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A Functional Analysis Of Leader Behavior In A Behavioral Health Setting

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A FUNCTIONAL ANALYSIS OF LEADER BEHAVIOR IN A BEHAVIORAL HEALTH SETTING

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Abstract

A requirement for Maine behavioral health organizations to provide all employees with evaluations lacks guidelines on how to evaluate leader behavior; best practices are to provide a multifaceted evaluation process that includes direct observation. A single-case research design and continuous partial interval recording procedures were conducted on a male behavioral health clinician leading clinical supervision in which the dependent variable was the clinician's delivery of positive reinforcement and the independent variable was the provider's increased discussion of case shares. The basic findings showed that leader behavior changed as follower behavior changed to manage the group and meet group goals. The conclusion of the study showed that evaluation tools found in the applied behavior analysis field can be effective in evaluating leader behavior in a behavioral health setting.

Keywords: leader behavior, evaluation, functional analysis, continuous partial interval recording

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CHAPTER 1

INTRODUCTION

The general overview and purpose of this research was to examine leader behavior, through experimental design, using principles of applied behavior analysis, to support employee performance evaluations in a behavioral health setting. In behavioral health settings, performance evaluations are the responsibility of supervisors and administrators (Reamer, 2006). When there is a lack of empirical evidence supporting an evaluation finding, the evaluation and evaluator are at risk of being challenged (Reamer, 2006). Additionally, when the results of the performance evaluation are unexpected by the employee being evaluated, there can be an adverse effect on morale and productivity (Barankay, 2012). The empirical evidence, derived from applied behavior analysis, can be used to inform performance and provide recommendations for leader development and the enhancement of skills. Applied behavior analysis is the science of behavior that relies on defined principles and the systematic research of how variables are responsible for behavioral changes (Cooper, Heron, & Heward, 2007; Fisher, Groff, & Roane, 2011; Kazdin, 2011). As part of the performance evaluation process, an observation method grounded in scientific methodologies may help to reduce damage to productivity and morale (Barankay, 2012) and reduce the risks of being challenged (Reamer, 2006).

The literature section of this dissertation shows how detrimental poorly designed performance evaluation procedures can be to leader performance and behavior. It also shows that prominent leadership theories discuss behavior as part of theory, leading to behavior analysis being considered in the evaluation process. Many of these leadership theories discuss leader behavior; however, they are not grounded in behavior as a science and use behavioral analysis

terminology interchangeably with other fields (Gambrill, 2012). Some of the main leadership theories, such as trait, situational, and contingency theories, rely on constructs supported by interview and survey data (Levi, 2014; Yukl, 2013). The literature also shows that behavioral theories of leadership and management are construct based and include components such as the consideration of cognitive processes. Behavior analysis is the science of behavior that relies solely on methodologies for observing behavior; applied behavior analysis is a subfield of behavior analysis (Fisher et al., 2011).

Currently, the most accurate way to evaluate leader behavior is by surveying subordinates (Bergman, Lornudd, Sjoberg, & Von Thiele Schwarz, 2014). Additionally, behavioral strategies used for staff management are the most common practices in organizations to manage employees (Rock & Swartz, 2007); however, they are not supported by research using direct measures such as direct observation measurement procedures in natural settings (Gambrill, 2012; Poling 2010; Reid, O'Kane, & Macurik, 2011). The lack of direct observation procedures can leave the evaluation process open to debate, ultimately leading to the evaluation being invalidated (Barankay, 2012; Derue, Nahrgang, Wellman, & Humphrey, 2011; Milne, 2009; Reamer, 2006). Multifaceted evaluations are the best practice in evaluating leader behavior (Milne, 2009; Powell, 2004) and should include an observation component (Derue et al., 2011; Milne, 2009). The significance of using applied behavioral analysis to evaluate leader behavior is that it provides already established and well-researched procedures for direct observation, and it may be used in natural settings such as work environments (Cooper et al., 2007; Fisher et al., 2011; Reid et al., 2011). Applied behavior analysis looks at the behavior of individuals (Fisher et al., 2011). This research addresses discrepancies in the leader evaluation process by providing a

direct observation methodology that is evidence-based, within the best practices of providing multifaceted evaluations. It also contributes to the current body of knowledge as a single-case design, normally found in the *Journal of Applied Behavior Analysis*. The journal regularly publishes single-case designs and meta-analyses of single-case research studies (Beavers, Iwata, & Lerman, 2013). A meta-analysis is a review of studies in the form of a summary (Creswell, 2012).

The procedures for conducting the current research were informed by applied behavior analysis. A single-case design was used to evaluate and manage the presentation of variables; recording and observation procedures were used to analyze the variables occurring in the environment that affect leader behavior. The data provided from these methods were used to inform performance. These procedures are discussed explicitly in chapter three.

Statement of the Problem

Leaders working in behavioral health organizations licensed by the State of Maine are required to be provided with an annual evaluation and an individual staff development plan (Maine Department of the Secretary of State, 2015). Currently, the leader evaluations provided by the organization in this study include expert opinion of the supervisor and ratings against other peers, which means that someone will always be at the bottom. These evaluations may not seem fair for those leaders who are skilled professionals and they may not show an accurate description of their leadership abilities (Barankay, 2012).

Most current leadership theories purport to be based on behavior theories or use behavioral terminology interchangeably with language from other fields (Gambrill, 2012); these theories rely on interview and survey data to evaluate leader performance (Levi, 2014; Waldman,

2011; Yukl, 2013). Performance evaluation should include direct observation as part of a multifaceted evaluation process (Derue, Nahrgang, Wellman, & Humphrey, 2011; Milne, 2009; Powell, 2004). Performance evaluations that are not multifaceted and do not contain observation are not only ignoring best practices (Milne, 2009; Powell, 2004), but they may also be damaging to morale (Barankay, 2012) and are at risk of being challenged (Reamer, 2006).

Performance evaluation is the analysis of behavior, which includes direct observation of variables in the environment and their effects on behavior; the most common method to evaluate leader behavior is through an informant method or interview and survey data (Ditzian, Wilder, King, & Tanz, 2015). Applied behavior analysis offers a direct observation procedure; it has a 30-year history showing effectiveness and is considered the best practice when evaluating behavior (Beavers et al., 2013). This procedure is known as functional analysis, which is the analysis of relationships occurring between two or more variables (Beavers et al., 2013; Betz & Fisher, 2011).

This dissertation focuses on leader behavior through functional analysis of the three-term contingency, which provides an evidence-based, best practice evaluation procedure grounded in behavior analysis, expanding performance evaluation procedures, and ultimately expanding applied behavior analysis appropriately into the field of leadership. It also provides a foundation for follow-up studies that will assist in aiding leaders to make behavioral adjustments to influence subordinates or providers to accept interventions as their own. Subordinates who have been led to believe that they personally developed a treatment strategy, or buy-in, have the best success in treatment implementation (Rock & Swartz, 2007). Variables, such as provider participation in the form of case discussions or case shares, are an essential part of clinical

leaders' ensuring that subordinates or providers understand the treatment they are delivering (Booth, 2014; Joubert, Hocking, & Hampson, 2013; NASW, 2008; Openshaw, 2012; Pack, 2015; Reamer, 2006). An observation, consistent with applied behavior analysis procedures, was used to verify case shares that occur in group supervision (Milne, 2009; Pack, 2015; Powell, 2004) and was manipulated in an applied behavior analysis experimental design to observe changes in leader behavior.

Purpose of the Study

The purpose of this quantitative study was to examine leader behavior in a Maine-based 501(c) 3 charitable non-profit behavioral health organization using applied behavior analysis. The direction given to the field of applied behavior analysis has been to expand the field using methods that focus on observable behavior and the measurement of observable changes in behavior when an intervention is applied (Capell, Barrio, & Mababu, 2013; Cooper et al., 2007; Poling, 2010). This direction given to the field is considered current (Beavers et al., 2013: Capell et al., 2013; Gambrill, 2012). Once an understanding of relationships among variables is gained, using methods from applied behavior analysis, recommendations for staff improvement and individual staff development planning can be completed on state required annual evaluations. The results of the experimental design can be used to recommend decreased or increased positive reinforcement, on case shares, which are shown to be most important for supervisee learning (Milne, 2009; Powell 2004; Trotman & Taxman, 2011). Case discussions or case shares contribute to provider effectiveness through feedback from the clinical leader or others that is clarifying and supportive (Milne, 2009). These case discussions should be taking place for the majority of time in group supervision when the goal of group supervision is to

monitor the provider as he or she delivers services (Joubert et al., 2013; Milne, 2009; Pack, 2015; Powell, 2004).

Leader behavior was evaluated when the leader was leading groups because that is where much of leaders' work takes place. Research using applied behavior analysis mostly focuses on the delivery of positive reinforcement (Beavers et al., 2013; Milne 2009), which was the focus of investigation in this dissertation. The failure of the leader to support the group when there are changes in provider participation indicates inefficient leader behavior (Shcimmel & Jacobs, 2011). The research conducted in this dissertation is consistent with recommendations for future research on staff performance in behavioral healthcare specific environments using applied behavior analysis (Reid et al., 2011).

Research Questions

The research questions, examined through the lens of applied behavior analysis, are as follows:

1. How can research methods in applied behavior analysis be used to provide recommendations to improve leader behavior and efficiency in a 501 (c) 3 behavioral health organization? Can an expression informed by applied behavior analysis to describe leader behavior be used in scientific research?
2. How does the leader's behavior change to accomplish group goals? When the delivery schedule of the independent variable, such as case shares, is increased, will the leader change his or her behavior to support the group?

Conceptual Framework

The research in this dissertation was conceptually guided by transformative leadership theory to form the conceptual framework. Leadership theories in behavioral health have

experienced little consideration until about 1986, when behavioral health providers noticed that other professions, such as the medical and academic professions, considered leadership roles as a component of the profession (Brilliant, 1986; Tafvelin et al., 2014). Transformative leadership theory can be applied across fields (Shields, 2010) and is a leadership theory that is the most consistent with the behavioral health field and the NASW Code of Ethics (Desrosiers, 2015). Shields (2010) noted that transformational leadership is common in social services.

Transformative leadership theory focuses on building organizational character and effectiveness (Luthans, Luthans, & Luthans, 2015; Stajkovic & Luthans, 1997; Shields, 2010); it also focuses on individual leader and subordinate behavior (Shields, 2010). The theory cites social justice as its guiding principle (Anello, Hernandez, Khadem & May, 2014; Shields, 2010, 2013), which refers to ethos, such as freedom, equality, and justice or fairness (Greene, 1993). Fostering professional growth among individual subordinate leaders is an essential part of how my organization manages personnel performance, which is congruent with transformative leadership theory (Desrosiers, 2015; Tafvelin, Hyvonen, & Westerberg, 2014). The current evaluation process at the research site relies on the expert opinion of the supervisor and performance comparisons of other leaders at the organization; this may not be considered a fair evaluation, as someone will always be rated as the lowest performer (Barankay, 2012). Behavioral health organizations in Maine are required by law to provide a yearly performance evaluation; however, there is not any specific guidance on how these evaluations should be conducted (Maine Department of the Secretary of State, 2016).

Leader effectiveness under transformative leadership theory is primarily informed by interview data (Luthans et al., 2015) with most leadership theories being supported by qualitative

data; both qualitative and quantitative data supporting leader evaluation are the recommended practice (Milne, 2009; Powell, 2004; Shields, 2010) and expected to be the way of the future (Avolio et al., 2009). Evaluating leader performance involves evaluating behavior (Ditzan, Wilder, King, & Tanz, 2015), and for change to be transformative, there must be a change in behavior (Anello et al., 2014). Transformative leadership theory has been used for the direct observation of single cases to evaluate behavioral changes (Shields, 2010). Because transformative leadership is sometimes thought to be based on behavior as a science (Derue, Nahrgang, Wellman, & Humphrey, 2011; Northouse, 2013), it seems appropriate to explore other fields of research, such as behavior analysis, that can offer direct observation procedures that might strengthen staff performance and evaluation (Powel, 2004; Reid et al., 2011). The research in this dissertation was guided by principles of transformative leadership theory, specifically social justice, where individual performance evaluations should be fair and respectful (Reamer, 2006).

Assumptions and Scope

The following are assumptions regarding this study:

1. Participants bound to ethical standards in social work will participate in an honest and professional manner.
2. Participants who are regularly scheduled for work in groups are voluntarily participating in research after receiving information on the nature of research and signing a consent form.
3. Variables analyzed will be consistent with the purpose of clinical supervision in groups, which are case discussions or case shares, and other clinically related subjects.

Limitations

1. The research took place in a Maine non-profit behavioral health organization and may not be representative of other behavioral health organizations.
2. The results from the single-case research design may not be generalizable to other leaders in organizations (Kazdin, 2011); however, this is within the scope of applied behavior analysis, as most research of this type involves single-case designs (Catania, 2013b; Kazdin, 2011).
3. Protected health information, or PHI, that is federally protected under the Health Insurance Portability and Accountability Act of 1996, 42 CFR 2-Federal Substance Abuse Law, Maine Title 34-B Section 1207-behavioral health confidentiality information, cannot be re-disclosed (Stacy Katz, Esq., personal communication, October 2, 2015) and will not be disclosed outside of Maine Behavioral Health Organization.

The scope of the study was to evaluate leader behavior in the context of a behavioral health setting.

Rationale and Significance

Leader and staff development are an organizational responsibility (Luthans et al., 2015), and are consistent with transformational leadership theory (Shields, 2010). Current leader performance evaluations at Maine Behavioral Health Organization, a 501 (c) 3 charitable non-profit behavioral health organization are completed by supervisors and are based on expert opinion and comparison against peers. The literature shows that leader behavior, explained by current leadership theories, does not evaluate behavior grounded in behavioral science, such as

applied behavior analysis, and is mostly informed by interview and survey data. Combinations of evaluation procedures may be more informative, to include a direct observation component not widely available under current leadership theories. Applied behavior analysis has not been used to analyze leader behavior—specifically the functional analysis of leaders in behavioral healthcare settings, as researchers from the behavior analysis field have articulated there is a lack of research on organizational staff performance (Reid et al., 2011). The current research can be used to make recommendations to increase leader efficiency and is significant because it provides:

- a detailed direct observation procedure that will fit into transformational leader theory and assist with strengthening evaluation processes;
- a workable expression of leader behavior that can be studied using scientific methodologies;
- contributions to the leadership and applied behavior analysis body of knowledge;
- a foundation for follow-up leader behavior studies in applied behavior analysis.

Definition of Terms

Applied Behavior Analysis-The science of behavior that relies on defined principles and systematic research on how variables are responsible for behavioral changes (Catania, 2013b; Cooper et al., 2007; Kazdin, 2011).

Behavior Analysis-The science of behavior that relies solely on methodologies for observing behavior; applied behavior analysis is a subfield of behavior analysis (Fisher et al., 2011).

Functional Analysis-A systematic analysis of variables and their relationships in the environment, in terms of antecedent, behavior, and consequences, to determine separate effects of each variable (Catania, 2013b; Cooper et al., 2007).

Transformational Leadership-A leadership theory that focuses on transforming others to perform higher than expected; it considers variables such as emotions, values, ethics, leader vision, and the dyadic relationship between leaders and followers (Northouse, 2013).

Organizational Behavior Management or OBM-An organization management style that uses applied behavior analysis to improve performance (Daniels, 1977; Reid et al., 2011).

Organizational Behavior Modification or OB Mod-The application of behavioristic, social learning, and cognitive theories and evidence-based principles to manage individuals in organizational settings (Luthans, Luthans, & Luthans, 2015).

Social Justice-A principle that focuses on values such as responsibility, ethos, freedom, equality, empowerment, and justice or fairness (Carr et al., 2012; Greene, 1993).

Supervision-The surveillance of subordinate effectiveness (Weld, 2012) through the evaluation of case shares (Joubert et al., 2013; Pack, 2015; Powell, 2004).

Conclusion

Personnel are an organization's most valuable asset, and investing in employees is important to organizational growth (Luthans, 2015; Luthans et al., 2015). Evaluating staff performance including leader behavior, and developing individual staff plans is an essential part of staff and leader growth. The most prominent leadership theories do not explain leader behavior grounded in behavior as a science and do not use direct observation. Most research in applied behavior analysis has focused on settings designed for people working with

developmental disabilities (Gambrill, 2012; Poling, 2010; Reid et al., 2011). The only specialized area of applied behavior analysis that focuses on organizations is known as organizational behavior management and was developed for business management (Reid et al., 2011). The direction given to the field of applied behavior analysis, since its conception, is considered valid today (Capell et al., 2014; Gambrill, 2012; Poling, 2010), and its use for a wide range of purposes is encouraged by prominent researchers in the field (Baer et al., 1968, 1987). Applied behavior analysis offers empirical evidence derived from direct observation as well as experimental design procedures to focus on and improve behavior.

In this chapter, a brief overview of the reasoning to research leader behavior using applied behavior analysis methodologies, the statement of the problem, the purpose of the study, research questions, conceptual framework, assumptions, limitations and scope, rationale and significance, and operational definitions of terms is presented. Gaps in research regarding leader behavior are presented in chapter two to support the current research study. In chapter three, the specific methodologies and reasons for those methodologies are presented. Chapters four and five discuss the results of the study and implications for practice.

