 100
years of training and development research: What we know and where we
should go. *Journal of Applied Psychology*, *102*(3), 305-323.

Berghmans, I., Druine, N., Dochy, F., & Struyven, K. (2012). A facilitative versus
directive approach in training clinical skills? Investigating students'
clinical performance and perceptions. *Perspectives on Medical Education*,
1(3), 104-118.

Bisbey, T., Traylor, A., & Salas, E. (2020). Implications of the changing nature of
work for training. In B. Hoffman, M. Shoss, & L. Wegman (Eds.), *The
Cambridge handbook of the changing nature of work* (Cambridge
Handbooks in Psychology, pp. 364-382). Cambridge University Press.

Bliege Bird, R. & Smith, E.A. (2005). Signaling theory, strategic interaction, and
symbolic capital. *Current Anthropology*, *46*, 221-238.

Blume, B.D., Ford, J.K., Baldwin, T.T., & Huang, J.L. (2010). Transfer of
training: A meta-analytic review. *Journal of Management*, *36*(4), 1065-
1105.

Blume, B.D., Ford, J.K., Surface, E.A., & Olenick, J. (2017). A dynamic model of
training transfer. *Human Resource Management Review*, *29*(2), 270-283.

Bolkan, S. (2017). Instructor clarity, generative processes, and mastery goals:
Examining the effects of signaling on student learning. *Communication
Education, 66*(4), 385-401.

Bolkan, S., Goodboy, A.K., & Kelsey, D.M. (2016). Instructor clarity and student
motivation: Academic performance as a product of students' ability and

motivation to process instructional material. *Communication Education*, *65*(2), 129-148.

Bradley, J. H., Paul, R., & Seeman, E. (2006). Analyzing the structure of expert knowledge. *Information & Management*, *43*(1), 77-91.

Brown, K.G., Rietz, T.A., & Sugrue, B. (2005). The effects of videoconferencing, class size, and learner characteristics on training outcomes. *Performance Improvement Quarterly*, *18*(1), 59-82.

Bunch, K.J. (2007). Training failure as a consequence of organizational culture. *Human Resource Development Review*, *6*(2), 142-163.

Bunderson, J.S. (2003). Recognizing and utilizing expertise in work groups: A status characteristics perspective. *Administrative Science Quarterly*, *48*(4), 557-591.

Burke, L.A. & Hutchins, H.M. (2007). Training transfer: An integrative literature review. *Human Resource Development Review*, *6*(3), 263-296.

Burke, L.A. & Hutchins, H.M. (2008). Identifying best practices in training transfer: A qualitative study of training professionals. Human Resource Development Quarterly, *19*(2), 107-128.

Burmeister, A. & Deller, J. (2016). Knowledge retention from older and retiring workers: What do we know, and where do we go from here? *Work, Aging, and Retirement*, *2*, 1-18.

Button, S.B., Mathieu, J.E., & Zajac, D.M. (1996). Goal orientation in organizational research: A conceptual and empirical foundation. *Organizational Behavior and Human Decision Processes*, *67*, 26-48.

Calo, T.J. (2008). Talent management in the era of the aging workforce: The

    critical role of knowledge transfer. *Public Personnel Management*, *37*(4),

    403-416.

Camerer, C., Loewenstein, G., & Weber, M. (1989). The curse of knowledge in

    economic settings: An experimental analysis. *Journal of Political*

    Economy, 97(5), 1232-1254.

Canas, J.J., Fajardo, I., & Salmeron, L. (2006). Cognitive flexibility. In W.

    Karwowski (Ed.), *International encyclopedia of ergonomics and human*

    factors (2nd ed., pp. 297-301). CRC Press.

Cascio & Montealegre (2016). How technology is changing work and

    organizations. *Annual Review of Organizational Psychology and*

    Organizational Behavior, *3*, 349-375.

Cerasoli, C. P., Alliger, G. M., Donsbach, J. S., Mathieu, J. E., Tannenbaum, S. I.,

    & Orvis, K. A. (2018). Antecedents and outcomes of informal learning

    behaviors: A meta-analysis. *Journal of Business and Psychology*, *33*(2),

    203-230.

Chatterjee, A., Pereira, A. & Bates, R. (2018). Impact of individual perception of

    organizational culture on the learning transfer environment. *International*

    Journal of Training and Development, *22*(1), 15-33.

Chesebro, J.L. (2003). Effects of teacher clarity and nonverbal immediacy on

    student learning, receive apprehension, and affect. *Communication*

    Education, *52*, 135-147.

Chesebro, J.L. & McCroskey, J.C. (1998). The development of the teacher clarity

short inventory (TCSI) to measure clear teaching in the classroom.

Communication Research Reports, 15(3) 262-266.

Chesebro, J.L. & McCroskey, J.C. (2001). The relationship of teacher clarity and

immediacy with student state receive apprehension, affect, and cognitive

learning. *Communication Education*, *50*, 59-68.

Chiaburu, D.S. & Marinova, S.V. (2005). What predicts skill transfer? An

exploratory study of goal orientation, training self-efficacy and

organizational supports. *International Journal of Training and

Development*, *9*(2), 110-123.

Choi, Y.J., Lee, C., & Jacobs, R.L. (2015). The hierarchical linear relationship

among structured on-the-job training activities, trainee characteristics,

trainer characteristics, training environment characteristics, and

organizational characteristics of workers in small and medium-sized

enterprises. *Human Resource Development International*, *18*(5), 499-520.

Colquitt, J. A., LePine, J. A., & Noe, R. A. (2000). Toward an integrative theory

of training motivation: A meta-analytic path analysis of 20 years of

research. *Journal of Applied Psychology*, *85*(5), 678.

Cooper, W.H. & Withey, M.J. (2009). The strong situation hypothesis.

Personality and Social Psychology Review, *13*, 62-72.

Cornford, I. & Athanasou, J. (1995). Developing expertise through training.

Industrial and Commercial Training, *27*(2), 10-18.

Dane, E. (2010). Reconsidering the trade-off between expertise and flexibility: A cognitive entrenchment perspective. *Academy of Management Review*, *35*(4), 579-603.

Davies, J. & Easterby-Smith, M. (1984). Learning and developing from managerial work experiences. *Journal of Management Studies*, *21*, 169-183.

De Grip, A. & Sauermann, J. (2013). The effect of training on productivity: The transfer of on-the-job training from the perspective of economics. *Educational Research Review*, *8*, 28-36.

De Jong, J.A. & Versloot, B. (1999). Structuring on-the-job training: Report of a multiple case study. International Journal of Training and Development, 3(3), 186-199.

De Pater, I.E., Van Vianen, A.E., Bechtoldt, M.N., & Klehe, U.C. (2009). Employees' challenging job experiences and supervisors' evaluations of promotability. *Personnel Psychology*, *62*(2), 296-325.

DeLong, D. W. (2004). *Lost knowledge: Confronting the threat of an aging workforce.* Oxford University Press.

Derouin, R.E., Parrish, T.J., & Salas, E. (2005). On-the-job training: Tips for ensuring success. *Ergonomics in Design*, *13*(2), 23-26.

Desai, M.N. (2022). Experience as a double-edged sword: The relationship between prior management experience and job performance. *British Journal of Management*, 0, 1-19.

