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AN INVESTIGATION OF THE FACTORS RELATED TO DIRECT CARE STAFFS'
KNOWLEDGE OF EFFECTIVE INSTRUCTIONAL STRATEGIES FOR PEOPLE WITH
DEVELOPMENTAL DISABILITIES

by

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A dissertation submitted in partial fulfillment of the requirements
for the degree of Doctor of Philosophy
in the Department of Public Affairs
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ABSTRACT

The Medicaid Home and Community Based Services Waiver (HCBS) funds services for people with developmental disabilities in community based group homes. The purpose of the Medicaid HCBS Waiver is to: (1) support alternatives to institutions, (2) promote independence, (3) maximize functioning, and (4) support community integration. Direct care staff members have primary, day to day contact with people with developmental disabilities living in group home settings. Residential agencies for people with developmental disabilities have the responsibility to train direct care staff in the use of effective teaching strategies in order to realize the purpose of the Medicaid HCBS waiver. Direct care staff's knowledge of effective teaching strategies will afford people with mental retardation an opportunity for greater independence and help them achieve their maximum potential within the community.

This study set out to evaluate what factors were related to direct care staff members' knowledge of effective teaching strategies. The factors investigated include agencies use of evidence based staff training practices, feedback as a performance management strategy, and Certified Behavior Analysts involvement with the training and support of direct care staff. A random sample of 294 direct care staff members who work in 55 different group homes throughout the State of Florida participated in the study. Direct care staff members' average score on the knowledge of effective teaching strategies quiz was 23.31 out of 50 questions. The maximum score achieved was 43. These findings indicated that the direct care staff members generally did not demonstrate knowledge of effective teaching strategies.

The findings of this investigation demonstrated a statistically significant positive relationship between direct care staff members who received empirically derived staff training and knowledge of effective teaching strategies. Additionally, the investigation found a statistically significant positive relationship between the behavior analyst involvement and direct care staff members' knowledge about how to teach. The investigation failed to identify a statistically significant relationship between performance feedback and knowledge about how to teach. This research is important to policy formulation as it relates to the efficient and effective delivery of supports for people with developmental disabilities.

I dedicate my dissertation to my family. To my wife, Julia Cook, who has been proud and supportive of my work. My achievements are due in no small part to the many sacrifices made by my wife in order to support my aspirations. There were multiple weeknights and weekends when you alone had to care for our children and maintain our household because I was attending classes or studying. To my father and mother, Orville and Virginia Cook, who have been my role-model for hard work, persistence and personal sacrifices, and who instilled in me the inspiration to set high goals and the confidence to achieve them. To my daughters, Madison and Kennedy—for all of the missed bedtime stories, trips to the pool, the zoo, and the park, I dedicate this dissertation to you.

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LIST OF ACRONYMS

AAMR	American Association for Mental Retardation
BA	Behavior Analyst Involvement
BACB	Behavior Analysis Certification Board
BCaBA	Board Certified Assistant Behavior Analyst
BCBA	Board Certified Behavior Analyst
CV	Control Variables
DCS	Direct Care Staff
DD	Developmental Disability
F	Feedback
HCBS	Home and Community Based Services
ICF/MR	Intermediate Care Facility for persons with Mental Retardation
ID	Identify
IQ	Intelligence Quotient
MR	Mental Retardation
N	Number
NA	Not Applicable
OBM	Organizational Behavior Management
SE	Standard Error
SPSS	Statistical Package for the Social Sciences
ST	Staff Training
VIF	Variance Inflation Factor

CHAPTER 1: INTRODUCTION

Since the early 1970s, when federal funding (e.g., Title XIX Medicaid) became available for institutions and private agencies serving people with developmental disabilities, agencies have been responsible for the training of direct care staff in strategies to teach functional living skills. Often direct care staff members lack the preparation for accomplishing effective teaching of functional living skills (Killu, 1994; Parsons, Reid & Green, 1996; Zlomke & Benjamin, 1983). Direct care staff members, without any formal education or training, are typically hired to work with people with developmental disabilities (Hewitt, Larson & O’Neill, 1996; Killu, 1994; Reid, Parsons, & Green, 1989). Hile and Walbran (1991) observed that little more than one minute of every hour of staff time was spent on training. Supervision, staff leisure, and staff-client socialization accounted for the majority of staff time per hour. Unfortunately, many staff members view their role within a group home as that of caretaker, rather than teacher, and few realize the instructional effect of their daily interactions with the clients. Because direct care staff training needs have been well recognized, numerous studies of applied behavioral research have been conducted on training staff in the use of teaching skills (Arco, 2008; Jahr, 1998; Reid, Parsons & Green, 1989; Sturmey, 1998). Staff must be skilled in the application of teaching strategies for functional living skills training to be successful in assisting people with developmental disabilities to realize greater independence, to maximum their potential, and to foster integration within their community (Arco & Birnbrauer, 1990; Parsons, Reid, Crow, 2003; Jahr, 1998).

Developmental Disabilities

The American Association on Intellectual and Developmental Disabilities (AAIDD) most current definition for a developmental disability emphasizes a person's adaptive behavior, limitations, and IQ score. Developmental disability is a "disability characterized by significant limitations both in intellectual functioning (reasoning, learning, problem solving) and in adaptive behavior, which covers a range of everyday social and practical skills. This disability originates before the age of 18. A developmental disability is a condition that can be enhanced by the provision of supports" (AAMR, 2002, p. 13).

Developmental disabilities can be caused by any condition that impairs development of the brain before birth, during birth or in the childhood years. Causes may include genetic conditions (e.g., phenylketonuria, Down's syndrome, Fragile X syndrome), problems during pregnancy (e.g., alcohol, drugs, smoking, malnutrition, environmental contaminants, illness during pregnancy), problems at birth (e.g., prematurity, low birth weight), problems after birth (e.g., childhood disease, accidents, drowning, environmental pollutants), and poverty (e.g., malnutrition, disease prone conditions, inadequate medical care and environmental contamination). Several hundred causes have been discovered, but in about one-third of the people affected, the cause remains unknown. The three major known causes of developmental disabilities are Downs Syndrome, fetal alcohol syndrome and fragile X (AARM, 2002).

The Presidential Report on Developmental Disabilities (Hewitt & O'Neil, 1998) reviewed prevalence studies on mental retardation and estimate 1% to 2% of the population has mental retardation. Based on the 1990 census, it was estimated that 6.2 to 7.5 million people have mental retardation in the United States. Mental retardation is further categorized as mild (IQ levels 55-70), moderate (IQ levels 35-55), severe (IQ levels 20-35), and profound (IQ levels

below 20), with the rate for moderate, severe and profound retardation being 0.3% of the total population. Mental retardation is 10 times more common than cerebral palsy and it affects 25 times as many people as blindness (Batshaw, 1997). Deficits in independent living skills are prevalent among people with mental retardation and are defining characteristics of the disorder (AAMR, 1992). The prevalence of the aforementioned deficits should be a focus of teaching to promote independence in the community (Matson, 1990). Out-of-home residential placements for people with mental retardation have changed dramatically over the last 30 years. The evolution of residential services from State institutions, intermediate care facilities and community group homes is reviewed and discussed.

Residential Services for People with Mental Retardation

By 1967, the number of individuals with mental retardation residing in institutions reached 194,650 (Lakin, 1979). It has been well documented (Blatt & Kaplan, 1974) that the conditions of those underfunded and overcrowded institutions of the mid-1900s were dreadful. They were described by some as “hell on earth” and the “land of the living dead,” and many of the people living in these places were neglected, abused, and deprived of basic human rights. The photographic essay book, *Christmas in Purgatory (1974)*, depicted care in these institutions and brought public attention to the undesirable conditions (e.g., abuse, overcrowding, inadequate food and shelter, no privacy, lack of personal property) within institutions for individuals with mental retardation.

Wolfensberger’s (1970) principle of normalization, which questioned institutional services and settings, intensified social reform. The normalization principle stressed the importance of using typical and normal methods to establish valued outcomes for people with developmental disabilities. The Normalization principle implies that people should perform

according to the expectations of the culture for a particular age group. Agencies serving individuals with mental retardation can decrease the differentiation between people with and without mental retardation by improving the skills and behavior of individuals who suffer from mental retardation. The principle of normalization also requires that people with mental retardation have a presence in their local community. This means that both the programs and the people themselves must be situated in the community to provide natural opportunities for participation in typical life routines. This may include such activities as purchasing an item at a neighborhood clothing store, ordering a meal at a restaurant, or visiting with a neighbor in the backyard.

In 1971, in response to the horrifying conditions of residential services for people with mental retardation, Congress amended the Social Security Act (PL92-223) and authorized the payment of federal Medicaid funds to public institutions serving people with mental retardation. To receive Title XIX federal funding, institutions needed to meet the new standards for an intermediate care facility for persons with mental retardation (ICF/MR) (Hewitt & O'Neil, 1998). ICF/MR programs ranged from supporting six people in a home in the community to several hundred people in large congregate settings, including state institutions. Today, the federal government pays from 50% - 80% of the costs for ICF/MR programs.

Critics of Title XIX funding have said the ICF/MR standards and requirements led to funding existing institutional models as states attempted to maximize federal funding, and that the ICF/MR requirements have an outdated medical orientation (Gardner, 1993). During an eight year period (fiscal years 1977-1984), more than 80% of federal money paid out under the Title XIX went to large state institutions. In an attempt to reform the Medicaid bias towards institutions, Congress enacted the Medicaid Home and Community-Based Services (HCBS)

Waiver in 1981. Currently there are approximately 264 home and community based waiver programs operating throughout the country.

There are six services which may be provided in HCBS waiver programs: case management, homemaker/home health aide services, personal care services, adult day health, habilitation, and respite care (Home and Community-Based Services [HCBS] 1915I Waivers) Under section 1915I of the HCBS Act, states may request waivers of certain Federal requirements in order to develop Medicaid-financed community-based treatment alternatives to ICF/MR or state institutional placements. Prior to the HCBS Medicaid waiver, long-term care benefits were limited to institutional facilities: hospitals, nursing facilities, and intermediate care facilities for persons with mental retardation. The HCBS waiver was first to provide funding and administrative regulations to make available services not otherwise available through their Medicaid programs to serve people in their own homes and communities.

Residential options for individuals with developmental disabilities have significantly changed over the last twenty five years (Hewitt & O’Neill, 1998). Large state institutions were essentially the only residential option in the 1970s. Today residential options for individuals with mental retardation include a range of choices including small group homes, supported living, and in-home family supports. Most individuals with mental retardation live in homes of 15 or less people, situated within their local communities (Hewitt & O’Neill, 1998). Living in small community based homes affords individuals with mental retardation the opportunity to be included in community activities and to gain skills which assist them to live more independently. Residential services models have transitioned over the past 30 years from institutional care to community based group homes (Gardner, 1993). In 1967 there were 194,650 individuals with mental retardation living in state institutions. As of June 1996 there were 190,230 persons with

mental retardation receiving Medicaid HCBS (Hewitt & O’Nell, 1998).

Medicaid Home and Community Based Waiver’s (Chapter 1915) purpose is to support alternatives to institutions and promote independence, maximize functioning, and support community integration for individuals with mental retardation Florida Statute Chapter 393 states that “the design and delivery of services to persons with mental retardation should be directed by the principles of normalization by providing training which will “maximize their potential to lead independent and productive lives.” The principle of normalization emphasizes that people with mental retardation should acquire skills and engage in activities common to the general community (Wolfensberger, 1972). The ultimate goal of residential placement is to facilitate independence and self-sufficiency in the community (Slater & Bunyard, 1983). The movement away from large state institutions towards community based residential services has also affected direct care staff supporting people with mental retardation within these settings (Hewitt, Larson & O’Nell, 1996).

Direct Care Staff

The exact number of direct care staff working in the United States supporting people with developmental disabilities is unknown because current labor statistics do not adequately identify these positions. It is estimated that there were about 110,000 full-time equivalent (FTE) positions in state operated institutions and 400,000 FTE positions in community residential group homes in 2000 (Larson, Lakin, & Hewitt, 2002).

Between 1977 and 1999 the total number of group homes increased from 11,006 to 113,633 (Prouty & Lakin, 2000). Direct care positions have become more decentralized as community services have become more broadly available. The growth of out of family placements has occurred without a corresponding growth in the number of staff members

available to monitor the quality of supports received in dispersed settings. As a result, direct care staff members receive less supervision (Harchik & Campbell, 1998). Inadequate direct care staff competence has also been widely reported as the most substantial barrier to the quality of community services for people with developmental disabilities (Hewitt, Larson & O’Neill, 1996; Killu, 1994).

The importance of direct care staff performance is well recognized in the professional literature (Gardner, 1973; Greene, Willis, Levy, & Bailey, 1978; Harckik & Cambell, 1998; Killu, 1994; Reid, et al., 1989). The direct care staff members are central to the success or failure of individuals with developmental disabilities residing in the community (Killu, 1994). The direct care staff member is the individual who has primary, day to day contact with and the opportunity to teach people with developmental disabilities. The acquisition of functional living skills assists people with developmental disabilities to reach their maximum potential. It is the teaching skills of the direct care staff that enable people with developmental disabilities to have the necessary functional living skills to a) be employed, b) minimize their need for paid supports, c) maximize their participation within the community, and d) fulfill the purpose of the Medicaid Home and Community Based Services waiver program. There is a substantial amount of research on effective teaching strategies for people with developmental disabilities (Doyle et al., 1988; Gardner, 1972; Reid & Green, 1990; Reid, Parsons, & Green, 1989; Wolery, Bailey, & Sugai, 1988). Direct care staff must have specialized training to have the necessary knowledge and skills if people with developmental disabilities are to reach their maximum potential (Smith, 2001).

Strategies for Teaching People with Mental Retardation

Behavior modification is a widely accepted treatment and instructional model for teaching functional living skills to people with developmental disabilities. Guidelines for the development of effective teaching strategies are derived from well-established principles of human behavior (Skinner, 1969). Burch, Reiss, and Bailey, (1987) state that better staff training is needed to improve well-documented direct care staff skill deficits. They found staff rarely used positive reinforcement and did not use prompting strategies during functional living skills training. Significant performance problems in direct care staff occur as a result of ineffective training, supervision and management (Reid, Parsons, & Green, 1989).

CHAPTER 2: THEORETICAL FRAMEWORK

There are a variety of factors, including litigation, legislation, theory, and applied and experimental research that have influenced the habilitation and teaching of people with developmental disabilities. What follows is an overview of behavioral theory, applied behavior analysis, and organizational behavior management as the theoretical frameworks for examining the habilitation and training of people with developmental disabilities.

Behavioral Theory

Behavior theory, including applied behavior analysis, has its roots in the writings and research of Bandura (1977), Skinner (1953), and Wolpe (1961), among others. Behavioral theory consists of behavioral principles (e.g., extinction, schedules of reinforcement, stimulus control) and behavioral procedures (i.e., specific teaching techniques based on behavior principles). Applied behavior analysis is the process of applying and evaluating the effects of behavior procedures (Kazdin, 2001).

Although there have been and continue to be debates among theorists about various constructs and interventions within the behavior theory theoretical model, practitioners have successfully applied its principles to a variety of human problems. Among the problem behaviors that have been modified as a consequence of the application of behavior theory and applied behavior analysis are “the symptoms of anxiety, autism, neuroses, physical aggression, substance abuse, depression, mutism” (Walker & Shea, 1999, p. 46).

Teaching people with developmental disabilities has its foundation in behavior theory. Teaching techniques for people with developmental disabilities are derived from the

experimental analysis of behavior (Skinner, 1953). Research with thousands of subjects, both human and animal, has led to the identification of principles of behavior on which teaching strategies for people with developmental disabilities have been based. Because behavior theory and principles of behavior relate behavior to environmental events, rather than to an individual's personality, they have immediate relevance for teaching adaptive behaviors to people with developmental disabilities (e.g., self help skills and community living skills). To help an individual develop competence in community living skills, the direct care staff member does not need to change presumably permanent individual traits in the person with developmental disabilities. Rather, the person's environment is modified in accordance with established principles of behavior to accommodate for differences in persons with developmental disabilities (Kazdin, 2001; Wolery, et al., 1988).

Applied Behavior Analysis

The sole purpose of applied behavior analysis programs is to produce socially important behavior change (Baer, Wolf, & Risley, 1968). Although the evolving philosophy has enabled people with developmental disabilities to find new lives in community alternatives to institutions, it has been behavior analysis that has provided the necessary scientific framework for a technology of teaching that helps people with developmental disabilities function successfully in the community (Bellamy, Horner, & Inman, 1979; Austin & Carr, 2000). Until applied behavior analysis came into widespread use, it was particularly difficult to teach self help skills and community living skills to people with severe developmental disabilities. Applied behavior analysis is essentially the systematic application of certain principles of behavior described by B. F. Skinner (1953).

Teaching strategies based on applied behavior analysis are particularly effective for teaching self-help skills such as toileting, simple food preparation, safety skills, community living skills, leisure skills, social skills, and language skills. Professional journals from the 1960s to present abound with illustrations of effective programs. Applied behavior analysis is not a set of techniques or bag of tricks. Rather, applied behavior analysis is more accurately described as scientific approach to understanding and changing human behavior (Kazdin, 2001).

Certified Behavior Analysts

Practitioners of applied behavior analysis are called ‘Behavior Analysts.’ The Behavior Analyst Certification Board™ certifies and credentials behavior analysts. The Behavior Analyst Certification Board credentials practitioners at two levels. Board Certified Behavior Analysts™ (BCBA®) must possess at least a master’s degree, have 225 classroom hours of specific Graduate-level coursework, meet experience requirements, and pass the Behavior Analyst Certification Examination. Board Certified Assistant Behavior Analysts™ (BCaBA®) must have at least a bachelor’s degree, have 135 classroom hours of specific coursework, meet experience requirements, and pass the Assistant Behavior Analyst Certification Examination. Certified Behavior Analysts have the necessary education, training and experience to teach direct care staff how to train people with developmental disabilities. A Certified Behavior Analyst’s involvement with the group home may be a relevant factor related to direct care staff having the necessary knowledge and skills to teach people with developmental disabilities.

Organizational Behavior Management (OBM)

Organizational Behavior Management (OBM) refers, specifically, to the application of behavioral principles, and more specifically, applied behavior analysis to business and industrial settings (Reid, 1998). Reid and Parsons (1995) have compiled a bibliography of over 270 articles, book chapters and books that have been published on OBM research and applications in agencies that support people with developmental disabilities. The research literature contains numerous demonstrations of the efficacy of OBM for improving staff performance along a broad continuum of services for people with developmental disabilities (Harchik, & Campbell, 1998; Reid, 1998). OBM provides one way of looking at both the structure of organizations and the procedures that organizations use to train and maintain the skills of direct care staff members (Harchik, 1998). Reid (1998) conducted an analysis of OBM contributions and found the most consistent outcome among OBM investigations in agencies serving people with developmental disabilities is the demonstrated effectiveness of OBM supervisory and management strategies for improving the work performance of residential direct care staff members.

OBM intervention packages include various forms of staff development such as classroom instruction, written materials, quizzes, and brief rationales for interventions. Some OBM interventions have included modeling of staff skills through role play, directly observing other direct care staff members working with people with developmental disabilities, and video of direct care staff training people with developmental disabilities. A variety of forms of feedback have also been evaluated. Verbal and written feedback have included narrative feedback, numerical feedback through points, or percentage correct staff performance, and numerical measure of the behavior of people with developmental disabilities, or the use of a combination of these strategies (Reid, 1998). Supervisors who observe direct care staff teach,

model effective teaching strategies, and give immediate feedback to direct care staff members may be important factors related to direct care staff having the knowledge and skills related to teaching people with developmental disabilities. There is a better scientific basis for the effectiveness of the methods of OBM than any other method of training and maintaining staff performance (Sturmey, 1998). In contrast, traditional staff training and performance management approaches include: 1) annual performance appraisals, 2) employee of the month and employee of the year employee recognition programs, 3) classroom style training programs, and 4) progressive discipline programs. These have not been shown to be effective in maintaining adequate staff performance (Daniels, 2004).

Staff Training

Reid et al. (2003) describe a seven step typical OBM staff training program for direct care staff members as follows: “The behavior definition for performance-based staff training involved (a) verbally describing the skill being taught to the staff member, (b) giving a written description of the skill to the staff member, (c) modeling the skill, (d) observing the staff person practice the skill and provide feedback, and (e) repeating the preceding two steps until the staff person performed the skill proficiently” (p. 40). This process describes the basic steps in staff training within the theoretical framework of OBM (Harchik & Campbell, 1998). In contrast to traditional staff training there is no requirement for staff members to attend a class, pass a mastery quiz, or describe what they should do. Instead, emphasis is placed on the motor behavior of the staff and demonstration of the skill to mastery criterion (Reid, 1998). A use of the abovementioned staff training strategies is a relevant factor in determining if direct care staff have the knowledge and skills to teach people with developmental disabilities.

OBM characterizes the traditional approach to maintaining staff behavior as ‘train and hope.’ In traditional approaches to staff training, behavior outside of classroom instruction and maintenance of desired staff behavior are rarely addressed. Earlier research has shown that verbal instruction alone is insufficient for direct care staff members to acquire effective teaching skills (Watson & Uzzell, 1980). OBM has developed a variety of approaches to maintain staff behavior after initial staff training. These typically include continued measurement of staff performance, usually combined with antecedent and consequential elements for staff such as reminders (i.e., antecedents) and various forms of feedback (i.e., consequences) (Reid, 1998).

Summary

In summary, behavior theory, applied behavior analysis, and organizational behavior management predict that direct care staff members use of teaching strategies based on applied behavior analysis with people with developmental disabilities should result in increased independence. Additionally, these theories predict that organizations that use staff training strategies based on organizational behavior management to instruct staff how to teach should result in direct care staff members with knowledge of effective teaching strategies for people with developmental disabilities. Third, practitioners who are credentialed and certified as Behavior Analysts have the knowledge and experience to train and give feedback to direct care staff members on their teaching of people with developmental disabilities. Organizations that employ Certified Behavior Analysts to train direct care staff to teach people with developmental disabilities should make it more likely that the direct care staff have the knowledge and skills to teach. Lastly, these theories should predict that organizations that use feedback as a performance management strategy would be more likely to employ direct care staff members that have knowledge about how to instruct people with developmental disabilities.

There is a substantial amount of research on effective teaching strategies for people with developmental disabilities. What follows is a review of research that has identified effective teaching strategies to be utilized with people with developmental disabilities in residential settings and review of the research for effective staff training strategies which have been utilized to teach direct care staff said skills.

CHAPTER 3: LITERATURE REVIEW

The direct care staff members are central to the success or failure of a person with developmental disabilities in the community (Arco & Birnbrauer, 1990; Hewitt, Larson & O’Neill, 1996; Killu, 1994; McCalannahan & Krantz, 1993; Parsons, Reid, & Green, 1996). Direct care staff members working in residential group homes for people with developmental disabilities have an important role as potential teachers for their clients. Shaddock, Hattie, Edwards, Bramston, and Brummel (1986) found that skills teaching was rated among the ten most important training needs among staff working in community residences. Many studies have been conducted on direct care staff’s use of effective teaching strategies to support people with developmental disabilities, in recognition that the success in functional living skills training for people with developmental disabilities depends on the direct care staffs’ skills (Crockett, Fleming, Doepke, & Stevens, 2007; Dib & Sturmey, 2007; Downs, Downs, & Rau, 2008; Ducharme, Williams, Cummings, Murray, & Spencer, 2001; Fleming & Sulzer-Azaroff, 1989; Gardner, 1972; Harchik, Sherman, Hopkins, Strouse, & Sheldon, 1989; Hardy & Sturmey, 2004; Hrydowy & Martin, 1994; Kazdin, 1973; Koegel, Ruso, & Rincover, 1977; Kissel, Whitman & Reid 1983; Lafasakis & Sturmey, 2007; Leblanc, Ricciardi, & Luiselli, 2005; Matson, Smalls, Hampff, Smiroldo & Anderson, 1998; McBride & Schwartz, 2003; Page, Iwata & Reid 1982; Parsons & Reid 1995; Parsons, Reid, & Green 1993; Parsons, Reid, & Green 1996; Parsons, Rollyson, & Reid, 2004; Realon, Lewallen, & Wheeler, 1983, Schepis, Ownbey, Parsons, & Reid, 2000; Schepis, Reid, Ownbey, & Parsons, 2001; Saloviita & Lehtinen, 2001; Sarokoff & Sturmey, 2004; Smith, Parker, Taubman, & Lovaas, 1992; Vonderen & Bresser, 2005).

Competency based training of supervisors has resulted in improvements in direct care staff delivering instructions, use of reinforcers, increase in client compliance, and decreases in clients' inappropriate behavior (Shore, Iwata, Vollmer, et al., 1995). A review of investigations on procedures used to train new skills to direct care staff found verbal instructions, written instructions, performance demonstrations, performance practice, and feedback the most common procedures utilized (Arco, 2008; Jahr, 1998; Reid & Green, 1990).