CHAPTER 2

LITERATURE REVIEW

Introduction

The exploration of leader behavior required reviews of seminal and scholarly literature on leadership theories, how behavior changes, and the effects it has on the leader's ability to guide others. The leader often completes much of his or her work in groups, is often the most influential person in a group, and can either set the group up for success or contribute to failure (Izumi et al., 2015); leadership and organization culture and climate impact the quality of the delivery of behavioral health services and outcomes (Aarons, Sommerfeld, & Willging, 2011; Green, Albanese, Cafri, & Aarons, 2014). Most theories of leadership regarding behavior as a science lack consistency across studies and only use one single method relying upon either interview or survey data (Derue, Nahrgang, Wellman, & Humphrey, 2011; Milne, 2009; Powell, 2004). Multi-faceted evaluations are the best practice (Derue et al., 2011; Yukl, 2013). Research may offer leaders of all echelons evidence-based practices for guiding leader behavior to influence others to produce desired results (Daniels & Daniels, 2005; Reid & Parsons, 2006).

A large portion of published research on the effectiveness of leaders focuses on leader characteristics and is geared more toward specific professions, focusing less on integrative models of leader behavior (Derue et al., 2011). Leading is a tough job (Haslam, Reicher, & Platow, 2011) and can be time consuming and lonely (White, 2014); effective leader behavior is often measured on how it impacts others and maximizes efficiency and performance (Bottomley, Burgess, & Fox, 2014). Understanding leader behavior is essential to achieve group and organizational goals.

A key component to leadership is influence (Department of the Army, 2009; White, 2014) and responsibility for outcomes (White, 2014), which is very similar to leadership in behavioral health settings (Aarons et al., 2011). The common term "influence" can be found regularly in definitions of leadership (APA, 2007; Department of the Army, 2009; White, 2014). The operational definition of leadership, given the plethora of definitions in existence presently, and for the purposes of this research, shall be defined as the ability to influence others to carry out one's will, not necessarily one's own will, but the will of others.

The definition of influence is "the effect that somebody [or] something has on the way a person thinks or behaves or on the way that something works or develops" (Oxford Learner's Dictionary, 2014, p. 1). This definition, as well as other definitions regarding influence relative to behavior (Department of the Army, 1985; Goggins & Petakovic, 2014), suggests a relationship between variables; for example, a leader's behavior affects the behavior of another person. In terms of behavior theory, the leader's behavior occurs with the follower's behavior, serving as an antecedent to the follower's behavior. The follower's behavior is a function of variables occurring in an environment of which the leader and follower are also a part. While there are certainly a prodigious amount of theories, some of which may be very effective, in this review, leader behavior is analyzed through behavior analysis in terms of function. The purpose of this review was to explore leadership theories and their relationship to behavior as a science, dependent on the environment, which includes other individuals as part of the environment, and how leader behavior can be evaluated.

Literature Review Process

A review of seminal and scholarly social science studies and works on leader behavior is essential for conducting research. Literature reviews are the subject story of research (Roberts, 2010). This literature review was a review of writings and research developed by researchers such as social scientists, theorists, academics, industrialists, and other various scientist practitioners, particularly over the past 100 years. The review included historical, theoretical, qualitative, and quantitative research published in journals and dissertations, and reviews of books, published from across numerous disciplines such as psychology, sociology, medicine, and human services.

The current literature review was integrative in nature due to the large volume of published research (Callahan, 2014). The literature review process followed Callahan's (2014) components of literature review methods known as the six 'W's: Who, When, Where, How, What, and Why (p. 273). The literature review included the collection of various research and published material available from August 2013 to the present. Works were collected from scholarly journals located through the University of New England's library, books available through Amazon.com, and Google search engine to locate other sources. Each time a search was completed using the University of New England's library, all databases were selected. The descriptors used were varied and identified based off of previously journal article and book reviews. The search was not meant to be an exhaustive method due to the large amount of literature related to the subject, and all literature found was directly related to leader behavior and behavior theory frameworks. All literary documents found related to leader behavior were also evaluated using Callahan's (2014) five characteristics: concise, clear, critical, convincing,

and contributive (p. 272). The objectives of the literature review were to present a story of leadership behavior through discussing prominent concepts, theories, and data (Bloomberg & Volpe, 2012).

Historical Development

Psychology was thought to be a science of consciousness until Watson (1913) published a paper aimed at shifting the study of consciousness to the study of behavior. After this shift in psychology, Watson became known as the father of behaviorism (American Psychological Association, 2007, Luthans et al., 2015). Watson studied animal behavior for 12 years prior to publishing his hallmark paper in 1913; however, he was not able to show how his animal studies on behavior related to human behavior (Watson, 1913). Skinner was able to elaborate on the subject of behaviorism in his book published in 1953, titled: *Science and Human Behavior*, ultimately linking the science of behavior to Darwin's (1859) concept of natural selection and adaptation, that included Watson's ideas on behavior (Catania, 2003). Skinner (1981) stated the history of behavior likely started when a molecule came to be and was able to reproduce itself and later stated behavior developed from sets of functions facilitating interaction between an organism and its environment. In essence, the history of behavior can be theorized to have been occurring when a molecule was able to reproduce itself to survive under environmental conditions (Skinner, 1981).

It might seem reasonable to conclude that the concept of leadership has been around since the formal recognition of government and city states; Mesopotamia began to urbanize around 4000 B.C., with the Sumerians being the first recognized civilization (Adams, 2002; White, 2014). The study of leadership as a social science did not emerge until the 1930s (House &

Aditya, 1997). From that time, there have been numerous psychology and social science theories developed to evaluate behavior, as evidenced by the literature (Gambril, 2012; Northouse, 2013; Yukl, 2013).

Key Theories, Concepts, and Ideas

The key theories, concepts, and ideas found in the literature to date in regards to leader behavior included discussions of trait theories of leadership, contingency and situational theories of leadership, follower theories of leadership, and behavioral theories of leadership. When discussing major perspectives of leadership, Levi (2014) mentioned four approaches: trait or personality, behavioral, situational and contingency approaches. Likewise, Yukl (2013) also discussed trait, behavioral, and situational approaches as major perspectives. He stated that behaviorism as a leadership theory did not gain momentum until the 1950s when many researchers became dissatisfied with trait theory.

Performance Evaluations

Any organization that has a licensed social worker, at any level (whether bachelors or masters), will have to respect that person's requirement to follow the National Association of Social Workers Code of Ethics. It is an expectation of social workers that they receive performance evaluations; the specific NASW Code of Ethics that covers evaluations is listed below:

> "Standard 3.01 (d). Social workers who provide supervision should evaluate supervisees' performance in a manner that is fair and respectful" (Reamer, 2006, p. 150).

Frederic Reamer was one of the original members of the committee, specifically the chair, which developed the current code of ethics (Reamer, 2006). In his book, *Ethical Standards in Social*

Work: A Review of the NASW Code of Ethics, he discussed that evaluations should be fair and respectful and that exaggerated evaluations may lead to untimely promotions that could set the employee up for failure. Additionally, he remarked that feedback should be concrete and observable, with specific behaviors identified. Reamer (2006) gave a case example in which a social worker received an evaluation from his or her supervisor, and the methods for evaluation were ambiguous. The social worker challenged the supervisor, and the evaluation was thrown out.

Brackett, Reid, and Green (2007) published a study in the *Journal of Applied Behavior Analysis* in which they studied staff behavior; the purpose of their study was to look at the effects of conspicuous and inconspicuous evaluations of two job coaches in a small publishing company. The job coaches were required to support three workers, who had limited upper body functioning and language, to complete work activities; however, it was the job coach's responsibility to complete the snack break activities him or herself for the three workers because they were unable due to disabilities. These activities took place in four steps: clearing the area for snacks, selecting a snack, cleaning the area after the snack, and returning work materials back to the area. A job coordinator, who supervised the job coaches, was responsible for conspicuous and inconspicuous evaluations. Conspicuous observations consisted of the job coaches being able to visibly see the job coordinator's recording behavior, while inconspicuous observations consisted of the job coaches not being able to see the job coordinator's recording behavior. The experimental design was an ABACA reversal design across subjects, where phase A was the baseline, phase B was the conspicuous recording of behavior, and phase C was the inconspicuous recording of behavior. Inter-observers were used on 21% of observations without any

disagreements on the completion of steps. Brackett et al. (2007) found that none of the job coaches were able to complete all the steps when the observation was conspicuous; however, they were able to complete most of the steps when observations were inconspicuous. This study might imply that conspicuous and inconspicuous evaluations may affect performance, which would support the need for multifaceted evaluations to show a true picture of performance.

Colton (2007) published an article on the rationale for provider resistance to measurement processes and discussed that providers being evaluated on their performance may be skeptical of the findings because they may not be familiar with the evaluation process or because the results are not well grounded in research. He remarked that providers in behavioral health do want to know how they can improve. In Colton's (2007) journal article, he discussed possible reasons that providers may be resistant to evaluation processes; for example, providers may be more focused on client outcomes, or the process included measuring service outcomes that are difficult to measure, such as measuring a change in client internal states like anxiety or depression. Despite the discussion on resistance to performance measurement, Colton (2007) used case examples from the psychiatric hospital where he worked, showing how outcome measures, and benchmarking, of client services can be used to inform providers and increase efficiency both in provider performance and client services.

Drumea (2014) wrote a paper on measuring staff performance and articulated that it was difficult to measure staff performance without quantitative data. In for-profit organizations, these data might look like sales, profits, and products produced (Drumea, 2014). In non-profits, much of the measurement is completed by qualitative indicators, such as motivation, strive, commitment to the organization, and client satisfaction. Drumea (2014) recommended the

organization hire an outside organization to conduct evaluations; however, this may not be feasible for non-profits with tight budgets. Another recommendation is to build an appraisal system where benchmarks or goals are set and evaluations of behavior occur periodically. Lastly, Drumea (2014) recommended building the job to fit the employee. She did note that it was not fair to build a rewards system on ambiguous measures. This may make the appraisal system open to be challenged when other employees feel that their efforts should have been rewarded when they were not.

A look at performance assessment tools, such as the Job Observation and Behavior Scale (JOBS) and JOBS Opportunity for Self-Determination (JOBS: OSD) revealed discrepancies between supervisory and employee view of the employee's performance (Bennett, Frain, Brady, Rosenberg, & Surinak, 2009). In a study by Bennett et al. (2009), they implemented the JOBS evaluation process for supervisors of employees with disabilities and the employees. There were 19 employees with developmental disabilities; 11 males and eight females. All employees were in a supportive program. The evaluations targeted vocational behavior. The results of the evaluation process showed that supervisors and employees had a different view on work performance behavior and needs to be successful.

Rank incentives, or comparing employees against peers, impact behavior. Barankay (2012) studied ranking in a three-year longitudinal study of 1,754 furniture sales people. In the study, Barankay (2012) privately informed one group of sales people their rank, and for another group informed sales people of their rank with benchmarks. Barankay (2012) found that when the rank results were a surprise to the salespeople, their efforts dropped, while those who received benchmarks with their ranking had an increase in work effort. Likewise, Bandiera,

Barankay, and Rasul (2013) found productivity can drop among teams when they are informed of their rank, but can increase productivity when the work becomes a competition among teams.

Organizational behavior modification, or OB Mod as coined by Luthans, is a theory of behavior management in organizations that was designed from applied behavior analysis, social learning theory, and cognitive theories (Luthans, 2015). Organizational behavior modification is a five-step model for managing individual and organizational behavior. The steps are:

- identify the performance related behavioral events;
- measure the performance related behavior events;
- analyze the behavior using functional analysis;
- intervene using positive reinforcement;
- and evaluate to ensure the intervention works (Luthans, Luthans, & Luthans, 2015, p. 362).

This model has mostly focused on performance output (Luthans et al., 2015).

Social Justice

Many professions have a specific set of standards that workers and providers must be regularly evaluated on; however, since the behavioral health field is so large and is made up of various types of professionals, who hold various types of positions and credentials, one set of evaluation standards may not be applicable to everyone (Fisher, personal communication, April 10, 2016; Reid & Parsons, 2006). As an example, substance abuse counselors and psychotherapists have different sets of ethics that apply to them; the substance abuse ethics are published by the state, while the psychotherapist code of ethics are published by the National Association of Social Work, though both sets of ethics are enforced by the state licensing board

(Maine Department of the Secretary of State, 2016). A violation of these ethics could result in being reported to the respective professional licensing board (Maine Department of Professional and Financial Regulation, 2016). Ethics may be one component of evaluation processes, but it is not a set of standards that someone is rated against or tested on regularly. It is important to note that many providers in the behavioral health field are required to be certified, licensed, and meet education requirements; testing for certifications and licensing is often a one-time requirement (Maine Department of Professional and Financial Regulation, 2016). Principles of social justice may be the golden thread that brings diverse professionals together, under a common understanding, in the behavioral health field (Carr, Bhagwat, Miller, & Ponce, 2012).

Social justice is a principle that focuses on values such as responsibility, ethos, freedom, equality, empowerment, and justice or fairness (Carr et al., 2012; Greene, 1993). Draine (2013) noted that mental illness alone did not cause homelessness, unemployment, or involvement with the criminal justice system and that social distress of those that control resources may be inhibiting recovery. In a study by Bradley, Werth, Hastings, and Pierce (2012), where they interviewed eight rural mental health providers of various licensure across two Mid-Atlantic States, in rural areas, they found that using the principles of social justice were essential in advocating for their clients.

The promotion of social justice is considered the hallmark of social work (Reamer, 2006). Working under the principle of social justice can take many forms, such as campaigning for someone running for office that holds the same values, advocating for those with disabilities that impede the ability to navigate a complex social services system, fair distribution of resources, and empowering those on the road to recovery to maintain with natural resources

(Bradley et al., 2012; Carr et al., 2014; Reamer, 2006). Because social justice is a principle that guides the behavioral health field, and because evaluations are required, it seems appropriate to look at leadership models that might also promote social justice in performance evaluation.

Trait Theories of Leadership

Leader traits are variables that contribute to effective leadership. Kaiser and Hogan (2011) looked at predictive relationships between personality types (ambition, sociability, interpersonal sensitivity, prudence, adjustment, inquisitive, and learning approach) and four leader behaviors (forceful, enabling, strategic, and operational) and found that personality traits were predictive of leader behavior. This adds some credibility to Powell (2012) when he discussed that leaders are born with certain traits that increase the probability that they will become leaders. The idea that people are born with leadership traits dates back approximately 2,000 years ago, when the concept was expressed in writings by Heraclitus, a pre-Socratic Greek philosopher (Haslam et al., 2011). This model, that leaders had innate abilities to lead, was referred to as the "great man" theory, which later morphed into charismatic leadership, a model that preserved the idea that leaders are born with a particular trait (Haslam et al., 2011).

Bergman, Lornudd, Sjoberg, and Von Thiele Schwarz (2014) looked at measurements of personality traits in regards to manager behavior. They used 360 measurements; meaning they were multi-inventory/assessment-based (the instrument was the 360-degree change, production, employee, or CPE instrument). Bergman et al. (2014) evaluated what they called the "big five" leadership traits, which were extraversion, emotional stability, agreeableness, conscientiousness, and openness. Other assessments that they used were self-assessment and external assessments or assessments completed by subordinates and peers. They found that self-assessments were the

strongest predictor of leader behavior, but noted that there may be a bias that cannot be controlled. It is common for leadership measures to be focused on the performance of the leader's immediate followers and in the form of survey measures (Waldman, 2011). Bergman et al. (2014) stated that the best evaluation to predict leader behavior comes from external assessments and from subordinates; evaluations completed by supervisors of managers were the weakest predictors of leader behavior. Of the big five, openness, conscientiousness, and agreeableness dimensions were the most closely related to leader behavior, and agreeableness and conscientiousness were noted as being important in predicting ethical behavior (Bergman et al., 2014).

Gender has not been thought of as being a variable that has an influence on participants in groups and work settings (Derue, Nahrgang, Wellman, & Humphrey, 2011; Haslam et al., 2011; Malik, 2012). Studies on leadership and influence also suggest that gender is not a variable regarding effectively influencing others or effectively leading others in work settings (Odetunde, 2013; Yaffe & Kark, 2011). The implication, for the purposes of this dissertation, is that gender is not a variable that has moderating or impeding effects on leader behavior.

Effectively influencing and leading others depends on how the leader identifies with that particular group, according to Haslam et al. (2011). They argued that leaders who identify themselves in the first person, such as using "I" or "me," are less effective than those who identify themselves in the second person, such as using "we" or "us." Haslam et al. (2011) conducted an experiment where they took a group of adult males and randomly divided them into two groups, prison guards and inmates, in a simulated prison setting (Reicher & Haslam, 2006). There was not a designated leader among the guards and no one present as having

thought to have the leadership skills. In the inmate group, there were two individuals thought to have leadership skills. The inmates wanted to address issues individually until they were organized by one of the leader inmates. Reicher and Haslam (2006) were attempting to show that the leader had greater influence on those with whom the leader could identify (Haslam et al., 2011).