Dierdorff, E.C. & Surface, E.A. (2007). Assessing training needs: Do work experience and capability matter? *Human Performance*, *21*, 28-48.

Dierdorff, E.C., Surface, E.A., & Brown, K.G. (2010). Frame-of-reference training effectiveness: Effects of goal orientation and self-efficacy on affective, cognitive, skill-based and transfer outcomes. *Journal of Applied Psychology*, *95*(6), 1181-1191.

Dipboye, R.L. & Flanagan, M.F. (1979). Research settings in industrial and organizational psychology: Are findings in the field more generalizable than in the laboratory? American Psychologist, *34*(2), 141-150.

Dreyfus, H. and Dreyfus, S. (1986). *Mind over Machine*, The Free Press.

Driscoll, M.P. (2000). *Psychology of learning for instruction* (2nd ed.). Allyn & Bacon.

Duncan, C.S. (1985). Job performance aids. Job aids really can work: A study of the military application of job aid technology. *Performance + Instruction*, *24*(2), 1-4.

DuVernet, A.M., Dierdorff, E.C., & Wilson, M.A. (2015). Exploring factors that influence work analysis data: A meta-analysis of design choices, purposes, and organizational context. *Journal of Applied Psychology*, *100*(5), 1603-1631.

Erdfelder, F. F., Buchner, A., & Land, A.G. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, *41*, 1149–1160.

Ericsson, K.A., Preitula, M.J., & Cokely, E.T. (2007). *The making of an expert. Harvard Business Review*, *85*, 114-121.

Ertmer, P.A., Stepich, D.A., York, C.S., Stickman, A., Wu, X., Zurek, S. & Goktas, Y. (2008). How instructional design experts use knowledge and experience to solve ill-structured problems. *Performance Improvement Quarterly*, *21*(1), 17-42.

Fisher, M. & Keil, F.C. (2016). The curse of expertise: When more knowledge leads to miscalibrated explanatory insight. *Cognitive Science*, 40, 1251-1269.

Ford, J.K., Baldwin, T.T., & Prasad, J. (2018). Transfer of training: The known and unknown. *Annual Review of Organizational Psychology and Organizational Behavior*, *5*, 201-225.

Ford, J.K., Quinones, M.A., Sego, D.J., & Sorra, J.S. (1992). Factors affecting the opportunity to perform trained tasks on the job. *Personnel Psychology*, *45, 511-527*.

Ford, J.K., Smith, E.M., Sego, D.J., & Quiñones, M.A. (1993). Impact of task experience and individual factors on training-emphasis ratings. *Journal of Applied Psychology*, *78*(4), 583-590.

Freitas, A.C. & Silva, S.A. (2017). Exploring OHS trainers' role in the transfer of training. *Safety Science*, *91*, 310-319.

Frensch, P. A., & Sternberg, R. J. (1989). Expertise and intelligent thinking: When is it worse to know better? *Advances in the Psychology of Human Intelligence, 5,* 157-88.

Galbraith, W. (1998). Becoming an effective teacher of adults. In M.W. Galbraith (E.D.), *Adult learning methods* (pp. 3-19). Kreiger Publishing Company.

Gauld, D. & Miller, P. (2004). The qualifications and competencies held by effective workplace trainers. *Journal of European Industrial Training*, *28*(1), 8-22.

Gegenfurtner, A. & Vauras, M. (2012). Age-related differences in the relation between motivation to learn and transfer of training in adult continuing education. *Contemporary Educational Psychology*, *37*, 33-46.

Ghosh, P., Satyawadi, R., Joshi, J.P., Ranjan, R., & Singh, P. (2012). Towards more effective training programmes: A study of trainer attributes. *Industrial and Commercial Training*, 44(4), 194-202.

Giangreco, A., Sebastiano, A., & Peccei, R. (2009). Trainees' reactions to training: An analysis of the factors affecting overall satisfaction with training. *The International Journal of Human Resource Management,* *20*(1), 96-111.

Glerum, D. R., Joseph, D. L., McKenny, A. F., & Fritzsche, B. A. (2021). The trainer matters: Cross-classified models of trainee reactions. *Journal of Applied Psychology*, *106*(2), 281.

Graham, J.W. (2009). Missing data analysis: Making it work in the real world. *Annual Review of Psychology*, *60*, 549-576.

Grohmann, A., Beller, J. & Kauffeld, S. (2014). Exploring the critical role of motivation to transfer in the training transfer process. *International Journal of Training and Development*, *18*(2), 84-103.

Grossman, R. & Salas, E. (2011). The transfer of training: What really matters. *International Journal of Training and Development*, *15*, 103-120.

Grossman, R., Salas, E., Pavlas, D., & Rosen, M.A. (2013). Using instructional features to enhance demonstration-based training in management education. *Academy of Management Learning & Education*, *12*(2), 219-243.

Harris, T.B., Chung, W., Frye, C.L., & Chiaburu, D.S. (2014). Satisfaction guaranteed? Enhanced impact of trainer competence for autonomous trainees. *Industrial and Commercial Training*, *46*(5), 270-277.

Harris, T.B., Chung, W., Hutchins, H.M., & Chiaburu, D.S. (2014). Do trainer style and learner orientation predict training outcomes? *Journal of Workplace Learning*, *26*(5), 331-344.

Hedge, J.W., Borman, W.C., & Lammlein, S.E. (2006). *The aging workforce: Realities, myths, and implications for organizations.* American Psychological Association.

Highhouse, S. & Gillespie, J.Z. (2010). Do samples really matter that much? In *Statistical and methodological myths and urban legends* (pp. 267-286). Routledge.

Hodkinson, P. (2005). Reconceptualising the relations between college-based and workplace learning. *Journal of Workplace Learning*, *17*(8), 521-532.

Holladay, C.L. & Quiñones, M.A. (2003). Practice variability and transfer of training: The role of self-efficacy generality. *Journal of Applied Psychology*, *88*(6), 1094-1103.

Holladay, C.L. & Quiñones, M.A. (2008). The influence of training focus and trainer characteristics on diversity training effectiveness. *Academy of Management Learning & Education*, *7*(3), 343-354.

Huang, Y.M., Chen, C.C., & Lai, S.Y. (2013). Test of a multidimensional model linking applicant work experience and recruiters' inferences about applicant competences. *The International Journal of Human Resource Management*, *24*(19), 3613-3629.

Huber, G.P. & Power, D.J. (1985). Retrospective reports of strategic-level managers: Guidelines for increasing their accuracy. *Strategic Management Journal*, *6*, 171-180.

Hughes, A.M., Zajac, S., Spencer, J.M., & Salas, E. (2018). A checklist for facilitating training transfer in organizations. *Journal of Training and Development*, *22*(4), 334-345.

Hutchins, H.M. (2009). In the trainer's voice: A study of training transfer practices. *Performance Improvement Quarterly*, *22*(1), 69-93.

Hutchins, H.M., Burke, L.A., & Berthelsen, A.M. (2010). A missing link in the transfer problem? Examining how trainers learn about training transfer. *Human Resource Management*, *49*(4), 599-618.

Jacobs, R.L. (2003). *Structured on-the-job training: Unleashing employee expertise in the workplace.* Berrett-Koehler.

Jacobs, R. L. (2014). *Structured on-the-job training.* In R. Poell, T. Rocco & G. Roth (Eds.), Companion guide to human resource development (pp. 272-284). Routledge.