Effective Teaching Strategies for People with Developmental Disabilities

The training of direct care staff in the use of effective teaching strategies has typically involved teaching two types of skills, verbal skills and performance skills (Gardner, 1972). The purpose of teaching specific verbal skills to direct care staff is to provide the staff with a set of principles and a conceptual system that will permit them to analyze behavior they will encounter in relation to the terms of behavior modification (Watson, Gardner & Sanders, 1971). Teaching verbal skills gives direct care staff members a common lexicon to identify discrete client behaviors to enhance the effectiveness of feedback given to direct care staff (Harchik et al., 1989).

Training direct care staff to use specific performance skills represents the second type of teaching skill. Investigations have typically defined five performance skill areas: delivering instructions, effective use of prompts, error correction, delivered reinforcement, and data collection (Crockett, et al., 2007; Harchik et al., 1989; Koegel, et al., 1977; Lafasakis & Sturmey, 2007; Leblanc, et al., 2005; Parsons, Reid, and Green, 1993, 1996; Sarokoff & Sturmey, 2004; Schepis et al., 2000; Vonderen & Bresser, 2005). These skill areas were selected because investigations have shown when direct care staff were taught to exhibit these teaching skills, these enhanced the independent functional living skills for people with developmental

disabilities (Crockett, 2007; Downs et al., 2008; Fleming & Sulzer-Azaroff, 1989; Kissel, et al., 1983; Koegel, et al., 1977; Lafasakis & Sturmey, 2007; McBride & Schwartz, 2003; Page et al., 1982; Schepis, et al., 2001), or decreased in the level of prompting (Matson et al., 1998; Parsons et al., 1993, 1995; Schepis, et al., 2000). When these skills are applied as part of an applied behavior analysis treatment program, they have resulted in many long term benefits for people with disabilities, including increases in IQ and decreases in need for professional services (McEachin, Smith & Lovaas, 1993).

Delivering Instructions

‘Delivering instructions,’ the first of these teaching strategies, was defined as the direct care staff member presenting a brief, clear and discriminable instruction (Crockett et al., 2007; Hardy & Sturmey, 1994; Sarokoff & Sturmey, 2004; Smith, 2001). An instruction from a direct care staff has been defined as being: (a) distinct and offset from whatever else the staff say (Koegel et al., 1977; Page et al., 1982); (b) appropriate to the task (Ducharme & Feldman, 1992; Fleming & Sulzer-Azaroff, 1989; Realon, Lewallen & Wheeler, 1983); (c) uninterrupted; and, (d) delivered when the client is attending to the direct care staff member (Crockett et al., 2007; Hardy & Sturmey, 1994; Koegel et al., 1977). Kissel et al., (1983) additionally stated, “Each instruction had to include the resident’s name, a specific action verb, and a specific object to act on” (p. 398). Ducharme & Feldman (1992) added that “The staff person should not a) use the whole task instruction more than three times prior to task initiation by the client, b) repeat the whole task instruction after the client has initiated the task, or c) use prompts either before or instead of the instruction” (p.887). An instruction should be presented only once prior to performing the behavior and only when the client was attending to the staff member (Crockett et al., 2007; Hardy & Sturmey, 1994).

Prompting and Fading

The second teaching strategy included the ‘effective use of prompts.’ A review of the research indicated the least to most prompting sequence was most frequently cited (Doyle, Wolery, Ault, & Gast, 1988; Schepis et al, 2000, 2001). The different types of prompts typically reported included verbal, modeling, and physical prompts (Doyle, et al., 1988; Ducharme & Feldman, 1992; Page et al., 1982). In one study, direct care staff members were trained to use only two different types of prompts, verbal instruction and physical guidance (Kissel et al., 1983). Fading, a subset of prompting, was specifically identified in Brinker et al., (1972). Fading was defined as “direct physical contact or verbal prompts diminished in intensity or frequency in the course of training” (p. 132). As the person with developmental disabilities progresses, the direct care staff member fades out and ultimately eliminates the prompt (Smith, 2001).

The time delay prompt was also referred to in other investigations as part of the prompting strategy (Ducharme & Feldman, 1982; Page et al., 1982). “If the client is not working effectively towards completion of the task, the staff person waits 5 to 10 seconds between each prompt to give the client time to respond to the instruction or the prompt” (Ducharme & Feldman, 1982, p. 877). Parsons, et al., (1996) provides the most all inclusive definition of prompting which most closely defines the effective use of prompts. “Correct prompt: use of a least-to-most assistive instructional strategy in which each successive prompt (if more than one prompt was used) provided for a program step involved more assistance than the previous prompt” (p. 470).

Error Correction Strategies

The third teaching strategy is referred to as ‘error correction’ (Parsons et al., 1996). Error correction procedures were the least frequently described (Schepis, et al., 2000, 2001), although,

many studies made inferences to the use of error correction in their description of prompting strategies (Koegel et al., 1977; Page et al., 1982). Error correction is defined by Parsons et al., (1996) as

... a client emitting a behavior incompatible with a program step and the trainer repeating a prompt for that step by providing more assistance than with the preceding prompt, with sufficient assistance such that the client completed the step without an error on the second trial. (p. 470)

Reinforcement

The fourth teaching strategy, ‘delivering reinforcement,’ has been referred to by many different labels in the literature. Common labels have included, “reinforcement,” “praise,” and “consequences” (Page, Iwata, & Reid, 1982; Smith, 2001). Harchik et al. (1989) describes the use of reinforcers.

Reinforcers are events that occur immediately following behavior that make it more likely that the behavior will occur again in the future. Attention, food, and tokens, (which are exchangeable for desirable activities or items) are frequently used as reinforcers, although these may not be effective for every client. (p. 332)

The description of reinforcement in research studies typically focused on the method of delivery of reinforcement (Hardy & Sturmey, 1994; Schepis, et al., 2000). Realon et. al., (1983), described the delivery of reinforcement as “reinforcement is given enthusiastically (e.g., eye contact, descriptive praise, physical contact, and an edible)” (p. 210). However, Bricker, Morgan and Grabowski, (1972) define reinforcement more in terms of the stimuli presented: “Potential Social Reinforcers, such as ‘Good Boy,’ ‘Very Good,’ ‘Great.’ Tangible reinforcement, such as giving sugared cereals, candy, and other food, as well as physical contact (e.g., hugging, kissing,

and tickling)” (p. 132). Crockett et al. (2007) specified that reinforcers should be delivered within three seconds of correct client behavior.

The definition of consequence given by Page et al., (1982) was broad and included all actions initiated by staff after the client’s response, including strategies which fit the common definition of reinforcement. Ducharme and Feldman (1992) provide a very similar definition of reinforcement, while differentiating praise and the delivering of other potentially reinforcing stimuli.

Data Collections Strategies

The final teaching strategy is ‘data collection,’ which is the act of recording the effectiveness of direct care staff’s teaching. Ducharme and Feldman (1992) refer to data collection as “Records response correctly.” “The staff person records the level of prompting required for the client to make the correct response after task completion” (p. 878). Realon et al., (1983) generically refers to data collection as “documentation is done correctly” (p.210). The most complete definition of data collection was offered by Fleming and Sulzer-Azaroff, (1989) “Records correctly – teacher fills out data sheet completely and records data correctly for both task analysis steps identified for that session” (p. 383). Kissel et al., (1983), trained direct care staff on data collection as part of a maintenance condition, although, data was not presented on staff proficiency. Parsons, et al., (1993; 1996), referred to staff collecting data on prompt levels but did not describe the method in which staff were trained. Many studies did not teach staff to record data as part of effective teaching strategies (Brinker et al., 1972; Koegel et al., 1977; Page et al., 1982). There are studies that have demonstrated that staff collecting data on the outcomes of their teaching improves client outcomes (Burg, Reid, & Latimore, 1979; Burgio, Whitman, Reid, 1983). What follows is a review staff training procedures used in investigations that have

taught effective teaching strategies to direct care staff.

Most of the studies reviewed above used very similar target skills for staff training, and operational definitions were very close. This is not unexpected, taking into consideration the consistencies found in the explicative history of research on the efficacy of these teaching strategies with persons with developmental disabilities.

Effective Staff Training and Performance Management Strategies

The purpose of staff training is to produce specific client outcomes such as increased independent self care (Arco, 2008). Jahr (1998) conducted a comprehensive review of staff training as a procedure to increase the effectiveness of direct care staff's interactions with clients. The staff training components often involved, either alone or in combination include: instructional prompts, role-play, modeling, feedback, self-management or a combination of these procedures. Jahr (1998) found didactic methods, when used as the only approach, are seldom effective in teaching necessary staff behavior. Jahr (1998) defined role playing as "a supervisor models the procedures, usually with a staff member posing as the client. The staff is then given the opportunity to rehearse and play both the part of the trainer and the client." (p. 75). Garder (1972) found role-playing to be effective in teaching the application of procedures in analogue situations. Modeling is defined as a procedure where "a supervisor demonstrates the correct application of therapeutic procedures, followed by an opportunity for the staff to apply the same procedures with a particular client" (Jahr, 1998, p. 75). Feedback is the most frequently used performance management procedure to for remediating staff behavior (Jahr, 1998). "Feedback is presented either in oral or written format but can also appear as graphs of data on staff behavior" (Jahr, 1998). "Feedback can be an effective procedure for changing staff behavior. However, variations in format, timing, and lack of unambiguous definitions of feedback make this

procedure difficult to evaluate. Feedback is usually combined with other procedures, like instructions, which influence the effect of the evaluation” (Jahr, 1998, p.76). “Most studies on staff training involve different combinations of procedures just described” (Arco, 2008).

Overall Effectiveness of Staff Training Programs

McClannahan & Krantz (1993) suggested that hands-on training (modeling, supervised practice, and immediate verbal feedback), must be an enduring component of an effective staff training and performance management system that enables staff members to perform the necessary skills. Didactic procedures alone do not enable staff members to exhibit the necessary teaching skills at or near fluency (McClannahan & Krantz, 1993). There must be ways to measure the success in staff training research. First and foremost, the procedures involved in teaching staff must contribute to significant changes in client behaviors (Arco, 2008; Jahr, 1998). The importance of doing assessments on both the trainer and the client behavior to demonstrate functional relationships have been emphasized by several researchers (Arco, 2008; Jahr, 1998). A literature review was conducted to identify effective staff training procedures to teach direct care staff effective teaching strategies to be utilized during independent living skills training for people with developmental disabilities. Twenty eight investigations were selected that clearly identified the staff training method and the specific teaching skills taught to direct care staff (see Table 1 for a summary of investigations). Fifteen of the twenty eight studies were conducted in group home settings or public institutions; four were conducted in special education classrooms; six were conducted in integrated pre-schools or private schools, and the remaining three were conducted in family homes. Thirteen of the studies used written instructions and twelve of the studies used modeling as the staff training strategy. Usually, modeling as involves someone who demonstrates specific behaviors for a person to learn. Interestingly, eight of the studies utilized

video modeling or video feedback (Brinker, et al., 1972; Crockett, et al., 2007; Kissel, et al., 1983; Koegel, et al., 1977; Parsons, et al. 1993, 1996; Schepis, et al., 2000; Smith, et al., 1992). Fifteen studies utilized rehearsal or role-playing (Crockett, et al., 2007; Ducharme, et al., 2001; Ducharme, & Feldman, 1992; Gardner, 1972; Kissel, et al., 1983; Lafasakis & Sturmey, 2007; Matson, et al., 1998; McBride & Schwartz, 2003; Parsons & Reid 1995; Parsons, et al. 1993, 1996; Sarokoff & Sturmey, 2004; Schepis, et al., 2000; Smith, et al., 1992). Rehearsal or role playing occurred when the trainer or another direct care staff member was asked to play the role of the client in order for another direct care staff to rehearse new teaching skills. Most of the studies used a combination of staff training techniques. A component analysis of the effects of individual staff training strategies was not conducted as part of any of these studies.

Table 1. Summary of investigations conducted with direct care staff members on effective teaching strategies.

Study	Setting	Staff	Staff Training	Staff Dependent Measure	Teaching Strategies	Clients	Client Dependent Measure	Research Design	Results
Brinker, Morgan & Grabowski, (1972)	Special Education Classroom	9 direct care staff	Video feedback after each 90 minute session, trading stamps for amount of time direct interacting; four – 30 minute training sessions with video feedback	Number of seconds of direct interaction (physical or social interaction, modeling, giving materials, playing or attempting to shape behavior)	Discriminative stimulus, prompts, fading, potential reinforcers, tangible reinforcement, potential punishments	5 children with severe deficits in self help skills, social interaction, and verbal behavior	N/A	ABCD design	Video feedback with trading stamps increased staff and client interactions and training time.
Ducharme, Feldman, (1992)	Group Homes	Study 1: 9 direct care staff (DCS) Study 2: 7 DCS	Written instructions; modeling, rehearsal, and feedback (3hr training), role play, rehearsal with resident, role play with multiple client exemplars	Percent of correct staff skills	Prepares training area, instructions, least intrusive prompt, physical guidance, reinforcement, enthusiastic praise, records, discrete training trials	16 residents with moderate to profound MR	N/A	Multiple baseline design	Role play with multiple client exemplars appeared to be most effective to promote generalization across instructional situations.
Fleming, Sulzer-Azaroff, (1989)	Public Institution	4 direct care staff	Written instructions, demonstration, oral and written feedback daily after each teaching session	Percent prompting sequence components, general teaching components, resident progress	<i>General teaching components:</i> materials ready, correct request, steps followed in sequence, repeated practice, reward last step, record <i>Prompting sequence:</i> (verbal, 5” delay, demonstrate, physical	4 residents (mild to severe MR)	Percent of task analysis steps performed independently	Multiple baseline design	Written and verbal feedback was effective in increasing implementation of general teaching components, prompting sequence and resident independence
Gardner, (1972)	Public Institution	20 direct care staff	role playing (6 sessions for 1 hour), lectures (8 sessions for 1 hour) with handouts	Training Proficiency Scale (p=0.001), Behavior Management Test (p=0.05)	Reinforcement, shaping, stimulus control	N/A	N/A	Staff randomly assigned to one of two groups (i.e., lecture or role play)	Role playing was more effective in teaching behavior modification skills and lecture was more effective in teaching staff verbal behavior
Hrydowy, Martin, (1994)	Residential setting	3 direct care staff	Train rationale for checklist and specific work skills on the checklist, positive and corrective feedback after the checklist was completed.	Performance checklist was completed based on a 10’ direct observation session.	Supervising client, correct task presentation, contingent social approval, quality of social approval, activity presentation, reporting observations	27 clients with severe and profound mental retardation and multiply handicaps	Client on task behavior	ABCD design	Direct care staffs’ performance increased as measured by the performance checklist, after training on the checklist and daily performance feedback.
Kissel, Whitman, Reid (1983)	Public Institution: 3 living units	4 direct care staff	lecture (1 hour training), modeling, rehearsal, feedback, written instructions, video model, video feedback	Daily percent appropriate use of instruction, physical guidance and reward	Verbal instructions, physical guidance, reward	12 residents with severe to profound MR	Resident response in tooth brushing, hair combing, hand washing (i.e., Self initiated, instructed, guided)	Multiple baseline design	Resident self-initiated responses increased after staff training. Results demonstrated use of teaching strategies generalized.

Study	Setting	Staff	Staff Training	Staff Dependent Measure	Teaching Strategies	Clients	Client Dependent Measure	Research Design	Results
Koegel, Ruso, & Rincover, (1977)	Special Education Classroom	11 Teachers	Written training manual, video model, feedback & modeling FI 5' in situ training (25hr training)	30" interval recording of in situ teaching	Delivery of instructions; prompts; shaping; consequences; discrete trials	12 children with autism	Unprompted responses (self-help skills, arithmetic skills, writing skills, labeling, language, speech)	Children were randomly selected from Teacher's classrooms, Multiple baseline design	Unprompted responses increased after teacher's acquisition of teaching strategies
Matson, Smalls, Hampff, Smiroldo & Anderson, (1998)	Public Institution	Direct care staff (note: number of staff not specified)	Training included rationale for the program, modeling teaching procedures, rehearsal, quiz, and Feedback was given for errors	Competency based training to 100% proficiency during rehearsal reliability checks every 7 days to ensure treatment integrity	Prompting, modeling, guiding, and edible reinforcement. Teaching sessions lasted 20 minutes	22 adults with severe and profound mental retardation	Hand washing and operating the television were task analyzed. Mean prompt level was assessed. Assessments were conducted prior to and after 7 weeks of treatment data	Experimental and control group	Competency based training, in the use of teaching strategies and the use of edible reinforcement resulted in more client gains than the use of teaching strategies alone.
Page, Iwata, Reid (1982)	Public Residential School	45 direct care staff and 4 supervisors	Supervisor: 3 – 15m to 30m lecture sessions; written material, daily feedback to supervisor	DCS: 45" interval recording of in situ teaching Supervisor: 10" partial interval recording	DCS: instructions, prompts, consequences Supervisors: praise, instructions, direct interaction, observing	15 residents (3 – 19 years old) with severe to profound mental retardation (MR)	appropriate attending, disruption, correct responses (i.e., correct responses, prompted, incorrect)	Multiple baseline design	Purpose: Train supervisors to teach direct care staff to use effective instructional strategies
Parsons, Reid (1995)	Residential facility	10 supervisors (each supervised approx. 10 direct care staff)	Supervisor feedback training: classroom & feedback on teaching skills, 4 hour classroom on 8 components of feedback, written instructions, role play	Percent of correct supervisor feedback components, percent of direct care staff teaching skills	Supervisor feedback: positive tone, praise, ID correct behavior, verbal corrective feedback, solicit questions, ensure understanding, discuss next step, end with positive statement.	N/A	N/A	Multiple probe design across groups of supervisors	After supervisor feedback training, supervisor feedback maintained direct care staff teaching skills
Parsons, Reid, & Green (1993)	Public Institution	13 direct care staff; 3 direct care staff	Classroom training covered, task analysis, prompting, reinforcement and error correction, (4 – 2hr sessions) video model, role play, post test, in vivo monitoring and feedback	Pre-test/post-test (80% mastery on post test)	Correct order, correct prompt, reinforcement, error correction	3 adults with profound mental retardation	Mean prompt level change on task analyzed acquisition skills	Pre-test/Post-Test; pre-training/Post Training; experimental and control group	Staffs' verbal behavior improved; performance of client teaching improved; clients showed increased independence following staff training
Parsons, Reid, Green (1996)	Group Homes; special education classroom	24 staff, (13 classroom aids, 9 direct care staff, 2 supervisors)	Classroom training (i.e., video model, role play, feedback, until correct demonstration of the 4 teaching skills), on-the-job monitoring, and feedback.	Percent of correct teaching behaviors	4 teaching skills: order, prompt, reinforcement, error correction; staff verbal skills (12 multiple choice questions)	3 students with profound mental and physical handicaps	Mean prompt level on acquisition skills training programs	Pretest, post test for verbal skills, Multiple probe across groups	The mean prompt level for acquisition programs increased (i.e., greater independence) after staff correctly implemented the 4 teaching skills

Study	Setting	Staff	Staff Training	Staff Dependent Measure	Teaching Strategies	Clients	Client Dependent Measure	Research Design	Results
Realon, Lewallen, & Wheeler, (1983)	Public Institution	6 direct care staff	Verbal feedback and verbal feedback plus praise	Percent correct demonstration of training behaviors from the checklist	Materials ready, correct command, program steps followed, graduated guidance is used, reinforcement is given enthusiastically, excessive verbalization do not occur, documentation	N/A	N/A	Multiple Baseline design	Verbal feedback plus praise was found to be more effective in the performance of training behaviors from the checklist
Schepis, Ownbey, Parsons, & Reid (2000)	Community based pre-school	6 direct care staff	Classroom training (i.e., video model, role play, feedback, until correct demonstration of the 4 teaching skills), on-the-job monitoring, and feedback.	Percent of correct teaching (Steps in correct order, correct prompting, correct reinforcement, and correct error correction)	Steps taught in the correct order, correct prompting, correct reinforcement, and correct error correction strategies used	2 children with severe MR	Mean prompt level on acquisition skills training programs	Multiple probe design across staff	Staff teaching behavior improved; The mean prompt level for acquisition programs increased (i.e., greater independence) after staff correctly implemented the 4 teaching skills
Ducharme, Williams, Cummings, Murray, & Spencer (2001)	3 Group Homes	3 supervisors; 9 direct care staff	6 hour training: lecture, modeling, role play, feedback	Event recording (percent correct teaching skills)	prepares the training area, provides instructions correctly, uses least intrusive prompts, uses contingent reinforcement, provides praise, records response correctly, uses discrete training trials	20 adults with moderate to severe MR	NA	Multiple baseline design across supervisors and direct care staff	Direct care staff and supervisor teaching behavior improved
Smith, Parker, Taubman, & Lovaas (1992)	Group homes	Experimental group (n=31) comparison group (n=18)	40 hours of training; lecture, role plays, video modeling, live model, and teaching developmental disabled clients.	Percent correct demonstrated use of S ^D , prompts and consequences, paper and pencil tests	One-to-one instruction, shaping, chaining, reinforcement, discrimination learning, prompting, fading, and generalization	NA	NA	Experimental; ANOVA, T-Test	Staff teaching behavior in the experimental group improved (M=53.10, SD=33.7) while the comparison group was unchanged
Saloviita & Lehtinen (2001)	Institutions, group homes, day care centers, and sheltered workshops	148 direct care staff and nurses	Two one-day workshops over three years.	NA	Writing and implementing teaching programs, behavioral teaching methods, goal setting and evaluation	70 children and adults with mild to profound MR	Pre and post scores on AAMD Adaptive Behavior Scale	Quasi-experimental design: Experimental and quasi-control	There was a statistically significant increase in adaptive skills between the initial measurement and the two-year follow-up for the experimental group. There was a statistically significant decrease of adaptive skills for the control group.

Study	Setting	Staff	Staff Training	Staff Dependent Measure	Teaching Strategies	Clients	Client Dependent Measure	Research Design	Results
Downs, Downs, & Rau (2008)	Community based pre-school	6 direct care staff	8 hour classroom training (i.e., modeling, imitation, feedback); daily feedback (oral corrective and reinforcing feedback; written feedback	30-item checklist to rate staff performance on S ^D , prompts and consequences	Prepare the training area, Present correct S ^D Correct prompting/fading, reinforcement, data collection	2 children with autism; 1 child with Cerebral Palsy; 1 child with a developmental delay	Number and percentage of correct responses	Multiple baseline design across direct care staff	Direct care staff teaching proficiency improved from a range of 63 - 80% to a range of 97 - 100%. Number of unprompted correct student responses improved from 32.5% to 56.4%
Sarokoff & Sturmey (2004)	Family home	3 special education teachers	Written copy of instructions, role play, verbal feedback, daily written performance feedback	Percent correct teaching (delivered instructions, error correction, reinforcement, data collection) Scored using videotape.	Delivered instructions, error correction, reinforcement, data collection	1 child with autism	NA	Multiple baseline design across teachers	Teachers use of teaching procedures improved from mean scores of 43%, 49%, and 43% during baseline and 97%, 98%, and 99% post training.
Lafasakis & Sturmey (2007)	Family home	3 parents	Written copy of instructions, role play, verbal feedback, daily graphic and written performance feedback	Percent correct teaching (delivered instructions, error correction, reinforcement, data collection) Scored using videotape.	Delivered instructions, error correction, reinforcement, data collection	3 children with autism, mental retardation and/or down syndrome	Percent correct responding	Multiple baseline across parents	Parents use of teaching procedures improved. Children's correct responding improved.
Crockett, J. L., Fleming, R. K., Doepke, K. J., & Stevens, J. S. (2007)	Research room	2 parents	12 to 18 hours of instruction: classroom, video modeling, discrimination training between correct and incorrect exemplars, verbal feedback during role play, daily verbal feedback for parent teaching recorded on videotape	Percent correct teaching (delivered instructions, error correction, reinforcement, data collection) Scored using videotape.	Delivered instructions, error correction, reinforcement, data collection	2 children with autism	Percent correct, percent incorrect, percent prompted	Within subjects multiple baseline across stimulus exemplars	Parents' use of teaching procedures improved. Children's correct respond
Hardy & Sturmey (1994)	Family home	3 parents	Description of teaching procedures offered, handout given with written description of the teaching procedures, modeling, daily verbal feedback	Percent correct teaching (preparation, instruction, prompts, reinforcement). Scored using videotape.	Preparation, presentation of instructions, prompts, reinforcement	3 children with down syndrome and severe cerebral palsy	NA	Multiple baseline design across parents	Parents' use of teaching procedures improved.
Dib & Sturmey (2007)	Private school	3 teacher assistants	The teacher assistant had previously received training on behavioral teaching techniques.	Percent correct teaching (proximity, delivered instructions, prompting, appropriate response to occurrence of problem behavior, reinforcement) Scored using videotape.	Proximity, presentation of instructions, prompting, appropriate response to occurrence of problem behavior, and reinforcement	3 children diagnosed with autism	Stereotypy and repetitive body movements were scored using a 10 second momentary time-sampling procedure	Multiple baseline design across teacher assistants	Teachers' use of teaching strategies improved. Client engagement in stereotypy decreased during teaching sessions.