In a later study, Johnson, Venus, Lanaj, Mao, and Chang (2012) looked at leader identity and how it predicts leader behavior and effectiveness. For behaviors, they looked at transformational behaviors and abusive behaviors. Johnson et al. (2012) defined identity as the view of self in relation to others; they broke leader identity down into three levels: collective identity, relational identity, and individual identity. These components were compared against daily leader behaviors: transformational behavior, consideration behavior, and abusive behavior. Using survey data, Johnson et al. (2012) found that leaders who were individually oriented tend to also have increased probability of engaging in abusive behavior. They also found that leader relational identity paired with consideration behavior was not predictive of leader effectiveness. This finding seems to contradict other research in this area of studies (White, 2007). In addition, Johnson et al. (2012) noted that leader identity and behavior could change from day to day. In essence, this suggests leader identity is not the only variable influencing leader behavior and that antecedents to behavior can change.

The skills approach to leadership theory is very similar to the trait theory of leadership, which focuses on skills leaders must have to be successful (Northouse, 2013). In this portion of the theory, there are three primary skills: technical (hands-on experience), human (communication and working effectively with others), and conceptual (understanding abstract

ideas) (Northouse, 2013). Additionally, Derue et al. (2011) made note that there are theories that might serve the field of study better if they were combined. Derue et al. (2011) attempted to develop what they called "integrative trait-behavioral model" (p. 7). Derue et al. (2011) conducted a meta-analysis of meta-analyses to examine leader traits (such as gender, intelligence, and personality) and behaviors (such as transformational-transactional) in regards to four criteria (leader effectiveness, group performance, follower job satisfaction, and satisfaction with the leader). What they found in their meta-analysis of 79 meta-analyses from online databases such as *PsychINFO* (1887–2008) and *Web of Science ISI* (1970–2008) using descriptors such as leader, leadership, manager; with: meta-analysis and or quantitative research was that leader behaviors are more predictive of leader effectiveness than leader traits.

The literature shows that research on trait and skills leadership theories do not demonstrate how trait and skill types are related to leader behavior and effectiveness in different environments; traits themselves are not easily defined or observable (Yukl, 2013).

Contingency and Situational Theories of Leadership

Contingency theory models focus on leader effectiveness based on leader styles and situations (Bons & Fielder, 1976; Fielder, 1965, 1971, 1972; Northouse, 2013; Rice & Kastenbaum, 1983). Contingency theory, as introduced by Fielder in 1964 (Rice & Kastenbaum, 1983), is a theory of personality that is predictive of leader effectiveness (Fiedler, 1971; Northouse, 2013). The theory is supported by a prodigious amount of research (Bons & Fiedler, 1976; Fiedler, 1965, 1971; Northouse, 2013) and has been subjected to empirical scrutiny over the years (Luthans, Luthans, & Luthans, 2015; Newstrom, 2011; Northouse, 2013). Contingency theory, as introduced by Fielder, has three components: leader-member relations, task structure,

and position, depending on how they assist in leader effectiveness, are referred to as situational favorableness (Rice & Kastenbaum, 1983). Fiedler (1965) stated that leader-member relations is the most important dimension of the three and the position of power is the least important. This is because leaders with weak positions of power can still be effective leaders if they have good relations (Fiedler, 1965). In essence, according to Fielder (1972), leaders who are task oriented perform better in very favorable and unfavorable situations than leaders who are relationship oriented who do better in moderately favorable situations; however, when leader training and experience are applied, the task-oriented leader typically becomes less effective, while the relationship-oriented leader becomes more effective.

Several criticisms of the contingency and situational leadership theory are that this model is not always replicable (Fiedler, 1971; Rice & Kastenbaum, 1983) and that other research studies have not been supportive of the model (Fiedler, 1971; Rice & Kastenbaum, 1983). Regardless, there is sufficient research supporting the predictive property of the theory. Lastly, Haslam et al. (2011) stated that when discussing contingency theory, leaders who describe their history of leader success often describe contingencies—meaning that leaders are not born leaders, but instead are leaders as a result of circumstances.

Attempts to improve Fielder's (1964) model have led to alternate models (Luthans et al., 2015). The United States Army uses a contingency-based model of leadership, though not giving it any particular name, and uses the following styles: directing style, participating style, and delegating style. The United States Army has noted that each style will depend on the situation, and the effective leader will be one who can alternate styles (Department of the Army, 2009). Situational leadership styles allow leadership style adjustments based on the situation;

Hersey (2014) stated that there are four styles under situational leadership: telling, selling, participating, and delegating. The idea of situational leadership theory was originally developed in 1969 (Johansen, 1990). The fact that the theory has been around for many years seems to give it some credibility. Johansen (1990) has remarked that it is relatively easy to use, while Smith (1990) argued, as a consultant, that it is difficult, but effective. Graeff (1983) argued that credibility is damaged based on the changes to the theory over time. The research base supporting this theory is not widely accepted (Newstrom, 2011). Another leadership model related to contingency theory is transactional leadership; Shields (2010) discussed transactional leadership as being an exchange, contrasting with transformational leadership, which is a leadership model that focuses on improving organizations and performance. It is also a model that focuses on organizational change (Newstrom, 2011). Derue et al. (2011) discussed transactional and transformational leadership as being behavioral in nature.

Follower Theories of Leadership

Leadership models regarding behavior that fit under the cognitive theories of leadership are mental models of leadership such as those discussed by Johnson (2008); he stated leaders are effective because they have valid and effective ways of working through complex situations, not because they have greater knowledge and experience. Johnson noted that it is mental models, or an ability to learn new information, and the application of new information to the challenges while leading that make leaders successful. Johnson also asserted that it is the leader's ability to change mental models that also make them successful and recommended transformative learning as a means to accomplish this. Johnson (2008) stated that transformative learning is being able to learn new models and remarked that currently, leadership development takes place through

trainings, seminars, courses, etc., but stated that most executive leaders discuss that their largest learning experience was through some failure. Johnson (2008) seemed to interpret this as a challenge to mental models, or being forced to change mental models.

Johnson (2008) offered that to change mental models, reflection and challenging experiences are key as leaders work their way up the ladder. He stated that these challenges can take various forms, such as a change in task, position, and increased responsibilities. Johnson (2008) also offered some insight on how to increase a leader's ability to cope, which in turn would make them more of an effective leader. Stevens-Long, Shapiro, and McClintock (2012) conducted a qualitative analysis of transformative learning in doctoral students, which supports the argument made here that significant events assist in learning.

Wang, Hinrichs, Prieto, and Black (2010) discussed how follower behavior may influence the leader and leader efficacy or leader confidence. Self-efficacy is being able to reflect on the self, in some way, to change behavior (American Psychological Association, 2007). Through survey data, Wang et al. (2010) found that when a follower's behavior was positive, the leader was more confident, and when the follower's behavior was negative, the leader was less confident. They noticed when follower behavior was positive, there was not a difference in respondent behavior among males and females. When respondent behavior was negative, male leader confidence was less affected. It should be noted that Odentunde (2013) also found that sex did not have an influence on leadership ability.

Malik (2012) looked at the relationship between leaders' behavior and their subordinates' expectations of their job. He used a survey to measure four leader behaviors: directive, supportive, participative, and achievement-oriented. Malik (2012) showed that gender, age,

education, and experience were not influential in job expectancies; however, the supervisory participants' job expectancies were different. The leader's behavior impacted job expectancies of subordinates. Malik (2012) showed that supportive leader behavior was the most effective, which is contradictory to other research cited by Malik (2012), where participative leader behavior is thought to be the most effective.

In a book of essays, Peterson and Behfar (2005) discussed self-regulation theory and found that tension in groups is what makes groups function. Peterson and Behfar (2005) discussed variables that can affect the group, such as being open or closed—open meaning that there are outside inputs and closed meaning that there are inputs within the group. Peterson and Behfar (2005) identified three main components to group regulation: self-awareness, clear standards and goals, and the ability and willingness to make changes. The leader, as a manager of these three components, can affect the success of the group. Peterson and Behfar (2005) discussed that failure is often natural and that the response of the leader is the corrective action.

Attitudes can be effectively modeled (Fiske, 2004). Shcimmel and Jacobs (2011) discussed how leaders of involuntary groups should maintain a positive attitude and be prepared to engage participants to mitigate the effect of the group on both the leader and the group. Shcimmel and Jacobs (2011) stated that although participants are not voluntarily, it does not mean that they are not motivated. They noted that involuntary members are defined by those that are court ordered for drinking and driving, or other court-ordered action. Shcimmel and Jacobs (2011) stressed the importance of leaders being able to recognize members who are negative and mitigating their effects on the behavior of all participants. They also discussed the importance of not only focusing on just a few members, who are disengaged, but to focus on

everyone with strategies to engage everyone. Shcimmel and Jacobs (2011) noted the group leader should recognize those people that are not able to participate in groups and work with them outside the group by possibly having an inner circle and an outer circle, where outer circle members are working on another separate activity. Shcimmel and Jacobs (2011) also discussed common mistakes leaders make, such as not responding to negativity, or relying on group members to mitigate the negativity of others.

Yaffe and Kark (2011) discussed leadership as it relates to what they call organizational citizenship behavior, or OCB. The term encompasses membership in small groups where the small group is also a member of a larger organization. In their research, Yaffe and Kark (2011) found that worthiness is very valuable in being effective and that the group would need to believe that the leader would be able to move the group forward, and vice versa (the leader needs to believe that the group is also worthy or can move the leader forward to complete tasks). Yaffe and Kark (2011) studied a large Israeli communication organization, with 67 work units or teams from three separate departments; a service department consisting of 37 teams, a technical department consisting of 21 teams, and a sales department consisting of 9 teams. They surveyed members and leaders using various surveys, appropriate to group membership as a leader, manager, and member containing seven point scales ranging from 1 = strongly disagree to 7 = strongly agree or very typical. These surveys were sent to all of the 683 employees. Data collected are on variables such as gender and tenure. The results were that when specific conditions are met, both direct leaders and indirect leaders can affect groups. Moreover, exemplary leadership is effective in group performance. The most important finding, as discussed by Yaffe and Kark (2011), is that leaders who lead by example and set personal

standards of OCB are more effective than leaders who do not. The variable labeled as role model was the second strongest positively correlated to the variable labeled as leader OCB with a coefficient of .40 at $p > .01$ (group tenure and leader OCB were the highest correlated at .44).

A leader's profile is essential in influencing others; Ellen (2014) discussed the politics of organizational leadership and that effective leaders are those who will be able to levy resources and represent their followers. She also asserted that positive outcomes for leaders, was for them to be able to acquire resources, provide advancement and development opportunities, and restore justice when needed, for their subordinates. Ellen (2014) stated that effective leaders are ones who have a wide network who use that network to influence followers by assigning high-profile tasks with prominent organizational leaders, such as serving on internal work groups and committees. Ellen (2014) discussed personal experiences gained through research by stating that politicking in organizations, as a leader, is essential for supporting followers.

Higgs and Rowland (2011) conducted a qualitative study that consisted of interviews of upper echelon leaders from 33 organizations across the UK, such as nongovernmental organizations, voluntary organizations, and charity organizations. The interviews were recorded and coded for prominent themes. The interviewees were asked to discuss a story around a change initiative that they were leading. There were 65 total interviews. Higgs and Rowland (2011) found that "leader-centric" behavior or leader behavior where the leader put themselves as the focal point for change negatively impacted the change efforts. They found that leaders who exhibit behaviors that are facilitating and engaging are more successful.

Some of the advanced leadership theories, such as transformational leadership and leader member exchange or LMX, make very clear that leaders affect the behavior of others who may

not otherwise act on their own (Morasso, 2011). As a component of LMX, White (2007) discussed the importance of rapport building with followers. Morasso (2011) stressed that followers are followers because they need something from leaders, and that leaders would not be leaders unless there were followers. The focus of LMX research has shifted from three term contingency components and has failed to consider the environment (Avolio et al., 2009).

Behavioral Theories of Leadership

Behavior is activity of a living organism (Daniels & Daniels, 2005). Behaviorism is a field of study under behavior analysis (as well as experimental analysis and applied behavior analysis) (Fisher, Groff, & Roane, 2011). The components of behavior theory are antecedents, behavior or response, and consequences or reinforcement contingencies to maintain or diminish behavior (Cooper et al., 2007; Luthans, 1985; Luthans, Luthans, & Luthans, 2015; Skinner 1969). Behavior theory focuses on behavior in relation to the environment (Cooper et al., 2007; Skinner, 1958, 1969, 1974, 1988). Much of the research in regards to reinforcement contingencies is focused on children and teachers. Thomas, Becker, and Armstrong, (1968) conducted a study to show that teacher behavior can produce and remove problem behavior in students. The Thomas et al. (1968) study supported the "catch 'em being good" phrase that many parents are often taught. What was not expected was that undesirable behavior can also be maintained by a disapproving response (Thomas et al., 1968). Touchette, MacDonald, and Langer (1985) found that children's behavior is affected when the teacher is being positive, and when the positive behavior of children is being reinforced. Lalli, Browder, Mace, and Brown (1993) studied the responses of a severely intellectually disabled girl, then diagnosed as severely mentally retarded, given various response contingencies. In the study, Lalli et al. (1993) required

teachers to conduct a scatterplot analysis over a five-day period, at 30-minute intervals. The three categories were zero incidents, low occurrences (1–10 target behaviors occurring per 30 minutes), and high occurrences (greater than 10 target behaviors occurring per 30-minute period). After Lalli et al. (1993) had identified a response class hierarchy, they applied an escape contingency to each of the topographies while placing the other two responses on extinction. What they demonstrated was that when applied to the last response in the hierarchy, the other responses were observed in order (screams, aggression, and self-injury). When the contingencies were applied to earlier topographies in the hierarchy, subsequent ones did not appear.

These studies show, if results are generalizable, that leaders of groups can influence behavior in the form of contingencies and that behavior in typographies will occur in order; in essence, if the contingency is not changed, the leader should expect the same behavior to occur. Herrnstein (1970) raised an important consideration with his development of the matching law, which basically stated that in order for a behavior to occur, and keep occurring, the amount of reinforcement must be commensurate to the behavior (for example, no one would run 10 miles for a root beer soda; the behavior of running 10 miles is not reinforced by a root beer soda). In essence, the principles of behavior theory, specifically applied behavior analysis, can be used by leaders to manage subordinate behavior by organizing contingencies in the environment (Luthans & Kreitner, 1985; Luthans, 2008; Luthans et al., 2015; Reid, O'Kane, & Macurik, 2011).

Social learning theory is a theory that was prominent in the literature (Luthans, 2015; Stahl & DeLuge, 2014; Yaffe & Kark, 2011) and is a behavior theory that uses behavior conditioning principles (Luthans & Kreitner, 1985). The social learning theory can be traced

back to Bandura, Ross, and Ross (1961), where they demonstrated that aggressive reactions in children are heightened after exposure to filmed aggression toward a bobo doll. When the subjects who viewed the video were denied preferred toys and taken to a room that contained the bobo doll, they aggressed toward the doll, even yelling aggressive phrases heard in the video. Since that study, a plethora of studies have been published demonstrating the effectiveness of modeling in various forms. Attitudes can be developed through modeling, or imitating behavior (Fiske, 2004). Modeling responsible behavior as well as discouraging irresponsible behavior is effective (Owens & Hekman, 2012; Stahl & DeLuge, 2014). Wegge, Shemla, and Haslam (2014) also found that modeling good health can influence subordinates to live healthy, reduce sick time, and improve leader and follower effectiveness. Likewise, Skakon, Nielsen, Borg, and Guzman (2010) found that leader stress and well-being are associated with employee stress and well-being.

There are various types of models that have evolved from original modeling concepts, such as self-modeling and self-efficacy. Self-modeling and self-efficacy are positive behavioral changes through continuous video observations of oneself performing specific behavior (Kehle, Owen, & Cressy, 1990). Self-modeling and self-efficacy have been shown to be least restrictive, and not invasive in any way (Clark, Kehle, Jenson, & Beck, 1992). In addition, behaviors resulting from video self-modeling applications can be generalized across settings (Buggey, 2005; Clare, Jenson, Kehle, & Bray, 2000; Lonnecker, Brady, McPherson & Jacqueline, 1994). Equipment used in videotaping is relatively unsophisticated (Dowrick & Dove, 1980; Dowrick & Hood, 1981). Moore and Fisher (2007) have also demonstrated that modeling can be effective to teach others to be effective. They conducted a study where they trained student observers to

collect data on school children's target behaviors, using applied behavior analysis procedures. Their training consisted of a PowerPoint lecture relating to functional behavioral assessment. In addition, each observer was trained by viewing two videos on recording procedures and then required to demonstrate mastery of the assessment. The videos contained a small mock classroom with a student demonstrating the current target behavior to be recorded. Moore and Fisher (2007) demonstrated that video modeling was efficacious in gaining mastery-level assessments from trainees when they assessed actual children after a lecture and video modeling. Work-related performance has also been increased with the use of self-modeling and self-efficacy (Stajkovic & Luthans, 1998).