Jacobs, R. L., & Bu-Rahmah, M. J. (2012). Developing employee expertise through structured on-the-job training (S-OJT): An introduction to this training approach and the KNPC experience. *Industrial and Commercial Training, 44*, 75-84.

Jacobs, R. L., & Jones, M. J. (1995). *Structured on the job training: Unleashing employee expertise in the workplace.* Berrett-Koehler.

Joe, C., Yoong, P., & Patel, K. (2013). Knowledge loss when older experts leave knowledge-intensive organizations. *Journal of Knowledge Management, 17*(6), 913-927.

Johnson, S.D. & Leach, J.A. (2001). Using expert employees to train on the job. *Advances in Developing Human Resources*, *3*(4), 425-434.

Johnson, R.B., Onwuegbuzie, A.J., & Turner, L.A. (2007). Toward a definition of mixed methods research. *Journal of Mixed Methods Research*, *1*(2), 112-133.

Kalargyrou, V. & Woods, R.H. (2010). Wanted: training competencies for the twenty-first century. *International Journal of Contemporary Hospitality Management*. *23*(3), 361-376.

Kalyuga, S. (2007). Expertise reversal effect and its implication for learner-tailored instruction. *Educational Psychology Review*, *19*(4), 509-539.

Kandiller, S.T. & Özler, D. (2015). From teacher to trainer: What changes? Or does it? *Procedia-Social and Behavioral Sciences*, *199*, 436-452.

Kerssen-Griep, J., Hess, J.A. & Trees, A.R. (2003). Sustaining the desire to learn: Dimensions of perceived instructional facework related to student

involvement and motivation to learn. *Western Journal of Communication*, *67*, 357-381.

Kim, K., Oh, I., Chiaburu, D.S., & Brown, K.G. (2012). Does positive perception of oneself boost learning motivation and performance? *International Journal of Selection and Assessment*, *20*(3), 257-271.

Kim, J.H. & Lee, C. (2001). Implications of near and far transfer of training on structured on-the-job training. *Advances in Developing Human Resources*, *3*(4), 442-451.

Klein, H.J., Noe, R.A., & Wang, C. (2006). Motivation to learn and course outcomes: The impact of delivery mode, learning goal orientation, and perceived barriers and enablers. *Personnel Psychology*, *59,* 665-702.

Koskela, I. & Palukka, H. (2011). Trainer interventions as instructional strategies in air traffic control training. *Journal of Workplace Learning*, 23, 293-314.

Kraiger, K. (2014). Looking back and looking forward: Trends in training and development research. *Human Resource Development Quarterly*, *25*(4), 401-408.

Kraiger, K. & Aguinis, H. (2001). Training effectiveness: Assessing training needs, motivation, and accomplishments. In M. London (Ed.), *How people evaluate others in organizations* (pp. 203-220). Lawrence Erlbaum.

Kraiger, K., Ford, J.K., & Salas, E. (1993). Application of cognitive, skill-based, and affective theories of learning outcomes to new methods of training evaluation. *Journal of Applied Psychology*, *78*(2), 311-328.

Kuhlmann, D.O. & Ardichvili, A. (2015). Becoming an expert: Developing

    expertise in an applied discipline. *European Journal of Training and*

    Development, 39, 262-276.

Latham, G.P. & Saari, L.M. (1979). Application of social-learning theory to

    training supervisors through behavioral modeling. *Journal of Applied*

    Psychology, *64*(3), 239-246.

Lave, L.B., Ashworth, M., & Gellings, C. (2007). The aging workforce:

    Electricity industry challenges and solutions. *The Electricity Journal*,

    20(2), 71-80.

Leach, J.A. (1996). Distinguishing characteristics among exemplary trainers in

    business and industry. *Journal of Vocational and Technical Education*,

    12(2), 5-18.

Lee, C., Choi, Y.J., & Paek, J.Y. (2013). The relationship between training

    transfer and the related variables of the S-OJT trainees in small-medium

    sized enterprises. *The Journal of Korean Vocational Education Research*,

    32(5, 47-68.

Lee, L. M. (2020). How Supportive Behaviors of Instructors and Supervisors

    Influence Trainee Self-Efficacy and Motivation. *Performance*

    Improvement Quarterly, *33*(3), 349-370.

Lewandowsky, S. & Thomas, J.L. (2015). Expertise: Acquisition, limitations, and

    control. *Reviews of Human Factors and Ergonomics*, *5*(1), 140-165.

Lim, D.H. & Morris, M.L. (2006). Influence of trainee characteristics,

    instructional satisfaction, and organizational climate on perceived learning

and training transfer. *Human Resource Development Quarterly*, *17*(1), 85-115.

Little, R. J. (1988). A test of missing completely at random for multivariate data with missing values. *Journal of the American Statistical Association*, 83(404), 1198-1202.

Marko, B.O., Kolomitro, K., & Lam, T.C.M. (2014). Training methods: A review and analysis. *Human Resource Development Review*, *13*(1), 11-35.

Martocchio, J. J. (1994). Effects of conceptions of ability on anxiety, self-efficacy, and learning in training. *Journal of applied psychology*, *79*(6), 819-825.

Matsuo, M. (2014). Instructional skills for on-the-job training and experiential learning: an empirical study of Japanese firms. *International Journal of Training and Development*, *18*, 225-240.

McAdam, R., Mason, B., & McCrory, J. (2007). Exploring the dichotomies within the tacit knowledge literature: Towards a process of tacit knowing in organizations. *Journal of Knowledge Management*, 11(2), 43-59.

McCauley, C.D., Ruderman, M.N., Ohlott, P.J., & Morrow, J.E. (1994). Assessing the developmental components of managerial jobs. *Journal of Applied Psychology*, *79*, 544-560.

McCauley, C.D., Ohlott, P.J., & Morrow, J.E. (1999). *Job challenge profile.* Jossey-Bass and Pfeiffer.

McCroskey, J.C. & Teven, J.J. (1999). Goodwill: A reexamination of the construct and its measurement. *Communication Monographs*, *66*, 90-103.

McDaniel, M.A., Schmidt, F.L., & Hunter, J.E. (1988). Job experience correlates of job performance. *Journal of Applied Psychology*, *73*(2), 327-330.

McDonald, D. W., & Ackerman, M. S. (1998, November). Just talk to me: a field study of expertise location. In *Proceedings of the 1998 ACM conference on Computer supported cooperative work* (pp. 315-324).

McGuire, D. & Gubbins, C. (2010). The slow death of formal learning: A polemic. *Human Resource Development Review*, *9*(3), 249-265.

Meyer, R.D., Dalal, R.S., & Hermida, R. (2010). A review and synthesis of situational strength in the organizational sciences. *Journal of Management, 36*, 121-140.

Mischel, W. (1988). The interaction of person and situation. In D. Magnusson & N.S. Endler (Eds.), *Personality at the crossroads: Current issues in interactional psychology* (pp. 333-352). Erlbaum.

Montealegre, R., & Cascio, W. F. (2017). Technology-driven changes in work and employment. *Communications of the ACM*, *60*(12), 60-67.

Morgeson, F.P. & Campion, M.A. (1997). Social and cognitive sources of potential inaccuracy in job analysis. *Journal of Applied Psychology*, 82, 627-655.