Study	Setting	Staff	Staff Training	Staff Dependent Measure	Teaching Strategies	Clients	Client Dependent Measure	Research Design	Results
Parsons, Rollyson, & Reid (2004)	Adult Day-Treatment Classroom	3 certified special education teachers; 4 teacher assistants	1 hour in-service meeting; baseline data for client on task behavior was presented; written handouts which included the operational definitions for the staff and client dependent measures; on-the-job training; daily verbal supportive and corrective feedback; written feedback in the form of line graphs for the client dependent measures.	Percent of correct instructional skills	Least to most prompting and reinforcement	30 adults with severe disabilities, primarily profound mental retardation	On-task behavior; functional and nonfunctional tasks	Multiple probe across settings.	Percent of intervals of consumer on task behavior increased over baseline.
Leblanc, Ricciardi, & Luiselli (2005)	Therapy room in private school	3 female assistant teachers	Preservice training in basic applied behavior analysis; abbreviated performance feedback in the form of verbal supportive and corrective feedback immediately following each teaching session.	10 component teaching checklist which included: arrange the environment, orient student, secure student's attention, present instruction, deliver prompts, reinforce, error correction and record data.	Arrange the environment, orient student, secure student's attention, present instruction, deliver prompts, reinforce, error correction and record data.	3 children diagnosed with autism	NA	Multiple baseline design across teachers	Staff teaching behavior improved from a baseline mean of less than 50% to 90-100% after 5 sessions.
Vonderen & Bresser (2005)	Special Education School	3 teacher assistants	University course on behavior modification, supervisory feedback (immediate positive and corrective feedback), self-recording and graphic feedback	Percent of correct teaching skills	Delivering instructions, prompting, error correction, reinforcement	3 students with mental retardation	NA	Multiple baseline design across teacher assistants	Percentage of accurate training behavior increased for the 3 teacher assistants
McBride & Schwartz (2003)	University – affiliated integrated early childhood education classroom	3 teachers	45 minute didactic training; 30 minute hands on training; 4 page handout containing rationale, brief overview and detailed description of each teaching component; practice with verbal supportive and corrective feedback until they reached an 80% criterion.	Rate of instruction per minute (event recording)	Delivering instructions, prompts, delivering positive consequences	4 year old child with down syndrome; 6 year old child with autism; 3 year old child with autism	Percent of intervals with child engagement; Number of correct responses to targeted training objectives	Multiple-probe design across participants	Teacher rate of instruction improved following training and feedback for all 3 teachers. The percent of time the 3 children were engaged increased. All three children demonstrated increases in independent responses
Schepis, Reid, Ownbey, & Parsons (2001)	Preschool	4 teacher assistants	Classroom based instruction, written instructions, role play, on-the-job training, on-the-job monitoring and feedback	Percent of correct teaching (Steps in correct order, correct prompting, correct reinforcement, and correct error correction)	Steps in correct order, correct prompting, correct reinforcement, and correct error correction	4 children with severe mental retardation	Percent of teaching opportunities with independent responses or no responses	Multiple probe design across teacher assistants	Percent of correct teaching for each teacher increased following the training. Each time teacher proficiency improved, an increase in independent child responses was observed.

Many studies now report both staff and client behaviors, as opposed to reporting only former, and those that do, more convincingly demonstrate beneficial outcomes and effective staff training. Of course, staff training programs can demonstrate changes in staff performance without evidence of benefit for the clients, but such programs raise concerns about client outcome efficacy, cost, and validity. Sixteen of the studies measured the effectiveness of the staff training by measuring the impact on client outcomes. Client outcomes were typically evaluated as an increase in the number of unprompted responses (Crockett, 2007; Downs et al., 2008; Fleming & Sulzer-Azaroff, 1989; Kissel, et al., 1983; Koegel, et al., 1977; Lafasakis & Sturme, 2007; McBride & Schwartz, 2003; Page et al., 1982; Schepis, et al., 2001), or decrease in the level of prompting (Matson et al., 1998; Parsons et al., 1993, 1995; Schepis, et al., 2000) necessary to complete the task. Interestingly one study selected decreases in stereotypy (Dib & Sturme, 2007) as the client outcome measure, while Parsons, et al., (2004) selected consumer on task behavior. Of the twenty eight studies reviewed between 1972 and 2008, only one study from the 1970s included a client outcome measure, three studies from the 1980s included a client outcome measure, four studies from the 1990s included a client outcome measure, and eight studies from the 2000s included a client outcome measure to evaluate the effects of staff training. Based on the studies reviewed, there is a clear trend towards measuring the effectiveness of staff training programs by using client outcome measures.

Similar studies have shown that direct care staff working in community settings such as group homes can be trained in a short period of time to successfully develop and implement teaching programs for persons with developmental disabilities. Saloviita and Lehtinen (2001) conducted nationwide training program with 148 staff members. The training entailed developing and implementing individual teaching programs for people with developmental

disabilities in community settings. More specifically, participants were instructed in topics such as basic knowledge on behavioral teaching methodology, systematic teaching methods, with an emphasis on precise goal setting, and explicit criteria for completion and evaluation of teaching based on observation. The results of the participants teaching were measured before teaching began, and again, two years after using the AAMR Adaptive behavior Scale (ABS). The results showed significant gains in adaptive behavior among the clients who received instruction.

Feedback as a Performance Management Strategy

Direct care staff members who provide supports for clients with developmental disabilities typically receive staff training and support from clinical staff (e.g., behavior analysts), frontline supervisors and managers. Providing staff training is a foundational component of staff to perform proficiently, but training alone will not maintain proficient job performance over time (Arco & Birnbrauer, 1990; Reid & Parsons, 1995). As a consequence, staff training is seen as a failure and clients fail to receive necessary supports. A significant component of ongoing support for effective staff performance is the use of feedback. The function of feedback is to bring about immediate change in staff performance (Arco, 2008). Downs, Downs, and Rau (2008) examined whether high levels of teaching proficiency are necessary to support optimal learning for people with developmental disabilities. The findings were similar to previous findings (Koegel, et al., 1997) and markedly demonstrated that all subjects exhibited higher levels of correct responding when the staff members were more skilled in the use of effective teaching strategies. Sarokoff and Sturmey (2004) found that staff members who had received training in the use of effective teaching strategies and were using the procedures demonstrated below 50% correct procedure implementation. Following the staff

members receiving supervision and feedback, performance ratings quickly improved to over 90%.

Increasingly, researchers view on-the-job feedback as a critical component of staff training (Arco, 2008; Alvero, et al., 2001; Fleming & Sulzer-Azaroff, 1989; Harchik & Campbell, 1998; Lablanc, et al., 2005; Nolan, et al., 1999; Parsons & Reid, 1995; Parsons, Reid, & Green, 1993, 1996). There are numerous examples in the literature of the efficiency of performance feedback in changing staff members' behavior (Alvero, Bucklin, & Austin, 2001; Arco, 2008; Downs, et al., 2008; Jahr, 1998; Nolan, Jarema, & Austin, 1999; Reid & Green, 1990; Vonderer & Besser, 2005). "Feedback is usually accompanied by social consequences such as praise, approval, or disapproval from supervisory staff." (Arco, 2008). An illustration follows: 'You praised Kevin immediately and enthusiastically. You effectively used praise in that situation! You were slow on the use of prompts—remember, these need to start no later than five seconds after your verbal instruction. Keep it up, you're doing well.' This would be an example of positive and corrective feedback. In fact, surveys have shown that over 80% of supervisors of community or residential programs view training and managing staff as crucial (Parsons, Reid, & Crow, 2003), and that improvements in these activities can best be achieved by using feedback (Green & Reid, 1991, Parsons, Reid, & Crow, 2003). Balcazar, et al., (1985) found frontline supervisors/managers use of feedback was consistently associated with improved staff performance.

A ten year review article from the *Journal of Organizational Behavior Management* found some form of performance feedback was used in 71% of the studies (Nolan, Jarema, & Austin, 1999). Although feedback has been researched under various conditions for over 30 years, a review of the research reveals little cohesiveness among numerous studies. Typically, some

studies focused on the effects of feedback under training conditions without posttraining observations, while other studies examined use of feedback for supervising posttraining staff performance without considering how well staff had been trained. Balcazar, et al. (1989) concluded that daily feedback from the employee's supervisor was the most efficacious.

Feedback has been successfully used as a performance management strategy to increase staff performance in a variety of organizational settings for over 20 years (Alvero, Bucklin, & Austin, 2001; Arco, 2008). More specifically, Balcazar, Hopkins, & Suarez, (1985) conducted a meta analysis of the first ten years of Organizational Behavior Management research on the use of feedback. Frontline supervisors and managers are the most common source of performance based feedback. Alvero, et al. (2001) found that 71% of investigations found daily feedback to be consistently effective, and 52% of investigations that provided weekly feedback were consistently effective.

Summary

From the literature review, it appears that effective teaching strategies have been taught to direct care staff utilizing various training methods. A variety of feedback strategies were also employed to maintain direct care staff members' knowledge and skills. Behavior Analysts certified and credentialed by the Behavior Analysis Certification Board™ have the necessary knowledge and experience to train direct care staff on how to teach people with developmental disabilities. Certified Behavior Analysts involvement with training direct care staff should be a relevant factor to determine if direct care staff have knowledge of how to teach. After an exhaustive search of the literature, no studies were found that specifically investigated the prevalence of direct care staffs' knowledge of effective teaching strategies to teach functional living skill with persons with developmental disabilities in residential settings. No investigations

could be found that studied the prevalence of use of effective staff training procedures or performance management strategies and their impact on direct care staffs' knowledge of effective teaching strategies. Lastly, no studies could be found that investigated the prevalence and impact of having Certified Behavior Analysts involved in training and giving performance feedback to direct care staff on how to teach.

Statement of the Problem

Residential services funded by the Florida Medicaid Home and Community Based Services waiver are to be directed toward maximizing the potential of people with developmental disabilities. Residential agencies for people with developmental disabilities have the responsibility to train direct care staff in the use of effective teaching strategies in order to realize the goals of the Medicaid waiver. Direct care staff members' knowledge of effective teaching strategies will afford people with developmental disabilities an opportunity for greater independence and help them achieve their maximum potential within the community. Previous studies have evaluated staff training and performance management interventions through direct observation of staff member behavior. Therefore, the number of staff members that have had their teaching skills measured has remained small. In general, studies on the application of performance feedback have indicated that the use of feedback is quite effective in improving staff performance. But, the extent to which performance feedback strategies are actually used by frontline supervisors and managers in typical community based group homes is not clear. It is also unclear if frontline supervisors have found the use of performance feedback effective. That is, brief demonstrations of the use of performance feedback procedures in the research literature do not necessarily mean that those procedures are actually used effectively and routinely in community based group homes.

The research has four general purposes. First, the study will evaluate direct care staff members' knowledge of effective teaching strategies. Second, the study will determine if agencies that utilize empirically derived staff training strategies are more likely to employ direct care staff with knowledge of teaching strategies for people with developmental disabilities. Third, the study will determine if agencies that utilize feedback as a performance management strategy are more likely to employ direct care staff with knowledge of effective teaching strategies for people with developmental disabilities. Finally, the study will evaluate if a Certified Behavior Analysts involvement with the training of direct care staff on how to teach will impact direct care staff knowledge about teaching strategies for people with developmental disabilities.

Research Questions

1. How knowledgeable are direct care staff members about teaching strategies for people with developmental disabilities?
2. Among direct care staff members, is there a positive relationship between receiving empirically derived staff training on the use of teaching strategies and knowledge of teaching strategies for people with developmental disabilities?
3. Among direct care staff members, is there a positive relationship between receiving performance management feedback (i.e., supervisor's modeling, observation, and immediate feedback) on the use of teaching strategies and knowledge of teaching strategies for people with developmental disabilities?
4. Among direct care staff members, is there a positive relationship between behavior analyst involvement in the group home where the direct care staff member works and knowledge of effective teaching strategies for people with developmental disabilities?

Hypotheses

Hypothesis 1:

H_a : Among direct care staff members, there is a positive statistically significant relationship $>.05$ between receiving an empirically derived staff training program on the use of teaching strategies and knowledge of effective teaching strategies for people with developmental disabilities.

H_0 : Among direct care staff members, there is no relationship between receiving an empirically derived staff training program on the use of teaching strategies and knowledge of effective

teaching strategies for people with developmental disabilities.

Hypothesis 2:

H_a: Among direct care staff members, there is a positive statistically significant relationship $>.05$ between receiving performance management feedback (i.e., supervisor's modeling, observation, and immediate feedback) on the use of teaching strategies and knowledge of effective teaching strategies for people with developmental disabilities.

H₀: Among direct care staff members, there is no relationship between receiving performance management feedback (i.e., supervisor's modeling, observation, and immediate feedback) on the use of teaching strategies and knowledge of effective teaching strategies for people with developmental disabilities.

Hypothesis 3:

H_a: There is a positive statistically significant relationship $>.05$ between behavior analyst involvement in the group home where the direct care staff member works and knowledge of effective teaching strategies for people with developmental disabilities.

H₀: There is no relationship between behavior analyst involvement in the group home where the direct care staff member works and knowledge of effective teaching strategies for people with developmental disabilities.

CHAPTER 4: METHOD

The purpose of this study is to identify the factors related to direct care staff members possessing knowledge of effective teaching strategies for people with developmental disabilities. The study is explanatory in nature and investigates the relationship between direct care staff knowledge of effective teaching strategies and the following factors (see Figure 1): 1) staff training received by direct care staff members, 2) performance management feedback strategies received by the direct care staff member, and 3) the Behavior Analyst's involvement with the group home.

For the purposes of this study the following definitions will be employed:

1. Group home – “a Home and Community Based Services Waiver funded residential facility which provides a family living environment including supervision and care necessary to meet the physical, emotional, and social needs of its residents. The capacity of such a facility shall be at least 4 residents but not more than 15 residents” (p.7) (Florida Statute Chapter 393).
2. Direct care staff – Interchangeability referred to as ‘Direct Support Professionals,’ ‘Direct Support Staff,’ ‘Behavior Techs,’ and ‘Habilitation Technicians.’ Direct Care staff refers to a person 18 years of age or older, who has direct contact and provides supports or services for individuals with developmental disabilities, and is unrelated to the individuals with developmental disabilities (Florida Statute Chapter 393). For the purposes of this study, staff who hold positions as Supervisors, Staff Trainers, Managers, Directors, Nurses, and Behavior Analysts will not be considered direct care staff.
3. Residential Habilitation – “Provides supervision and specific training activities that assist

the recipient to acquire, maintain or improve skills related to activities of daily living.

The service focuses on personal hygiene skills such as bathing and oral hygiene; homemaking skills such as food preparation, vacuuming and laundry; and on social and adaptive skills that enable the recipient to reside in the community (Florida Medicaid Handbook, June, 2005 p. 106).

4. Residential Habilitation with a Behavioral Focus – “Residential habilitation with a behavioral focus is inclusive of the service characteristics of Residential Habilitation Services in addition to the following characteristics. Service characteristics for residential habilitation with a behavioral focus include: a) a Board Certified Behavior Analyst or Associate Analyst to provide on-site oversight for residential services, b) integration of behavioral services throughout residential and community program, c) no fewer than 75% of the provider’s direct services staff who work with the recipient(s) for whom the residential habilitation with a behavioral focus rate applies for completed at least 20 contact hours of face-to-face competency-based instruction with performance-based validation in the following content areas; introduction to applied behavior analysis – basic principles and functions of behavior; providing positive consequences, planned ignoring, and stop-redirect-reinforce techniques; data collection and charting, d) the services provides for comprehensive monitoring of staff skills and their implementation of required procedures. Monitoring for competency must occur at least once per month for 50% of direct service staff that have completed the training described above. Staff must be recertified in the training requirements yearly. The provider has a system that demonstrates and measures continuing staff competencies on the use of procedures that are included in each recipient’s behavior analysis services plan, and e) provides for the

eventual transitioning of behavioral improvement of the recipient, to a less intense service alternative, through formalized procedures incorporated into implementation plans” (Florida Medicaid Handbook, June, 2005, p. 110).

5. Intensive Behavioral Residential Habilitation – “The service shall provide aggressive, consistent implementation of a program of specialized and generic training, treatment, health services and related services that is directed toward: (1) the acquisition of the behaviors necessary for the recipient to function with as much self determination and independence as possible; and (2) the reduction or replacement of high risk, problems with behavior. Treatment may also include intensive medical oversight when warranted by the person’s specific concerns.

Individual goals relate to the assessment, management, and replacement of problems with behavior. Goals also include, especially as treatment progresses and is effective, generalization and maintenance of new behavior and behavior reductions in settings that are increasingly similar to less intensive treatment settings, but within which continued treatment and maintenance services are included.

The problems with behavior and any related medical conditions are the central focus of treatment for these individuals. This means that all behavior change targets included in the treatment plan are linked to the initial problem statement. For example, if a problem with behavior were described as self injury that occurs when the person is in the presence of aversive stimuli of specific nature, then the targets for change would include alternatives to self injury that would be controlled by the same stimuli. In addition, the person’s assessment might identify socially skilled behavior deficits that make more likely the self-injury. These deficits might include communication and social

skills necessary to independently function in other settings or basic self care skills. The goal of an intensive residential habilitation service is to prepare the person for full or partial reintegration into the community, with established behavioral repertoires, such as developing a healthy lifestyle, filled with engaging and productive activities.” (Florida Medicaid Handbook, June, 2005, pp. 112-113).

Empirical Model:

The knowledge of how to teach people with developmental disabilities can be explained by the following components:

$Y = f(\text{Staff Training, Performance Management Feedback, Certified Behavior Analyst Involvement})$

Staff Training = Staff Training is the product of an additive index. The Staff Training index includes two variables:

1. The number of teaching topics direct care staff members received training on.
2. The number of different staff training strategies used to train the direct care staff.

Performance Management Feedback = as Performance Management Feedback is the product of an additive index. The index includes three variables:

1. The number of weeks since the supervisor observed the direct care staff member teach,
2. The number of weeks since the supervisor modeled a teaching strategy for the direct care staff member, and
3. The number of weeks since the supervisor gave immediate feedback to the direct care staff member following an observation of a direct care staff member’s teaching.

Behavior Analyst Involvement = Behavior Analyst Involvement is a product of an additive index. The Behavior Analyst Involvement Index includes three variables:

1. The number of hours per month the Certified Behavior Analyst spent training direct care staff members on how to teach,
2. The number of hours per month the Certified Behavior Analyst spent giving feedback to direct care staff members on how to teach, and
3. The number of hours per month the Certified Behavior Analyst spent doing other duties in the group home.

The factors that predict direct care staff members' knowledge of effective teaching strategies can be explained by the generic expression of the following regression model. Estimates resemble the reduced form model as shown:

$$Y_i = b_0 + b_1x_1 + \epsilon$$

Y_i = Dependent variable is the direct care staff members' knowledge of effective teaching strategies as measured by 50 multiple choice questions. The multiple choice questions were developed based on the literature review of effective teaching strategies.

b_0 = The intercept for the model

b_i = The resultant coefficient for the independent variables

x_1 = The values of the independent variables.

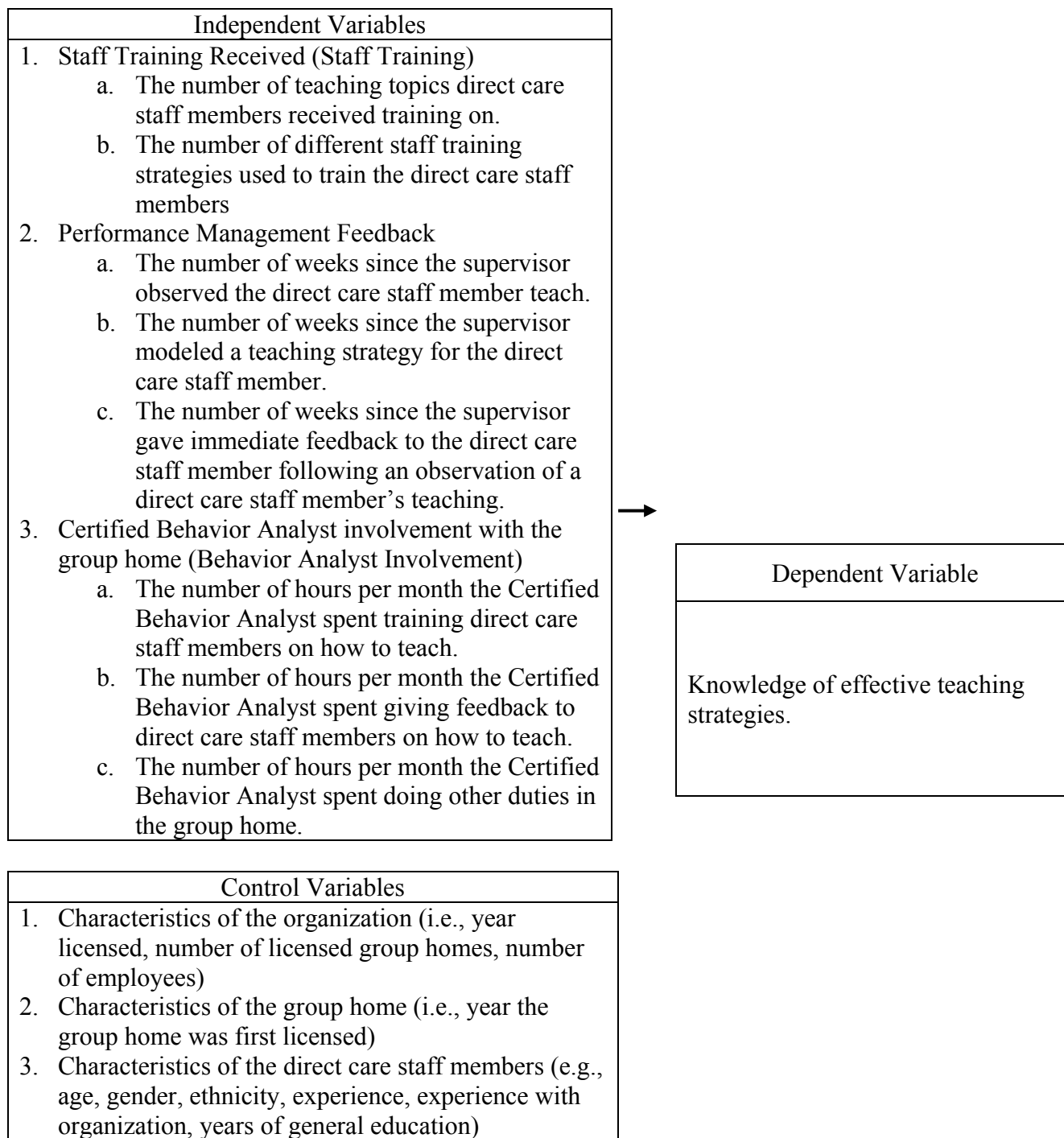


Figure 1. Factors which may be related to direct care staff members' having knowledge of effective teaching strategies. Each independent variable has been assigned a corresponding hypothesis number

Survey Questionnaires

Two survey instruments were used. The first survey instrument consisted of the direct care staff questionnaire. The direct care staff questionnaire was nine pages, printed on 11 inch by 17 inch yellow paper and formatted to a 8.5 inch by 11 inch booklet. The direct care staff survey instrument consisted of 50 multiple choice questions that address the teaching of people with developmental disabilities (i.e., questions regarding delivering instructions, prompting, error correction, reinforcement and data collection), 7 questions about the content and characteristics of the training received by direct care staff, and 3 questions on the use of feedback as a performance management strategy for the teaching of people with developmental disabilities and demographic questions regarding the characteristics of the direct care staff. The direct care staff survey was completed at a group home staff meeting.

The second survey instrument was the group home questionnaire. The group home questionnaire was five pages, printed on 11 inch by 17 inch white paper and formatted to a 8.5 inch by 11 inch booklet. The group home questionnaire was completed by the group home administrator. The group home questionnaire consisted of questions regarding the characteristics of the organization, characteristics of the group home, and questions about the level of involvement of a Certified Behavior Analyst in the training of direct care staff on how to teach people with developmental disabilities. The group home survey was given to the group home administrator to complete.

Population and Sample

The population studied included direct care staff members who work for a Florida Agency for Persons with Disabilities licensed group home provider licensed under Florida

Statute 393, that provides Residential Habilitation Services as specified in Florida Medicaid: Developmental Disabilities Waiver Services Coverage and Limitations Handbook (June, 2005). Licensed group home providers under Florida Statute 393 are private, for profit or not for profit agencies. A survey was given to each direct care staff member at his or her place of work. A second Group Home Survey was given to the administrator of the group home.