During the 1970s, leadership theories stemming from behavioral theory were dominant (Yukl, 1999). Some of these theories were contingency theory, path-goal theory as a product of contingency theory (Luthans et al., 2015), leader member exchange theory or LMX, and normative decision-making theory (Yukl, 1999). The original idea of exploring the relationship between supervisors and subordinates through a path-goal framework started with Martin Evens, in 1970, after publishing a paper on the subject (Clark, 2013; House, 1996; Northouse, 2013). After reading the article, Robert House wanted to extend the theory and made contact with Evens regarding it. According to House, Evens reported that he did not develop a theory and encouraged House to do it, which led to House receiving credit for its development (House, 1996). In addition, the theory is partially based on the work of Vroom (1964) and his development of expectancy theory (Clark, 2013). Expectancy theory is a theory of motivation, using valence or reward, expectancy or performance, and instrumentality or belief the reward

will be received once the task is completed (Clark, 2014). Path-goal theory is under the umbrella of contingency theory (Alanazi & Rasli, 2013).

The path-goal theory is developed to assist leaders in helping followers to identify behaviors that lead to goals, while maintaining consideration of follower needs, situation, and environment to ensure success and satisfaction of the follower (Northouse, 2013). In essence, leader behavior in conjunction with subordinate characteristics and task characteristics effects the subordinate's motivation to accomplish tasks (Clark, 2013; Northhouse 2013). According to path-goal theory, leader behaviors are leadership styles that are directive or stating explicit instructions, supportive or amicable and approachable, participative or collaborative, and achievement oriented or establishing high performance expectations for a subordinate's success Northouse, 2013). Leaders can change their style or behavior depending on the situation (Clark, 2013; Northouse, 2013). The greatest strength of the path-goal theory is that it is a model designed to assist leaders in clarifying paths to goals and helping subordinates to achieve goals. Some of the theory's weaknesses are that it is complex and broad, there is a lack of research supporting assumptions, and it does not take into consideration how subordinate behavior effects the leader or the leader's behavior (Northouse, 2013).

The LMX theory is a theory of leadership that is focused on the relationship between the leader and the subordinate (Northouse, 2013), the dyadic relationship affecting both the leader and the follower (Luthans, 2008, Luthans et al., 2015). The theory examines how leaders are connected to the subordinates or groups in terms of being an "in-group" subordinate (having high-quality relationships), or being an "out-group" subordinate (having a minimally required relationship that is more formal) (Amiri, Amiri, & Amiri, 2010; Northouse, 2013; Schriesheim,

Castro, Zhou, & Yammarino, 2001). The theory originally developed as the vertical dyad linkage theory, or VDL, where researchers focused on relationships in a hierarchal sense (Northouse, 2013).

The in-group is typically subordinates who have high-quality interactions with the leader and tend to do more than what is formally required. The out-group is typically those who have low-quality interactions with the leader and perform at minimum standards (Northouse, 2013). Subordinates with high quality exchanges tend to be more loyal and contribute to leader performance, whereas low quality exchange subordinates tend to receive less resources and benefits as a result of their minimal work (Schriesheim et al., 2001). The theory makes very clear that leaders affect the behavior of others who may not otherwise act on their own (Morasso, 2011).

Some of the theory's greatest strengths are that it stresses the importance of leader and subordinate relationships in the accomplishment of tasks and receiving benefits (Northouse, 2013). Some of its weaknesses are that it only examines the relationship either from the leader's perspective or the subordinate's perspective, thus not really focusing on the dyadic relationship as it purports to. The theory has been added to and simplified (Schriesheim et al., 2001) since 1972, often without any rationale (Schriesheim, Castro, & Cogliser, 1999).

Leadership relationship quality is often studied under the LMX framework (Harris, Wheeler, & Kacmar, 2009). The theory has been one of the most researched theories in leadership studies (Schriesheim, 2001). Literature around LMX has focused on antecedents and consequences of behavior (Avolio et al., 2009) with a great deal of support for using LMX for within groups and dyadic echelon leader member exchanges (Schriesheim, 2001). One of the

failures of LMX research is the lack of studying relationships in social contexts where leaders and followers likely function (Schriesheim, 2001).

After a seminal journal article published in the *Journal of Applied Behavior Analysis* by Baer et al. (1968), giving direction to the field of applied behavior analysis, one of most prominent theories of leadership, OB Mod, was developed by Luthans and Kreitner (1975, 1985), and purported to be based in applied behavior analysis by Luthans and Kreitner (1975, 1985). The Baer et al. (1968) article explicitly discussed that applied behavior analysis should be used systematically within the field, improve behavior, and show that the application of applied behavior analysis technologies is responsible for changes in behavior. The article required data to be collected by direct observation and for the data collection methods to be replicable for use in subsequent research studies. Shortly after the article's publication, Daniels (1977) published his seminal article in the *Journal of Organizational Behavior Management*, citing Baer et al.'s (1968) direction to the field as direction to the field of organizational behavior management also, with the caveat that organizational behavior management be useful for managers addressing problems in the organizational setting. The literature shows that organizational behavior management researchers are able to meet the objective outlined by Daniels (1977); however, the literature also shows that they are unable to meet the other objectives as outlined by Baer et al. (1968) (Culig, Dickinson, McGee, & Austin, 2005).

OB Mod, as coined by Luthans (2015), refers to providing positive reinforcement, when an individual's behavior is improved, using current operant and behavioral psychology. Luthans and Kreitner (1975, 1985) developed OB Mod using Skinnerian psychology (Luthans, 2015; Newstrom, 2011). The model followed Skinner's antecedent-behavior-consequence, or three-

term contingency, expression of behavior, except, in light of Bandura's social learning theory, Davis and Luthans (1979) and Luthans and Kreitner (1985) changed the expression to include a situational and cognitive component and referred to the cognitive component as "O" for "organism" to represent an individual's thoughts or thought process occurring after the antecedent and before the occurrence of behavior. Davis and Luthans (1979) and Luthans and Kreitner (1985) developed a linear model to express their Skinnarian three-term contingency model with situation and cognitive components: S-O-B-C.

To discuss behavioral theories of research in the context of cognition is completely counterintuitive to the direction that Watson (1913), Baer et al. (1968), Skinner (1974, 1981, 1988), and Baer et al. (1968; 1987) gave the field of applied behavior analysis. The Baer et al. (1968; 1987) articles are still valid today (Capell, Barrio, & Mababu, 2014; Gambrill, 2012; Poling, 2010). In addition, thought processes, even though not observable, follow the same contingency principles in behavior analysis (Fisher et al., 2011; Skinner 1988). Luthans later abandoned OB Mod model by stating it was radical (Luthans, 2015); however, he continued to apply behavior analysis principles to his leadership models, such as the use of positive reinforcements in positive organizational behavior or POB, and how it relates to authentic leadership theory, and POB as it relates to the development of psychological capitol, a model for staff development, to increase human value to an organization that can also be applied within other leadership models (Luthans & Avolio, 2009; Luthans, 2015; Luthans et al., 2015). The use of linear models of expression used by Davis and Luthans (1979), Luthans and Kreitner (1985), and Howell et al. (1986), in conjunction with Catania (2013b), Cooper et al. (2007), and Mace et al. (2011) help to solidify how to express leader behavior in an equation.

The purpose of applied behavior analysis has been to predict and control behavior (Fisher et al., 2011). The field of applied behavior analysis was meant to be far reaching (Baer et al., 1968, 1987; Gambrill, 2012; Poling, 2010) and has been used to treat children with cognitive disabilities, guide behavior change agents such as parents and teachers, and develop appropriate settings in schools, homes, and businesses, as examples (Culig et al., 2005). Other than research geared toward students and teachers as leaders, applied behavior analysis has also been used for staff training and management, which are also often addressed by organizational behavior management models (Reid et al., 2011). Research on leader behavior has not been addressed using functional analysis, the research method used to explore relationships among variables.

Ethical Theories of Leadership

Ethics as part of leader behavior is a dominant theme (Dadhich & Bhal, 2008; Stahl & DeLuge, 2014). Stahl and DeLugue (2014) published a synthesis of literature on responsible and irresponsible leader behavior in relation to corporate social responsibility or CSR. This term is the simultaneous consideration of social, environmental, and economic sustainability, sometimes referred to as the triple bottom line (Stahl & DeLuge, 2014). Ethics was a prominent guiding theme on leadership behavior, resulting into two sub categories, “does good” and “avoid harm.” Stahl and DeLugue (2014) noted that leaders who approach their work through the “avoid harm” lens are less likely to be irresponsible. Stahl and DeLugue (2014) also found that the cultural or contextual climate will also determine how leaders and managers will behave. Solid policies and well-defined parameters will lead to responsible leader behavior. When solid policies, rules, and parameters are non-existent, a strong collaborative environment will also lead to responsible leader behavior. Stahl and DeLugue (2014) stated that responsible leader behavior is a

combination of the individual and the environment that the behavior occurs in. In addition, Stahl and DeLugue (2014) noted that that modeling responsible behavior as well as discouraging irresponsible behavior is effective. Stahl and DeLugue (2014) named a number of variables that encourage responsible leader behavior, such as modeling, collaborative decision making, communicating ethical standards, creating and enforcing policies, and training and education initiatives.

Conceptual Framework

The literature review shows that organization and climate impact behavioral health service delivery and outcomes (Aarons et al., 2011; Green et al., 2014), while most theories purporting to be based in behavior are not based on behavior as a science and lack direct observation supporting why leaders behave the way they do. These theories lack consistency across studies and are informed by one single method that is either interview or survey based (Derue et al.; 2011; Levi, 2014; Waldman, 2011; Yukl, 2013).

Transformational leadership theory is the most widely researched leadership theory (Green et al., 2014). Research into transformational leadership theory support that it can be broken down into two categories: Measurement or how leaders meet transformational criteria, and behavior or looking at why transformational leaders do what they do (Haslam et al., 2011). Criticisms of transformational leadership are that it lacks an explanation of why certain behaviors are relevant, lacks empirical evidence derived from direct observation on the leader and follower processes (Shields, 2010; Yukl, 2013), and lacks a clear concept because it is such a diverse and abstract theory (Northouse, 2013).

An applied behavior analysis approach to evaluate leader behavior can fill in some of the gaps where other theories, such as transformative leadership theory, are lacking via direct observation procedures. Applied behavior analysis encompasses at least 30 years of research that is still used today, specifically functional analysis and inter-observer procedures, which are considered best practices in the field when collecting empirical data (Beavers et al., 2013).

Conclusion

Organizational performance has catalyzed investigation into leader behavior, specifically in behavioral health settings where there is very little research available (Tafvelin et al., 2014). Leadership and leadership theories were not considered part of professional development in behavioral healthcare until about 1986, when social workers and behavioral healthcare providers began to notice that other professions were providing formal leadership training as part of educational and professional development (Brilliant, 1986; Tafvelin et al., 2014). Certainly, social workers and behavioral health providers have held leadership positions in organizations; however, there was not an emphasis on formal training until recently when behavioral health organizations transformed into evidence-based practice organizations with flatter hierarchies, where leaders, managers, and providers work together to provide the same or similar services (Gambrill, 2007; Tafvelin et al., 2014).

The current body of literature encompasses approximately 100 years' worth of information on behavior and leadership. While behaviorism may not be the most widely accepted theory for guiding leader behavior, it does offer a credible history, using scientific research models (Catania, 2013b; Cooper et al., 2007; Gambrill, 2012; Kazdin, 2011; Poling, 2010).

The gap in research for leadership studies is around the true analysis of behavior as a science itself to explain and discuss variables affecting leader behavior in various environments such as in a behavioral health setting (Brilliant, 1986; Trefvelin et al., 2014). Most of the variables discussed in the literature are based on constructs and not actual functional analysis of leader behavior (Gambrill, 2012).

There has been very little use of applied behavior analysis for personnel evaluation in healthcare settings (Reid et al., 2011). Baer et al. (1968, 1987) encouraged the wide use of applied behavior analysis (Capell, Barrio, & Mababu, 2014; Gambrill, 2012; Poling, 2010). Organizational behavior modification is the most prominent theory around leadership in organizations; however, its focus is on organizational management. While Davis and Luthans (1979) and Luthans and Kreitner's (1975) foundational research around organizational behavior approaches to leadership may have a lot of merit, it is not consistent with the concepts of behavior analysis or its history, as purported to be. Luthans abandoned his research around applied behavior analysis and leader behavior as presented by Luthans and Kreitner (1975) because he felt it had become radical (Luthans, 2015). In addition, prominent researchers such as Yukl (2013), Levi (2014), and Haslam et al. (2011) also discussed behavioral approaches to leadership in their books; however, the connection to behavior analysis was never established, which the field required, and current research either supporting or arguing against its use is lacking.

Shields (2010) noted that transformational leadership is common in social services and introduced a procedure that included direct observation of single cases, though not grounded in behavior analysis. Her study of two separate school principal's performance included multiple

interviews and direct observation to assess transformative changes in the schools. Transformational leadership theory and applied behavior analysis can be used across fields, according to the literature, and can be added to as long as certain criteria are met, such as use to help employees achieve greater efficiency. Applied behavior analysis offers direct observation procedures, called functional analysis, considered the best practice in the field of behavior analysis (Beavers et al., 2013). Over the past 30 years, functional analysis has been presented in over 2,000 journal articles and chapters and is considered a reliable procedure in applied behavior analysis for evaluating behavior (Beavers et al., 2013). The research procedures presented in this dissertation are informed exclusively by principles of applied behavior analysis.

Performance evaluation should include multiple tools (Powell, 2004) and should be informed from a combination of theories (Derue et al., 2011). Future research in leadership studies should expand performance evaluation methods beyond interview and survey data collection (Derue et al., 2011), while applied behavior analysis should focus on organizational leaders and their environments—specifically the functional analysis of leaders in behavioral healthcare where there is a lack of research on organizational staff performance (Reid et al., 2011).

In this chapter, I discussed the literature review process and historical development of leadership theory and behavioral analysis, as well as key theories, concepts, and ideas found in the literature. In addition, I discussed the importance of performance evaluations relative to the behavioral health field, to include discussion on the legal requirement to provide evaluations to employees and impact on employees. Through the literature review process, I discovered that social justice was a guiding principle in both transformative leadership theory and in the delivery

of behavioral health services (Reamer, 2006; Shields, 2010). Chapter three discusses the research procedures as informed by behavior analysis. Chapters four and five describe the research results and the findings and implications.

CHAPTER 3

METHODOLOGY

Introduction

The science of behavior, or behavior analysis, is broken down into three fields (Fisher et al., 2011; Morris et al., 1990):

- behaviorism is the philosophy of behavior analysis;
- experimental analysis is sometimes thought of as "rats and pigeons" research, which focuses on the clinically controlled environment to test basic principles of behavior;
- and applied behavior analysis, which is the experimental application of behavior analysis principles to solve socially important issues.

This specific information provided the conceptual framework for this research project to be applied analysis, with topographies or theoretical frameworks being behaviorism and applied behavior analysis.

The literature review and research methods for this study were informed by applied behavior analysis. The field of applied behavior analysis demonstrates applied behavior analysis technologies as effective tools to research and manage behavior (Gambrill, 2012; Poling, 2010). The technologies of applied behavior analysis have a history of focusing on settings designed for people with developmental disability; research shows that much of applied behavior analysis, outside of developmental disabilities, is simply demonstrating that the principles hold true in other settings (Poling, 2010). Applied behavior analysis does not have an established area of research exclusive to leadership (Poling, 2010; Reid et al., 2011).

The literature shows that the field of organizational behavior and OB Mod was derived from applied behavior analysis; however, there are no other theories on leadership within applied behavior analysis. In addition, much of the research in organizational behavior and organizational behavior modification is built on constructs that also include constructs around cognition (Luthans, 2015). The direction given to the field by many prominent researchers is to focus exclusively on observable behavior and observable behavior changes (Gambrill, 2012).

Catania (2013b), Cooper et al. (2007), Mace et al. (2011), and countless others have discussed several types of reinforcement contingencies and described some linear reinforcement schedules, where a stimulus presentation must occur one at a time and others where multiple presentations can occur. Davis and Luthans (1979), Luthans and Kreitner (1985), and Howell, Dorfman, and Kerr (1986) discussed leadership behavior in terms of a linear reinforcement contingency. They remarked that there could be a multitude of contingencies happening at a time, which is consistent with Catania (2013b), Cooper et al. (2007), and Mace et al. (2011).

The Davis and Luthans (1979) article, in conjunction with Catania (2013b), Cooper et al. (2007), Mace et al. (2011), etc., help to solidify what a behavior analysis expression of leadership should look like: f(leader behavior)=$S^D \rightarrow R^1 \rightarrow S^{R\ +-}$. This equation is read as follows: the function of leader behavior is dependent on operant conditions, or contingencies in the environment, where the S^D or discriminative stimulus, is the follower's initial behavior or discriminative stimulus alerting reinforcements are available for a response or R^1, where the reinforcing stimulus presentation is unexpected or $S^{R\ +-}$, meaning the stimulus relating to the response is either positive or negative reinforcement or positive or negative punishment. This expression does not take into account the leader's first presentation of a stimulus, which could be

captured in a follower expression: f(follower behavior)=$S^{D}\rightarrow R^{1}\rightarrow S^{R\,+-}$, which also becomes part of the environment alerting a follower response. To capture this part of the expression, simple and combination reinforcement schedules, in an ABA research design, can be used to further demonstrate how the expression can be tested. Reinforcement is what happens as organisms act on their environment (Catania, 2013a); most applied behavior analysis research relates to how positive reinforcement is delivered (Beavers et al., 2013), which has been the focus of this study also. The expression discussed is the basic three-term contingency used in applied behavior analysis (Mace et al., 2011).