Morgeson, F.P. & Campion, M.A. (2000). Accuracy in job analysis: Toward an inference-based model. *Journal of Organizational Behavior*, 21, 819-827.

Morgeson, F.P. & Dierdorff, E.C. (2010). Work analysis: From technique to theory. In S. Zedeck (Ed.), *APA handbook of industrial and organizational*

psychology (Vol 2, pp. 3-41). Washington, DC: American Psychological

Association.

Noe, R.A. & Schmitt, N. (1986). The influence of trainee attitudes on training

effectiveness: Test of a model. *Personnel Psychology, 39*(3), 497-523.

North American Electric Reliability Cooperation (2009). *PER-005-2 Operations*

Personnel Training. Retrieved from

https://www.nerc.com/pa/Stand/Pages/ReliabilityStandards.aspx.

Nückles, M., Winter, A., Witter, J., Hebert, M., & Hübner, S. (2006). How do

experts adapt their explanations to a layperson's knowledge in

asynchronous communication? An experimental study. *User Modeling*

and User-Adapted Interaction, *16*, 87-127.

Persky, A.M. & Robinson, J.D. (2017). Moving from novice to expertise and its

implications for instruction. *American Journal of Pharmaceutical*

Education, *81*(9), 72-80.

Peugh, J. L., & Enders, C. K. (2004). Missing data in educational research: A

review of reporting practices and suggestions for improvement. *Review of*

Educational Research, 74, 525-556.

Powell, R.G. & Harville, B. (1990). The effects of teacher immediacy and clarity

on instructional outcomes: An intercultural assessment. *Communication*

Education, *39*, 369-379.

Quiñones, M.A., Ford, J.K., & Teachout, M.S. (1995). The relationship between

experience and job performance: A conceptual and meta-analytic review.

Personnel Psychology, *48*(4), 887-910.

Quiñones, M.A. (2004). Work experience: A review and research agenda. *International Review of Industrial and Organizational Psychology*, 19, 119-138.

Rangel, B., Chung, W., Harris, T.B., Carpenter, N.C., Chiaburu, D.S., & Moore, J.L. (2015). Rules of engagement: The joint influence of trainer expressiveness and trainee experiential learning style on engagement and training transfer. *International Journal of Training and Development*, *19*(1), 18-31.

Richman, W.L. & Quiñones, M.A. (1996). Task frequency rating accuracy: The effect of task engagement and experience. *Journal of Applied Psychology*, *81*(5), 512-524.

Ricks, Jr., J.M., Williams, J.A., & Weeks, W.A. (2008). Sales trainer roles, competencies, skills, and behaviors: A case study. *Industrial Marketing Management*, 37, 593-609.

Rothwell, W.J. & Kazanas, H.C. (2004). *Improving on-the-job training: How to establish and operate a comprehensive OJT program.* John Wiley & Sons.

Russ-Eft, D. (2002). A typology of training design and work environment factors affecting workplace learning and transfer. *Human Resource Development Review*, *1*, 45-65.

Ryu, E. Couper, M.P. & Marans, R.W. (2005). Survey incentives: Cash vs. in-kind; face-to-face vs. mail; response rate vs. nonresponse error. International Journal of Public Opinion Research, 18(1), 89-106.

Saks, A.M. & Burke-Smalley, L.A. (2014). Is transfer of training related to firm

    performance? *International Journal of Training and Development*, *18*(2),

    104-115.

Salas, E. & Rosen, M.A. (2010). Experts at work: Principles for developing

    expertise in organizations. In S. Kozlowski & E. Salas (Eds.), *Learning,*

    training and development in organizations (pp. 99-134). Routledge.

Salas, E. & Stagl, K.C. (2009). Design training systematically and follow the

    science of training. In E. Locke (Ed.), *Handbook of principles of*

    organizational behavior: Indispensable knowledge for evidence-based

    management (2nd ed., pp. 59-84). Wiley.

Salas, E., DiazGranados, D., Klein, C., Burke, C.S., Stagl, K.C., Goodwin, G.F.,

    & Halpin, S.M. (2008). Does team training improve team performance? A

    meta-analysis. *Human Factors*, *50*(6), 903-933.

Salas, E., Tannenbaum, S. I., Kraiger, K., & Smith-Jentsch, K. A. (2012). The

    science of training and development in organizations: What matters in

    practice. *Psychological Science in the Public Interest*, *13*(2), 74-101.

Sartori, R., Costantini, A., Ceschi, A., & Tommasi, F. (2018). How do you

    manage change in organizations? Training, development, innovation, and

    their relationships. *Frontiers in Psychology*, *9*, 313.

Schafer, J.L. & Graham, J.W. (2002). Missing data: Our view of the state of the

    art. *Psychological Methods*, 7(2), 147-177.

Schraagen, J. M. (2009). Designing training for professionals based on subject

    matter experts and cognitive task analysis. In K. A. Ericsson (Ed.),

Development of professional 303 expertise: Toward measurement of expert performance and design of optimal learning environments (pp. 157-179). Cambridge University Press.

Seidel, T., Rimmele, R., & Prenzel, M. (2005). Clarity and coherence of lesson goals as a scaffold for student learning. *Learning and Instruction*, *15*, 539-556.

Shapiro, J.R., King, E.B., & Quiñones, M.A. (2007). Expectations of obese trainees: How stigmatized trainee characteristics influence training effectiveness. *Journal of Applied Psychology*, *92*(1), 239-249.

Singer, E., & Ye, C. (2013). The use and effects of incentives in surveys. *The Annals of the American Academy of Political and Social Science*, *645*(1), 112-141.

Sitzmann, T., Brown, K.G., Casper, W.J., Ely, K. & Zimmerman, R.D. (2008). A review and meta-analysis of the nomological network of trainee reactions. *Journal of Applied Psychology*, *93*(2), 280-295.

Sitzmann, T. & Weinhardt, J.M. (2017). Approaching evaluation from a multilevel perspective: A comprehensive analysis of the indicators of training effectiveness. *Human Resource Management Review*, *29*(2), 253-269.

Smith-Jentsch, K.A., Salas, E., & Brannick, M.T. (2001). To transfer or not to transfer? Investigating the combined effects of trainee characteristics, team leader support, and team climate. Journal of Applied Psychology, 86(2), 279-292.

Spaulding, K. & Dwyer, F. (1999). Effect of job aids in facilitating learners'
cognitive development. *International Journal of Instructional Media*,
26(1), 87-102.

Spaulding, K. & Dwyer, (2001). The effect of time-on-task when using job aids as
an instructional strategy. *International Journal of Instructional Media*,
28(4), 437-447.

Spearman, C. (1904). The proof and measurement of association between two
things. *The American Journal of Psychology*, *15*(1), 72-101.

Steiner, D.D., Dobbins, G.H., & Trahan, W.A. (1991). The trainer-trainee
interaction: An attributional model of training. *Journal of Organizational
Behavior*. 12, 271-286.

Sumbal, M.S., Tsui, E., Durst, S., Shujahat, M., Irfan, I., & Ali, S.M. (2019). A
framework to retain the knowledge of departing knowledge workers in the
manufacturing industry. *Journal of Information and Knowledge
Management Systems*, *50*(4), 631-661.

Sumbal, M.S., Tsui, E., See-to, E. & Barendrecht, A. (2017). Knowledge
retention and aging workforce in the oil and gas industry: A multi-
perspective study. *Journal of Knowledge Management*, 21(4), 907-924.