The sample for this study consisted of private agencies providing HCBS residential habilitation in accordance to the Florida Medicaid: Developmental Disabilities Waiver Services Coverage and Limitations Handbook (June, 2005) in group homes licensed by the Florida Agency for Persons with Disabilities (i.e., in accordance to Florida Statute 393) as of January 1, 2006 for persons with developmental disabilities.

A stratified multiple cluster probability sampling procedure was chosen to select a representative sample for the population of direct care staff who work in licensed group homes in Florida. The sampling frame consisted of an alphabetical directory of Florida Medicaid provider agencies that provide residential habilitation and have licensed group homes. The directory was supplied by the Florida Agency for Persons with Disabilities program office. The directory listed all of the private agencies that have licensed group homes for people with developmental disabilities funded by the Home and Community Based Services waiver.

There are 1200 licensed community based group homes in Florida (Agency for Persons with Disabilities, 2005). No information was available on the number of direct care staff working in community based group homes in Florida. Based on the researcher's professional experience it was estimated that five direct care staff work at each licensed group home. Based on this premise, it is estimated that 6,000 direct care staff members are employed in community based group homes in Florida. This may be an over estimate of the actual number of direct care staff

members since many of the licensed group homes may not have any occupants or may have only partial occupancy. There were 48 agencies that operated licensed group homes that participated in the study. The researcher sent 700 surveys to direct care staff who worked at one of the 48 agencies selected to participate. There were a total of 15 variables including demographic and control variables included as part of the direct care staff and group home surveys. A power analysis was conducted using G*Power (Erdfelder, Faul, & Buchner, 1996). With a power of .9, a significance level of 0.05 and an effect size of .05, the sample size needed was 171 respondents.

Group homes are classified by the Florida Agency for Persons with Disabilities into the following categories: (1) residential habilitation, (2) residential habilitation with a behavioral focus, and (3) intensive behavioral residential habilitation (Florida Medicaid Handbook, June, 2005). The population will be stratified based on the aforementioned classifications to ensure the sample was representative of the population of direct care staff working in group homes. A multistage clustering procedure was used to select a systematic random sample within each stratified group.

Stage one of the multiple cluster probability sampling procedure will consist of selecting a representative sample of Medicaid provider agencies from each residential habilitation group home classification (i.e., residential habilitation, residential habilitation with a behavioral focus, and intensive behavior residential habilitation). A systematic random sample of at least ten Medicaid provider agencies was sampled from each of the three group home classifications. A table of random numbers (Babbie, 2001, Appendix E) was used to select the initial cluster of agencies from the alphabetically listing of Medicaid provider agencies supplied by the Florida Agency for Persons with Disabilities program office. The aforementioned multistage clustering

procedure was repeated for each group home classification. Agencies may have multiple licensed group homes for people with developmental disabilities.

The second stage of the multiple cluster probability sampling procedure will consist of selecting a representative sample of licensed group homes from the agencies selected during stage one of the probability sampling procedure. The second stage of the multistage cluster will select a simple random sample of 50% of the group homes from each agency selected by the first stage of the multiple cluster probability sampling procedure. Again, a table of random numbers (Babbie, 2001, Appendix E) will be used during the second stage of the multiple cluster probability sampling procedure to select a representative sample of group homes from the agencies selected from the first stage. All of the regularly working part-time and full-time direct care staff members who had regular direct contact with people with developmental disabilities in the group home were included in the sample.

Dependent Variable

The dependent variable was derived from a 50 question multiple choice quiz assessing knowledge of effective teaching strategies for people with developmental disabilities. The score on the dependent variable consisted of the number of correct answers from the quiz. A paper-and-pencil questionnaire was used.

After much research it was determined that, the researcher would need to formulate an instrument in order to measure all the attributes that the researcher was seeking to measure. There were no established instruments that were appropriate to the needs of the researcher. A survey was constructed to assess direct care staffs' knowledge of effective teaching skills. The survey instrument was constructed based on a literature review of effective teaching skills (see Table 1) and selected college textbooks.

Questionnaire Development

The 50 multiple choice questions on knowledge of effective teaching strategies were developed based on a literature review. A list of teaching principles and associated concepts (see Appendix A) were derived from an exhaustive review of peer reviewed research (see Table 1) on teaching people with developmental disabilities. The five concepts that make up the subscales were also derived from the literature review. The researcher developed ten questions for each subscale. The individual subscales were not examined as part of this study. The 50 question quiz has 5 subscales comprised of 10 questions each. The subscales are as follows:

1. knowledge of strategies to deliver instructions (i.e., questions 1, 7, 8, 9, 10, 14, 21, 29, 34, 35);
2. knowledge of prompting and fading strategies (i.e., questions 13, 16, 18, 19, 24, 28, 30, 31, 33, 42);
3. knowledge of error correction strategies (i.e., questions 2, 3, 6, 13, 15, 25, 26, 36, 37, 40);
4. knowledge of strategies to effectively deliver reinforcement (i.e., questions 5, 12, 20, 22, 23, 27, 32, 39, 45, 48); and
5. knowledge of how to collect data (i.e., questions 4, 11, 17, 38, 41, 44, 46, 47, 49, 50).

Validation and Reliability of the Instrument

A list of teaching principles and associated concepts (see Appendix A) were derived from the literature review (see Table 1) and selected college textbooks as the basis for the development of a multiple choice questionnaire to assess direct care staff member's knowledge of effective teaching strategies. The resulting questionnaire was given to eleven doctoral level behavior analysts to assess the content validity of the questionnaire. Each question was rated on a

four point Likert scale similar to the procedure utilized by O'Dell, Tarler-Benlolo, & Flynn, (1979). Each multiple choice question was rated on clarity and on how each question measured a stated teaching strategy. The rating scale ranged from 1 to 4. Each point on the rating scale was labeled. The rating scale was labeled "Strongly Disagree," "Disagree," "Agree," and "Strongly Agree." A score of 4 was given to the highest rating "Strongly Agree." An item's overall rating was the sum of the scores across all the raters. Content validity of the survey is based on the assumption that the investigations from which the teaching strategies were derived represent the set of knowledge most frequently required of direct care staff who work with people with developmental disabilities in community residential group homes.

The results of the content validity assessment of the multiple choice questionnaire included the responses from 7 out of 11 doctoral level applied behavior analysts who were sent questionnaires. The overall response rate for returned surveys was 64 percent. The overall mean question clarity rating for all of the multiple choice questions was 3.53 out of 4. The overall mean for how well the questions measured the stated teaching concept was 3.44 out of 4.

Comments from reviewers identified multiple choice questions that did not measure the stated teaching concept. Reviewers made suggestions to: (1) clarify the questions, (2) the clarify the distracter items, (3) improve the distracter items, (4) replace distracter items, (5) clarify the answer items, and (6) improve the question to better measure the stated concept. Two multiple choice questions were completely rewritten while the remaining multiple choice questions had single words changed or minor wording changes based on reviewer comments to improve the clarity of the multiple choice question or improved the plausibility of the distracters. All changes recommended by the reviewers were incorporated into the multiple choice questions.

After the completion of the content validity assessment, the 50 multiple choice questions covering knowledge of effective teaching strategies were randomized using the random numbers table on page A33 in Babbie (2001). The questions were randomly assigned by utilizing the first two numerical characters, beginning with the first column from the left of the page.

Following the completion of the content validity assessment, a second investigation was conducted. The direct care staff questionnaire on Teaching People with Developmental Disabilities was given to two groups of graduate students to assess the instrument's reliability and to assess the instrument's ability to predict knowledge of effective teaching strategies. The questionnaire was given to two convenience samples of participants. The study participants were students in a UCF College of Health and Public Affairs Graduate course on Research Methods in Criminal Justice and students in one Florida Institute of Technology Graduate Psychology course in Applied Behavior Analysis II.

A Paired T Test was utilized to compare the mean score on the direct care staff questionnaire on Teaching People with Developmental Disabilities for Criminal Justice Graduate Students and Applied Behavior Analysis Graduate Students. The mean score on the questionnaire for Criminal Justice Graduate Students was 20, with a standard deviation of 6.2. The mean score on the questionnaire for Applied Behavior Analysis Graduate Students was 38.5, with a standard deviation of 3.7. The T score for the Paired T Test was 11.38, with a degrees of freedom of 39. The T score was significant at greater than .001, identifying a statistically significant difference between Criminal Justice Graduate Students and Applied Behavior Analysis Graduate Students mean score on the direct care staff questionnaire on Teaching People with Developmental Disabilities. Based on the aforementioned results the questionnaire accurately predicted who had knowledge of teaching strategies for people with developmental

disabilities. Cronbach's Alpha was used to test the internal consistency of the Teaching people with developmental disabilities questionnaire. Cronbach's Alpha was calculated on the responses from the Criminal Justice and Applied Behavior Analysis Graduate courses. The Cronbach Alpha coefficient was .924 indicating a high degree of internal consistency within the questionnaire.

Independent Variables

There were three independent variables used in the study: 1) empirically derived staff training received by direct care staff members, 2) use of feedback as a performance management strategy, and 3) a Certified Behavior Analyst's involvement in the group home. See Appendix B for the identification of the specific questionnaire items and how each item was coded.

The independent variable 'staff training received by direct care staff members' was an additive index comprised of two variables:

1. The number of teaching topics direct care staff members received training on, and
2. The number of different staff training strategies used to train the direct care staff.

The independent variable 'Performance Management Feedback' was an additive index comprised of three variables:

1. The number of weeks since the supervisor observed the direct care staff member teach,
2. The number of weeks since the supervisor modeled a teaching strategy for the direct care staff member, and
3. The number of weeks since the supervisor gave immediate feedback to a direct care staff member following an observation of the direct care staff member's teaching.

The independent variable ‘Certified Behavior Analyst Involvement’ was an additive index comprised of three variables:

1. The number of hours per month the Certified Behavior Analyst spent training direct care staff members on how to teach,
2. The number of hours per month the Certified Behavior Analyst spent giving feedback to direct care staff members on how to teach, and
3. The number of hours per month the Certified Behavior Analyst spent doing other duties in the group home.

Control Variables

Control variables were selected for the agency, group home, and the direct care staff members. See Appendix B for the identification of the specific questionnaire items and how each item was coded. The following are the agency and group home control variables for the study:

1. The year the agency received their first license. This variable was selected to control for the agency’s experience with group homes.
2. The number of employees the agency has in Florida. This variable was selected to control for agency size.
3. The number of licensed community based group homes in Florida. This variable was selected to control for the agency size.
4. The year the group home was first licensed. This variable was selected to control for length of time the group home has been in operation.

Below is the list of control variables for the direct care staff members:

1. years of general education;

2. length of service with current employer;
3. total length of experience working directly with people with developmental disabilities;
4. gender of the employee;
5. age of the employee; and
6. ethnicity of the employee.

Data Collection Procedures

A primary agency contact was selected by the agency as the main contact between the agency and the investigator. The primary agency contact assisted in the collection of surveys, by passing the surveys out at the group home, collecting completed surveys, and sending completed surveys to the investigator. The investigator will send each primary agency contact an envelope with blank surveys and a script to read to direct care staff prior to distribution of the surveys. The primary agency contacts were paid a \$50 stipend for their participation in the study. The investigator gave the primary agency contact \$20 for snack items and soda for the staff meetings. The primary agency contact passed out the direct care staff surveys at a group home staff meeting. The surveys were coded with a number for each group home selected in the sample in order to track which group homes have returned surveys. In order to increase the return rate of the surveys, three reminder letters and three corresponding follow-up calls were made to each primary agency contact over the 3 weeks following the mailing of the surveys to the agencies.

Data Analysis Plan

Categorical variables that were included in the study required special handling because there is not any rank order within categorical variables such as race. The categorical variables of

the study were coded as dummy variables as follows: 1=white and 0=non-white; 1=black and 0=non-black; and 1=hispanic and 0=non-hispanic. Values for Asian-Americans / Pacific Islander, American Indian / Alaskan, and the category ‘other’ were ignored because these categories were too small and to ensure a balanced regression. The same procedure was followed for the variable gender, because gender is a categorical level variable without rank ordering. When dummy variables are used in a regression, the constant term has to be excluded. It is important to exclude one of the dummy variables from the regression, making this the base category against which the others are assessed. If all the dummy variables are included, their sum is equal to one, resulting in perfect multicollinearity, which is also commonly referred to as the dummy variable trap.

Table 2. Dummy variable coding

Ethnicity	Iteration 1	Iteration 2	Iteration 3
White, Non-hispanic: 1	White, Non-hispanic: 1	Black: 1	Hispanic: 1
Black: 2	Non-white, Non-hispanic: 0	Non-black: 0	Non-hispanic: 0
Hispanic:3			

Gender	Iteration 1
Male: 1	Female: 1
Female: 2	Non-female: 0

Institutional Review Board

This study was approved by the University of Central Florida’s Institutional Review Board for human subjects (see Appendix E). The study did not involve special or vulnerable groups, nor are the individual respondents identifiable. The surveys were completed anonymously. Surveys were coded with a number letter combination in order to track the surveys received from agencies selected as part of the sample and in order report aggregate data back to the participating agencies for the purposes of planning future training sessions for direct care

staff. No agency or individual identifiable information has been included in the final manuscript. All data will be retained in a locked file cabinet for a minimum of three years past the completion of this research. Any links to the identification of participants will be maintained on a password-protected computer. Access to data is limited to authorized individuals listed as key study personnel.

CHAPTER 5: DATA ANALYSIS

Introduction

This study seeks to determine whether Florida licensed group homes are training direct care staff members to use effective teaching strategies to maximize the potential of those with developmental disabilities. The data analysis will first assess whether there is a significant relationship between staff members receiving empirically derived staff training programs (represented in the study as independent variable Staff Training) and knowledge of effective teaching strategies. Additionally, the data analysis will address whether staff members receiving performance management feedback (independent variable Feedback) contributes to knowledge and whether the involvement of a Certified Behavior Analyst in the group home (independent variable Behavior Analyst Involvement) contributes to such knowledge of effective teaching strategies.

This chapter will present the results using the research methodology presented in Chapter 4. The chapter proceeds as follows: (1) an analysis of the survey response rate, (2) a presentation of the descriptive statistics, (3) a discussion of the inferential statistics utilized in this study (multiple regression analysis) and finally (4), hypotheses testing.

Survey Response Rate

Two survey instruments were used. The first survey instrument consisted of the direct care staff questionnaire. The direct care staff questionnaire was given to all of the direct staff members who worked in a group home. The second survey instrument was the group home

questionnaire. The group home questionnaire was completed by the group home administrator.

The study sample consisted of a random sample of group home agencies from the State of Florida. The statewide sample of 48 agencies that operated licensed group homes was selected to participate in the study. From the 48 agencies selected to participate, a random sample of 105 group homes were selected to participate. The researcher sent 700 direct care staff questionnaires to the 105 group homes were selected to participate. A total of 22 agencies returned at least one direct care staff questionnaire and one group home questionnaire. A total of 55 group home questionnaires were returned out of a sample of 105 group homes. Out of the 700 direct care staff questionnaires sent out, there were 294 respondents. The response rate for the direct care questionnaires was 42%, and the response rate for the group home questionnaire was 52.4%. What follows is an analysis of the descriptive statistics.

Descriptive Statistics

Descriptive statistics were used to examine the data to ensure that assumptions were met as required to multiple regression analysis. First, the dependent variable is explored by examining the range, mean, standard deviation and histogram for the dependent variable. Second, descriptive statistics for each independent variable are explored by examining the data range, mean and standard deviation for each variable. Lastly, descriptive statistics for each control variable are explored by examining the data range, mean and standard deviation for each variable.

Dependent Variable – Knowledge of Effective Teaching Strategies

The dependent variable is an additive index. The un-weighted scores on a 50 question multiple choice quiz constitute the dependent variable: knowledge of effective teaching

strategies. The mean score was 23.31 out of 50 questions with a standard deviation of 7.343. The scores ranged from a low of zero to a high of 43. The dependent variable knowledge of effective teaching strategies is normally distributed (See Figure 2). The next section will review the descriptive statistics for the independent variables.

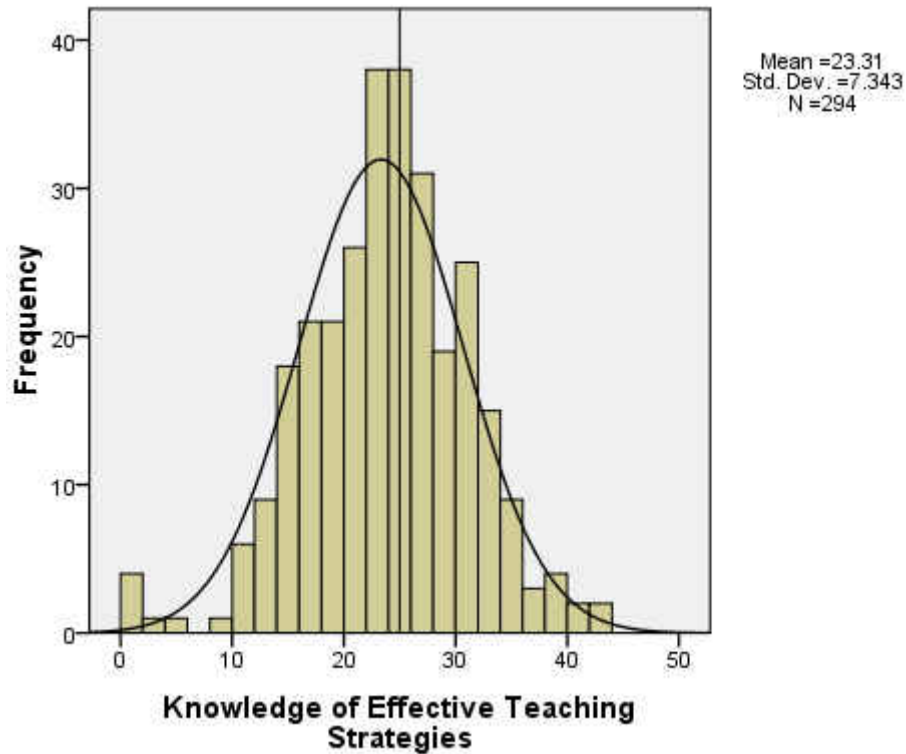


Figure 2. Histogram for the dependent variable: “Knowledge of Effective Teaching Strategies.”

Independent Variables

Staff Training

Table 3 illustrates the descriptive statistics for the independent variable “staff training.” The independent variable “Staff Training” is an additive index comprised of two variables: (1) the number of teaching concepts direct care staff members received training on, and (2) the number of different staff training strategies used to train the direct care staff.

Table 3. Descriptive statistics for the independent variable: “Staff Training.”

	N	Minimum	Maximum	Mean	Std. Deviation
Staff Training	285	3	13	10.25	3.360
Number of Teaching Concepts	294	0	5	4.27	1.326
Number of Staff Training Strategies	294	0	8	5.99	2.477

The mean for the staff training additive index was 10.25 out of a maximum of 13 with a standard deviation of 3.360. The index ranged from a low of zero to a high of 13. There are five separate teaching concepts for teaching people with developmental disabilities. The teaching concepts include 1) delivering instructions, 2) prompting, 3) error correction, 4) reinforcement, and 5) data collection. The mean for the number of teaching concepts was 4.27 out of a maximum of 5 with a standard deviation of 1.326. The scores ranged from a low of zero to a high of 5. Based on the analysis of the frequency distribution for number of teaching concepts covered during staff training, 68.7 percent of respondents received training on all five teaching concepts. An overwhelming majority of respondents (80.3 %) reported receiving training on four or more teaching concepts.

There are a variety of different staff training strategies that can be employed to increase direct care staff members knowledge and performance. These strategies (i.e., included in independent variable: staff training) include: 1) the use of written training materials, 2) providing staff training in a classroom format, 3) providing video examples, 4) demonstrating teaching techniques, 5) role playing, 6) on-the-job training, 7) feedback and 8) annual training.

The mean for the number of staff training strategies was 5.99 out of a maximum of 8 with a standard deviation of 2.477. The scores ranged from a low of zero to a high of 8.

Performance Management Feedback

The independent variable “Performance Management Feedback” is the product of an additive index of three variables:

1. The number of weeks since the supervisor observed the direct care staff member teach,
2. The number of weeks since the supervisor modeled a teaching strategy for the direct care staff member, and
3. The number of weeks since the supervisor gave immediate feedback to the direct care staff member following an observation of a direct care staff member’s teaching.

For the independent variable “Performance Management Feedback” the fewer the number of weeks since direct care staff last received performance management feedback the better.

Table 4 contains the frequency distributions for the variables that comprise the independent variable: “Performance Management Feedback.”

Table 4. Frequency distribution for independent variable: “Performance Management Feedback.”

Variable	Value	Frequency	Percent
Last time a supervisor demonstrated a teaching procedure	Supervisor did not observe in the last 30 days	77	26.2
	Four weeks ago	15	5.1
	Three weeks ago	22	7.5
	Two weeks ago	56	19.0
	Within the past week	123	41.8
	Listwise N =	293	99.7
	Missing	1	.3
Supervisor last observed staff	Supervisor did not observe in the last 30 days	88	29.9
	Four weeks ago	15	5.1
	Three weeks ago	21	7.1
	Two weeks ago	59	20.1
	Within the past week	110	37.4
	N =	293	99.7
	Missing	1	.3
Last time the supervisor gave immediate feedback	Supervisor did not observe in the last 30 days	78	26.5
	Four weeks ago	19	6.5
	Three weeks ago	17	5.8
	Two weeks ago	49	16.7
	Within the past week	130	44.2
	N =	293	99.7
	Missing	1	.3

Only 41.9% of the respondents had a supervisor that demonstrated a teaching procedure to them within the last week. Over 25% of respondents indicated that their supervisor had not demonstrated a teaching procedure for them during the last 30 days. The majority of respondents did not have a supervisor who demonstrated teaching procedures within the last two weeks.

Only 37.5% of respondents indicated that their supervisor observed them teaching during the last week, while nearly 30% of respondents had not been observed by their supervisor while teaching in the last 30 days. The majority of respondents are not regularly observed by their supervisor teaching people with developmental disabilities.

Less than half of the respondents (44.2%) reported receiving immediate feedback from their supervisor during the past week, while 38.8% of respondents indicated it had been 3 weeks or longer. The majority of respondents did not regularly receive immediate feedback from their supervisors on their teaching of people with developmental disabilities. Overall, approximately one third of direct care staff reported that their supervisor had not: (1) demonstrated a teaching procedure, (2) observed the staff member teaching, or (3) provided immediate feedback in the last 30 days. The mean for the performance management feedback additive index was 7.21 out of a maximum of 12 with a standard deviation of 4.692. The index ranged from a low of zero to a high of 12.

Behavior Analyst Involvement

The independent variable “Behavior Analyst Involvement” is a product of an additive index. The behavior analyst involvement index includes three variables:

1. The number of hours per month the certified behavior analyst spent training direct care staff members on how to teach,
2. The number of hours per month the certified behavior analyst spent giving feedback to direct care staff members on how to teach, and
3. The number of hours per month the certified behavior analyst spent doing other duties in the group home.

Table 5 illustrates the descriptive statistics for the independent variable “Behavior Analyst Involvement.”

Table 5. Descriptive statistics for the independent variable: “Behavior Analyst Involvement.”

	N	Minimum	Maximum	Mean	Std. Dev.
Behavior Analyst Involvement	294	0	85.0	24.03	20.401
Number of hours CBA spent training staff how to teach	294	0	40.0	8.306	9.1055
Number of hours CBA spent giving feedback to staff	294	0	50.0	7.022	8.9425
Number of hours CBA spent doing other duties	294	0	32.0	8.706	8.7873

The mean for the behavior analyst involvement additive index was 24.03 out of a maximum of 85 with a standard deviation of 20.401. The index ranged from a low of zero to a high of 85.

The mean for the number of hours per week spent by the behavior analyst training staff members was 8.306 out of a maximum of 40 hours with a standard deviation of 9.1055. The hours ranged from low of zero to a high of 40. The mean for the number of hours per week spent by the behavior analyst giving feedback to staff was 7.022 out of a maximum of 50 hours with a standard deviation of 8.9425. The hours ranged from a low of zero to a high of 50. The mean for the number of hours per week spent by the behavior analyst doing other duties was 8.706 out of a maximum of 32 hours with a standard deviation of 8.7873. The hours ranged from a low of zero to a high of 32.

Control Variables

A total of ten control variables are used in this study. Four are agency and group home control variables and six are direct care staff control variables.

Agency and Group Home Control Variables

The agency and group home control variables for the study are: (1) the year the agency received its first license, (2) the year the group home received its first license, (3) the number of employees the agency has in Florida; and (4) the number of licensed community based group homes operated in Florida.

Table 6 is a frequency distribution for the year the agency received their first group home license. This control variable was chosen to measure the experience the agency has with licensed group homes.