In the equation, I did not use the commonly known symbol of S^{Δ} (S delta) because it indicates the end of the contingency, or extinction (Cooper et al., 2007); a S^{D} is used when the discriminative stimulus signals the reinforcement of a behavior within that contingency (Gresham, Watson, & Skinner, 2001; Mace et al., 2011). The specific schedule of reinforcement or expression used in this dissertation is $S^{D}\rightarrow R^{1}\rightarrow S^{R\,+-}$, where the behavior of the providers in the group serve as the discriminative stimulus, alerting the leader that his respondent behavior will be reinforced. Given the quality of the stimulus presentation, the leader may present a positive reinforcement himself to increase provider participation (Herrnstein, 1970). The leader's behavior is either reinforced or terminated based on the quality of the reinforcer or continued participation (Cooper et al., 2007). If the behavior is reinforced by subsequent individual responses from the group, the leader may continue to respond within the reinforcement schedule by staying on subject or stop responding by changing the subject. In the ABA design used for this research, the baseline condition, phase A, was measured by how much of the time a reinforcement was delivered by the leader after or during each discriminative

stimulus presentation by individuals in the group; in terms of simple schedules, the individuals from the group unknowingly delivered reinforcement or delivered reinforcement on variable intervals. The average of reinforcements during the baseline phase, phase A, becomes the variable interval (Mace et al., 2011). During the intervention condition, phase B, the reinforcements or conversational participation, such as case shares, were delivered at a higher rate by individuals in the group to see whether the leader would change his behavior, by him increasing or decreasing the delivery of positive reinforcement. The change in behavior helps to demonstrate the leader behavior expression as an accurate expression that can be used in scientific research.

Leader behavior can be more appropriately explained by labeling the three-term contingency expression as a compound schedule accepted in the field; for example, a chained schedule of reinforcement requires the first behavior to occur, as reinforced by the second behavior, with each reinforcing behavior serving as discriminant stimulus for the next, until the end of the contingency (Catania, 2013b). In a chained reinforcement contingency, the reinforcement is exclusive to the occurrence of a particular behavior (normally discussed by behaviorists as steps required to make a peanut butter and jelly sandwich; subsequent steps are contingent on the previous step) (Cooper et al., 2007). Like a chained schedule, a tandem reinforcement schedule does require such a sequential presentation of stimuli except that each step may look similar. The reinforcements in tandem schedules might also be similar or the same. A conversation might be seen as a tandem reinforcement schedule, where an individual's response does not occur until the other person finishes speaking, serving as both the reinforcement of the previous response and as a discriminative stimulus for the next response.

When the conversation is complete, the terminal link in the chain is the final step at the end of the conversation, which can be positive or negative reinforcement or positive and negative punishment, or reinforcement of other behaviors (DRO), and terminates behavior (Catania, 2013b).

It is not reasonable to believe that a reinforcement occurs perfectly at each link in chained or tandem schedules existing in natural environments. When reinforcement deliveries are not always consistent, basic schedules of reinforcement can be used to describe the delivery of reinforcement (rate or occurring every unknown number of responses, interval or time that is unknown time, etc., or differential reinforcement delivered based on previous response rate or time). Rates and intervals can be fixed (FR and FI) or variable (VR or VI); variable ratios have the highest response rates (Catania, 2013b).

The current leader behavior contingency can be expressed in basic terms. A tandem (also expressed as "tand") schedule of reinforcement is a compound reinforcement schedule and is one where there are two or more simple schedules combined (Catania, 2013b). The initial variable rate is always unknown and is the baseline; this variable rate or reinforcement average, once identified, served as the baseline for the single case design in this dissertation (Catania, 2013), phase A. The leader behavior, prior to phase B, was explicitly expressed in applied behavior analysis terms as tand VR DRO, with DRO being differential reinforcement of other behavior or in this case, the discontinuation of reinforcements, and serving as the terminal link in the reinforcement contingency. The DRO is a simple schedule of reinforcement (Catania, 2013b), which is the second schedule selected in the tandem schedule of reinforcement. This is how schedules of reinforcement are typically expressed in applied behavior analysis (Catania, 2013b;

Mace et al., 2011). An example of this might be when the last person in a conversation fails to signal to the other person to continue the conversation and instead is offering reinforcement of another behavior.

In essence, for this research, I measured changes in a clinical leader's behavior, using a single-case design, where the clinical leader was to engaging in a tand VR DRO compound schedule of reinforcement, providing reinforcements for participation from the group of providers. The behavior was measured by how much of the time the clinical leader provided reinforcement in conjunction with provider participation. The independent variable, provider participation, was delivered on an increased VI schedule; the independent variable was delivered by the providers, at an increased rate above baseline. The expected results were that low levels of participation would increase the delivery of positive reinforcement, and high levels of participation would require less positive reinforcement. Provider participation is an essential part of ensuring that providers understand the treatment they are delivering (Booth, 2014; NASW, 2008; Openshaw, 2012; Reamer, 2006).

Definition of Terms

ABA Design-An experimental analysis alternating baseline conditions (the "A" phase) with introduction or intervention conditions (the "B" phase) (Creswell, 2012; Kazdin, 2011).

Basic Schedules of Reinforcement-Single reinforcement schedules focused on a specific class of responses, which are used to build more complex schedules of reinforcement (Catania, 2013b; Mace, Pratt, Zangrillo, & Steege, 2011).

Differential Reinforcement of Other Behavior or DRO-A reinforcer is delivered in the absence of a specific behavior, on a time interval (Catania, 2013b; Mace et al., 2011).

Fixed Interval-A reinforcer is delivered on a fixed time, or every specific number of seconds; the reinforcer is non-contingent on behavior (Catania, 2013b; Mace et al., 2011).

Fixed Ratio-A reinforcer is delivered on a fixed number of responses (Catania, 2013b; Mace et al., 2011).

Operant Conditioning-Consequences occurring in the environment that shape and maintain behavior of an organism that can predict the future behavior of that organism (Cooper et al., 2007).

Reinforcement-A phenomenon that can take place during an organism's interaction with the environment (Catania, 2013a).

Tandem Schedule of Reinforcement-A chained schedule of reinforcement not using discriminative stimuli within the chain (Cooper et al., 2007). Completing one phase, produces the next, and completing that phase produces the reinforcer (Catania, 2013b).

Variable Interval-A reinforcer is delivered on a variable time schedule or average number of seconds (Catania, 2013b; Mace et al., 2011).

Variable Ratio-A reinforcer is delivered on a variable number of responses, on average (Catania, 2013b; Mace et al., 2011).

Setting

This study focused on evaluating leader behavior, in terms of applied behavior analysis, at a Maine-based 501 (c) 3 non-profit behavioral health organization formed within the last five years. The leader's behavior and change in behavior after the introduction phase, phase B, were measured in the group clinical supervision setting, where clinical supervision is provided at Maine Behavioral Health Organization (Maine Behavioral Health Organization, 2013). The

room had the appearance of being a welcoming environment, with furniture that might exist in a common household.

As the executive director of Maine Behavioral Health Organization, I had unlimited access to the environment and to protected health information (PHI). The PHI revealed during provider participation will continue to be maintained in accordance with Maine Behavioral Health Organization's (2013) policies and applicable state and federal laws. Research into PHI was not a focus of this study and was not collected.

The clinical groups are typically three hours in duration and occur one to two times a month. Each clinical session for observation was broken down into one-hour sessions regardless of whether or not another session immediately followed. Maine organizational licensing regulations require four hours of clinical supervision a month (Maine Department of the Secretary of State, 2016). Observations took place over a three-month period. The purpose of clinical supervision and case shares is to help the clinical leader ensure that subordinates understand appropriate treatment delivery, follow the National Association of Social Workers code of ethics, and to foster growth (Booth, 2014; NASW, 2008; Maine Behavioral Health Organization, 2013; Openshaw, 2012; Reamer, 2006).

Participants

The clinical leader was selected based off of his seniority and willingness to participate in a single-case research design. This person was selected because some of his work occurs in a group setting, where he is responsible for provider participation, and providing guidance on the delivery of behavioral health services. The clinical leader is in a position to influence the providers. Successful group work is based on how well the group interacts. The subordinate

providers were selected based off of having a commitment to clinical supervision with the clinical leader and their willingness to participate in the research design.

The following is a list of stakeholders that I have gained access to through my position as the executive director of Maine Behavioral Health Organization:

1. Maine Behavioral Health Organization's clinical director and affiliate member of my dissertation committee. This person is an executive and a psychotherapist licensed as a clinical social worker and a clinical counseling supervisor in Maine.
2. The clinical leader is a psychotherapist who is licensed as a clinical social worker in Maine.
3. Providers participating in group clinical supervision are providers who are certified and or licensed to provide behavioral health services in Maine. The providers are ages 18 to 74 and are not the focus of the research. These groups are not any larger than 10 providers at a time. All providers were required to consent before participating.

Data Collection and Instrumentation

An ABA single-case research design was the experimental design for this research, where phase A was the baseline phase for the dependent variable as analyzed with a scatterplot, and phase B was the intervention or introduction phase of the independent variable. The scatterplot was used to demonstrate a line of best fit or coefficient to describe the temporal pattern of variables that were the percentage of time the leader delivers positive reinforcement on the y-axis, and the three baseline sessions on the x-axis, which is consistent with common baseline analysis procedures found in applied behavior analysis (Thompson & Borrero, 2011). During

the introduction phase B, I contacted individuals in the group to discuss their delivery of reinforcements on a VI schedule higher than the baseline VI schedule of reinforcement. The second phase A of the design was a follow-up, where the independent variable was withdrawn to ensure observable behavior had returned back to baseline (Creswell, 2012; Kazdin, 2011).

The leader's behavior was the dependent variable, which was measured by his delivery of positive reinforcement. The discriminative stimulus to alert the leader that a reinforcement was available was the provider's beginning participation. When the provider finished speaking, he would deliver a reinforcement to increase case shares or provide a reinforcer for another behavior and terminate the reinforcement schedule. See Figure 3.1 for an Excel graph, consistent with tables typically used in applied behavior analysis (Kazdin, 2011).

Direct observation and partial interval recording procedures are the most preferred data collection methods in applied behavior analysis (Beavers et al., 2013; Cooper et al., 2007; Horner, Carr, Halle, McGee, Odom, & Wolery, 2005; Mudford, Taylor, & Martin, 2009; Thompson & Borrero, 2011). A continuous 10-second partial interval recording procedure was used to observe behavior as well as behavior occurring during and after the introduction phase B. Each hour was broken down into 60 minutes with every 10 seconds of recordable behavior counting as one behavior. Therefore, behavior occurring during the 10 seconds was only counted once (regardless of the response and was counted as one behavior if it was the behavior of interest) and then counted again during the next subsequent 10 seconds if the same behavior was still occurring. The procedure helps to show what percentage of time behavior was taking place during observation. This was calculated by dividing the number of intervals where behavior occurred by the total number of intervals and multiplying by 100 (Steege & Watson,

2009). The taxonomies of behavior that were recorded were antecedents: provider behaviors, including engaging the leader, asking a question, discussing clinically related subjects, and case shares; behaviors: the clinical leader's behaviors, including encouraging more case shares, questions about case shares, directives to continue case shares; consequences: provider behaviors occurring after or during the clinical leader's behavior including engaging the leader, asking a question, and case shares.

The baseline phase and all subsequent phases were established by observing three sessions per phase. Three data points are sufficient to establish a trend (Brown-Chidsey & Steege, 2010). Each interval was 10 seconds in length, for each of the 12 sessions, totaling 3,240 ten-second intervals. The total intervals were three sessions for the baseline phase (A) totaling 1,080, three sessions for the introduction phase (B) totaling 1,080, and three sessions for the withdrawal phase (A) totaling 1,080. See Appendix C for the continuous partial interval recording worksheet.

Inter-observer agreement is the most common procedure in single-case research designs used to evaluate and ensure reliability (Beavers et al., 2013; Kazdin, 2011). During the data collection, I trained another observer to evaluate the occurrence and non-occurrence of behavior by showing a video on how to collect data using continuous partial interval recording procedures. Moore and Fisher (2007) conducted a study in which they trained observers in functional behavior analysis to collect data. Their training consisted of a PowerPoint and video lecture relating to functional behavioral assessments. Moore and Fisher (2007) demonstrated that video modeling was efficacious in gaining mastery-level assessments from trainees when

they assessed actual individuals after a lecture. See Appendix D for the video transcription and Appendix E for the training PowerPoint presentation.

Inter-observer agreement was obtained on 67% of the continuous 10-second partial interval recording procedures (2,160 of 3,240 intervals). The occurrence agreement among the two observers was calculated (the number of occurrence agreements plus number of non-occurrence agreements, divided by occurrence agreements plus non-occurrence agreements plus occurrence disagreements, rounding down and multiplying by 100); the non-occurrence agreement was also calculated (total non-occurrence agreement, divided by non-occurrence agreements plus the total occurrence disagreement, rounding down and multiplied by 100); and lastly, the total inter-observer agreement was calculated (the total occurrence agreement plus the total non-occurrence agreement, divided by the total occurrence agreement plus the total non-occurrence agreement plus the total occurrence disagreement, rounding down, multiplied by 100) (F.C. Mace, templated from personal communication, March 26, 2008; Hoff, Ervin, & Friman, 2005; Steege & Watson, 2009).

Analysis

All data analyzed were collected from the continuous partial interval recording procedures worksheet sheet, coded by behavior and occurrence (see Appendix C), and analyzed and reported through scatterplot analysis and single-case design procedures (see Figure 3.2). There were no names attached to the data collected. The results informed leader behavior by providing a direct observation method that was quantitative to provide recommendations to make leader behavior more efficient, if efficiency is an issue. Recommendations can involve when to provide reinforcement to increase provider participation. As previously discussed, participation

is an important part of group supervision for providers to take ownership of the services they provide (Rock & Swartz, 2007). It cannot be expected that non-participating providers are providing quality treatment.

Other components to ensure accurate data analysis are the evaluation of validity and reliability. Validity in single-case research designs is achieved by showing that measures measure what they purport to (Kazdin, 2011). Figure 3.1 shows an Excel chart depicting how data are typically compared.

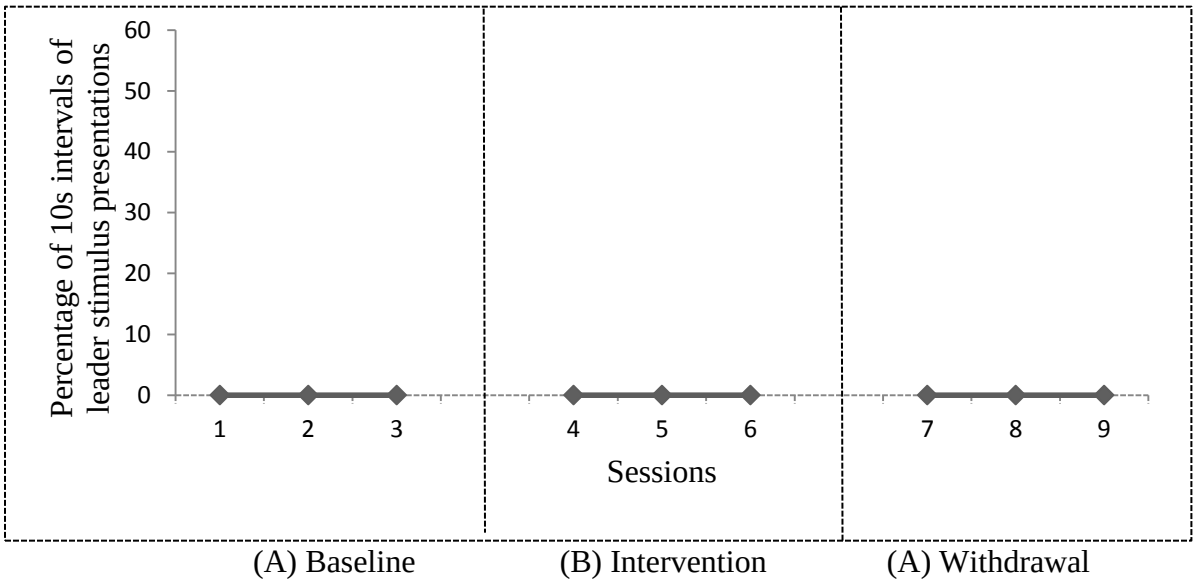

Figure 3.1. ABA Single-case design on leader behavior.

Social validity is achieved by discussing how useful research is to society (Baer et al., 1968, 1987; Gambrill, 2012). In this research study, an ABA single-case design was used to help demonstrate that applied behavior analysis can be appropriately expanded into other fields and settings, to provide a useable expression to use in scientific research, and to contribute to the applied behavior analysis body of research.