Sung, S.Y. & Choi, J.N. (2014). Do organizations spend wisely on employees?
Effects of training and development investments on learning and
innovation in organizations. *Journal of Organizational Behavior*, *35*(3),
393-412.

Swanson, R.A. & Falkman, S.K. (1997). Training delivery problems and solutions: Identification of novice trainer problems and expert trainer solutions. *Human Resource Development Quarterly*, *8*(4), 305-314.

Switzer, K.C., Nagy, M.S., & Mullins, M.E. (2005). The influence of training reputation, managerial support, and self-efficacy on pre-training motivation and perceived training transfer. *Applied H.R.M. Research*, *10*(1), 21-34.

Tai, W.T. (2006). Effects of training framing, general self-efficacy, and training motivation on trainees' training effectiveness. *Personnel Review*, *35*(1), 51-65.

Tesluk, P.E. & Jacobs, R.R. (1998). Toward an integrated model of work experience. *Personnel Psychology*, *51*(2), 321-355.

Titsworth, S. & Mazer, J.P. (2010). Clarity in teaching and learning: Conundrums, consequences, and opportunities. In D.L. Fassett & J.T. Warren (Eds.), *The Sage handbook of communication and instruction* (pp. 241-262). Sage.

Titsworth, S., Mazer, J.P., Goodboy, A.K., Bolkan, S., & Myers, S.A. (2015). Two meta-analyses exploring the relationship between teacher clarity and student learning. *Communication Education*, *64*, 385-418.

Towler, A.J. & Dipboye, R.L. (2001). Effects of trainer expressiveness, organization, and trainee goal orientation on training outcomes. *Journal of Applied Psychology*, *86*(4), 664-673.

Towler, A.J. & Dipboye, R.L. (2006). Effects of trainer reputation and trainees' need for cognition on training outcomes. *The Journal of Psychology*, *140*(6), 549-564.

Towler, A. (2009). Effects of trainer expressiveness, seductive details, and trainee goal orientation on training outcomes. *Human Resource Development Quarterly*, *20*(1), 65-84.

Towler, A., Arman, G., Quesnell, T., & Hoffman, L. (2014). How charismatic trainers inspire others to learn through positive affectivity. *Computers in Human Behavior*, *32*, 221-228.

Tracey, J.B., Hinkin, T.R., Tannenbaum, S., & Mathieu, J.E. (2001). The influence of individual characteristics and the work environment on varying levels of training outcomes. *Human Resource Development Quarterly*, *12*(1), 5-23.

Trautman & Klein (1993). Ask an expert. *Training and Development*, *47*(7), 45-58.

Treem, J.W. (2016). How organizations communicate expertise without experts: Practices and performances of knowledge-intensive firms. *Management Communication Quarterly*, *30*, 503-531.

Trinh, M.P. (2019). Overcoming the shadow of expertise: How humility and learning goal orientation help knowledge leaders become more flexible. *Frontiers in Psychology*, 10, 1-19.

Tross, S.A. & Mauer, T.J. (2000). The relationship between SME job experience

and job analysis ratings: Findings with and without statistical control.

Journal of Business and Psychology, *15*(1), 97-110.

Tziner, A., Fisher, M., Senior, T., & Weisberg, J. (2007). Effects of trainee

characteristics on training effectiveness. *International Journal of Selection

and Assessment*, *15*(2), 167-174.

Ullén, F., Hambrick, D.Z., & Mosing, M.A. (2016). Rethinking expertise: A

multifactorial gene-environment interaction model of expert performance.

Psychological Bulletin, *142*(4), 427-446.

Van der Klink, M.R. & Streumer, J.N. (2002). Effectiveness of on-the-job

training. *Journal of European Industrial Training*, *26*, 196-199.

Velada, R., Caetano, A., Michel, J.W., Lyons, B.D., & Kavanagh, M.J. (2007).

The effects of training design, individual characteristics and work

environment on transfer of training. *International Journal of Training and

Development*, *11*(4), 282-294.

Warr, P. & Downing, J. (2000). Learning strategies, learning anxiety and

knowledge acquisition. *British Journal of Psychology*, *91*, 311-333.

Wexley, K.N. & Latham, G.P. (1991). *Developing and training human resources

in organizations.* Harper Collins Publishers.

Wiley, J. (1998). Expertise as mental set: The effects of domain knowledge in

creative problem solving. *Memory & Cognition*, *26*(4), 716-730.

Williams, S.W. (2001). The effectiveness of subject matter experts as technical

trainers. *Human Resource Development Quarterly*, *12*(1), 91-97.

Witt, P.L. & Kerssen-Griep, J. (2011). Instructional feedback I: The interaction of facework and immediacy on students' perceptions of instructional credibility. *Communication Education*, 60(1), 75-94.

Wittwer, J., Nückles, M., & Renkl, A. (2007). Is underestimation less detrimental than overestimation? The impact of experts' beliefs about a layperson's knowledge on learning and question asking. *Instructional Science*, *36*(1), 27-52.

Appendix A. Recruitment Email to Company Primary Contact from Principal Investigator

Hello,

I hope you are doing well. I am writing to ask for your help with an important survey I am conducting of on-the-job training (OJT) trainers and trainees at electric utilities. In collaboration with [company name redacted], I am conducting this research study for my dissertation to obtain my PhD in Industrial-Organizational Psychology at DePaul University.

This study is looking at the role of on-the-job training (OJT) trainer experience and the use of structured OJT guides and how it impacts trainee perceptions. For this study, I am interested in various factors that influence perceptions of OJT trainers and training, and therefore would like to seek responses from current and/or recent OJT trainers and trainees.

To this end, I am hoping that you could provide a list of potential survey participant email addresses. These potential participants would receive an individual email from myself explaining the purpose of the study, the survey link, and a unique ID access code.

It should only take about 10-15 minutes to complete this questionnaire. This survey is completely confidential, and participation is completely voluntary. Everyone's individual answers will not be linked with their name or organization in any reports of the data.

Please let me know if you are interested in your organization's participation in this research.

Should you have any comments or questions, please feel free to contact me at 484-678-1756 or jcoopers@depaul.edu.

Thank you very much!

Sincerely,
Jessie Cooperstein, PhD Candidate
Department of Psychology, DePaul University

Appendix B. Recruitment Email to Participants from Principal Investigator

Hello,

I hope you are doing well. I am writing to ask for your help with an important survey I am conducting of on-the-job training (OJT) trainers and trainees at electric utilities. In collaboration with [company name redacted], I am conducting this research study for my dissertation to obtain my PhD in Industrial-Organizational Psychology at DePaul University.

This study is looking at the role of on-the-job training (OJT) trainer experience and the use of structured OJT guides and how it impacts trainee perceptions. I am hoping that you could spend a few minutes to complete this survey. I am interested in various factors that influence perceptions of OJT trainers and training.

To this end, I would greatly appreciate if you would answer a few survey questions. To do so, simply go to this link: ***[Qualtrics survey link]***

In order to begin the survey, you will need to enter this access code: ***<<RESPID>>***

It should only take about 10-15 minutes to complete this questionnaire. This survey is completely confidential, and your participation is completely voluntary. Your individual answers will not be linked with your name or organization in any reports of the data.