Table 6. Frequency distribution for the year the agency received their first group home license.

Year	N	Percent
1976	11	3.7
1988	10	3.4
1991	4	1.4
1992	25	8.5
1994	19	6.5
1996	44	15.0
1997	19	6.5
1998	37	12.6
1999	18	6.1
2000	16	5.4
2001	7	2.4
2002	13	4.4
2003	9	3.1
2005	32	10.9
2006	30	10.2
N =	283	96.3
Missing	11	3.7

About one-third of agencies reportedly obtained their first group home licenses between 1996 and 1998. Quite a number of new agencies received their first group home licenses in 2005

and 2006. Based on the researcher’s personal experience, there were a significant number of agencies that consolidated their operations during 2005 and 2006, which might account for the increase in first year licenses. Additionally, multiple agency contacts indicated they did not have a document to reference for the date the agency received its first group home license. The agency contacts stated that they provided their best estimate based on the information that was available. The data for this control variable may not be reliable because of the agency consolidation and the information not being readily available to the respondent when completing the group home survey instrument.

Table 7 displays a frequency distribution for the year the group home was first licensed.

Table 7. Frequency distribution for the year the group home was first licensed.

Year	N	Percent
1972	4	1.4
1980	2	.7
1988	4	1.4
1991	6	2.0
1992	12	4.1
1993	6	2.0
1994	3	1.0
1995	21	7.1
1996	28	9.5
1998	22	7.5
1999	26	8.8
2000	12	4.1
2001	2	7.5
2002	6	2.0
2003	7	2.4
2005	69	23.5
2006	40	13.6
2007	4	1.4
N =	283	96.3
Missing	11	3.7

This variable was chosen to control for the number of years the group home has been supporting people with developmental disabilities. Respondents indicated that the majority of newly licensed group homes occurred during 2005 and 2006. As mentioned in Table 7, the

significant number of newly licensed group homes in 2005 and 2006 may be accounted for by a significant amount of agency consolidation during this period. Additionally, agency representatives told the researcher they were unaware of the exact date the group home received its first license. The year the group home received its first license may not be reliable, because the information was not readily available to the respondents when completing the group home survey instrument. The agency contacts stated that they provided their best estimate based on the information that was available.

Table 8 displays the frequency distribution for the “Number of Employees” employed by agencies that have licensed group homes for people with developmental disabilities.

Table 8. Frequency distribution for: “Number of Employees” employed by the agencies.

Number of Agency Employees	N	Percent
1-30	45	15.3
31-60	33	11.2
61-90	30	10.2
121-150	63	21.4
151-180	16	5.4
180+	106	36.1
N =	293	99.7
Missing	1	.3

Over one half of the respondents were from agencies that employed 121 or more employees, while 36.1% of agencies indicated they employed over 180 employees. Just over 25% of the agencies indicated they employed 60 or fewer employees. The majority of respondents were from large agencies.

Table 9 lists the descriptive statistics for the number of licensed group homes in Florida. The mean for the number of group homes per agency was 20.69 out of a maximum of 88 with a standard deviation of 28.689. The number of group homes ranged from low of 1 to a high of 88.

Table 9. Descriptive statistics for “Number of Licensed Group Homes in Florida.”

	N	Minimum	Maximum	Mean	Std. Dev.
Number of Licensed Group Homes in Florida	294	1	88	20.69	28.689

Direct Care Staff Control Variables

The study includes six direct care staff control variables. The direct care staff members include (1) years of general education, (2) length of service with current employer, (3) total length of experience working directly with people with developmental disabilities, (4) age of the employee, (5) gender of the employee, and (6) race of the employee.

Table 10 lists the frequency distribution for the formal years of general education as reported by the respondents.

Table 10. Frequency distribution for “Years of General Education”

Years of Formal Education	Frequency	Percent
12	176	59.9
13	41	13.9
14	26	8.8
15	8	2.7
16	13	4.4
17	4	1.4
18	4	1.4
19	2	.7
N =	274	93.2
Missing	20	6.8

The majority of respondents (59.9%) indicated they received 12 years of general education, which is equivalent to a high school graduate. Approximately 14% of respondents indicated they completed equivalent to one year of college. While only 4.4% of respondents

reported 16 years of general education, equivalent to 4 years of college. The mean for the years of general education was 12.83 years out of a maximum of 19 years with a standard deviation of 1.456. The years of general education ranged from a low of 12 to a high of 19.

Table 11 illustrates the descriptive statistics for the direct care staff control variables: (1) experience at current job, (2) experience working with DD, and (3) age.

Table 11. Descriptive statistics for the control variables

	N	Minimum	Maximum	Mean	Std. Dev.
Experience at current job	279	.08	30.00	3.4207	4.714
Experience working with DD	283	.00	33.00	6.6652	6.879
Age	258	19	75	35.27	12.254

Respondents reported a mean of 3.4 years of experience at their current job out of a maximum of 30 years with a standard deviation of 4.714. The years ranged from low of .08 to a high of 30 years. The respondents had a mean of 6.7 years of experience working with developmental disabilities with a standard deviation of 6.879. The mean age of the respondents was about 35 years old with a standard deviation of 12.254. The minimum age was a low of 19 to a high of 75 years old.

Table 12 lists the respondents reported gender. Seventy nine percent of the respondents were female. These results are similar to the findings from the Paraprofessional Healthcare Institute (2009) which found 88% of direct care staff members were female.

Table 12. Frequency distribution for: “Direct Care Staff Gender.”

Gender	Frequency	Percent
Male	57	21.0
Female	215	79.0
N=	272	92.5
Missing	22	7.5

Table 13 lists the frequency distribution for the respondents reported ethnicity. Fifty three percent of the respondents were reported to be African American, while 22.8% were reported to be white. Less than 10% of respondents indicated they were Hispanic.

Table 13. Frequency distribution for: “Ethnicity.”

Ethnicity	Frequency	Percent
White, Non-Hispanic	67	22.8
African American	157	53.4
Hispanic	27	9.2
Asian American, Pacific Islander	3	1.0
American Indian, Alaskan	1	0.3
Other	11	3.7
N =	266	90.5
Missing	28	9.5

Inferential Statistics

This study will use inferential statistics with the study sample in an attempt to discover a relationship between the independent variables and the dependent variable to infer the relationship between these variables in the target population. Multiple regression analysis is a

commonly used inferential statistic technique. Multiple regression analysis is a versatile analytical technique that allows the researcher to predict relationships between independent variables and a specific dependent variable while controlling for extraneous variables. When using multiple regression, certain data assumptions must be satisfied if the model is to be valid (Berman, 2002; Pallant, 2001).

Regression Assumptions

The five main regression assumptions are linearity, random sampling, no perfect collinearity, homoscedasticity, and normally distributed errors (Berman, 2002; Pallant, 2001). To test the multiple regression assumptions, a normal probability plot is used to determine whether the residuals (errors) are normally distributed. A residual plot is used to detect patterns of nonlinearity and heteroskedasticity. A histogram can also detect whether residual data are normally distributed.

A normal probability plot of the residuals for all of the regression analyses indicates that the predicted residuals are quite close to the observed residuals. A scatterplot of the residuals against the predicted values for all of the regression analyses indicates that the data are linear as they seem to be located entirely randomly, centered at point (0, 0). A histogram of the standardized residuals for each of the regression analyses, indicates that the data generally do follow a normal distribution. See Appendix J for the results of the normal probability plots of the residuals, the scatterplots of residuals against the predicated values, and the histograms of the standardized residuals for each regression analysis.

Statistical Significance

In addition to producing all the aforementioned plots, SPSS also produces an ANOVA

table that determines whether the regression is significant as measured by the F statistic; if the p-value for this test is less than .05, then it is significant. The regression reports two types of coefficients, unstandardized coefficients which are used to predict the response variable, and standardized (BETA) coefficients which are used to compare the importance of certain variables in determining the response variable (Pallant, 2001). The Variance Inflation Factor (VIF) test was used to test for multi-collinearity. Independent variables that are highly correlated will not be found significant even though the goodness of fit as measured by the R squared might be high.

Multicollinearity

Multicollinearity was not detected during any of the regression analysis using the Variance Inflation Factor test. A VIF score greater than 5.0 is considered the threshold for when collinearity between independent variables is substantial enough to affect the results (Berman, 2002; Hair, Anderson, Tatham, & Black, 1998). The VIFs for the independent variables were less than two (2) and all VIFs for the control variables were less than five (5). Multicollinearity was not evident since the VIF was less than 5. Additionally, the tolerance statistics exceeded .5 for all of the independent variables and exceeded .3 for all of the control variables except for the control variables for white race and black race. A tolerance of less than 0.20 would indicate a multicollinearity problem (O'Brian, 2007). The VIF scores are reported for all independent variables in the regression analysis.

Regression Data Analysis

Six Multiple Regression analyses were run on the data. A goal of the analysis is to determine if the inclusion of the independent variables increases the R² correlation coefficients.

The dependent variable, “Knowledge of Effective Teaching Strategies” was regressed first on the control variables. Subsequent regressions (second, third, and fourth regressions) examined the control variables together with the independent variables of staff training, performance management feedback and behavior analyst involvement. The fifth regression included the independent variables. The sixth regression also examined the goodness of fit for the variables staff training, behavior analyst involvement, white race, the year the agency received their first group home license, and the number of group homes in Florida.

Regression results indicate which variables are significant, as any variable with a significance test value or p-value less than .05 is considered significant. Standardized beta coefficients are used to determine which variables have the most important effect on the dependent variable, as unstandardized coefficients (the actual coefficients entered on the regression) cannot be compared directly because different types of variables have vastly different scales; standardized coefficients adjust the actual coefficients for mean and standard deviation and therefore can be accurately compared to determine the independent variables that have the largest effect on the dependent variable. Analysis was performed using SPSS release 16 for Windows.

Regression Analysis for the Control Variables

Table 14 presents the results of the first regression that includes only the control variables.

Table 14. Regression model for control variables.

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	SE	Beta			Tolerance	VIF
(Constant)	175.456	168.197		1.043	.298		
Experience working with DD	.141	.083	.138	1.702	.090	.539	1.855
Experience at current job	-.245	.110	-.167	-2.229	.027	.627	1.594
Age	.022	.041	.039	.530	.597	.666	1.502
Female	-.907	1.047	-.054	-.866	.387	.914	1.094
Years of formal education	.590	.306	.119	1.930	.055	.928	1.078
White	5.620	2.119	.360	2.652	.009	.191	5.235
Black	1.703	2.000	.121	.852	.395	.174	5.757
Hispanic	1.454	2.363	.063	.615	.539	.333	3.006
Year the agency received first GH License	-.118	.087	-.106	-1.362	.175	.584	1.713
Number of employees employed by the agency	-.023	.213	-.008	-.108	.914	.699	1.432
Number of Licensed Group Homes in Florida	-.043	.017	-.176	-2.460	.015	.690	1.450
Year the group home was first licensed	.037	.089	.033	.420	.675	.557	1.794

F(12, 224) = 4.999, p < .001, R² = .211, Adj. R² = .169, SE(estimate) = 6.330 N=237

The categorical variables for respondent ethnicity in the study were coded as dummy variables as follows: 1=white and 0=non-white; 1=black and 0=non-black; and 1=Hispanic and 0=non-Hispanic. Values for Asian-Americans / Pacific Islander, American Indian / Alaskan, category 'other' and missing responses were combined as a reference category.

Of the twelve total control variables, white direct care staff members were associated with higher scores than those of other races ($p = .009$). White respondents scored significantly higher than respondents of other reported races. White respondents scored 5.62 points higher than the constant term. Similarly, the standardized beta statistics for white ethnicity (.360) was far greater than for any other variable. Respondents who had more experience at their current jobs were associated with lower scores than those with less experience ($p = .028$). The number of licensed group homes an agency had in Florida was a statistically significant ($p = .015$) and associated with lower respondent quiz scores. Respondents from larger agencies with more licensed group homes were associated with lower scores than respondents from smaller agencies with fewer licensed group homes. No other control variables were significant in predicting knowledge of effective teaching strategies. The regression itself is significant with a p -value of .001, although the R^2 value is relatively low at .211. Altogether, 21.1 % of the variation knowledge of effective teaching strategies was explained by knowing the scores on these control variables.

Regression Analysis for Staff Training

Table 15 presents the regression for staff training.

Table 15. Regression model examining the use of empirically derived staff training on knowledge of effective teaching strategies.

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	SE	Beta			Tolerance	VIF
(Constant)	230.428	159.993		1.440	.151		
Staff Training	.649	.128	.292	5.070	.000	.959	1.043
Experience working with DD	.118	.079	.115	1.501	.135	.537	1.861
Experience at current job	-.227	.105	-.155	-2.176	.031	.627	1.596
Age	.024	.039	.042	.609	.543	.666	1.502
Female	-1.064	.994	-.063	-1.071	.285	.913	1.095
Years of formal education	.490	.291	.099	1.684	.094	.923	1.083
White	4.445	2.024	.285	2.196	.029	.189	5.304
Black	.538	1.912	.038	.281	.779	.171	5.841
Hispanic	.977	2.245	.043	.435	.664	.332	3.012
Year the agency received first GH License	-.159	.083	-.142	-1.920	.056	.578	1.729
Number of employees employed by the agency	.000	.202	.000	.001	.999	.698	1.432
Number of Licensed Group Homes in Florida	-.043	.016	-.178	-2.626	.009	.690	1.450
Year the group home was first licensed	.048	.085	.043	.571	.568	.557	1.795

F(13, 223) = 7.101, p < .001, R² = .293, Adj. R² = .252, SE(estimate) = 6.007 N=237

In the regression in Table 15, one independent variable, and three control variables were found significant in predicting the score on the knowledge of effective teaching strategies quiz. The independent variable staff training (p = .009) is statistically significant and positively associated with increased test scores. Respondents that received more empirically derived staff

training had higher test scores. Three control variables were statistically significant: (1) white race ($p = .039$), (2) experience at their current job ($p = .031$) and (3) the number of licensed group homes the agency had in Florida ($p = .009$). Two of the control variables: (1) experience at current job and (2) number of licensed group homes were associated with lower test scores. White respondents were associated with higher test scores. Based on the standardized beta coefficients, staff training showed the strongest relationship of the variables with a beta-coefficient of .292 compared to .285 for white. The regression itself was significant with a p-value of less than .001, with an R^2 of .299, which was .086 higher than the control variable regression analysis.

Regression Analysis for Performance Management

Table 16 presents the results of the regression for performance management feedback.

Table 16. Regression model examining performance management feedback on knowledge of effective teaching strategies.

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	SE	Beta			Tolerance	VIF
(Constant)	176.782	168.627		1.048	.296		
Performance Management Feedback	-.040	.154	-.016	-.258	.797	.952	1.050
Experience working with DD	.141	.083	.137	1.693	.092	.539	1.855
Experience at current job	-.242	.111	-.165	-2.182	.030	.620	1.614
Age	.022	.041	.039	.536	.593	.665	1.503
Female	-.912	1.049	-.054	-.870	.385	.913	1.095
Years of formal education	.583	.307	.118	1.897	.059	.921	1.086
White	5.663	2.130	.363	2.659	.008	.190	5.266
Black	1.737	2.009	.124	.865	.388	.173	5.781
Hispanic	1.510	2.378	.066	.635	.526	.330	3.032
Year the agency received first GH License	-.119	.087	-.107	-1.372	.171	.582	1.719
Number of employees employed by the agency	-.018	.214	-.006	-.082	.935	.692	1.445
Number of Licensed Group Homes in Florida	-.043	.017	-.177	-2.467	.014	.687	1.456
Year the group home was first licensed	.038	.089	.034	.429	.668	.557	1.797

$F(13, 223) = 4.601, p < .001, R^2 = .211, \text{Adj. } R^2 = .166, \text{SE(estimate)} = 6.343 \quad N=237$

Performance management feedback ($p = .797$) was not statistically significant predictor for quiz scores. Only one control variable, white race ($p = .009$) was statistically significant and had a positive relationship with higher quiz scores. Two other control variables show significant

negative relationships in predicting the score on the knowledge of effective teaching strategies, those being respondents' experience in their current job ($p = .029$) (i.e., the more experience a direct care staff member has at his or her current job results in a lower quiz score) and the number of licensed group homes in Florida ($p = .014$). The largest standardized beta coefficient (.358) was for white.

The regression was significant with a p-value of less than .001, but the R^2 of .212 was approximately the same as the control variable model ($R^2 = .211$). Implying that adding the independent variable 'performance management feedback' did not add additional information for the prediction of knowledge of effective teaching strategies.

Regression Analysis for Behavior Analyst Involvement

Table 17 presents the result of the regression for behavior analyst involvement.

Table 17. Regression model examining the behavior analyst involvement on knowledge of effective teaching strategies.

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	SE	Beta			Tolerance	VIF
(Constant)	303.242	168.598		1.799	.073		
Behavior Analyst Involvement	.071	.021	.213	3.402	.001	.858	1.165
Experience working with DD	.089	.082	.086	1.076	.283	.520	1.922
Experience at current job	-.245	.108	-.166	-2.273	.024	.627	1.594
Age	.021	.040	.037	.523	.601	.666	1.502
Female	-.906	1.023	-.054	-.885	.377	.914	1.094
Years of formal education	.628	.299	.127	2.101	.037	.926	1.080
White	5.565	2.070	.357	2.688	.008	.191	5.235
Black	1.530	1.955	.109	.782	.435	.174	5.761
Hispanic	1.466	2.309	.064	.635	.526	.333	3.006
Year the agency received first GH License	-.170	.086	-.152	-1.972	.050	.566	1.768
Number of employees employed by the agency	-.139	.211	-.046	-.661	.509	.680	1.470
Number of Licensed Group Homes in Florida	-.029	.017	-.120	-1.674	.096	.654	1.529
Year the group home was first licensed	.024	.087	.022	.279	.781	.556	1.798

$F(13, 223) = 5.723, p < .001, R^2 = .250, \text{Adj. } R^2 = .206, \text{SE(estimate)} = 6.185 \quad N=237$

In Table 17, five variables were found to be statistically significant. The independent variable behavior analyst involvement ($p = .001$), had a statistically significant positive relationship with knowledge of effective teaching strategies quiz scores. The remaining four statistically significant variables are control variables. Two of the statistically significant control variables had a positive association with higher test scores: (1) white race ($p = .008$), which was

associated with a significantly higher average quiz score compared to other races, and (2) years of formal education ($p = .013$), which was associated with significantly higher average test scores compared to direct care staff members with less formal education. The final two statistically significant control variables were associated with lower test scores: (1) the year the agency received its first group home license ($p = .045$), and respondents experience in their current job ($p = .024$), which had a statistically significant negative relationship with the quiz score. Based on the standardized beta coefficients, white showed the strongest relationship of the four variables with a beta-coefficient of .357 compared to .213 for the independent variable behavior analyst involvement.

The regression itself was significant with a p-value of less than .001. The R^2 of .250 was .039 higher (an 18% increase) than the regression analyses examining the control variables and performance management feedback. The R^2 for behavior analyst involvement was .043 lower than the staff training model, indicating the staff training model provided considerably more information than the behavior analyst involvement model.

Regression Analysis for Staff Training, Performance Management Feedback and BA

Table 18 presents the results of the regression for staff training, performance management feedback, and behavior analyst involvement.

Table 18. Regression model examining staff training, performance management feedback and behavior analyst involvement on knowledge of effective teaching strategies.

	Unstandardized Coefficients		Standardized Coefficients		Collinearity Statistics		
	B	SE	Beta	t	Sig.	Tolerance	VIF
(Constant)	319.423	162.069		1.971	.050		
Staff Training	.587	.130	.263	4.527	.000	.917	1.090
Feedback	.044	.145	.017	.304	.762	.943	1.061
Behavior Analyst Involvement	.053	.020	.160	2.598	.010	.822	1.216
Experience working with DD	.082	.079	.080	1.031	.304	.520	1.923
Experience at current job	-.232	.104	-.158	-2.230	.027	.619	1.615
Age	.023	.039	.040	.587	.558	.665	1.503
Female	-1.042	.983	-.062	-1.059	.291	.913	1.096
Years of formal education	.535	.289	.108	1.852	.065	.914	1.094
White	4.470	2.010	.286	2.223	.027	.187	5.345
Black	.483	1.897	.034	.255	.799	.170	5.875
Hispanic	.970	2.231	.042	.435	.664	.329	3.039
Year the agency received first GH License	-.192	.083	-.172	-2.315	.022	.562	1.778
Number of employees employed by the agency	-.095	.204	-.032	-.466	.641	.671	1.491
Number of Licensed Group Homes in Florida	-.033	.017	-.135	-1.946	.053	.648	1.543
Year the group home was first licensed	.036	.084	.032	.434	.664	.555	1.803

F(15, 221) = 6.738, $p < .001$, $R^2 = .314$, Adj. $R^2 = .267$, SE(estimate) = 5.944 N=237

In Table 18 the result of the regression involving all three independent variables (staff training, performance management feedback and behavior analyst involvement) is presented.

Five variables were found to be statistically significant in predicting the score on the knowledge of effective teaching strategies quiz, controlling for the other variables. Two of the independent variables, staff training and behavior analyst involvement were statistically significant. Three control variables were found statistically significant. The statistically significant variables having a positive association with higher test scores are (1) staff training (i.e., the amount of staff training received), ($p < .000$), (2) behavior analyst involvement ($p = .011$), and (3) white race ($p < .025$), which was associated with a significantly higher average test score compared to other races. The variables having a negative association in predicting the score on the knowledge of effective teaching strategies quiz are the year the agency acquired the group home license ($p = .021$) and the respondents' experience in their current job ($p = .028$) (i.e., the more experience a direct care staff member had at his or her current job resulted in a lower quiz score). Based on the standardized beta coefficients, white showed the strongest relationship of the variables (Beta .290) compared to staff training (Beta .264), the year the group home license was obtained (Beta -.173), the behavior analyst involvement (Beta .158), and finally, experience the respondent had in their current job (Beta -.156).

The regression was significant with a p-value of less than .001, and the R^2 of .314 was .103 higher over the control variable model, implying that adding the independent variables staff training and behavior analyst involvement at least provides considerable information, even if the performance management feedback variable did not.

Regression Analysis for the Reduced Model

The reduced model regression analysis is constructed by using all of the statistically significant variables from the staff training, performance management feedback, and behavior analyst involvement regression analysis. Table 19 lists the coefficients for regression analysis for the reduced model with the score on the knowledge of effective teaching strategies quiz as the dependent variable.

Table 19. Regression analysis for the reduced model.

	Unstandardized Coefficients		Standardized Coefficients		Sig.	Collinearity Statistics	
	B	SE	Beta	t		Tolerance	VIF
(Constant)	448.357	128.766		3.482	.001		
Staff Training	.586	.124	.263	4.713	.000	.937	1.067
Behavior Analyst Involvement	.068	.019	.198	3.513	.001	.921	1.085
Experience at current job	-.117	.081	-.079	-1.437	.152	.958	1.044
White	4.574	.888	.283	5.152	.000	.965	1.036
Year the agency received first GH license	-.217	.064	-.190	-3.363	.001	.914	1.094

$F(5, 255) = 17.551, p < .001, R^2 = .256, \text{Adj. } R^2 = .241, \text{SE}(\text{estimate}) = 6.125 \quad N=261$

In Table 19 for regression analysis for the reduced model, two independent variables and two control variables were found to be statistically significant in predicting scores on knowledge of effective teaching strategies quiz: (1) staff training ($p = .001$), (2) behavior analyst involvement ($p = .001$), (3) white race ($p = .000$), and (4) the year the agency received its first group home license ($p = .001$). Based on the standardized beta coefficients, white race showed the strongest relationship of the three variables with a standardized beta-coefficient of .283 compared to a standardized beta coefficient of .263 for staff training, and .198 for the

independent variable behavior analyst involvement. The regression itself was significant with a p-value of less than .001. The R^2 of .256 was .058 lower than the regression analysis examining staff training, performance feedback, and the behavior analyst involvement. This reduction in R^2 may be attributed to this model having fewer predictors.

Research Questions and Hypotheses Testing

Three hypotheses were tested in this research. In order to test these hypotheses, direct care staff members working in licensed group homes for people with developmental disabilities completed direct care staff member questionnaires, and group home administrators completed a group home questionnaire. The following presents the summary of the level of support for each hypothesis tested in this study.

RESEARCH QUESTION 1: How knowledgeable are direct care staff members about effective teaching strategies for people with developmental disabilities?

Direct care staff members' knowledge of effective teaching strategies for people with developmental disabilities was assessed using the dependent measure 'knowledge of effective teaching strategies.' The dependent measure consisted of a 50 question multiple choice quiz. The score on the dependent variable consisted of the number of correct answers from the quiz. The mean score was 23.31 out of 50 questions with a standard deviation of 7.343. The scores ranged from a low of zero to a high of 43. These findings indicated that the direct care staff members generally did not demonstrate knowledge of effective teaching strategies.