Valid results are the crux of any research design (Kazdin, 2011). Threats to validity were mitigated as reasonably possible when identified. These kinds of threats occur when results are attributed to other independent variables not identified as being the intervention, or when results occur because of design flaws (Cook & Campbell, 1979; Creswell, 2012; Kazdin, 2011). During the current study, four types of validity were evaluated: internal validity, external validity, construct validity, and data-evaluation validity.

Internal validity relates to how the intervention (phase B) relates to changes in behavior versus how extraneous variables relate to changes in behavior (Kazdin, 2011). Some of these variables include history, maturation, changes to instrumentation, and changes in treatment (Creswell, 2012; Kazdin, 2011). External threats to validity pertain to the generalization of the results (Kazdin, 2011). The expectation given the current research and prescribed methods by the field is that results would be generalizable when all variables, such as settings and times, are held constant.

Construct validity is considered very strong in the current research design, given that the three-term contingency is well grounded in behavior analysis. Construct validity looks at causal relationships—specifically between the intervention (phase B) and the behavioral change: Is the

intervention responsible for the change? (Kazdin, 2011). This is expressed and tested through the development of the three-term contingency: f(leader behavior)=$S^D \rightarrow R^1 \rightarrow S^{R\ +-}$.

Threats to data-evaluation validity occur when variables regarding data are obscuring the results; these can be a lack of data, excessive variability, and unreliable research methods (Kazdin, 2011). The methods used mitigate threats to data-evaluation validity because they are the most prominent research methods used in applied behavior analysis.

Reliability relates to how consistent measures are (Creswell, 2012), and single-case research designs are often evaluated through inter-observer agreement, which is the extent to which observers agree on the occurrence and non-occurrence of behavior (Kazdin, 2011).

Participant Rights

Participants were informed that participation was voluntary and were required to consent to participation in the research design prior to its implementation by signing a consent form (see Appendix B to review the IRB approval and consent form). Participants had the option to excuse themselves at any moment during the research. Participants were also informed that the risk of harm was low, participation was not burdensome, and all identifying information shall remain confidential. All employees at Maine Behavioral Health Organization are aware of the organization's employee assistance program and have access to it at any time if they feel they should need to access it.

Maine Behavioral Health Organization was started as a group of professionals who were dissatisfied with the delivery of mental health services. The organization submitted its Internal Revenue Service form 1023 for 501 (c) 3 federal non-profit status, which verified that there were not conflicts of interest among the co-founders. Additionally, the organization is required to

follow the National Association of Social Work Code of Ethics as published by Reamer, F. (2006), *Ethical Standards in Social Work: A Review of the NASW Code of Ethics* (2nd ed.). All participants are required to follow the NASW code of ethics at all times (Maine Behavioral Health Organization, 2013).

Potential Limitations

Potential limitations are threats to validity and variations in inter-observer agreement. Other limitations are setting events (competing stimuli presentations occurring prior to the sessions), private events, participants' history, willingness to participate, and experience.

Another potential limitation was that the group of providers varied in size in each session, some providers attended that do not normally attend because they missed clinical supervision at another location, or they are not available when the session begins because they are on leave. All new participants were required to consent and sign a consent form before participating.

CHAPTER 4

METHODOLOGY AND RESULTS

The purpose of this chapter is to present data collected as they relate to the research questions in this study. The functional analysis and data collection on leader behavior was completed using commonly used methods in applied behavior analysis. The study investigated the following: (1) How can research methods in applied behavior analysis be used to provide recommendations to improve leader behavior and efficiency in a 501 (c) 3 behavioral health organization? Can an expression informed by applied behavior analysis to describe leader behavior be used in scientific research? (2) How does the leader's behavior change to accomplish group goals? When the delivery schedule of the independent variable, such as case shares, is increased, will the leader change his or her behavior to support the group?

The most senior clinical leader in the organization agreed to participate in the study and provided at least one group supervision for at least three hours a month. For the purposes of this research, each hour counted as one snapshot in time and was considered a session. The provider participants were providers of adult and children's case management. The group consisted of two case management providers and one case management supervisor. The second date for supervision, the director of developmental services also attended for supervision; it was not anticipated that she would be attending, and therefore she was not part of the intervention phase. It should be noted that the supervisor left the meeting early during the third session of the intervention after 39 minutes. The director of developmental services attended the third date, but did not attend the fourth.

Data were collected using 10-second continuous partial interval recording procedures; each hour, or session, was broken down into 10-second intervals, where behaviors of interest being positive reinforcement delivered by the group leader in conjunction with case shares were recorded. Variables of interest were analyzed when they occurred simultaneously, with each variable being counted once if it occurred during an interval and again each time if it was occurring in subsequent intervals. The group never used identifying information during the meetings, usually only using the first name of clients. The group leader normally does his supervisions in three-hour spans. Data were collected on May 5, 2016 (three-hour supervision), May 24, 2016 (three-hour supervision), June 14, 2016 (two-hour supervision), and July 12, 2016 (three-hour supervision; data were collected on the first hour only, which was the final data collection session). Group supervision was scheduled by the group leader to meet his operational need with individual supervision occurring at various times throughout the month to meet state supervision requirements.

The group leader was informed to run the groups as he normally would. During the groups, he showed videos and had guest speakers. On May 5, 2016, the group was shown a video for 29% of the time. On May 24, 2016, the group leader had a speaker present for 39% of the time. On May 24, 2016, for the intervention phase B, all providers, except for the director of developmental services, were instructed to increase the amount of case shares. Prior to the next session, the second phase A, providers were instructed to participate as they normally would. See Table 4.1 for the variable occurrence percentages. All numbers were rounded to the nearest whole number.

Table 4.1

Variable Occurrence Percentages

		First Session		Second Session		Third Session		
		Number of Intervals Occurred	Percentage of time	Number of Intervals Occurred	Percentage of time	Number of Intervals Occurred	Percentage of time	Totals
Baseline (Phase A)								
	Case Shares	239	66%	226	63%	53	15%	48%
	Video	0	0%	82	23%	229	63%	29%
	Positive Reinforcement	138	38%	126	35%	43	12%	28%
Intervention (Phase B)								
	Case Shares	271	75%	87	24%	148	41%	47%
	Speaker	0	0%	230	64%	191	53%	39%
	Positive Reinforcement	96	27%	36	10%	119	33%	23%
Follow-up (Second Phase A)								
	Case Shares	332	92%	319	89%	246	68%	83%
	Positive Reinforcement	194	54%	196	54%	140	39%	49%

Inter-observer Agreement

The purpose of inter-observer agreement is to document the occurrence or non-occurrence of behavior in conjunction with another observer to ensure the reliability of the data collected. Inter-observer agreement was obtained on 2,160 of the 3,240 intervals, or 67% of the intervals. The occurrence agreement was 98% (706 occurrence agreements plus 1,428 non-occurrence agreements, divided by 706 occurrence agreements plus 1,428 non-occurrence agreements plus 26 occurrence disagreements, rounding down and multiplying by 100). The non-occurrence agreement was also 98% (1,428 non-occurrence agreement, divided by 1,428 non-occurrence agreement plus 26 occurrence disagreement, rounding down and multiplied by 100). The total inter observer agreement was 99% (706 occurrence agreement plus the total non-occurrence agreement of 2,856, divided by the total occurrence agreement of 706 plus the total non-occurrence agreement of 2,856, plus the total occurrence disagreement of 26, rounding

down, multiplied by 100) (Mace, templated from personal communication, March 26, 2008; Hoff, Ervin, & Friman, 2005; Steege & Watson, 2009). See Table 4.2 for data.

Table 4.2

Inter-Observer Agreement

		Observer One	
		Agree	Disagree
Observer Two	Agree	706	1,428
	Disagree	1,428	26

Analysis of Research Questions

Research question one. In chapter three, an expression describing the reinforcement contingencies available for the group supervision was developed, as informed by the literature (Catania, 2013b; Mace et al., 2011). This expression described a bidirectional conversational reinforcement contingency, whereas when the providers change the amount of case shares, the leader's behavior was also affected in the form of his delivery of positive reinforcement. The occurrence of behavior was simultaneous; as the providers shared case information, the leader also provided reinforcement either verbally or with body language. Shaking of the head was the only body language reinforcement recorded. Only reinforcement occurring during the same

intervals was counted. A scatterplot analysis and line of best fit using Excel was used to determine the temporal proximity between case shares and the delivery of positive reinforcement during baseline and intervention data collection (see Figures 4.1 and 4.2). The correlation coefficient for the baseline was .998564 and for the intervention it was .550834. These correlations have little meaning for the current research because the intent of the line of best fit was to look at the temporal proximity of variables or general trend to determine whether or not there was an inverse relationship; statistical significance testing is normally completed on sample data (Taylor, 1990).

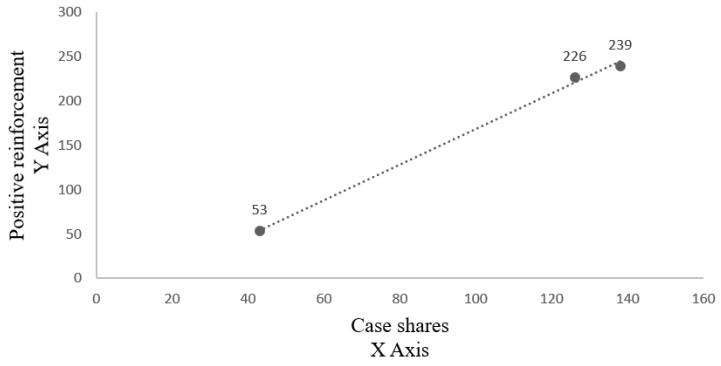

Figure 4.1. Baseline scatterplot analysis of case shares and positive reinforcement.

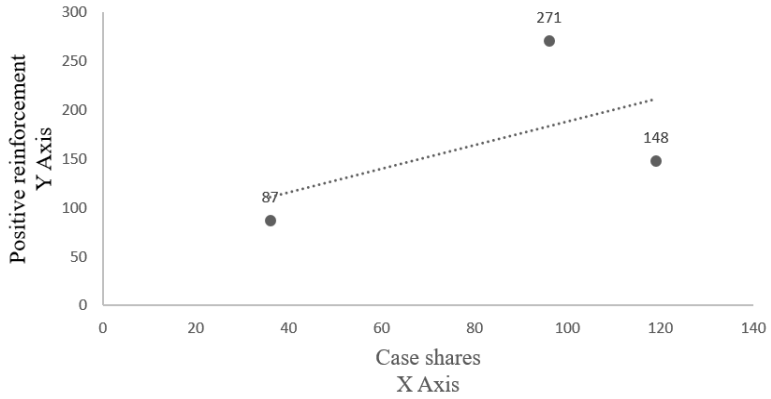

Figure 4.2. Intervention scatterplot analysis of case shares and positive reinforcement.

The average variable ratio (VR) for the baseline phase was 1.63 (total case shares divided by total delivery of positive reinforcement, rounded to the nearest hundredth place). The VR is now expressed as VR 1.63, which is updated to be a variable interval (VI), now that the rate of reinforcement is known (Catania, 2013b). This changes the leader behavior expression, as informed by the literature, to tand VI 1.63 DRO (tandum: variable interval 1.63, differential reinforcement of all other behaviors), also read as leader behavior is a function of a tandum schedule, made up of two simple schedules combined, with reinforcement being delivered on a variable interval of 1.63, where all other behaviors are not reinforced. In the intervention phase, the average VI was 2.02. The follow-up phase, or second phase A, where the independent variable was withdrawn, the average VI was 1.69.

In the literature review, it was shown that case shares should occur in clinical supervision the majority of the time when focus on case shares is the goal (Milne, 2009; Powell, 2004); Table 4.1 shows that case shares occurred 48% of the time during the baseline (Phase A), 47% of the time during the intervention (Phase B), and 49% of the time during the withdrawal phase (second Phase A). The results for research question one show that methods from applied behavior analysis can be used to successfully measure leader behavior.

Research question two. The expected results during the intervention were that the more case shares occurred, the less positive reinforcement was needed to keep the group going. The difference in variable interval averages per phase indicates that leader behavior is influenced congruous to the expectation. The reason for the expectation was because intervals are limited and the more one variable occurred, the less opportunity there was that other variables would occur; however, variables were recorded as occurring simultaneously. A comparison of baseline VI averages to intervention VI averages supports the expectation that leader behavior, in the form of positive reinforcement delivery, does change. The average VI for the baseline phase was 1.63 compared to the intervention VI average of 2.02. The average VI for the withdrawal phase was 1.69. It should be noted that providers were informed during the intervention phase to simply increase the amount of case shares they normally would; this was done primarily because it did not seem logical to ask providers to share based on the occurrence of positive reinforcement, which may have been difficult for them to track. See Figure 4.3 for the presentation of results in single-case research design percentages and Figure 4.4 for the presentation of results in in single-case research design variable ratios.

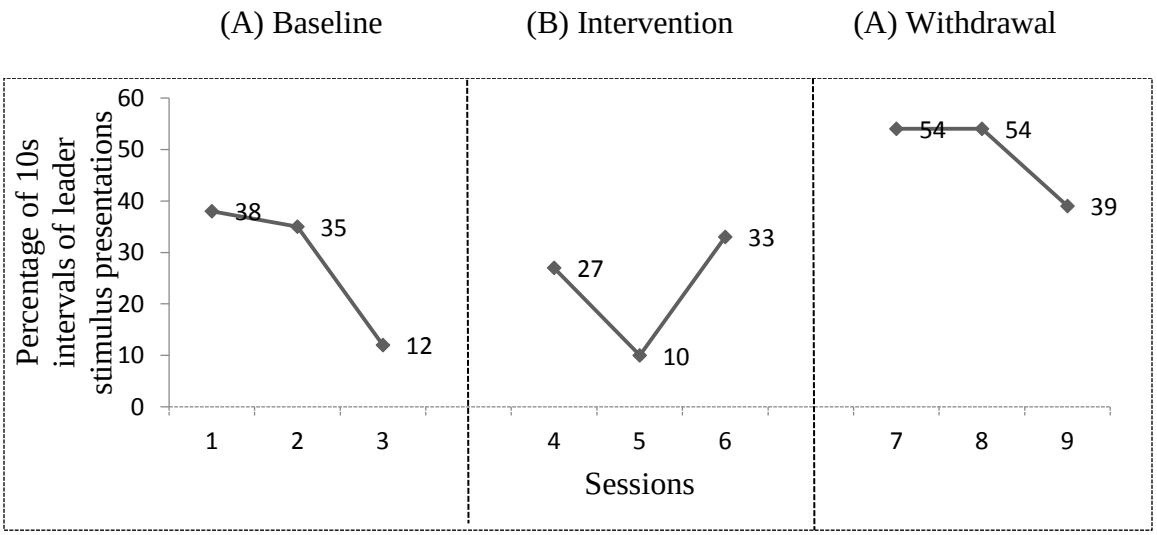

Figure 4.3. Single-case research design percentages.

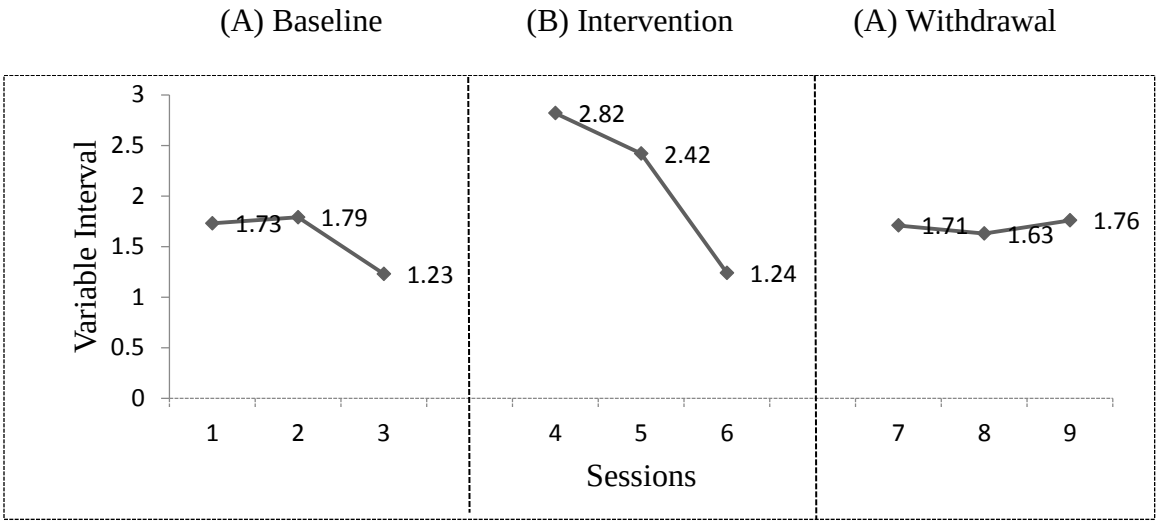

Figure 4.4. Single-case research design variable intervals.

Summary

The group leader was selected based off of his seniority as a clinical leader at Maine Behavioral Health Organization. The participants were selected based off of their commitment to group supervision. Data were collected on May 5, 2016, May 24, 2016, June 14, 2016, and July 12, 2016, where the clinical leader held group supervision meetings up to three hours. Each supervision was broken down into one-hour sessions, with each hour broken down for continuous partial interval recording. The results support that methods from applied behavior analysis are effective in evaluating leader behavior (see Figure 4.4) (Brown-Chidsey & Steege, 2010), and indicate that leader behavior is affected by follower behavior.