All participant responses will be kept confidential and all results from this study will be used solely for research purposes. No personally identifiable information will be associated with your responses to any reports of these data. We will be keeping this survey open for completion for one month and will send reminder emails to participants.

Should you have any questions or comments, please contact me at 484-678-1756 or jcoopers@depaul.edu.

I really appreciate your help with my dissertation study and for your cooperation.

Thank you,
Jessie Cooperstein, PhD Candidate
Department of Psychology, DePaul University

Appendix C. Reminder Email to Participants

Hello,

Previously I had reached out asking for your help with my dissertation research looking at structured on-the-job training and trainee perceptions. If you have already completed the survey, thank you very much for your participation. If not, I have provided the survey link and your access code below. It is important to hear from as many OJT trainers and trainees as possible.

Here is the link to the survey: ***[Qualtrics survey link]***

In order to begin the survey, you will need to enter this access code: ***<<RESPID>>***

It should only take about 10-15 minutes to complete this questionnaire.

Your participation in the survey is completely voluntary and all your responses will be kept confidential. No personally identifiable information will be associated with your responses to any reports of these data. We will be keeping this survey open for completion for one month and will send reminder emails as well.

Should you have any comments or questions, please feel free to contact me at 484-678-1756 or jcoopers@depaul.edu.

Thank you very much for your time and cooperation!

Sincerely,
Jessie Cooperstein, PhD Candidate
Department of Psychology, DePaul University

Appendix D. Research Study Information and Adult Consent Form

**TRAINEE PERCEPTIONS OF STRUCTURED ON-THE-JOB
TRAINING (OJT): THE IMPACT OF TRAINER EXPEIRENCE
AND USE OF STRUCTURED OJT GUIDES**

Principal Investigator: Jessica Cooperstein, Graduate Student

Institution: DePaul University, Chicago, Illinois, USA

Department: Psychology

Faculty Advisor: Jane Halpert, PhD, Department of Psychology, College of Science and Health, DePaul University

Key Information:

What is the purpose of this research?
We are asking you to be in a research study because we are trying to learn more about structured on-the-job training (OJT), work experience, and the impact on trainee perceptions. It is intended to enroll up to 500 participants in this research. This study is being conducted by Jessica Cooperstein, a graduate student at DePaul University as a requirement to obtain her doctoral degree. This research is being supervised by her faculty advisor, Jane Halpert.

Why are you being asked to be in the research?
You are invited to participate in this study because you are either a current or recent on-the-job training (OJT) trainee or have provided on-the-job training to someone previously. You must be age 18 or older to be in this study. This study is not approved for the enrollment of people under the age of 18.

What is involved in being in the research study?
If you agree to be in this study, being in the research involves completion of a brief survey. This survey will begin after you agree to the informed consent process. You will be asked to respond to items related to your training perceptions and experiences as well as provide basic demographic information (e.g., gender, race, etc.). Those participants who identify in the survey as a current or recent OJT trainee will be asked to provide the first and last name of their OJT trainer and complete various measures regarding their views of the trainer.

Are there any risks involved in participating in this study?
Those participants who identify in the survey as a current or recent OJT Trainee will be asked to provide the first and last name of their OJT Trainer. There is a risk that feedback and perceptions about the trainer may get back to

the participant's organization. There is also a risk that OJT trainers who are viewed or rated negatively in the survey will suffer a negative consequence in their job performance.

Both risks will be mitigated by all participants being assigned a unique identifying code to input at the beginning of the survey to eliminate any personally identifying information. Both the unique ID code keys and the datafile that will be analyzed will be stored as password protected files on encrypted drives only accessible and viewed by the principal investigator. Any trainer names identified by trainees will immediately be assigned a trainer unique ID code to be used solely for the purposes of matching the data for analysis. All results that will be reported will be at the aggregate level and will be de-identified information.

Are there any benefits to participating in this study?
You will not personally benefit from being in this study, however we hope that what we learn will help improve on-the-job training (OJT) programs and contribute to our current knowledge of trainer and training effectiveness.

How much time will this take?
This survey will take about approximately 10-15 minutes of your time.

Other Important Information about Research Participation

Can you decide not to participate?
Your participation is voluntary, which means you can choose not to participate. There will be no negative consequences, penalties, or loss of benefits if you decide not to participate or change your mind later and withdraw from the research after you begin participating. Your decision whether or not to be in the research will not affect your employment.

Who will see my study information and how will the confidentiality of the information collected for the research be protected?
The research records will be kept and stored securely. Your information will be combined with information from other people taking part in the study. Your survey completion data will be assigned unique ID codes and your name will not be viewed in the data analysis or reporting.

Some people might review or copy our records that may identify you in order to make sure we are following the required rules, laws, and regulations. For example, the DePaul University Institutional Review Board may review your information. If they look at our records, they will keep your information confidential.

To prevent others from accessing our records or identifying you should they gain access to our records, we have put some protections in place. These

protections include using a code (a fake name, a study ID number, etc.) for you and other people in the study and keeping the records in a safe and secure place [using a password protected computer, encrypting our records, etc.). The principal investigator will be the only one to access the unique ID code key files which will be stored in a password-protected file on an encrypted drive.

We will remove the direct identifiers, like name or record number, from your information and replace it with a random code that cannot be linked back to you. This means we have de-identified your information. We will not use the information collected for this study for any future research of our own or share your information with other researchers. If individual companies that participate in the study receive an information regarding the results of the study, it will only be reported at the aggregate level and will be all de-identified data.

Who should be contacted for more information about the research?
Before you decide whether to accept this invitation to take part in the study, please ask any questions that might come to mind now. Later, if you have questions, suggestions, concerns, or complaints about the study or you want to get additional information or provide input about this research, you can contact the researcher, Jessica Cooperstein at 484-678-1756 or by email at jcoopers@depaul.edu.

This research has been reviewed and approved by the DePaul Institutional Review Board (IRB). If you have questions about your rights as a research subject, you may contact Jessica Bloom in the Office of Research Services at 312-362-6168 or by email at jbloom8@depaul.edu.

You may also contact DePaul's Office of Research Services if:
- Your questions, concerns, or complaints are not being answered by the research team.
- You cannot reach the research team.
- You want to talk to someone besides the research team.

You can print a copy of this information to keep for your records.

Statement of Consent from the Subject:

I have read the above information. I have had all my questions and concerns answered. By clicking "Yes", I am agreeing to be in the research and complete the online survey.

☐ Yes
☐ No

Appendix E. Trainer Role and Experience Scales

Please select the statement(s) that apply to your role with on-the-job training (OJT) at your organization. Select all that apply:
   a. I am currently an OJT trainer.
   b. I used to be an OJT trainer.
   c. I am currently an OJT trainee.
   d. I have received OJT as a trainee previously.
   e. I have never given or received OJT.

OJT Trainee Survey Version:

1. How long ago were you an OJT trainee?
2. How long has your OJT Trainer been an OJT Trainer at the time of your initial training?
3. How long has your OJT Trainer been in their current job (e.g., Transmission System Operator, Generation Operator, etc.) at the time of your initial training?
4. How long has your OJT Trainer been with your current organization at the time of your initial training?
5. How long has your OJT Trainer been in the system operations industry at the time of your initial training?