RESEARCH QUESTION 2: Among direct care staff members, is there a positive relationship between receiving empirically derived staff training on the use of teaching strategies and knowledge of teaching strategies for people with developmental disabilities?

Hypothesis 1:

H_a : Among direct care staff members, there is a positive statistically significant relationship $>.05$ between receiving an empirically derived staff training program on the use of

teaching strategies and knowledge of effective teaching strategies for people with developmental disabilities.

The first hypothesis examined the relationship between the independent variable staff training and the dependent variable knowledge of effective teaching strategies. There is a positive statistically significant relationship between direct care staff members that have received an empirically derived staff training program on the use of teaching strategies and their knowledge of effective teaching strategies for people with developmental disabilities. Staff training was found to be statistically significant in all the regression analyses, thus for Hypothesis 1, the null hypothesis was rejected and the alternative hypothesis was accepted. Respondents who received more empirically derived staff training were positively associated with higher scores on the knowledge of effective teaching strategies quiz.

RESEARCH QUESTION 3: Among direct care staff members, is there a positive relationship between receiving performance management feedback (i.e., supervisor's modeling, observation, and immediate feedback) on the use of teaching strategies and knowledge of teaching strategies for people with developmental disabilities?

Hypothesis 2:

H_a: Among direct care staff members, there is a positive statistically significant relationship >.05 between receiving performance management feedback (i.e., supervisor's modeling, observation, and immediate feedback) on the use of teaching strategies and knowledge of effective teaching strategies for people with developmental disabilities.

The second hypothesis examined the relationship between the independent variable performance management feedback and the dependent variable knowledge of effective teaching strategies. A statistically significant relationship was not found between feedback and direct care staff members knowledge about how to teach people with developmental disabilities. Feedback as a performance management strategy was not found to have a statistically significant relationship with knowledge of effective teaching strategies in any of the regression analyses,

thus for Hypothesis 2, the null hypothesis is accepted.

RESEARCH QUESTION 4: Among direct care staff members, is there a positive relationship between behavior analyst involvement in the group home where the direct care staff member works and knowledge of effective teaching strategies for people with developmental disabilities?

Hypothesis 3:

H_a: There is a positive statistically significant relationship $>.05$ between behavior analyst involvement in the group home where the direct care staff member works and knowledge of effective teaching strategies for people with developmental disabilities.

The third hypothesis examined the relationship between the independent variable behavior analyst involvement and the dependent variable knowledge of effective teaching strategies. The third null hypothesis was rejected indicating there is a positive statistically significant relationship between the behavior analyst involvement in the group home and the direct care staff member's knowledge effective teaching strategies for people with developmental disabilities. A positive relationship was demonstrated between the number of hours the behavior analyst was involved in the group home and the respondent's score on the knowledge of effective teaching strategies quiz.

Summary

There was a statistically significant, positive relationship between staff training (i.e., receiving a staff training program) and behavior analyst involvement (i.e., the number of hours the behavior analyst was involved in the group home) in predicting the scores on the knowledge of teaching strategies quiz. However, the second hypothesized relationship, performance management feedback, was insignificant. The only other factors that were significant in predicting knowledge of effective teaching strategies in the staff training, performance management feedback, and behavior analyst involvement regression analyses were white race, the respondents experience in their current job, and the year the agency received its first group

home license. The next chapter will discuss the research findings, the limitations of the study and direction to future research.

CHAPTER 6: DISCUSSION

Introduction

Direct care staff members must be skilled in the application of teaching strategies for functional living skills training to be successful in assisting people with developmental disabilities to realize greater independence, to maximum their potential, and to foster integration within their community (Arco & Birnbrauer, 1990; Parsons, Reid, Crow, 2003; Jahr, 1998). Often direct care staff members lack the preparation for accomplishing effective teaching of functional living skills (Killu, 1994, Reid & Parsons, 2000; Zlomke & Benjamin, 1983). The purpose of the study was to explore what factors are related to direct care staff members knowledge of effective teaching strategies for people with developmental disabilities. This explanatory study was conducted to investigate the relationship between direct care staff knowledge of effective teaching strategies and the following factors: 1) staff training received by direct care staff members, 2) performance management strategies received by the direct care staff member, and 3) the behavior analyst's involvement with the group home. After an exhaustive search of the literature, no studies were found that specifically investigated the prevalence of direct care staffs' knowledge of effective teaching strategies to teach functional living skill with persons with developmental disabilities in residential settings. No investigations could be found that studied the prevalent use of effective staff training procedures or performance management strategies and their impact on direct care staffs' knowledge of effective teaching strategies. Lastly, no studies could be found that investigated the prevalence and impact of having certified

behavior analysts involved in training and giving performance feedback to direct care staff on how to teach.

Research Findings, Implications, and Recommendations

This research made several major contributions to the literature related to supporting people with developmental disabilities. First, a comprehensive literature review was conducted to identify current evidence based practices for teaching people with developmental disabilities to increase their independence, and participation in the normal routines of life within their communities. It is important to identify effective instructional practices for people with developmental disabilities if the goals of the Medicaid Home and Community Based Services (HBSC) waiver are to be realized. The goal of the HBSC waiver is to maximize the potential of people with developmental disabilities. The literature review conducted as part of this study identified evidence based practices for teaching people with developmental disabilities. Second, this study used a 50 question multiple choice quiz covering evidence based teaching practices for people with developmental disabilities. This is the first time knowledge of effective teaching strategies has been used as a dependent measure. Lastly, this study explored factors that are related to direct care staff having knowledge of effective teaching strategies.

A comprehensive literature review revealed five teaching principles for teaching people with developmental disabilities. The teaching principles include 1) delivering instructions, 2) prompting/fading, 3) error correction, 4) reinforcement, and 5) data collection. Second, an assessment of direct care staff members' knowledge of effective teaching strategies was used as a dependent measure to identify the factors that are related to direct care staff members having knowledge about how to teach people with developmental disabilities. This assessment instrument demonstrated content validity, reliability, and the ability to predict knowledge of effective teaching

strategies. The dependent measure used in this study, direct care staff knowledge of effective teaching strategies, is very important to gaining insight into direct care staff members' knowledge of evidence based teaching strategies for people with developmental disabilities. Persons with developmental disabilities right to effective supports, provided by competent direct care staff members might be consider a matter of course (*Wyatt v. Stickney, 1971*). However, these rights are not necessarily fulfilled (Van Houten, et al., 1988) and there still seems to be a considerable discrepancy between the knowledge obtained in research, and common practice in the applied field (Jahr, 1998). The purposes of this study were to assess direct care staff members knowledge of evidence based practices for teaching people with developmental disabilities and conduct explanatory research to identify the factors related to knowledge of teaching strategies.

No previous research attempted to measure direct care staff knowledge of evidence based practice for teaching people with developmental disabilities. The knowledge assessment was derived from a comprehensive review of the applicable literature (see Table 1). From the literature review a list of commonly cited teaching principles and associated concepts was compiled (See Appendix A) to develop the multiple choice questionnaire (See Appendix G). The resulting questionnaire was evaluated by seven doctoral level behavior analysts to assess the content validity of the questionnaire. Content validity is based on the assumption that the investigations from which the teaching strategies were derived represent the set of knowledge most frequently required of direct care staff who work with people with developmental disabilities in community residential group homes. The results of the content validity assessment suggest "agreement" to "strong agreement" that the instrument was measuring knowledge of evidence based practices related to the teaching of people with developmental disabilities. Following the completion of the content validity assessment, a second investigation was conducted to assess the instrument's ability to predict knowledge of effective teaching strategies. The results indicated the questionnaire

accurately predicted who had knowledge of teaching strategies for people with developmental disabilities. Cronbach's Alpha was used to test the internal consistency. The results indicated a high degree of internal consistency within the questionnaire. The resulting multiple choice questionnaire contained 50 questions and was utilized as the dependent measure for this study.

This is the first study to assess direct care staff knowledge of effective teaching strategies for people with developmental disabilities. A significant finding from this study is how poorly the direct care staff members performed on the knowledge of effective teaching strategies quiz. Direct care staff respondents mean score on the 50 question multiple choice quiz was 23.31 out of 50 questions, indicating the average respondent answered less than 50% of the questions correctly. These results indicate that direct care staff members do not have knowledge of effective teaching strategies. Although, it should be noted that it is unclear what the impact this lack of knowledge has on staff performance. This study did not investigate the relationship between direct care staff members' knowledge of effective teaching strategies and their teaching performance. The researcher acknowledges that direct care staff members' knowledge of teaching strategies may not relate to the actual skills necessary to teach people with developmental disabilities. Knowledge of effective teaching strategies was chosen as a dependent variable over staff performance, because knowledge of effective teaching strategies had not been previously assessed and knowledge was a more accessible measure for conducting survey research involving a statewide random sample of hundreds of direct care staff members.

Staff Training

The study did demonstrate a statistically significant positive relationship between direct care staff members who received empirically derived staff training and knowledge of effective teaching strategies. Knowledge of teaching skills is important to enhancing direct care staff

members understanding of their job requirements (Reid & Parsons, 2000). This study added to previous findings in the staff training literature by identifying a positive relationship between the greater number of staff training techniques used (e.g., written instructions, modeling, role play, video modeling) and direct care staff knowledge of effective teaching strategies.

The most prevalent approach to training direct care staff in the use of teaching strategies with people with developmental disabilities has been to use several different staff training components. Generally, six components are recommended when establishing a staff training program. First, the teaching skills to be taught to the direct care staff should be clearly specified. Second, staff training should include didactic instruction related to the description of the skills to be performed and the rationale for the use of the skills. Didactic instruction is typically conducted in a classroom format. Written instructions are often used in conjunction with didactic instruction. Written instructions have involved instructional manuals prepared by agencies, published books and performance checklists. Third, staff training should include performance modeling. Performance modeling is a procedure where a frontline supervisor demonstrates the correct implementation of a teaching strategy, followed by an opportunity for the direct care staff member to imitate the procedure demonstrated with a particular client. Some training packages have used video demonstrations in place of supervisor demonstrations (Jahr, 1998; Reid & Parsons, 2000). Performance modeling may be done during role playing or as part of on-the-job training. Fourth, staff training should include on-the-job training to minimize problems of generalization of the effects of the training from the classroom to the community based group home. Fifth, before training is complete, direct care staff members should be observed using the teaching skills in the community based group home. Observing the staff members using the newly acquired teaching skills in their actual work environment will ensure the staff members

have acquired the skills. Sixth, the work environment for the direct care staff should include performance feedback strategies so the newly acquired teaching skills are prompted and reinforced in the community based group home. Performance feedback has been stated to be the most critical procedure in a multi-component staff training program. Performance feedback should be positive, descriptive as to the desired performance observed, and provide suggestions for improving staff behavior that is not adequate (Arco, 2008; Jahr, 1998; Reid, 1998; Reid & Green, 1990).

Early research has shown that didactic instruction and modeling alone are the least effective staff training strategies (Greene et al., 1978; Whitman, Sciback, & Reid, 1983; Watson & Uzzell, 1980). Alavosius & Sulzer-Azaroff (1990) found that written instructions alone resulted in limited or short lived improvements in staff work skills. When modeling has been investigated as a separate technique, results suggest that it is more effective than verbal instruction alone (Whitman, et al., 1983). These early studies demonstrate that a multi-component approach to staff training is needed. The findings from the present study validate these previous findings. Several areas are still in urgent need of further exploration. Few studies have documented long-term effect of staff training. When such effects have been reported, the effects have usually depended on continuous availability of feedback and different rewarding systems (Arco, 2008; Jahr, 1998). Additionally, Smith (2001) suggested that direct care staff members may need 25 to 60 hours of supervised experience before staff can implement procedures without supervision.

Performance Feedback

Direct care staff members that support clients with developmental disabilities in community based group homes receive training and support from clinicians, frontline supervisors

and managers. One major technique used to support staff members performance is the use of performance feedback. Feedback should be positive, sincere, and concise while providing evaluative information on the staff members' performance. Feedback is typically verbal and the source of feedback is typically from the direct care staff member's frontline supervisor, manager or the client's behavior analyst. Feedback is often used to motivate and support staff members' use of effective teaching strategies (Arco, 2008). Feedback has been successfully used for over 20 years in a variety of organizational settings as a performance management strategy to increase staff performance (Alvero, Bucklin, & Austin, 2001; Arco, 2008). Harchik & Campbell (1998) recommend that frontline supervisors make as part of their regular work routines periodic, direct observation of on-the-job performance of their subordinates. Additionally, they suggest that feedback be positive, praise for specific to job skills performed correctly, and descriptive as to how job performance can be improved.

This present study failed to identify a statistically significant positive relationship between the use of performance feedback and direct care staff knowledge about how to teach. There may be a variety of reasons why this study failed to identify a relationship between the use of performance feedback and knowledge of effective teaching strategies. One factor to consider is if frontline supervisors view performance feedback as effective. A survey of frontline supervisors in community based agencies revealed that 80% of supervisors believe performance feedback is very important to help motivate their staff to work diligently and enjoy work. Interacting positively and providing positive feedback were reported as the best ways to motivate staff members to perform their duties well (Parsons, Reid, & Crow, 2003). While Parsons et al., (2003) found that frontline supervisors do recognize performance feedback as valuable in managing staff performance, the present study found that a significant number of direct care staff

did not receive performance feedback regularly. In this study 1 out of every 3 direct care staff members did not receive performance feedback from their frontline supervisor during the last 30 days.

Another factor that may be important is the immediacy that direct care staff members receive performance feedback. Reid & Parsons (1996) investigated staff members' preference for immediate or delayed feedback. During the immediate feedback condition staff members were provided with on-the-job feedback immediately after the frontline supervisor observed their performance. During the delayed feedback condition, staff members received feedback two to seven days after the observation of the staff members teaching. They found that staff members overwhelmingly preferred immediate feedback over delayed feedback.

The frequency direct care staff receive feedback is also a key dimension to the effectiveness of performance feedback. Alvero et al., (2001) conducted a review of 37 peer reviewed journal articles on the use of performance feedback and found 43% of the investigations included feedback daily, 51% included feedback weekly, while the remaining investigations provided feedback monthly or quarterly. Alvero, et al. (2001) found that 71% of investigations that included daily performance feedback to be consistently effective, and 52% of investigations that provided weekly feedback were consistently effective. To reinforce these findings, Korabek-Pinkowski, Reid, & Wilson (1991) found a decrease in direct care staff members teaching performance when feedback was faded from daily to weekly. Based on the researcher's review of the performance feedback literature, 6 studies included investigations that incorporated immediate feedback following staff members teaching performance (Downs, et al., 2008; Leblanc, et al., 2005; McBride & Schwartz, 2003; Sarokoff & Sturmey, 2004; Schepis, et al., 2000; Vonderen & Bresser, 2005), one provided performance feedback weekly (Hardy &

Sturmev, 1994), and Schepis et al. (2001) provided performance feedback twice weekly. The literature suggests that performance feedback should be provided daily to be most effective. The literature also identified a deterioration of effect when performance feedback was provided less frequently than daily. The infrequency that direct care staff received performance feedback may account for the findings in this study.

The frontline supervisors for the direct care staff who participated in this study may not have been skilled in the use of performance feedback. Parsons & Reid (1995) conducted an evaluation of frontline supervisors' use of performance feedback after receiving training to implement teaching programs for people with developmental disabilities. The supervisors' use of effective teaching strategies with people with developmental disabilities improved, but was not sufficient to improve the quality of feedback they provided to the direct care staff they supervised regarding their teaching skills. Following the supervisors receiving training on the use of feedback, demonstrated competency of supervisors in the delivery of performance feedback improved. The results also demonstrated that the maintenance of teaching skills for direct care staff was greater for the direct care staff whose frontline supervisor had received training in providing performance feedback. One implication of this study is that direct care staff members who are promoted to frontline supervisors because of exceptional direct-service skills should not necessarily be expected to demonstrate proficient use of performance feedback strategies without receiving training on these skills. The lack of effectiveness of performance feedback in this study may be a result of frontline supervisor not exhibiting the necessary skills to deliver performance feedback effectively. Supervisors and managers have been using performance based feedback for over 30 years (Alvero, et al., 2001). One area of future research might be to conduct studies to determine how to make feedback more effective.

Behavior Analyst Involvement

The study also demonstrated a statistically significant positive relationship between the behavior analyst involvement and direct care staff members' knowledge about how to teach. Practitioners of applied behavior analysis are titled behavior analysts. The Behavior Analyst Certification Board™ certifies and credentials behavior analysts. The sole purpose of applied behavior analysis programs is to produce socially important behavior change (Baer, Wolf, & Risley, 1968). The establishment of the right to effective treatment (*Wyatt vs. Stickney*, 1971) and the deinstitutionalization movement enabled people with developmental disabilities to find new lives in community alternatives to institutions. It has been behavior analysis that has provided the necessary scientific framework for a technology of teaching that helped people with developmental disabilities function successfully in the community (Austin & Carr, 2000; Bellamy, Horner, & Inman, 1979). Applied behavior analysis is not a set of techniques or bag of tricks. Rather, applied behavior analysis is more accurately described as scientific approach to understanding and changing human behavior (Kazdin, 2001). This study found the involvement of a behavior analyst in the group home had a statistically significant positive relationship with direct care staff knowledge of effective teaching strategies.

Theoretical Implications

Behavioral theory, applied behavior analysis, and organizational behavior management were the theoretical frameworks used for examining the habilitation and training of people with developmental disabilities. The findings from this investigation supported behavior theory's prediction for a statistically significant positive relationship between empirically derived staff training and direct care staff members' knowledge of effective teaching strategies. This investigation did not support the organizational behavior management predicted for a positive

statistically significant relationship between performance management feedback and direct care staff members' knowledge of effective teaching strategies. Lastly, the findings from this investigation did support the prediction of applied behavior analysis of a statistically significant positive relationship between the certified behavior analysts' involvement with the group home and direct care staff members' knowledge of effective teaching strategies.

Policy Implications

The purpose of the Medicaid HCBS waiver is to: (1) support alternatives to institutions, (2) promote independence, (3) maximize functioning, and (4) support community integration. The findings of this investigation demonstrated a statistically significant positive relationship between direct care staff members who received empirically derived staff training and knowledge of effective teaching strategies. This study added to previous findings in the staff training literature by identifying a positive relationship between the greater number of staff training techniques used (e.g., written instructions, modeling, role play, video modeling) and direct care staff knowledge of effective teaching strategies. These strategies have been shown to be effective in building human capital in long-term care workforce. Public makers should incorporate these findings within their regulatory and statutory authority to increase the probability that the workforce supporting people with developmental disabilities has the necessary capacity to realize the goals of the Medicaid HCBS waiver.

Additionally, the investigation found a statistically significant positive relationship between the behavior analyst involvement and direct care staff members' knowledge about how to teach. Behavior analysis has provided the necessary scientific framework for a technology of teaching that helps people with developmental disabilities function successfully in the community (Bellamy, Horner, & Inman, 1979; Austin & Carr, 2000). Behavior analysis is a

Medicaid HCBS waiver funded service for people with developmental disabilities who engage in severe problem behavior (e.g., self injury, aggression, property destruction). People with developmental disabilities that do not engage in severe problem behavior are not eligible to receive behavior analysis services. The Medicaid HCBS waiver funds the behavior analyst's involvement in the group home. This investigation provides evidence that the direct care staff members' capacity to support people with developmental disabilities (i.e., knowledge of effective teaching strategies) is enhanced by the involvement of the behavior analyst. Policy makers should consider making behavior analysis services more broadly available to all direct care staff members to ensure they have the necessary skills and abilities to realize the goals of the Medicaid HCBS waiver.

Limitations

While the teaching strategies identified in this study have many important uses in the teaching of people with developmental disabilities, they also have significant limitations. Smith (2001) stated that teaching strategies (delivering instructions, prompting, error correction, reinforcement, and data collection) must be combined with other instructional strategies to enable people with developmental disabilities to initiate the use of newly acquired skills and display these skills across settings (e.g., home, community, school, work)). Incidental teaching approaches, in which direct care staff members respond to the client's actions, have proven to be effective for encouraging clients to initiate the use of the skills they have acquired (Matson, 1996). During training, clients are responding to cues from the direct care staff member; consequently, they may not learn to initiate newly acquired skills in the absence of clear instructions. For example, people may only play checkers when asked to do so, not when they

see the checker board (Smith, 2001). Additional instructional strategies, such as stimulus control transfer procedures, are also necessary to initiate these skills without the reliance on a staff member.

While staff training and behavior analyst involvement demonstrated a statistically significant positive relationship with direct care staff knowledge of effective teaching strategies, corresponding data were not collected on client outcomes. It would have been informative to validate client outcomes that were functionally related to increases in staff knowledge of effective teaching strategies.

Data on the specific curriculum content used in community agency staff training programs were not collected. The content of the staff training curriculum may significantly influence the effectiveness of a staff training program outside of the training techniques used to teach the curriculum. The curriculum and teaching strategies used as part of the staff training programs may or may not have contained the necessary components of an effective training program as identified in literature review conducted for this study.

Understanding what the supervisors were doing when providing feedback may be important to understanding the variables related to maintaining staff members' knowledge of effective teaching strategies. Data on the content and quality of the feedback provided by supervisors were not assessed.

A major conceptual limitation to the study is that multiple regression techniques can only ascertain relationships between variables. An identified relationship between variables does not indicate the underlying causal mechanism. There may be alternate causal explanations that are unknown. An experimental study investigating the impact of staff training, performance

feedback, and the behavior analyst involvement could identify causal relationships between these variables, staff knowledge and performance.

Future Research

Future research should focus on several important areas: (1) quality of performance feedback provided by frontline supervisors, (2) the impact of supervised experience, (3) advanced teaching skills, (4) the relationship between knowledge and performance, (5) client outcomes, and (6) the factors related to ethnicity and knowledge of effective teaching strategies for people with developmental disabilities.

The quality of performance feedback provided by frontline supervisors may be an important factor. The frontline supervisors for the direct care staff who participated in this study may not have been skilled in the use of performance feedback. One area of future research might be to conduct studies to determine how to make feedback more effective.

Formal supervised experience may be an important factor related to direct care staff members' knowledge of effective teaching strategies. Smith (2001) suggested that direct care staff members may need 25 to 60 hours of supervised experience before staff can implement procedures without supervision.

Advanced teaching skills such as incidental teaching and stimulus control transfer procedures have been shown to be necessary to teach people with developmental disabilities to independently initiate newly acquired skills across environments (e.g., home, school, work, etc). Future research should assess direct care staff members' knowledge of the advanced teaching skills.

It would have been informative to validate client outcomes that were functionally related to increases in staff knowledge of effective teaching strategies. Future research should include an

experimental examination of the relationship between staff knowledge of effective teaching strategies and client outcomes.

There was a statistically significant positive relationship between white ethnicity and knowledge of effective teaching strategies. Research on the influence of ethnicity and performance has identified a variety of socioeconomic variables that may explain why ethnicity may affect test performance (Byrd et al., 2006; McCallum & Demie, 2001). Some socioeconomic variables associated with ethnicity that may affect test performance include housing situation, households without car, overcrowding, educational and occupational background of parents, and parental attitude towards education. The disparity in Black–White test performance (i.e., Roth, Bevier, Bobko, Switzer, & Tyler, 2001) has prompted investigations to identify the sources of the variance. Researchers have investigated other variance sources such as test takers’ dispositions, and test takers’ motivations (Nguyen, O’Neal, & Ryan, 2003). Further study is needed to determine the factors related to ethnicity and knowledge of effective teaching strategies.

In conclusion, the findings of this investigation demonstrated a statistically significant positive relationship between direct care staff members who received empirically derived staff training and knowledge of effective teaching strategies. Additionally, the investigation found a statistically significant positive relationship between the behavior analyst involvement and direct care staff members’ knowledge about how to teach. The investigation failed to identify a statistically significant relationship between performance management feedback and knowledge of effective teaching strategies. Future research should be directed towards examining the content and quality of performance management feedback used by frontline supervisors in community group homes for people with developmental disabilities.

APPENDIX A: TEACHING PRINCIPLES AND CONCEPTS

Principle: Delivering Instructions

1. Unpredictable noisy interruptions are most likely to distract an individual from attending to the person delivering instructions (Ducharme and Feldman, 1992; Hardy & Sturmey, 1994).
2. Training opportunities provided multiple times a day (Wolery, Bailey, and Sugai, 1988).
3. Training opportunities distributed throughout the day (Wolery, Bailey, and Sugai, 1988).
4. Engaging in self stimulatory behavior typically interferes with attending to instructions. Self stimulatory behavior should be interrupted prior to delivering instructions (Wolery, Bailey, and Sugai, 1988).
5. Saying one's name prior to delivering instructions to increase the likelihood the individual will attend to the instruction (Dib & Sturmey, 2007; Hardy & Sturmey, 1994; Kissel, Whitman, & Reid, 1983).
6. The individual is looking at the caregiver delivering instructions or to the teaching materials prior to delivering instructions (Crockett et al., 2007; Dib & Sturmey, 2007; Hardy & Sturmey, 1994; Koegal et al., 1977; Leblanc et al., 2005; Page et al., 1982; Sarokoff & Sturmey, 2004).
7. Holding an item that interests an individual close to your eyes while saying "look at me." is an effective way to obtain eye contact (Foxx, 1982).
8. Instructions should be separate and offset from anything else the caregiver says (Deuchamre and Feldman, 1992; Koegel, Russo, and Rincover, 1977; Page, Iwata, and Reid, 1982).