The research in this dissertation is socially valid because it addresses several concerns that society may have (Baer et al., 1968, 1987; Gambrill, 2012), such as the development of a theoretical foundation for the function of leader behavior that can be used in scientific studies, a way to measure specific content occurring in group work, and fair evaluation processes that are both quantitative and directly observable.

There were threats to validity that could not be controlled for. Threats to internal validity were noted; on May 24, 2016, during the intervention phase, the director of developmental services attended, which was not anticipated. She was not instructed to increase her time spent on case shares like the other providers were. Additionally, one of the providers left the meeting early during the third session of the intervention after 39 minutes. If both providers were participating in the intervention during all three sessions, the VR/VI may have been higher,

which would strengthen the case to support question two regarding the expectation that leader behavior, in the form of positive reinforcement delivery, does change.

The only threat to external validity noted is that the results regarding research question two may not be generalizable to other like settings because of the threats to internal validity during the intervention phase B. If all variables were held constant through the intervention phase B, then the results may be more generalizable. There were no threats to external validity regarding question one; the leader did provide reinforcement to keep sessions going that resulted in case shares occurring at appropriate levels, as indicated by the literature. It is for this reason that I recommend future studies replicate these procedures to establish generalizability through meta-analysis.

There were no threats to construct validity or data evaluation validity. The methods used to evaluate data are strongly supported by applied behavior analysis literature. The scatterplot analysis was included in this research to verify the relationship between the delivery of positive reinforcement and case shares. Reliability was established through the use of inter-observer agreement procedures, which verified that the tools used effectively measured what they purported to do.

In this chapter, I discussed the results, methodology, and the analysis of the data collected. Chapter five provides a more in-depth discussion of the findings and research questions, implications for practice and future research, and recommendations for future research.

CHAPTER 5

DISCUSSION

The purpose of this study was to explore leader behavior in a Maine-based 501(c) 3 charitable non-profit behavioral health organization. The current state-required annual evaluation process at Maine Behavioral Health Organization is completed by supervisors and is based on the supervisor's opinion. This process can result in disagreement between the supervisor and the leader being evaluated, which can damage morale and productivity (Barankay, 2012), ultimately leading to the evaluation being invalidated (Reamer, 2006). The best practices for evaluations include working with the leader to develop goals that can be observed and measured (Reid & Parsons, 2006), and to also include a combination of evaluation procedures such as a survey of subordinates and direct observations (Daniels & Daniels, 2007; Derue et al., 2011; Milne, 2009; Powell, 2004). The literature did not show that quantitative evaluation procedures had been developed for the evaluation of leaders in behavioral health settings. This is largely because the behavioral health field is comprised of various providers that include professionals such as psychologists, psychotherapists, mental health nurse practitioners, social workers, and a multitude of paraprofessionals (Carr et al., 2014; Fisher, personal communication, April 10, 2016).

The literature review included a review of transformative leadership theory to identify evaluation processes that were best practices to include observation as part of the evaluation process. Transformative leadership is a common form of leadership in the behavioral health

field (Shields, 2010) and fits well within the NASW Code of Ethics framework (Desrosiers, 2015). The requirement for organizations to use evidence-based practices in decision-making processes, change processes, and service delivery has grown (Brilliant, 1986; Daniels & Daniels, 2007; Gambrill, 2007; Luthans et al., 2015; Reamer, 2006). Behavioral health providers want to know how they are doing (Reamer, 2006) and should be evaluated with processes that they would use to evaluate the behavior of their clients (Daniels & Daniels, 2007). Transformative leadership has been used to implement changes and evaluate changes in leader and organizational behavior, although set evaluation procedures have not been thoroughly developed and replicated (Shields, 2010) like many of those in applied behavior analysis (Gambrill, 2012).

It is important to note that this dissertation and direct observation procedures were only a small component of the whole evaluation process, as observations and quantitative data were missing. A functional analysis, normally referred to a functional behavior assessment or FBA in school systems regarding treatment, focuses on:

- records review;
- rating scales;
- interviews;
- observation and data collection;
- and analysis (Steege & Watson, 2009).

One possibility would be to follow the FBA format when evaluating personnel performance; for example:

- review the personnel file and mutually agreed upon goals or benchmarks;
- conduct surveys;

- conduct interviews;
- observation and data collection;
- and analyze the data and complete the evaluation.

This recommendation parallels recommended best practices for performance evaluations (Derue et al., 2011), with the exception that observation and data collection should be on mutually agreed-upon goals of the leader or supervisor and the subordinate leader or supervisor (Reid & Parsons, 2006).

The literature review of transformative leadership led to social justice being a guiding principle of both transformative leadership theory and work in behavioral health services (Anello, Hernandez, Khadem & May, 2014; Reamer, 2007; Shields, 2010, 2013). Social justice is a principle that focuses on values such as responsibility, ethos, freedom, equality, empowerment, and justice or fairness (Carr et al., 2012; Draine, 2013; Greene, 1993). It may also provide a common language or a common expectation for client treatment across professions, if incorporated across professions (Clark, 2013). Social justice is a core value of the NASW Code of Ethics (Reamer, 2006).

A review of the most prominent leadership theories and their lineage was conducted resulting in the conclusion that leadership theories purporting to measure leader behavior were not grounded in behavior analysis and were mostly based on qualitative measures. A review of the principles of applied behavior analysis procedures was conducted to identify procedures for direct observation. Applied behavior analysis provides already established and well-researched procedures for direct observation (Cooper et al., 2007; Fisher et al., 2011; Reid et al., 2011).

After completing the literature review, the theoretical basis was developed in the form of an expression of leader behavior. It was noted that a few researchers had attempted to develop an expression to include a cognitive component (Luthans, 2015; Luthens et al., 2015; Luthans & Kreitner, 1975); however, this violated the principles of behavior analysis because it is believed that cognition, in this regard, cannot be observed and measured (Baer et al., 1968, 1987; Skinner, 1953; Watson, 1913). These researchers abandoned research on leader behavior theory development and used social learning theories to support the development of behavioral management theories that also included a cognitive component (Luthans, 2015; Luthens et al., 2015). These newer theories did not include direct observation components according to the literature.

The methods for the research in this dissertation were informed by applied behavior analysis—specifically functional analysis procedures in the form of a single-case research design. The function of the leader's behavior was explored using an ABA design, where phase A was the baseline measure, phase B was the intervention, and the second phase A was the follow-up or withdrawal of the independent variable. A continuous partial interval recording procedure was used for all phases. For this procedure, a recording sheet was designed for recording behavior occurring every 10 seconds (see Appendix C). Each behavior was counted once if it occurred during the interval and again if it was still occurring in subsequent intervals. This procedure helped to determine how much of the time behavior was occurring in conjunction with other variables. A second person also observed and recorded behavior simultaneously for 67% of the intervals as an inter-observer, for the purposes of establishing reliability. Threats to validity were also examined to ensure that the results of the study show what they purported to.

Discussion of Research Questions

The first part of research question one (How can research methods in applied behavior analysis be used to provide recommendations to improve leader behavior and efficiency in a 501 (c) 3 behavioral health organization?) was answered by the data collection results. Continuous partial interval recording procedures are common data collection methods in applied behavior analysis (Beavers et al., 2013; Cooper et al., 2007; Horner, Carr, Halle, McGee, Odom, & Wolery, 2005; Mudford, Taylor, & Martin, 2009; Thompson & Borrero, 2011) and were used to measure the occurrence of specific variables. Case shares, the most common occurring variable in clinical supervision when the focus is on case shares, should be occurring the majority of the time, with feedback (Milne, 2009; Powell, 2004). When the goal for supervision was a focus on case shares, the case shares occurred the majority of the time, when competing variables were considered, as shown by the research results. See Figure 4.1 for the percentage comparisons. The second part of the first research question (Can an expression informed by applied behavior analysis to describe leader behavior be used in scientific research?) was partially verified through the literature review. The expression was also verified through applied behavior analysis research tools normally used to verify like expressions. To answer this part of the research question, and to develop a theoretical basis for the research in this dissertation, it was necessary to describe the function of leader behavior. Researchers attempted to develop a linear expression of leader behavior, based off of Skinner's ABC contingency model that included a cognitive component (Davis & Luthans, 1979; Luthans & Kreitner, 1985); however, this expression, which was purported to be informed by the behavior analysis field (Luthans, 2015), violated the direction given to the field because cognition is not considered observable behavior (Baer et al.,

1968, 1987; Skinner, 1974; Watson, 2013). The research and literature in the field help to show what an expression of leadership should look like. An appropriate description of the function of leadership, as informed by behavior analysis (Catania, 2013b; Cooper et al. 2007; Mace et al., 2011), should look like: f(leader behavior)=$S^D \rightarrow R^1 \rightarrow S^{R\ +-}$. This equation is read as follows: the function of leader behavior is dependent on operant conditions, or contingencies in the environment, where the S^D or discriminative stimulus is the follower's initial behavior or discriminative stimulus alerting reinforcements are available for a response or R^1, where the reinforcing stimulus presentation is unexpected or $S^{R\ +-}$, meaning the stimulus relating to the response is either positive or negative reinforcement or positive or negative punishment. This expression does not take into account the leader's first presentation of a stimulus, which could be captured in a follower expression f(follower behavior)=$S^D \rightarrow R^1 \rightarrow S^{R\ +-}$, which also becomes part of the environment alerting a follower response.

The linear expression describes the function of behavior as a single stimulus presentation and reinforcement made available. This is not adequate to describe continuous reinforcement contingencies, some of which may signal the beginning or end of other contingencies (Catania, 2013b). In this dissertation, I described the reinforcement schedule as a compound tandem schedule because I believed, based off of the literature, that leader behavior had to occur as a verbal or other similar supportive reinforcement to the providers to continue with case shares, and terminate or remain silent, in sequence, for the leader to receive continued reinforcement from the providers, which was continued conversation. The simple schedules that comprise the compound tandem schedule were VRs (or variable intervals once the average VR was known), which appeared as encouraging behavior for the providers to continue, and DRO, or engagement

in other behaviors, which was normally the leader remaining silent. The compound tandem schedule of reinforcement is then expressed as tand VR DRO; however, since the average VR is known, for example, in phase B (see Figure 4.4), the reinforcement of leader behavior was delivered on a tand VI 1.73 DRO schedule of reinforcement, or viewed another way, the leader kept the group conversation going by delivering reinforcement to the providers every 1.73 intervals that case shares occurred. It should be noted that behaviors and reinforcements more often had the appearance of occurring simultaneously, with the leader delivery of reinforcements occurring during case shares and DRO also occurring during case shares (those moments when the leader's delivery of positive reinforcement occurred when providers were also speaking may have looked like head shaking "yes" and stating "yes," etc.). This does not change the reinforcement contingency because DRO, in the form of silence, cannot occur first. In essence, the second part of the research question is answered; an expression informed by applied behavior analysis to describe leader behavior can be used in scientific research.

Question two refers to changes in leader behavior: How does the leader's behavior change to accomplish group goals when the delivery schedule of the independent variable is increased; will the leader change his or her behavior to support the group? The change in the VI from the baseline to the intervention, though very small, seems to indicate that there may be a point whereas if there is an increase in case shares, there may be less delivery of positive reinforcement; however, it cannot be stated for certain that there is an inverse relationship given that the baseline session three and the intervention session six are almost the same. There simply are not enough data points within the current research design to conclude that there is an inverse relationship (Brown-Chidsey & Steege, 2010); however, VI comparisons of the baseline to the

intervention and to follow-up, point for point, where there are no other competing variables, show that the leader does manage the group to accomplish group goals when there are changes in provider behavior (see Figure 4.4). It should be noted that the assistant director, who attended the intervention phase and did not participate in the increase in case shares, could have changed the group dynamics enough to affect the VI (see Figure 4.4). Her participation was not anticipated because she had not attended any previous sessions prior to the intervention. Additionally, the case management supervisor left early during the intervention, session six. If both providers were participating in the intervention during all three sessions, the VR/VI may have been higher for the sixth session. This would be considered a threat to internal validity. The only other threat to validity that needs to be discussed in this chapter is the threat to external validly. Because of threats to internal validity, the results for question two may not be generalizable to other similar situations; meaning that other group leaders, with a similar number of provider participants in a behavioral health group setting, may not reduce the delivery of positive reinforcement to manage the group when there is an increase in provider participation, which is the threat to external validity. There were no threats to external validity regarding question one; the leader did manage the group through delivery of positive reinforcement, and regardless of threats to external validity, in question two, leader behavior did change. Therefore, I recommend future studies replicate these procedures to establish generalizability through meta-analysis.

The research in this dissertation shows that followers and leaders affect each other's behavior. The leader and follower relationship is a bidirectional relationship, meaning leaders and followers affect each other's behavior (Daniels & Daniels, 2007).

Implications of the limitations on present and future research. It is not reasonable to believe that an evaluation of leader behavior in a field setting would be without unanticipated events. The first unanticipated event encountered was that the group leader showed a video and had a guest speaker, although it is common to use videos and speakers in clinical supervision (Milne, 2009). Recommendations for obtaining an accurate snapshot of leader behavior in the behavioral health setting are for the evaluator to work with the leader to develop specific and observable goals and to discuss measurement practices (Daniels & Daniels, 2007; Reid & Parsons, 2006).

The second limitation was the unanticipated change in provider attendees. During the intervention, the director of developmental services was required to attend group supervision to make sure she had received all of her hours. Additionally, one of the providers also left earlier than expected, which may have caused the leader to increase positive reinforcement to keep the group going (see Figure 4.4, session six). It is possible that variations in the number of attendees also affects the leader's behavior. To mitigate these threats to internal validity, it may have been better to only collect data from a single one-hour session on separate days when group supervision is held.

In essence, it is very important for the supervisor to work closely with the leader being evaluated and to understand that leader's intent for group supervision (Daniels & Daniels, 2007). Supervisors of subordinate leaders should meet regularly with subordinate leaders to go over goals, observation practices, measurement practices, analysis of task accomplishments, and a preliminary review of the evaluation. This practice should mitigate any grievances over unanticipated evaluation results. Lastly, it should be noted that positive reinforcement of

subordinate behavior is the only reinforcement that should be used to change subordinate behavior for the long term; negative reinforcement and punishment may be effective for the short term; however, regular deliveries of negative reinforcement will damage morale, lower productivity, and increase staff turn-over (Reid & Parsons, 2006).

Implications for practice. Direct observation of leader behavior for annual evaluations is clearly part of best practices (Daniels & Daniels, 2007; Derue et al., 2011; Milne, 2009; Powell, 2004). The continuous partial interval recording procedure has a long history of being a tool to observe, measure, and collect data on human behavior (Beavers et al., 2013). Additionally, data can provide evidence that can assist leaders in understanding how they respond to their environment and adjust their behavior based off of the data (Reid & Parsons, 2006). An accurate evaluation is not only crucial to maintaining leader morale and productivity (Balankay, 2012), but it is also an expectation (Reamer, 2006) and a requirement (Maine Department of the Secretary of State, 2016).

Implications for future research. Implications in regard to the current and future research are as follows:

1. Replicate the current study with data collection occurring during the first hour of group supervision on separate dates. This will help to reduce threats to internal and external validity.
2. Replicate the current study and encourage research for a meta-analysis.
3. Replicate the current study across settings to expand the use of applied behavior analysis into other fields. The replication of these kinds of studies into other fields to

extend and contribute to the body of knowledge of applied behavior analysis is the intent of researchers in the behavioral analysis field (Baer et al., 1968, 1987; Gambrill, 2012).

Transformative leadership theory is a leadership theory that provides guidance for implementing change (Northouse, 2013). In order for the executive leadership of the research site to change performance evaluation practices, to include a direct observation component, there will need to be a plan for implementing this change to ensure its success (Kotter, 2012). Fortunately, transformative leadership theory and the NASW Code of Ethics, which the organization is required to follow per its policy, both use social justice as a guiding principle (Reamer, 2006; Shields, 2010). Social justice can provide the common language for linking theories and field's together (Clark, 2013). Both the leadership field and the behavioral health field have increasing requirements to implement evidence based practices. Integrating tools from the applied behavior analysis field, that are well established as evidenced based, could alleviate the burden of developing tools to meet evidenced based practice requirements to evaluate leader behavior. Applied behavior analysis focuses on reinforcement strategies to change and measure behavior (Cooper et al., 2007). In essence, final recommendation, to the leadership and behavioral health field, as a result of the literature review and research presented in this dissertation, is to consider tools from applied behavior analysis to influence and measure leader behavior.