Note: Response options include: Less than six months; 6 months – 1 year; 1 -3 years; 3 – 5 years; 5 – 10 years; 10-15 years; 15 – 20 years; Over 20 years

OJT Trainer Survey Version:

1. How long ago were you an OJT trainer?
2. How long have you been an OJT Trainer?
3. Approximately how many people have you given on-the-job training (OJT)?
4. How long have you been in your current job (e.g., Transmission System Operator, Generation Operator, etc.)?
5. How long have you been with your current organization?
6. How long have you been in the system operations industry?

Note: Response options for Items 1-6: Less than six months; 6 months – 1 year; 1 -3 years; 3 – 5 years; 5 – 10 years; 10-15 years; 15 – 20 years; Over 20 years. Response options for Item 3: 1 – 3, 3 – 5, 5 – 10, 10 – 15, 15 – 20, More than 20

Challenging Job Experiences (adapted from De Pater et al., 2010)
To be included on just OJT Trainer survey

1. In my job I have dealt with tasks that are relatively new to me and that, strictly speaking, are not directly linked to my education and experience.
2. I have had experience with starting up or trying out something new or to initiate strategic changes in my department/division.
3. I have had experience with performing activities that are highly visible for others in my organization, for instance, for (top) management. As a consequence, my successes and failures are easily observable to others.
4. I am responsible for a diverse range of job responsibilities. For instance, I am responsible for several projects, services, workgroups, technologies, etc.
5. I have managed relationships with important external contacts and organizations, such as other entities and specific occupational groups.
6. To function effectively, I have had to use my influence with others who formally are not subjected to my authority, such as (top) management and important individuals working for other departments/divisions.
7. I have had experience with cooperating with individuals originating from diverse cultures or organizations.
8. I have had to regularly make an appearance in public, for instance, for presenting my work at a conference or representing my organization.
9. I have had experience with carrying out tasks that my colleagues consider risky.
10. For others, such as management, I personify a specific project within my organization.

Note: Response choices include 1= strongly disagree to 5 = strongly agree

Appendix F. Use of Structured OJT Guides Measure

To be included on <u>both</u> OJT Trainer and Trainee surveys

Below is an example of a structured on-the-job training guide for a given job task.

Structured on-the-job training guides include the following elements:

OJT Guide Component	Description/Purpose
Task Statement	The job responsibility to be learned during the OJT session.
Conditions	The initiating cues for the task, indicating when a task should be performed and what current circumstances could trigger a required action. There may be multiple conditions for a given task.
Tools	The tools required to perform the task.
References	User manuals, job aids, or other types of documents that may be used when performing a given task.
Procedures	Controlled company, regional, or national standards that govern performance of the task.
Criteria	The rules or principles for assessing whether a task has been successfully completed.
Learning Objectives	The skill and knowledge required for the trainee to perform the task accurately.
Task Steps	The sequence of actions that need to be taken to complete the task.

Did your OJT training sessions involve the use of structured OJT guides?
    a. Yes
    b. No
    c. Sometimes

To what extent did the OJT guides that were used in the training sessions include the following components?
    a. Task Statements
    b. Conditions
    c. Tools
       References
    d. Procedures
    e. Criteria
    f. Learning Objective
    g. Task Steps

Note: Response choices include 1= Never; 2 – Sometimes; 3 = About half the time; 4 = Most of the time; 5 = Always

Appendix G. Trainer User of Directive Behaviors Scale (adapted from Pearce and Sims, 2003)

To be included on <u>just</u> Trainee survey

Assigned goals
1. My OJT trainer established my performance goals.
2. My OJT trainer set the goals for my performance.
3. My OJT Trainer established the goals for my work.

Instruction and command
1. When it came to my on-the-job training, my OJT Trainer gave me instructions on how to carry it out.
2. My OJT trainer gave me instructions about how to do my work.
3. My OJT trainer provided commands in regard to my work.

Note: Response choices include 1= definitely false, 2 = probably false, 3 = neither true nor false, 4 = probably true, 5 = definitely true.

Appendix H. Trainer Communication Clarity Scale (adapted from Chesebro & McCroskey, 1998)

To be included on <u>just </u>Trainee survey

Adapted from Teacher Clarity Short Inventory (TCSI) (Chesebro & McCroskey, 1998)

1. My OJT trainer clearly defined major concepts (Explicitly stated definitions, corrects partial or incorrect responses, refines terms to make definitions more clear).
2. *My OJT trainer's answers to questions were unclear.
3. In general, I understood my OJT trainer.
4. *Steps given for tasks during OJT had unclear guidelines.
5. My OJT trainer's objectives for each OJT session were clear.
6. My OJT trainer was straightforward when discussing tasks during OJT.
7. *My OJT trainer was not clear when defining guidelines during OJT.
8. My OJT trainer used clear and relevant examples (They used interesting, challenging examples that clearly illustrate the point. They refined unclear trainee examples. They did not accept incorrect trainee examples).
9. *In general, I would say that my OJT trainer's communication was unclear.
10. My OJT Trainer was explicit in their instruction.

Note: Response choices include 1= strongly disagree, 2 = disagree, 3 = undecided, 4 = agree, 5 = strongly agree.

*Item will be reverse coded.

Appendix I. Source Credibility Scale (McCroskey & Teven, 1999)

To be included on just Trainee survey

Instructions: Please indicate your impression of your OJT trainer by circling the appropriate number between the pairs of adjectives below. The closer the number is to an adjective, the more certain you are of your evaluation.

Competence

Intelligent	1	2	3	4	5	6	7	Unintelligent
Untrained	1	2	3	4	5	6	7	Trained
Inexpert	1	2	3	4	5	6	7	Expert
Informed	1	2	3	4	5	6	7	Uninformed
Incompetent	1	2	3	4	5	6	7	Competent
Bright	1	2	3	4	5	6	7	Stupid

Goodwill

Cares about me	1	2	3	4	5	6	7	Doesn't care about me
Has my interests at heart	1	2	3	4	5	6	7	Doesn't have my interests at heart
Self-centered	1	2	3	4	5	6	7	Not self-centered
Concerned with me	1	2	3	4	5	6	7	Unconcerned with me
Insensitive	1	2	3	4	5	6	7	Sensitive
Not understanding	1	2	3	4	5	6	7	Understanding

Character

Honest	1	2	3	4	5	6	7	Dishonest
Untrustworthy	1	2	3	4	5	6	7	Trustworthy

Honorable	1	2	3	4	5	6	7	Dishonorable
Moral	1	2	3	4	5	6	7	Immoral
Unethical	1	2	3	4	5	6	7	Ethical
Phony	1	2	3	4	5	6	7	Genuine

Appendix J. Trainee Posttraining Evaluation of the Trainer Scale (Shapiro et al., 2007)

To be included on <u>just</u> Trainee survey

The trainer…
1. was motivating.
2. was responsive.
3. was encouraging.
4. put forth effort.
5. was understanding.
6. was patient.
7. rushed the interactions. *
8. communicated well.
9. was thorough.
10. was hostile. *

Note: Response choices include 1= strongly disagree, 2 = disagree, 3 = somewhat disagree, 4 = neutral, 5 = somewhat agree, 6 = agree, 7 = strongly agree.

*Item will be reverse coded.