Principle: Prompting/Fading

1. The caregiver should deliver prompts no sooner than 5 seconds after an instruction to complete a task (Dib & Sturmey, 2007; Ducharme and Feldman, 1992; Fleming and Sulzer-Azaroff, 1989; Hardy & Sturmey, 1994; Page et al., 1982; Sarokoff & Sturmey, 2004; Schepis et al., 2001).
2. A person should have a prior history of imitating others prior to utilizing modeling as a prompting strategy (Wolery, Bailey, and Sugai, 1988).
3. Fading prompts, maybe described as instances in which physical or verbal prompts are diminished in intensity or frequency in the course of training (Foxx, 1982; Miltenberger, 2001; Smith, 2001; Wolery, Bailey, and Sugai, 1988).
4. Prompts are utilized when a person does not respond to the delivered instruction (Dib & Sturmey, 2007; Miltenberger, 2001; Page et al., 1982; Schepis et al., 2001).
5. Hand-over-hand guidance is an example of a physical prompt (Ducharme and Feldman, 1982; Foxx, 1982).
6. The least to most prompting procedure involves beginning with an opportunity to respond independently to the task direction. If there is not response to the task direction or the person responds incorrectly, prompts are provided in the following succession: verbal, gesture, model, partial physical, and full physical (Foxx, 1982; Demchak, 1990; Parsons, Reid, and Green, 1993; Schepis et al., 2001).
7. A caregiver delaying a prompt by 5 to 10 seconds after delivering an instruction is an example of a fading procedure (Snell and Gust, 1981).
8. A caregiver pointing at the training materials is an example of using gesture prompting (Foxx, 1982; Page et al., 1982).

9. An example of most-to-least prompting is when a caregiver provides hand-over-hand prompting and then providing less intrusive prompt levels, such as partial physical prompts as the person demonstrates they can perform correctly at more intrusive prompts during the training program (Foxx, 1982; Fleming and Sulzer-Azaroff, 1989).
10. Graduated guidance is a prompting procedure that involves removing prompts by immediately withdrawing and providing them as needed. The prompts include full physical, partial physical, and shadowing (Foxx, 1982; Wolery, Bailey, and Sugai, 1988).

Principle: Error correction

1. The steps in a task analysis should be trained in the order listed (Fleming and Sulzer-Azaroff, 1989; Foxx, 1982; Parsons, Reid, and Green, 1993; Realon, Lewallen and Wheeler, 1983; Schepis, et al., 2000).
2. If possible, performance errors by people with developmental disabilities should be blocked or prevented from occurring. (Reid and Parsons, 1994; Schepis, et al., 2000; Vonderen & Bresser, 2005)
3. When a person with a developmental disability makes an error, the caregiver should repeat the part of the task where the error occurred. (Reid and Parsons, 1994; Schepis, et al., 2000)
4. After a person with a developmental disability has made an error during a training program, a prompt should be delivered by the caregiver that was more assistive than the prompt given when the error occurred (Parsons, Reid, & Green, 1996; Schepis, et al., 2000, 2001; Taras and Matese, 1990).
5. Error during training programs should be corrected using prompting and error corrected strategies (Parsons, Reid, & Green, 1996).
6. It is a common mistake when using least to most prompting to provide excessive prompting. (Reid and Parsons, 1994)
7. A common teaching error during a training program is to provide a more assistive prompt too quickly without giving the person with a developmental disability time to respond. (Wolery, Bailey, and Sugai, 1988).

Principle: Reinforcement

The delivery of edible reinforcers should be accompanied with verbal praise (Page et al., 1982; Sarokoff & Sturmey, 2004).

1. Delivering a preferred reinforcer after a desired response will increase the likelihood that the desired response will occur (Fleming and Sulzer-Azaroff, 1989; Kissel et al., 1983; Koegel et al., 1977; Page et al., 1982).
2. A reinforcer should be delivered within 5 seconds of the desired response. (Ducharme and Feldman; 1992; Hrydowy and Martin, 1994; Kissel et al., 1983; Koegel et al., 1977; Page et al., 1982; Sarokoff & Sturmey, 2004; Schepis et al., 2001)
3. When first implementing a training program, a reinforcer should be delivered after the first approximation towards a correct response (O'Dell, 1979).
4. Reinforcers should be delivered after the desired response (Ducharme and Feldman; 1992; Hrydowy and Martin, 1994; Kissel et al., 1983; Koegel et al., 1977; Page et al., 1982; Smith, 2001).
5. Reinforcers delivered after the desired behavior will increase the frequency the desired behavior (Ducharme and Feldman; 1992; Hrydowy and Martin, 1994)

6. What happens immediately after a desired behavior will control the frequency of the behavior (Fleming and Sulzer-Azaroff, 1989).
7. Use descriptive praise by restating the desired behavior that the caregiver intends to reinforce (Hardy & Sturmey, 1994; O'Dell, 1979; Realon et al., 1983; Sarokoff & Sturmey, 2004).
8. When first implementing a training program the reinforcer should be delivered after each correct response, then given on a variable ratio schedule to maintain the response (Foxx, 1982; Wolery, Bailey, and Sugai, 1988).
9. A desired behavior that has been continuously reinforced will quickly decrease in frequency when reinforcement is not delivered (O'Dell, 1979).

Principle: Data Collection

Data collection strategies are utilized to gather information about the desired behavior (Crockette et al., 2007; O'Dell, 1979; Leblanc, et al., 2005).

1. Data collection provides information to determine a) whether the reinforcer was effective, b) if correction procedures have been effective, c) if the task analysis is appropriate for the person, and d) if the fading procedures have been effective (Wolery, Bailey, and Sugai, 1988).
2. To collect, graph and analyze data is an important step in teaching people with developmental disabilities (Fleming and Sulzer-Azaroff, 1989).
3. Data collection help determine individual progress on training programs and if programs require modifications (Wolery, Bailey, and Sugai, 1988).
4. Data from a training program should be recorded immediately after the completion of the program (Hardy & Sturmey, 1994; Wolery, Bailey, and Sugai, 1988).
5. Data on the prompt level provided is the most sensitive measure of progress on a training program (Ducharme and Feldman, 1992).
6. Data collection provides information to determine if the fading procedures have been effective (Wolery, Bailey, and Sugai, 1988).

APPENDIX B: VARIABLE CODEBOOK

Full variable name	SPSS variable name	Survey Question	Coding Instructions
Knowledge of Effective Teaching Strategies	Knowledge	Direct Care Staff Questionnaire: Question 1 through 50	Score on multiple choice quiz (0-50)
The number of teaching topics direct care staff members received training on	TeachingTopics	Direct Care Staff Questionnaire: Question 51 through 55	Number of topics
The number of different staff training strategies used to train the direct care staff	TrainingStrategies	Direct Care Staff Questionnaire: Question 56 and 57	Number of staff training strategies
The number of weeks since the supervisor observed the direct care staff member teach	Lastobserved	Direct Care Staff Questionnaire: Question 58	1=Within the past week, 2=Two weeks ago, 3=Three weeks ago, 4=Four weeks ago, 5=Supervisor did not observe in the last 30 days
The number of weeks since the supervisor modeled a teaching strategy for the direct care staff	SupervisorDemo	Direct Care Staff Questionnaire: Question 59	1=Within the past week, 2=Two weeks ago, 3=Three weeks ago, 4=Four weeks ago, 5=Supervisor did not demonstrate in the last 30 days
The number of weeks since the supervisor gave immediate feedback to the direct care staff member following an observation of the direct care staff member's teaching	Feedback	Direct Care Staff Questionnaire: Question 60	1=Within the past week, 2=Two weeks ago, 3=Three weeks ago, 4=Four weeks ago, 5=Supervisor did not give immediate feedback

Full variable name	SPSS variable name	Survey Question	Coding Instructions
Number of hours per month the Certified Behavior Analyst spent training direct care staff members on how to teach	CBATraining	Group Home Survey: Question 9	Number of hours
The number of hours per month the Certified Behavior Analyst spent giving feedback to direct care staff members on how to teach	CbaFeedback	Group Home Survey: Question 9	Number of hours
The number of hours per month the Certified Behavior Analyst spent doing other duties in the group home	cbaother	Group Home Survey: Question 9	Number of hours
Years of Paid Employment Working with People with Developmental Disabilities	Yearspaid	Direct Care Staff Questionnaire: Question 65	Number of years
Length of service with current employer	Yearsemployer	Direct Care Staff Questionnaire: Question 66	Number of Years
Age of the Employee	Age	Direct Care Staff Questionnaire: Question 67	Age in years
Gender of the Employee	Gender	Direct Care Staff Questionnaire: Question 68	1=Male, 0=Female
Years of General Education	Education	Direct Care Staff Questionnaire: Question 69	Number of years

Full variable name	SPSS variable name	Survey Question	Coding Instructions
Ethnicity of the Employee	Ethnic	Direct Care Staff Questionnaire: Question 70	1=White, Non-Hispanic, 2=African American, 3=Hispanic, 4=Asian American, Pacific Islander, 5=American Indian, Alaskan Native
Agency Identification Number	AgencyIN	NA	Agency Identification Number
Group Home Identification Number	GroupIN	NA	Group Home Identification Number
The year the agency received their first group home license	Agencyexp	Group Home Survey: Question 1	Calendar Year
Number of employees the agency has in Florida	Numberemployees	Group Home Survey: Question 2	1=1-30 employees, 2=31-60 employees, 3=61-90 employees, 4=91-120 employees, 5=121-150 employees, 6=151-180 employees, 7= 181 or more employees
The year the group home was first licensed	Yearslicensed	Group Home Survey: Question 5	Calendar Year
Number of licensed community based group homes in florida	Numberhomes	Group Home Survey: Question 3	Number of Homes

APPENDIX C: DEFINITIONS

6. Group home – “a Home and Community Based Services Waiver funded residential facility which provides a family living environment including supervision and care necessary to meet the physical, emotional, and social needs of its residents. The capacity of such a facility shall be at least 4 residents but not more than 15 residents” (p.7) (Florida Statute Chapter 393).
7. Direct care staff – Interchangeability referred to as ‘Direct Support Professionals,’ ‘Direct Support Staff,’ ‘Behavior Techs,’ and ‘Habilitation Technicians.’ Direct Care staff refers to a person 18 years of age or older, who has direct contact and provides supports or services for individuals with developmental disabilities, and is unrelated to the individuals with developmental disabilities (Florida Statute Chapter 393). For the purposes of this study, staff who hold positions as Supervisors, Staff Trainers, Managers, Directors, Nurses, and Behavior Analysts will not be considered direct care staff.
8. Client – (Also interchangeable referred to as “resident”) Any person determined eligible by the Florida Department of Children and Families for the Home and Community Based Services Waiver and has been diagnosed with mental retardation.
9. Activities of Daily Living – Activities of daily living include personal hygiene skills such as bathing and oral hygiene; homemaking skills such as food preparation, vacuuming and laundry; and social and adaptive skills that are required for a person with mental retardation to reside in the community (Adapted from Florida Medicaid Handbook, June 2005, p.106). Functional Living Skills and activities of daily living will be used interchangeably throughout this paper.
10. Residential Habilitation Services – “Provides supervision and specific training activities that assist the recipient to acquire, maintain or improve skills related to activities of daily living.

The service focuses on personal hygiene skills such as bathing and oral hygiene; homemaking skills such as food preparation, vacuuming and laundry; and on social and adaptive skills that enable the recipient to reside in the community (Florida Medicaid Handbook, June, 2005 p. 106).

11. Residential Habilitation with a Behavioral Focus – “Residential habilitation with a behavioral focus is inclusive of the service characteristics of Residential Habilitation Services in addition to the following characteristics. Service characteristics for residential habilitation with a behavioral focus include: a) a Board Certified Behavior Analyst or Associate Analyst to provide on-site oversight for residential services, b) integration of behavioral services throughout residential and community program, c) no fewer than 75% of the provider’s direct services staff who work with the recipient(s) for whom the residential habilitation with a behavioral focus rate applies for completed at least 20 contact hours of face-to-face competency-based instruction with performance-based validation in the following content areas; introduction to applied behavior analysis – basic principles and functions of behavior; providing positive consequences, planned ignoring, and stop-redirect-reinforce techniques; data collection and charting, d) The services provides for comprehensive monitoring of staff skills and their implementation of required procedures. Monitoring for competency must occur at least once per month for 50% of direct service staff that have completed the training described above. Staff must be recertified in the training requirements yearly. The provider has a system that demonstrates and measures continuing staff competencies on the use of procedures that are included in each recipient’s behavior analysis services plan, and e) Provides for the eventual transitioning of behavioral improvement of the recipient, to a less intense service alternative, through formalized procedures incorporated into implementation

plans” (Florida Medicaid Handbook, June, 2005, p. 110).

12. Intensive Behavioral Residential Habilitation – “The service shall provide aggressive, consistent implementation of a program of specialized and generic training, treatment, health services and related services that is directed toward: (1) the acquisition of the behaviors necessary for the recipient to function with as much self determination and independence as possible; and (2) the reduction or replacement of high risk, problems with behavior.

Treatment may also include intensive medical oversight when warranted by the person’s specific concerns.

Individual goals relate to the assessment, management, and replacement of problems with behavior. Goals also include, especially as treatment progresses and is effective, generalization and maintenance of new behavior and behavior reductions in settings that are increasingly similar to less intensive treatment settings, but within which continued treatment and maintenance services are included.

The problems with behavior and any related medical conditions are the central focus of treatment for these individuals. This means that all behavior change targets included in the treatment plan are linked to the initial problem statement. For example, if a problem with behavior were described as self injury that occurs when the person is in the presence of aversive stimuli of specific nature, then the targets for change would include alternatives to self injury that would be controlled by the same stimuli. In addition, the person’s assessment might identify socially skilled behavior deficits that make more likely the self-injury. These deficits might include communication and social skills necessary to independently function in other settings or basic self care skills. The goal of an intensive residential habilitation service is to prepare the person for full or partial reintegration into the community, with

established behavioral repertoires, such as developing a healthy lifestyle, filled with engaging and productive activities.” (Florida Medicaid Handbook, June, 2005, pp. 112-113).

APPENDIX D: INSTITUTIONAL REVIEW BOARD APPROVAL



University of Central Florida Institutional Review Board
Office of Research & Commercialization
12201 Research Parkway, Suite 501
Orlando, Florida 32826-3246
Telephone: 407-823-2901, 407-882-2012 or 407-882-2276
www.research.ucf.edu/compliance/irb.html

Notice of Exempt Review Status

From: UCF Institutional Review Board
FWA00000351, Exp. 5/07/10, IRB00001138

To: Craig Cook

Date: November 13, 2007

IRB Number: SBE-07-05308

Study Title: An investigation of the factors related to direct care staffs' knowledge of effective instructional strategies for people with developmental disabilities

Dear Researcher:

Your research protocol was reviewed by the IRB Vice-chair on 11/12/2007. Per federal regulations, 45 CFR 46.101, your study has been determined to be minimal risk for human subjects and exempt from 45 CFR 46 federal regulations and further IRB review or renewal unless you later wish to add the use of identifiers or change the protocol procedures in a way that might increase risk to participants. Before making any changes to your study, call the IRB office to discuss the changes. A change which incorporates the use of identifiers may mean the study is no longer exempt, thus requiring the submission of a new application to change the classification to expedited if the risk is still minimal. Please submit the Termination/Final Report form when the study has been completed. All forms may be completed and submitted online at <https://iris.research.ucf.edu>.

The category for which exempt status has been determined for this protocol is as follows:

2. Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey or interview procedures, or the observation of public behavior, so long as confidentiality is maintained.
 - (i) Information obtained is recorded in such a manner that the subject cannot be identified, directly or through identifiers linked to the subject, and/or
 - (ii) Subject's responses, if known outside the research would not reasonably place the subject at risk of criminal or civil liability or be damaging to the subject's financial standing or employability or reputation.

A waiver of documentation of consent has been approved for all subjects. Participants do not have to sign a consent form, but the IRB requires that you give participants a copy of the IRB-approved consent form, letter, information sheet, or statement of voluntary consent at the top of the survey.

All data, which may include signed consent form documents, must be retained in a locked file cabinet for a minimum of three years (six if HIPAA applies) past the completion of this research. Any links to the identification of participants should be maintained on a password-protected computer if electronic information is used. Additional requirements may be imposed by your funding agency, your department, or other entities. Access to data is limited to authorized individuals listed as key study personnel.

On behalf of Tracy Dietz, Ph.D., UCF IRB Chair, this letter is signed by:

Signature applied by Janice Turchin on 11/13/2007 09:23:43 AM EST

IRB Coordinator

APPENDIX E: DIRECT CARE STAFF SURVEY PREFACE

The following paragraph should be read out loud by the agency contact for each group of direct care staff members before the surveys are handed out by the agency contact:

Direct care professionals are the primary teachers of people with developmental disabilities who live in group homes. I am interested in your knowledge of teaching strategies that you utilize in your work. I am also interested to know what may be related to your knowledge of teaching strategies. What follows are a series of questions that I would like your opinion on. The results of this opinion survey are confidential. I ask that you do not put your name on the survey. Although the individual responses you give are anonymous, <<Insert agency name>> will receive a summary of all anonymous responses in order to improve staff orientation and training programs. Thank you for participating in this opinion survey.

APPENDIX F: CONSENT LETTER FOR DIRECT CARE STAFF

Consent

Dear Direct Support Professional:

I am a doctoral student at the University of Central Florida. As part of my coursework, I am conducting an opinion survey, the purpose of which is to determine direct care staff's opinion about how to teach people with developmental disabilities and to determine what factors are related to your opinion about how of how to teach. This information may be utilized to improve the teaching of people with developmental disabilities.

I am asking you to participate in the survey, which should take no longer than 30 minutes to complete. You must be 18 years of age or older to participate. The survey is enclosed with this letter. You will not have to answer any question you do not wish to answer. Your identity will be kept confidential and will not be revealed in the final manuscript.

There are no anticipated risks, compensations or other direct benefits to you as a participant in this opinion survey. You are free to withdraw your consent to participate and may discontinue your participation in the interview at any time without consequence. Furthermore, regardless of your decision to participate in this survey, your identity will remain anonymous.

If you have any questions about this research project, please contact me at 407-692-2101. My faculty supervisor is Dr. Lawrence Martin who can be reached at 407-823-5731. This research study has been reviewed and approved by the UCF Institutional Review Board. Research at the University of Central Florida involving human participants is carried out under the oversight of the Institutional Review Board. Questions or concerns about research participants' rights may be directed to the UCF IRB office, University of Central Florida, Office of Research & Commercialization, 12201 Research Parkway, Suite 501, Orlando, FL 32826-3246, or by campus mail 32816-0150. The hours of operation are 8:00 am until 5:00 pm, Monday through Friday except on University of Central Florida official holidays. The telephone numbers are (407) 882-2276 and (407) 823-2901.

Please note that your participation serves as permission for me to report your anonymous responses in the final manuscript to be presented to my faculty supervisor and faculty committee as part of meeting my degree requirements for a Ph.D. in Public Affairs. Please seal the completed survey in the provided envelope and return the survey to the person who gave you the survey. Thank you in advance for your time and consideration of this survey research project.

Sincerely,

Craig A. Cook

Attachments: Teaching People with Developmental Disabilities

CC: Dr. Lawrence Martin, Professor Public Affairs, University of Central Florida

APPENDIX G: DIRECT CARE STAFF SURVEY

Direct Care Staff

Teaching People with Developmental Disabilities

Instructions for Completing the Opinion Survey

The following questions are part of research being carried out to determine what leads to direct support professional's having knowledge about how to teach people with developmental disabilities. The information from this study may be used to improve staff training and management practices to better support and teach people with developmental disabilities.

All of the questions are multiple choice questions. Please circle the letter in front of the best answer for each multiple choice question.

Example:

Who is the President of the United States?

- a. George W. Bush
- b. George Washington
- c. Richard Nixon
- d. I don't know

In the interest of research validity, please do not discuss the information contained in these questions with anyone else. Please seal the completed survey in the provided envelope and return the survey to the person who gave you the survey.

Thank you for participating in this research study.

Craig A. Cook
Ph.D. Candidate



Section I: Knowledge of Effective Teaching Strategies

The following questions are about teaching people with developmental disabilities. Many of the questions refer to Ms. Jones, a direct support professional for Carl, an individual with a developmental disability. Please Circle the best answer for each question. If you do not know an answer to a question, circle the letter in front of "I don't know" for that question.

1. Which is the best method for requesting Carl to get dressed?
 - a. Ms. Jones is talking with Carl about how his day went, while she is talking to him she asks him to get dressed.
 - b. Ms. Jones is talking with Carl, but she needs to ask him to get dressed, so she stops talking with him, then waits a moment or two, and then she asks him to get dressed.
 - c. When Ms. Jones asks Carl to get dressed she also explains how she wants him to get dressed.
 - d. I don't know
2. While Ms. Jones is teaching Carl to fold his pants, Carl drops the pants and reaches for his socks. Which of the following should Ms. Jones do next?
 - a. Block Carl from picking up the sock and then say "Carl, I asked you to fold your pants, not your socks, aren't you listening."
 - b. Block Carl from picking up the sock and then give Carl a more helpful prompt to fold his pants.
 - c. Let Carl pick up the sock to learn from his mistakes.
 - d. I don't know
3. While teaching Carl to fold a towel, Carl drops the towel. Ms. Jones should
 - a. start the task over.
 - b. repeat the part of towel folding where Carl dropped the towel.
 - c. have Carl pick up the towel and continue with the next step.
 - d. I don't know
4. Ms. Jones is teaching Carl to get dressed. How can Ms. Jones determine if a potato chip has been an effective reinforcer for teaching Carl to get dressed?
 - a. Ms. Jones should collect data on the number of independent steps completed while Carl is dressing.
 - b. Ms. Jones should ask Carl after he finishes getting dressed if he liked the potato chip that he was given.
 - c. Ms. Jones should ask Carl before he gets dressed if he would like a potato chip as a reinforcer for getting dressed.
 - d. I don't know
5. How often Carl cleans his room is mostly determined by
 - a. reinforcing him at the same time he is cleaning his room.
 - b. reinforcing him just before he cleans his room.
 - c. reinforcing him just after he cleans his room.
 - d. I don't know
6. Ms. Jones is teaching Carl to brush his teeth. Carl is reaching for his comb after being asked to brush his teeth. Which should Ms. Jones do next?
 - a. Ms. Jones should allow Carl to pick up the comb so he may learn from his mistakes.
 - b. Ms. Jones should give enough assistance to prevent Carl from picking up the comb.
 - c. Ms. Jones should place Carl's comb in another room.
 - d. I don't know
7. Ms. Jones wants Carl to fold his pants but he won't look at her. Which is the best way to get him to look at her?"
 - a. Ms. Jones should hold an item that interests Carl close to her eyes while saying "look at me."
 - b. Ms. Jones should teach paying attention before trying to teaching Carl to fold his pants.
 - c. Ms. Jones should immediately reward Carl after folding his pants.
 - d. I don't know
8. Ms. Jones is going to teach Carl to brush his teeth. What should Ms. Jones do immediately before asking Carl to brush his teeth?
 - a. Ms. Jones should remind Carl why it is important for him to brush his teeth.
 - b. Ms. Jones should praise Carl for agreeing to brush his teeth all by himself.
 - c. Ms. Jones should ensure Carl is looking at Ms. Jones or at the toothbrush.
 - d. I don't know