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APPENDICES

APPENDIX A

LETTER OF APPROVAL FROM THE INTERNAL REVIEW BOARD

Institutional Review Board
Olgun Guvench, Chair

Biddeford Campus
11 Hills Beach Road
Biddeford, ME 04005
(207)602-2244 T
(207)602-5905 F

Portland Campus
716 Stevens Avenue
Portland, ME 04103

To:	Jason White
Cc:	Carey Clark
From:	Olgun Guvench, M.D., Ph.D.
Date:	April 7, 2016
Re:	IRB Protocol Approval: Initial
Project # & Title:	121415-011, A Functional Analysis of Leader Behavior in a Behavioral Health Setting

The Institutional Review Board (IRB) for the Protection of Human Subjects in Research has received and reviewed the materials you submitted in connection with the above referenced study including the requested revisions. Your study has been approved by the UNE IRB after expedited review. This study is a not greater than minimal risk study.

If you wish to change your protocol at any time, you must first submit the changes to the IRB and receive its written, unconditional approval before implementing them. This includes any changes to the version of the consent forms approved by the UNE IRB. If the subjects of your study are exposed to any unusual or unanticipated risk or injury as a consequence of participating in it, you must report such events to the IRB within one working day of the occurrence.

Please find attached a copy of the consent form bearing the IRB stamp of approval. Copies of the approved consent form must be used when obtaining the consent of the research subjects. A copy of the consent document should be given to the person signing the form.

Approval for this study expires on the date indicated below. If you need to continue your research project beyond that date, please submit a formal request (as outlined on the IRB website) at least 60 days prior to the expiration date. Please notify the IRB if you terminate the study before completing it, or upon concluding it.

The IRB wishes you well with your research. Please contact the IRB (IRB@une.edu) with any questions.

Sincerely,

Olgun Guvench, M.D., Ph.D.
IRB Chair

IRB#: 121415-011
Submission Date: December 14, 2015
Review: Expedited
Approved 45 CFR 46.110(b)(1), 63 FR 60366 (f)(7)

Status Date: March 29, 2016
Proposal Expiration Date: March 28, 2017

APPENDIX B

CONSENT FORM

Approved for Use Between
3/21/16
–
3/28/17
University of New England
Institutional Review Board

UNIVERSITY OF NEW ENGLAND
CONSENT FOR PARTCIPATION IN RESEARCH

Project Title: *A functional analysis of leader behavior in a behavioral health setting.*

Principal Investigator(s): *Jason White, Executive Director and Student, Maine Behavioral Health Organization and University of New England, jwhite13@une.edu; Dr. Carey Clark, Dissertation Committee Chair and Adviser, University of New England, cclark14@une.edu.*

Introduction:

Please read this form. You may also request that the form is read to you. The purpose of this form is to provide you with information about this research study, and if you choose to participate, document your decision.

You are encouraged to ask any questions that you may have about this study, now, during or after the project is complete. You can take as much time as you need to decide whether or not you want to participate. Your participation is voluntary.

Why is this study being done?

Maine Behavioral Health Organization does not have a procedure for evaluating leader behavior and effectiveness, using methods specifically designed for a behavioral health setting, in which we work. Many of the evaluation and leadership theories developed are effective; however, they lack direct observation of the leader. Direct observation has been noted as being part of best practice when evaluating work performance. The direct observation is the only piece of the entire evaluation process being studied for this research.

My research will provide an evaluation procedure for the organization, grounded in science, where there is currently a lack of research. The findings will contribute to the social science body of knowledge.

Research and observations will take place over a three month period in one hour sessions occurring during group supervision held at Maine Behavioral Health Organization every other Tuesday (specific dates are contingent on operational need of the organization).

Who will be in this study?

Participants in this study shall be the clinical leader, who was selected based on seniority, and willingness to participate. She or he is the focus of the study. Other participants are those required to receive clinical supervision per 14-193, CMR, Chapter 6, *Licensing of Mental Health Facilities*, are those providers who are licensed or certified to work with adults with mental illness. Providers are not the focus of the study, but are needed to participate in order to observe leader behavior.

In order to participate in this study, you must be at least 18 years of age. The approximate number of participants will not be any more than what is clinically appropriate, or about 10 to include the clinical leader.

What will I be asked to do?

During much of the research, data collection will be observational. These procedures may require up to two observers attending group supervision from time to time. The group leader, who is the focus of the study, will not be asked to do anything different than what he or she already does. Providers will be asked, periodically, to increase the amount of information they provide during group supervision. The information shared is being referred to as 'case shares' and is not expected to impede regular group work. The data collection will take place over a three month period, during regularly scheduled group supervision, every other Tuesday, for a total of 12 hours. You were selected for participation because you attend supervision regularly and as required as part of your employment. You are not required to participate in this research, and can leave the group any time. If you decide not to participate, you will be reassigned to another group, to meet the legal requirement for supervision.

The specific measures are direct observation by one to two observers, who will have a check list to document if a specific behavior occurred every 10 seconds. These procedures will not change when participants are asked to increase the amount of information provided in group discussion. These procedures are not new and are based on a strong history of success that can be found published regularly in the *Journal of Applied Behavior Analysis*. The specific measures are referred to as continuous partial interval recording procedures and inter-observer agreement procedures. Observations will be conducted by Jason White and a second trained observer. The second observer will be present for 25% to 50% of the time.

What are the possible risks of taking part in this study?

There are no reasonable foreseeable risks associated with participation in this project. The attendance of the observers, who are not participating in group activities, and are strictly observing, may cause discomfort that is similar to discomfort felt when there is a new group member. Participation is voluntary and you may leave the group anytime. If there is any discomfort or adverse experiences, Maine Behavioral Health Organization will provide employee assistance programming to provide needed care, upon request.

What are the possible benefits of taking part in this study?

There are no direct or indirect benefits to you for participating in this study. There may be a benefit to others, such as Maine Behavioral Health Organization and the social sciences field. The research may provide evaluation procedures for staff performance that are direct observation, provide a foundation for follow-up research, and contribute, specifically, to the behavior analysis and leadership body of research.

What will it cost me?

There will not be any reimbursement or compensation for participation in this project. Participants will not incur cost as a result of participation in this research. This research was designed so that it did not impact your work.

How will my privacy be protected?

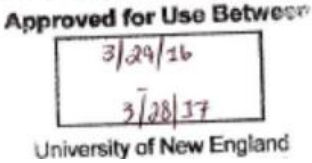
Provisions in place to protect your privacy are similar to those provided to Maine Behavioral Health Organization's clients. Participation will not be discussed outside of the office area where the research is being conducted. There are not any requirements, during the research, to generate identifying information. The occurrence or non-occurrence of behaviors of interest are the only data collected. All measures used to ensure client privacy will be in place for the research, for example, a white noise machine shall be placed outside of the office area while the group is meeting. The research area is considered to be sufficiently private.

The results of the research will be published in Jason White's dissertation, with the above title, through the University of New England's Dissertation and Thesis database (DUNE). The group leader will have access to the document prior to it being published. All participants, who are not the focus of the study, will be provided the dissertation once it is accepted and published.

How will my data be kept confidential?

This study is designed to keep all participants anonymous; this means that no one can link the data to you, or identify you as a participant. Research records, such as the consent form, will be kept in a locked file in a locked office of the principle investigator, located at 49 Oak Street, Augusta, Maine 04330. In essence, no individually identifiable information will be collected.

Please note that regulatory agencies, and the Institutional Review Board may review the research records. A copy of your signed consent form will be maintained by the principal investigator for at least 3 years after the study is complete before it is destroyed. The consent forms will be stored in a secure location that only the principle investigator will have access to and will not be affiliated with any data



obtained during the project. When records are destroyed, at the end of the three year period, they will be placed in the locked on-site shredding bin, and be destroyed the same way the Maine Department of Health and Human Services destroys confidential records.

Additionally, all participants will be asked not to repeat what is discussed in the group setting outside of the group; however, the principle investigator cannot ensure that other participants will respect your privacy. All participants are expected to follow all applicable laws as otherwise would be expected if research was not being conducted. All participants will follow the National Social Worker's Code of Ethics, as enforced by Maine Behavioral Health Organization's policy and as required under organizational licensing rules and professional licensing rules.

Research findings will be published in a dissertation and will be provided to all participants once the document has been published by the University of New England.

What are my rights as a research participant?

Your participation is voluntary. Your decision to participate will have no impact on your current or future relations with Maine Behavioral Health Organization or the University. You are free to withdraw from this research study at any time, for any reason. If you choose to withdraw from the research there will be no penalty to you and you will not lose any benefits that you are otherwise entitled to receive. You may skip or refuse to answer any question or decline to participate in any task requested, for any reason at any time. You will be informed of any significant findings developed during the course of the research that may affect your willingness to participate in the research.

What other options do I have?

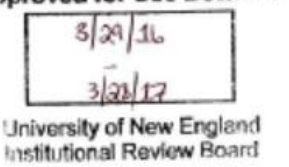
As previously discussed, you may choose not to participate, or may choose to not participate at any time during the research after consent. Because supervision is a requirement under Maine's regulations of mental health facilities, you may be assigned to another group, not involved in research, to meet this requirement. The reassignment to another group will be with your consent, and will not impact your work in anyway.

Whom may I contact with questions?

General requirement language:

The researcher conducting this study is Jason White, who may be contacted at any time at 207-542-4301 or at jwhite13@une.edu. You may also contact his advisor Carey Clark at 707-239-6738 or at cclark14@une.edu.

If you choose to participate in this research study and believe you may have suffered a research related injury, please contact Jason White 207-542-4301 or at jwhite13@une.edu. You may also contact his advisor Carey Clark at 707-239-6738 or at cclark14@une.edu. If you have any questions or concerns about your rights as a research subject, you may call Olgun Guvench, M.D., Ph.D., Chair of the UNE Institutional Review Board at (207) 221-4171 or irb@une.edu.



Will I receive a copy of this consent form?

General requirement language:

You will be given a copy of this consent form.

Participant's Statement

I understand the above description of this research and the risks and benefits associated with my participation as a research subject. I agree to take part in the research and do so voluntarily.

Participant's signature or
Legally authorized representative

Date

Printed name

Researcher's Statement

The participant named above had sufficient time to consider the information, had an opportunity to ask questions, and voluntarily agreed to be in this study.

Researcher's signature

Date

Printed name

Reference:

This form was templated from the University of New England's Institutional Review Board for the Protection of Human Subjects website. Retrieved from http://www.une.edu/research/compliance/irb.

APPENDIX C

CONTINUOUS PARTIAL INTERVAL RECORDING WORKSHEET

Continuous Partial Interval Recording Worksheet

Date of Observation:_____ Observer:_____

Setting:_____ Time of Day:_____

Behavior:_____

Key:			
Antecedents: Provider behaviors that are, E=engaging the leader or asking a question, D=discussing clinically related subjects, and C=case shares			
Behaviors: The clinical leader's behaviors that are, ED=encouraging discussion, Q=questions about a case share, and DC=directives to the provider to continue.			
Consequences: Provider behaviors that are, E=engaging the leader or asking a question, D=discussing clinically related subjects, and C=case shares (all consequences must occur after reinforcement, otherwise it is an antecedent).			
Directions: Check all those that apply, by working from left to right, during each 10 second interval. If a behavior occurs, it is only counted once during that interval, and if it is still occuring in subsequent intervals, check the behavior again.			
	Antecedents	Behavior	Consequences
	Initial Provider Behavior	Delivered Reinforcement	Case Shares
Example:	E	ED	C
0:00:10			
0:00:20			
0:00:30			
0:00:40			
0:00:50			
0:01:00			
0:01:10			
0:01:20			
0:01:30			
0:01:40			

APPENDIX D

TRAINING VIDEO TRANSCRIPT

Narrator:

Welcome to the inter-observer and continuous partial interval recording procedures training video. My name is Jason White, and this presentation is in support of my doctoral research.

The purpose of the inter-observer is to document the occurrence or non-occurrence of behavior in conjunction with another observer. Inter-observer agreement is the measure of agreement between two or more observers. The agreement on the occurrence and non-occurrence of behavior and the disagreement on the occurrence and non-occurrence of behavior will be analyzed to produce a coefficient representing the strength of the agreement of observers.

Interval recording is defined as documenting the occurrence of behavior by taking a chunk of time, such as an hour, and breaking it down into smaller intervals, such as 10 or 15 seconds, as examples. These recordings are used to analyze the percentage of time that a behavior occurs.

Whole interval recording is defined as recording the occurrence of the behavior for some small period of time, such as 10 or 15 seconds, as examples, and recording whether or not the behavior of interest occurred for the whole time of the interval. Partial interval recording is defined as recording the occurrence of behavior for some small period of time, such as 10 or 15 seconds, as examples, and recording whether or not the behavior of interest occurred at least once during the interval. If the behavior is continuing to occur into the next interval, the behavior

is recorded as occurring in that interval also. This is generally noted by checking off on a work sheet with a check mark.

Continuous partial interval recording procedures are defined as recording the occurrence of behavior for some small period of time, such as 10 or 15 seconds continuously, as examples, and recording whether or not the behavior of interest occurred at least once during each interval. Example of basic components: Continuously recording the behavior of interest every 10 seconds; check block if behavior occurred on a designated recording sheet.

Example of continuous partial interval recording. On this worksheet, we are observing antecedents, the behavior of interest, and the consequence. Now, let's look at how this is recorded with a hypothetical scenario. A doctoral student has requested accommodations because he struggles to get his work done. Preliminary observations have determined that his behavior is escape from academic demands. Potential antecedents are email notifications, Facebook notifications, and the availability of food and beverages. The behavior of interest is working on his dissertation proposal or not working on his dissertation proposal. The consequences maintaining his behavior are responses to email, Facebook posts, and satiation from the consumption of food and beverages. We will conduct continuous partial interval recording procedures on the doctoral student for two minutes.

During the first 10 seconds, we were able to observe a behavior of interest taking place. Therefore, we are going to make a check mark in the appropriate box. We were not able to observe any antecedents or consequences. Therefore, we will not make a check mark in those boxes. Remember, we are only recording observable behavior.

During this interval, we did not observe any behavior of interest taking place other than engaging in dissertation proposal work. Therefore, we will not make any check marks in any of the boxes.

During this interval, we observed a behavior of interest taking place. Therefore, we are going to make a check mark in the appropriate box.

During this interval, we observed two behaviors of interest taking place. Remember, we are recording behaviors of interest when at least one behavior has taken place during the interval. Therefore, we are going to make a check mark in the appropriate box.

During this interval, we did not observe any behaviors of interest taking place. Therefore, we are not going to check any boxes.

Again, we did not observe any behaviors of interest taking place during this interval. Therefore, we will not be checking of any boxes.

Subject:

Oh, an email notification.

Narrator:

During this interval, we observed a behavior of interest. Additionally, we observed an antecedent that was an email notification. However, we did not observe any consequences maintaining that behavior. Therefore, we will only make a check mark in the appropriate boxes.

During this interval, a behavior of interest was still occurring from the previous interval. Therefore, we will make a check mark in the appropriate box.

Subject:

Back to work.

Narrator:

During this interval a behavior of interest was still taking place from the previous interval. Therefore, we are going to go ahead and check the appropriate block.

During this interval, a behavior of interest was taking place. Therefore, we are going to check the appropriate block.

During this interval, a behavior of interest was taking place. Therefore, we are going to check the appropriate block.

During this interval, a behavior of interest was taking place. Therefore, we are going to check the appropriate box.

Now we are able to calculate the percentage of time the doctoral student was engaging in activities to escape from his academic demands.

Thank you for viewing.

APPENDIX E

TRAINING POWERPOINT

The Inter-observer and Continuous Partial Interval Recording Procedures

Jason White, MS

2015

Inter-observer

- The purpose of the inter-observer is to document the occurrence or non-occurrence of behavior in conjunction with another observer.
- Inter-observer agreement is the measure of agreement between two or more observers.
- The agreement on occurrence and non-occurrence of behavior and disagreement on the occurrence and non-occurrence of behavior will be analyzed to produce a coefficient representing the strength of the agreement of observers.

Interval Recording Procedures

- Interval recording is defined as documenting the occurrence of behavior by taking a chunk of time, such as an hour, and breaking it down into smaller intervals, such 10 or 15 seconds, as examples.
- These recordings are used to analyze the percentage of time that a behavior occurs.

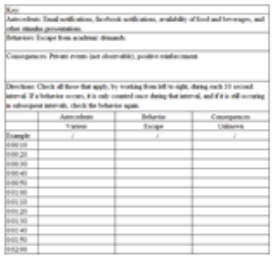
Continuous Partial Interval Recording Procedures

- Whole interval recording is defined as recording the occurrence of the behavior for some small period of time, such as 10 or 15 seconds, as examples, and recording whether or not the behavior of interest occurred for the whole time of the interval.
- Partial interval recording is defined as recording the occurrence of behavior for some small period of time, such as 10 or 15 seconds, as examples, and recording whether or not the behavior of interest occurred at least once during the interval.
  - If the behavior is continuing to occur into the next interval, the behavior is recorded as occurring in that interval also. This is generally noted by checking off on a work sheet with a check mark.

Continuous Partial Interval Recording Procedures

- Continuous partial interval recording procedures are defined as recording the occurrence of behavior for some small period of time, such as 10 or 15 seconds continuously, as examples, and recording whether or not the behavior of interest occurred at least once during each interval.
- Example of basic components:
  - Continuous recording behavior of interest every 10 seconds.
  - Check block if behavior occurred on designated recording sheet.

Example of Continuous Partial Interval Recording



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