Appendix K. Trainee Posttraining Evaluation of the Training Scale
    (Shapiro et al., 2007)

To be included on just Trainee survey

1. How effective was the training you received?

2. How clear was the training you received?

3. How satisfied were you with the training you received?

4. How successful was the training at preparing you for the task?

5. How related was the content of the training to the task you performed?

6. How enjoyable was the training you received?

7. How useful was the training you received?

8. How successful would you expect to be in the future application of this

    knowledge?

9. How satisfied were you with the pace of the training you received?

Note: Response choices include 1= not at all, 2 = not very, 3 = somewhat, 4 =
    neutral, 5 = moderately, 6 = very, 7 = extremely.

Appendix L. Demographic & Other Variables

To be included on <u>both</u> OJT Trainer and Trainee surveys

1. Which of the following best defines your current gender identity? Select all that apply.
   a. Genderqueer, nonbinary, or genderfluid
   b. Man
   c. Woman
   d. Prefer to self-describe: _____
   e. Prefer not to respond

2. Do you identify as trans or transgender?
   a. Yes
   b. No
   c. Prefer not to respond

3. What is your age?
   a. 18 to 25 years
   b. 26 to 35 years
   c. 36 to 45 years
   d. 46 to 55 years
   e. 56 years or older

4. Which of the following best defines your race or ethnicity? Select all that apply:
   a. American Indian or Alaska Native
   b. Asian
   c. Black or African American
   d. Hispanic, Latino/a/é, or Spanish
   e. Middle Eastern or North African
   f. Native Hawaiian or Other Pacific Islander
   g. White
   h. Prefer to self-describe: _____
   i. Prefer not to respond

Appendix M. Constitutive Scale Descriptive Statistics

Trainer Experience
Descriptive Statistics

	N	Min	Max	M	SD
How long has/had your OJT Trainer been an OJT Trainer at the time of your initial training?	43	1	7	3.93	1.32
How long has/had your OJT Trainer been in their current job (e.g., Transmission System Operator, Generation Operator, etc.) at the time of your initial training?	43	2	7	4.79	1.34
How long has/had your OJT Trainer been with your current organization at the time of your initial training?	43	2	8	5.47	1.78
How long has your OJT Trainer been in the system operations industry at the time of your initial training?	43	3	8	5.93	1.22
Valid N (listwise)	43				

Use of Structured OJT Guides
Descriptive Statistics

	N	Min	Max	M	SD
Did your OJT training sessions involve the use of OJT guides?	77	1	2	1.78	0.42
OJT Guides included Task Statements	60	2	5	4.72	0.56
OJT Guides included Conditions	60	1	5	4.42	0.91
OJT Guides included Tools	59	2	5	4.49	0.73
OJT Guides included References	60	1	5	4.05	1.16
OJT Guides included Procedures	60	2	5	4.43	0.83
OJT Guides included Criteria	60	2	5	4.22	0.99
OJT Guides included Learning Objectives	60	1	5	4.18	1.16
OJT Guides included Task Steps	60	2	5	4.58	.79
Valid N (listwise)	59				

Trainer Characteristics

Descriptive Statistics

	N	Min	Max	M	SD
My OJT trainer established my performance goals.	43	1	5	3.49	1.20
My OJT trainer set the goals for my performance.	43	1	5	3.53	1.30
My OJT Trainer established the goals for my work.	43	1	5	3.33	1.39
When it came to my on-the-job training, my OJT Trainer gave me instructions on how to carry it out.	43	1	5	4.19	0.98
My OJT trainer gave me instructions about how to do my work.	43	2	5	4.30	0.80
My OJT trainer provided commands in regard to my work.	43	2	5	4.00	0.85
My OJT trainer clearly defined major concepts (Explicitly stated definitions, corrects partial or incorrect responses, refines terms to make definitions clearer).	43	2	5	3.93	1.03
My OJT trainer's answers to questions were unclear.	43	1	5	2.47	1.26
In general, I understood my OJT trainer.	43	2	5	4.40	0.73
Steps given for tasks during OJT had unclear guidelines.	43	1	5	2.67	1.27
My OJT trainer's objectives for each OJT session were clear.	43	1	5	3.65	1.27
. My OJT trainer was straightforward when discussing tasks during OJT.	43	1	5	4.14	0.94
My OJT trainer was not clear when defining guidelines during OJT.	43	1	5	2.23	1.19
My OJT trainer used clear and relevant examples (They used interesting, challenging examples that clearly illustrate the point. They refined unclear trainee examples. They did not accept incorrect trainee examples).	43	1	5	3.84	0.99
In general, I would say that my OJT trainer's communication was unclear.	43	1	5	2.07	1.20
My OJT Trainer was explicit in their instruction.	43	2	5	3.77	0.99
Valid N (listwise)	42				

Trainer Credibility

Descriptive Statistics

	N	Min	Max	Mean	SD
COMPETENCE: - Intelligent	37	4	7	6.27	0.804
COMPETENCE: - Untrained	37	1	6	2.05	1.33
COMPETENCE: - Expert	37	3	7	5.73	0.962
COMPETENCE: - Incompetent	37	1	3	1.49	0.768
COMPETENCE: - Sensible	37	2	7	5.73	1.347
CHARACTER: - Honest	37	3	7	5.92	0.862
CHARACTER: - Untrustworthy	37	1	6	1.92	1.278
CHARACTER: - Honorable	37	3	7	5.65	1.060
CHARACTER: - Moral	37	3	7	5.51	1.146
CHARACTER- Unethical	37	1	5	1.84	1.118
CHARACTER- Phony	37	1	7	1.81	1.244
GOODWILL: - Cared about me	37	1	7	5.19	1.469
GOODWILL: - Had my interests at heart	37	2	7	5.24	1.321
GOODWILL: - Self-centered	37	1	7	2.62	1.479
GOODWILL: - Concerned with me	37	1	7	4.68	1.600
GOODWILL: - Insensitive	37	1	7	2.68	1.617
GOODWILL: - Understanding	37	2	7	5.49	1.193
Valid N (listwise)	37				

Trainer Effectiveness

Descriptive Statistics

	N	Min	Max	Mean	SD
My OJT Trainer... - was motivating	42	1	7	4.81	1.656
My OJT Trainer... - was responsive	42	3	7	5.62	1.081
My OJT Trainer... - was encouraging	42	2	7	5.19	1.452
My OJT Trainer... - put forth effort	42	2	7	5.55	1.365
My OJT Trainer... - was understanding	42	1	7	5.48	1.366
My OJT Trainer... - was patient	42	1	7	5.45	1.365
My OJT Trainer... - rushed the interactions	42	1	6	2.74	1.668
My OJT Trainer... - communicated well	42	1	7	5.43	1.346
My OJT Trainer... - was hostile	42	1	7	1.81	1.348
Valid N (listwise)	42				

Training Effectiveness
Descriptive Statistics

	N	Min	Max	Mean	SD
How effective was the training you received?	42	2	7	5.40	1.345
How clear was the training you received?	42	2	7	5.17	1.324
How satisfied were you with the training you received?	42	1	7	5.10	1.620
How successful was the training at preparing you for the task?	42	2	7	5.26	1.398
How related was the content of the training to the task you performed?	42	2	7	5.57	1.346
How enjoyable was the training you received?	42	1	7	4.38	1.681
How useful was the training you received?	42	2	7	5.40	1.499
How successful would you expect to be in the future application of this knowledge?	42	2	7	5.83	1.080
How satisfied were you with the pace of the training you received?	42	1	7	5.14	1.586