- 9.** Carl is distracted from attending to Ms. Jones during a training program. What is most likely responsible for Carl being distracted?
- Many colorful pictures on the walls and a lot of interesting items in the room.
 - A lot of times background music is playing in the room.
 - Unpredictable noisy interruptions from other individuals.
 - I don't know
- 10.** Ms. Jones is teaching Carl to brush his teeth. Just before Ms. Jones asks Carl to brush his teeth, Carl should be
- holding the toothbrush.
 - looking at the toothbrush or Ms. Jones.
 - thinking about brushing his teeth.
 - I don't know
- 11.** What is the best method to determine if praise is an effective reinforcer for Carl's pants folding program?
- Ask Carl if he would like praise from Ms. Jones following the pants folding program.
 - Ask Carl if he likes Ms. Jones.
 - Record data on Carl's performance during the pants folding program.
 - I don't know.
- 12.** Ms. Jones asks Carl to squeeze toothpaste on the toothbrush. After no response, Ms. Jones prompts Carl to squeeze the toothpaste. What should Ms. Jones do so eventually Carl will squeeze the toothpaste when asked?
- Repeatedly ask Carl until he squeezes the toothpaste.
 - Always prompt Carl to squeeze the toothpaste.
 - Give Carl a preferred item as a reinforcer for squeezing the toothpaste.
 - I don't know
- 13.** When using least to most prompting with a new task it is a common mistake to give
- the person a reward.
 - too much assistance.
 - too much time to respond independently.
 - I don't know
- 14.** What would be the best method to use to instruct Carl to fold his shirt when he is engaging in self-stimulatory behavior by waiving his hands closely to his face?
- "Carl you really did well yesterday neatly folding your shirt on your bed. I know you can do even better today."
 - "Carl, fold your shirt."
 - Place Carl's hands in his lap, then say "Carl, fold your shirt."
 - I don't know
- 15.** Ms. Jones is teaching Carl to put on his pants. Carl begins to put his foot in the wrong leg of his pants. Staff should
- show or demonstrate to Carl how to put his foot into the correct pant leg.
 - let Carl put his foot in the wrong pant leg to learn from his mistakes.
 - block Carl from putting his foot in the wrong pant leg and repeat the step where the error occurred.
 - I don't know
- 16.** Ms. Jones is teaching Carl to pick up a comb. Which of the following is an example of a fading procedure?
- Ms. Jones requests Carl to pick up the comb, then after no response, Ms. Jones repeats the original request for Carl to pick up the comb.
 - Ms. Jones requests Carl to pick up the comb and then Ms. Jones waits 3-5 seconds before providing a prompt.
 - Ms. Jones requests Carl to pick up the comb and then Ms. Jones waits 5-10 seconds before providing a prompt.
 - I don't know
- 17.** What is the most important data to record that shows the progress made on a dressing program?
- The number of steps completed independently.
 - The number of steps completed cooperatively.
 - The prompt level provided on each step.
 - I don't know
- 18.** When Carl doesn't put his dirty dishes in the sink after he is asked, what should Ms. Jones do?
- Explain to Carl the importance of being independent to avoid the need for prompting.
 - Have someone else ask Carl to bring his dishes to the sink.
 - Ms. Jones should prompt Carl to take the dishes to the sink.
 - I don't know

- 19.** An example of physically prompting Carl to brush his teeth is
- providing hand-over-hand guidance.
 - physically handing Carl a reward for brushing his teeth.
 - physically touching Carl in any manner.
 - I don't know
- 20.** If you want to make tooth brushing a long-lasting habit, you should
- reward Carl every time he brushes his teeth.
 - first reward Carl every time and then reward him sometimes but not every time he brushes his teeth.
 - promise something to Carl that he wants very much for brushing his teeth regularly.
 - I don't know
- 21.** What is the best way to ask Carl to brush his teeth?
- "Brush your teeth Carl."
 - "Carl, brush your teeth."
 - "Please brush your teeth."
 - "Brush Teeth"
 - I don't know
- 22.** Ms. Jones is teaching Carl to fold his pants. Ms. Jones would like to use praise after Carl folds his pants. Which is the best way to praise Carl?
- Ms. Jones should praise Carl before beginning the pants folding program.
 - Ms. Jones should enthusiastically praise Carl using a pleasant, louder than conversational tone.
 - Ms. Jones should wait to praise Carl after he has been independent on all the steps of the pants folding program.
 - I don't know
- 23.** For the last year Ms. Jones had agreed to pay Carl \$.25 each day he carried out the trash. If Ms. Jones forgets to give Carl the money for several days, what is most likely to happen?
- Carl will continue to take out the trash because he realizes how important this is.
 - Carl will quickly stop taking out the trash.
 - Carl will now take out the trash more often than before he began to receive \$.25 for taking out the trash.
 - I don't know
- 24.** If you are going to use modeling to teach face washing, it is best to make sure
- Carl has been given a favorite item after face washing.
 - you have explained to Carl the importance of washing his face.
 - Carl has imitated others behavior in the past.
 - I don't know
- 25.** When Ms. Jones is teaching Carl to take a bath, it is most important to
- train the steps in the order listed in the task analysis.
 - make sure all the steps of the task analysis are completed.
 - train the steps in the task analysis at the same time each day.
 - I don't know
- 26.** Ms. Jones is teaching Carl to set the table. When setting the table Carl places a cup on top of the plate instead of to the right of the plate. Ms. Jones should
- move the cup to the right of the plate and prompt Carl to the next step.
 - repeat the part of setting the table where the mistake was made.
 - start the whole task over.
 - I don't know
- 27.** Ms. Jones finished the training program to teach Carl to fold his pants. It is best if Ms. Jones rewards Carl
- within 5 seconds after training ends.
 - within one minute after training ends.
 - within one to two hours after training ends.
 - I don't know
- 28.** Which way of prompting removes prompts by immediately taking them away and then giving them as needed? The prompts include full physical, partial physical, and shadowing.
- graduated guidance
 - least to most prompting
 - most to least prompting
 - I don't know
- 29.** Carl has a training goal to request preferred activities. What is the best way to plan training opportunities?
- Training should happen at the same time on each training day.
 - Training should be conducted 5 to 10 times in a row on each training day.
 - 5 to 10 trainings should be spaced throughout each training day.
 - I don't know

- 30.** Which of the following is an example of using gesture prompts to teach Carl to brush his teeth?
- Ms. Jones showing or demonstrating how to teach Carl to brush his teeth.
 - Ms. Jones arranging the toothbrush and toothpaste on the counter to make brushing his teeth easier or quicker.
 - Ms. Jones pointing to the toothpaste to prompt Carl to pick up the toothpaste.
 - I don't know
- 31.** Typically, prompts should be given
- before making a request to complete a task.
 - after 5 seconds of making a request to complete a task.
 - within 5 seconds of making a request to complete a task.
 - I don't know
- 32.** T.V. is a known reinforcer for Carl. Which of the following is most effective in getting Carl to make his bed?
- "When you finish making your bed, you can watch T.V."
 - "You can watch this show on T.V. if you promise to make your bed when the show is over."
 - "If you don't make your bed this morning you can't watch T.V. at all tomorrow."
 - I don't know
- 33.** Which is the best example of using least-to-most prompting to teach Carl to pick up the comb?
- Ms. Jones pointing to the comb, then, after Carl doesn't respond, Ms. Jones uses a partial physical prompt to prompt him to pick up the comb.
 - Ms. Jones repeats the request to pick up the comb, then, after Carl doesn't respond, Ms. Jones uses a hand-over-hand prompt to prompt him to pick up the comb.
 - Ms. Jones used a partial physical prompt to pick up the comb, then, after Carl doesn't respond, Ms. Jones repeats the request for Carl to pick up the comb.
 - I don't know
- 34.** Carl has a training goal to request preferred activities. How often should Ms. Jones provide training on this goal?
- 3 to 5 times per week
 - 1 time per day
 - Multiple times per day
 - I don't know
- 35.** Which is most likely to make attending to a training activity more difficult?
- Carl engaging in self stimulatory behavior by waving his hands close to his face.
 - Carl not knowing how to do what staff wants.
 - Ms. Jones varying the activities offered to Carl throughout the day.
 - I don't know
- 36.** Ms. Jones asked Carl to brush his teeth. Carl picked up the toothpaste and then stopped. Ms. Jones gestured for Carl to twist the cap off, but Carl didn't respond. Which should Ms. Jones do next?
- Ms. Jones should repeat the gesture prompt for Carl to take the cap off.
 - Ms. Jones should say "Carl, I know you can take the cap off... Carl, Brush your teeth."
 - Ms. Jones should physically prompt Carl to take the cap off the toothbrush.
 - I don't know
- 37.** Ms. Jones is going to teach Carl to fold a washcloth. Ms. Jones asks Carl to fold the wash cloth. After no response, Ms. Jones gestures for Carl to fold the washcloth. How long should Ms. Jones wait before providing a partial physical prompt to fold the washcloth?
- Ms. Jones should immediately use a partial physical prompt after using a gesture prompt.
 - Ms. Jones should wait about 5 seconds before providing a partial physical prompt.
 - Ms. Jones should wait about 20 seconds before providing a partial physical prompt.
 - I don't know
- 38.** Ms. Jones is wondering if Carl is making progress on his training program for brushing his teeth. What should Ms. Jones do?
- Ask other staff members about how Carl is performing on the tooth brushing program.
 - Ask Carl about the progress he has made on his tooth brushing program.
 - Record data on the level of the prompts provided during the tooth brushing training program.
 - I don't know
- 39.** What is most important to know when using reinforcers you can eat as rewards as part of a training program?
- Praise works as well as reinforcers you can eat.
 - Praise should be given at the same time as reinforcers you can eat.
 - Any reinforcer you can eat is an effective reward.
 - I don't know

- 40.** Ms. Jones asks Carl to brush his teeth and Carl reaches for his comb. Ms. Jones should
- let Carl pick up the comb so he can learn from his mistakes.
 - tell Carl "That's the comb. Hand me the comb and pick up the toothbrush," and then immediately use hand-over-hand assistance to prompt him to brush his teeth.
 - block Carl from picking up the comb, then prompt Carl to pick up the toothbrush.
 - I don't know
- 41.** Ms. Jones is teaching Carl to fold a towel. What can Ms. Jones do to determine if the prompting procedures used to teach Carl to fold a towel are appropriate?
- Collect data on Carl's performance during the training program.
 - Change the prompting procedure used during the training program.
 - Change the reward used during the training program.
 - I don't know
- 42.** Ms. Jones may fade prompts while teaching tooth brushing by
- providing full physical prompting when Carl is asked to brush his teeth.
 - providing Carl fewer prompts/less help during tooth brushing.
 - reassuring Carl that he can brush his teeth by himself."
 - I don't know
- 43.** Which is the best example of a most-to-least prompting procedure to teach Carl to fold his pants?
- Ms. Jones places her hands over Carl's to help him grasp the pants, and then provides partial physical assistance as Carl begins grasping his pants.
 - Ms. Jones gestures towards the pants for Carl to pick them up. After no response, Ms. Jones provides partial physical assistance to assist Carl picking up his pants.
 - Ms. Jones verbally prompts Carl to pick up the pants. After no response, Ms. Jones shows Carl how to pick up his pants.
 - I don't know
- 44.** Data on Carl's performance during his pants folding program is needed to tell
- whether Carl understands how to fold his pants.
 - if Carl is making progress and if the program needs to be modified.
 - if Carl wants to know how to fold his pants.
 - I don't know
- 45.** Which would be the best example of a good way to praise Carl?
- "Good Job, Carl."
 - "I love you, Carl."
 - "Carl, I liked the way you helped me put the dishes away."
 - I don't know
- 46.** When is the best time to record the types and number of prompts used while teaching Carl to brush his teeth?
- Within a couple of hours after the tooth brushing program.
 - Within 5 to ten minutes after the tooth brushing program.
 - In the bathroom, immediately after the tooth brushing program.
 - I don't know
- 47.** Ms. Jones wants to determine if others have been implementing the fading procedures correctly when running Carl's tooth brushing training program. What should Ms. Jones do?
- Ask Carl if others have been doing the fading procedures correctly.
 - Record data on the level of prompts used during the tooth brushing program.
 - Ms. Jones should do the tooth brushing program with Carl.
 - I don't know
- 48.** When should Carl, who is just learning to dress himself, be praised the first time?
- When he gets his foot through the first hole in his underwear.
 - When he gets his underwear completely on.
 - When he has completely finished dressing himself.
 - I don't know

- 49.** Ms. Jones has decided to teach Carl to get dressed for bed. Which of the following is most important in teaching Carl to get dressed for bed?
- Ms. Jones should collect data on Carl's dressing for bed so his progress may be graphed and analyzed.
 - Ms. Jones should write a brief hand written or typed note daily on how well Carl is dressing for bed.
 - Ms. Jones should write a brief hand written or typed note weekly on how well Carl is dressing for bed.
 - I don't know
- 50.** To record, graph and note the direction of progress on a training program is
- a minor step in a training program that may be left out.
 - an important step in a training program.
 - a procedure employed only by scientists for research.
 - I don't know

Section II. Staff Training

Please answer the following questions about the training that you received from your current employer.

- 51.** Did you receive training on how and when to provide verbal instructions when teaching people with developmental disabilities? (Training may have included how to provide verbal instructions, when during the day training should occur, how often training should be provided, how to obtain someone's attention when training, and how to deal with self stimulatory behavior.)
- Yes
 - No
 - I'm not sure
- 52.** Did you receive training on how to use prompting and prompt fading to teach people with developmental disabilities? (Training may have included: information on how quickly prompts should be given, what types of prompts may be used, and how to fade prompts)
- Yes
 - No
 - I'm not sure
- 53.** Did you receive training on common teaching mistakes and how to correct mistakes made by people with developmental disabilities? (Training may have included: the order for teaching steps in a task analysis, how to respond to mistakes during teaching, and common mistakes made when training)
- Yes
 - No
 - I'm not sure
- 54.** Did you receive training on how to provide reinforcement to teach people with developmental disabilities? (Training may have included: when to reinforce, the result of using reinforcement, and how frequently reinforcement should be used when teaching a skill.)
- Yes
 - No
 - I'm not sure
- 55.** Did you receive training on how to collect data and the reasons for collecting data when teaching people with developmental disabilities? (Training may have included: the purpose of collecting data on training programs, the type of data to collect, when data should be collected, and how data collection may be used to improve training.)
- Yes
 - No
 - I'm not sure

- 56.** What type of staff training were you provided in order to teach people with developmental disabilities? *Circle Yes or No for each*
- a. Yes or No Written training materials were provided on how to teach people with developmental disabilities.
 - b. Yes or No Training on how to teach people with developmental disabilities was provided in a classroom format.
 - c. Yes or No Video examples of teaching people with developmental disabilities were provided.
 - d. Yes or No The trainer demonstrated the teaching technique to the staff members.
 - e. Yes or No The trainer and staff members role played different teaching techniques.
 - f. Yes or No Training was provided as you were working (i.e., on-the-job training).
 - g. Yes or No Feedback was give as you were teaching a person with a developmental disability.
- 57.** Does your employer provide annual training on teaching strategies for people with developmental disabilities? *For example, how and when to provide verbal instructions, how to use prompting and prompt fading procedures, how to correct mistakes made by people with disabilities, how and when to provide reinforcement, and/or how to use, collect and record data when teaching people with developmental disabilities.*
- a. Yes
 - b. No
 - c. I'm not sure

Section III. Feedback

Please answer the following questions about the feedback you may have received while teaching people with mental retardation.

- 58.** When was the last time your immediate supervisor demonstrated for you any of the following teaching strategies: how and when to provide verbal instructions, how to use prompting and prompt fading procedures, how to correct mistakes made by people with disabilities, how and when to provide reinforcement, and/or how to use, collect and record data when teaching people with developmental disabilities?
- a. Within the past week (7 days)
 - b. Two weeks ago
 - c. Three weeks ago
 - d. Four weeks ago
 - e. My supervisor did not demonstrate any teaching strategies within the last 30 days.
- 59.** When was the last time that your immediate supervisor directly observed you teach a skill to a person with a developmental disability (for example, your supervisor watched you implement a dressing program that been task analyzed)?
- a. Within the past week (7 days)
 - b. Two weeks ago
 - c. Three weeks ago
 - d. Four weeks ago
 - e. My supervisor did not observe me teach within the last 30 days.
- 60.** When was the last time that your immediate supervisor directly observed you teach a skill to a person with a developmental disability and he/she gave you immediate feedback following the observation? *(Immediate feedback is described as the supervisor telling you within a minute of completing the skills training program, what you did right and what you can improve on.)*
- a. Within the past week (7 days)
 - b. Two weeks ago
 - c. Three weeks ago
 - d. Four weeks ago
 - e. My supervisor did not give me immediate feedback.

Section IV: Information about the person who completed this survey

Please complete the following information. This information will be used for demographic purposes only.

- 61.** What type of training have you received in teaching people with developmental disabilities? *Circle all that apply*
- No Formal Training
 - Orientation Training
 - Workshop/Seminar/Inservice
 - One College Course
 - Bachelors Degree
 - Masters Degree
 - Doctorate Degree
- 62.** What type of training have you received in applied behavior analysis? *Circle all that apply*
- No Formal Training
 - Workshop/Seminar/Inservice
 - One College Course
 - Bachelors Degree
 - Masters Degree
 - Doctorate Degree
- 63.** How many hours per week (on average) do you spend working direct care? *Please provide a single number rather than a range of numbers*
- _____
- Hours
- 64.** During which time period will most of your working hours fall? *Circle one*
- 7:00 AM to 3:00 PM
 - 3:00 PM to 11:00 PM
 - 11:00 PM to 7:00 AM
- 65.** How many years of paid employment experience do you have working with people with developmental disabilities?
- _____
- Years Months
- 66.** How long have you worked for this agency?
- _____
- Years Months
- 67.** How old are you?
- _____
- Years
- 68.** What is your gender? *Circle one*
- Male
 - Female
- 69.** How many years of school have you finished? *Circle one number*
- 12 (High school graduate or GED)
 - 13
 - 14 (Associate or 2 year degree)
 - 15
 - 16 (Four year degree)
 - 17
 - 18 (Master's level degree)
 - 19
 - 20
 - 21 (Doctoral degree)
- 70.** How would you describe your ethnic background? *Circle one*
- White, Non-Hispanic
 - African American
 - Hispanic
 - Asian American, Pacific Islander
 - American Indian, Alaskan Native
 - Other _____
- 71.** What is your current salary?
- \$ _____ per hour

Thank you for completing this survey

Please seal the completed survey in the provided envelope and return the survey to the person who gave you the survey.

APPENDIX H: CONSENT LETTER FOR GROUP HOME SURVEY

Consent

Dear Group Home Administrator/Manager:

I am a doctoral candidate at the University of Central Florida. As part of my coursework, I am conducting an opinion survey. The purpose is to determine direct care staff members opinion about how to teach people with developmental disabilities and to determine what factors are related to their opinion about how to teach. The information gathered may be used to improve the training for direct care staff members and improve the teaching of people with developmental disabilities.

The attached survey gathers information about the agency and the group home. One survey must be completed for each group home participating in this survey. At a separate time, a second survey will be given to each direct care staff member who works in the group home to determine their opinion about how to teach people with developmental disabilities. I am asking you to participate in the survey, which should take no longer than 30 minutes to complete. You must be 18 years of age or older to participate. The survey is enclosed with this letter. You will not have to answer any question you do not wish to answer. Your identity will be kept confidential and will not be revealed in the final manuscript.

There are no anticipated risks, compensations or other direct benefits to you as a participant in this opinion survey. You are free to withdraw your consent to participate and may discontinue your participation in the survey at any time without consequence. Furthermore, regardless of your decision to participate in this survey, your identity will remain confidential.

If you have any questions about this research project, please contact me at 407-692-2101. My faculty supervisor is Lawrence Martin, Ph.D. who can be reached at 407-823-5731. Research at the University of Central Florida involving human participants is carried out under the oversight of the Institutional Review Board. Questions or concerns about research participants' rights may be directed to the UCF IRB office, University of Central Florida, Office of Research & Commercialization, 12201 Research Parkway, Suite 501, Orlando, FL 32826-3246, or by campus mail 32816-0150. The hours of operation are 8:00 am until 5:00 pm, Monday through Friday except on University of Central Florida official holidays. The telephone numbers are (407) 882-2276 and (407) 823-2901.

Please note that your participation serves as permission for me to report your confidential responses in the final manuscript to be presented to my faculty supervisor and faculty committee as part of meeting my degree requirements for a Ph.D. in Public Affairs. Please seal the completed survey in the provided self addressed stamped envelope. Thank you in advance for your time and consideration of this survey research project.

Sincerely,

Craig A. Cook

Attachments: Teaching People with Developmental Disabilities

CC: Dr. Lawrence Martin, Professor, Public Affairs, University of Central Florida

APPENDIX I: GROUP HOME SURVEY

Group Home Survey

Teaching People with Developmental Disabilities

Instructions for Completing the Survey

A person who has knowledge about the characteristics of the agency, the characteristics of the specific group home, and the characteristics of the people living in the group home should fill out this survey. Typically, an agency administrator or group home manager would be the most appropriate person to complete the survey.

One Survey should be completed for each group home that is participating in the survey. This survey is one of two surveys related to direct care staff's knowledge of effective teaching strategies for people with developmental disabilities. The Group Home Survey focuses on the size of the agency, the characteristics of the group home, the characteristics of the direct care staff that work in the group home, and the characteristics of the people living in the group home. Part two of the study focuses on direct care staffs' knowledge of effective teaching strategies and the training and feedback they have received.

When you are finished with your survey, please seal the survey in the self addressed stamped envelope that was attached to this survey.

Thank you for participating in this research study.

Craig A. Cook
Ph.D. Candidate



Instructions: Your participation in this survey is voluntary and you can quit at any time without consequence. Completion of this survey constitutes your informed consent to participate. You do not have to answer any questions you do not want to answer. Individual responses will be held confidential.

Date: _____

Agency Name (Pre-Printed): _____

Group Home Name (Pre-Printed) *(One facility survey should be completed for each group home participating in the study):*

Start Here:

I. Characteristics of your Agency/Organization

The agency/organization is the organizational entity that was given the Medicaid Waiver provider number in Florida. Please answer the following questions for the entire agency/organization in the State of Florida.

- 1. What year did your agency/organization receive their first group home license to provide residential habilitation for people with mental retardation in Florida?**

_____ Year *(For example, 1999)*

- 2. How many employees are employed with your agency/organization in Florida? Circle one**

- a. 1-30 employees
- b. 31-60 employees
- c. 61-90 employees
- d. 91-120 employees
- e. 121 -150 employees
- f. 151-180 employees
- g. 180 or more employees

- 3. How many licensed community based group homes does your agency/organization have in Florida? *(Excluding group homes that only receive Long Term Residential Care funding)***

_____ Number of Licensed Group Homes

- 4. Does your agency/organization have licensed community based group homes in other states? Circle one**

- a. Yes
- b. No

II. Characteristics of the Selected Group Home

The selected Group Home for this study should be a Home and Community Based Services (HCBS) Waiver funded residential facility which provides a family living environment including supervision and care necessary to meet the physical, emotional, and social needs of its residents.

Please complete the following questions for the group home selected for this study:

(Pre-Printed) _____ Selected Group Home

- 5. What was the year that the home was first licensed as a group home for people with developmental disabilities and approved to provide residential habilitation services?**

_____ Year (For example, 2002)

- 6. What city/municipality is the home located in (If in a metropolitan area, be specific – for example, if the home is in Kissimmee, do not write Orlando)?**

- 7. What county of Florida is this home located in?**

- 8. What is the classification of the group home as designated by the Agency for Person's with Disabilities (Formally know as the Department of Children and Families)? Circle one**

- a. Residential Habilitation
- b. Behavior Focus Residential Habilitation (As designated by the District Senior Psychologist/Behavior Analyst)
- c. Intensive Behavior Residential Habilitation (As designated by the Senior Behavior Analyst for the State of Florida)

9. Does a Certified Behavior Analyst or Associate Behavior Analyst work with the staff and residents in this group home? *Circle one*

- a. Yes
- b. No

If yes, how many hours per month does the Behavior Analyst spend training the direct care staff members on how to teach the residents of the group home? Write the number of hours

_____ Hours per month

How many hours per month does the Behavior Analyst spend giving feedback to the direct care staff members on how to teach the residents of the group home? Write the number of hours

_____ Hours per month

How many hours per month does the Behavior Analyst spend doing duties other than training and giving feedback to direct care staff on how to teach the residents of the group home? Write the number of hours

_____ Hours per month

III. Characteristics of Direct Care Staff Members Who Work in the Group Home

Direct care staff members are people, whose primary job responsibility are to provide support, training supervision and personal assistance to people with developmental disabilities in this home. Please answer the following questions for the direct care staff members who work in the selected group home.

10. On average, how many direct care staff members are on duty at the following times in this group home (including those who may be on break)? *Write the number of staff for each time period.*

Weekdays

_____ 4:00pm

_____ 7:30pm

Weekends

_____ 4:00pm

_____ 7:30pm

IV. Training Experiences and Issues

12. Which of the following are major difficulties for this group home in training direct care staff members on how to teach people with developmental disabilities?

Circle Yes or No for each item

Yes No Finding financial resources to pay trainers or consultants, purchase materials, and/or pay registration costs.

Yes No Finding resources to staff homes while direct care staff members are participating in training activities.

Yes No Arranging training at times when direct care staff members can attend.

Yes No Finding qualified trainers within the agency/organization.

Yes No Finding qualified trainers from outside the agency/organization.

Yes No Finding high quality training materials.

Yes No Providing training that actually results in changes in staff performance.

Yes No Providing timely high quality training to newly hired direct care staff members.

Yes No Finding incentives to motivate staff to get training.

Yes No Finding resources to retrain staff .

Other _____

VI. Characteristics of the People Living in the Home

Please answer the following question about the people with developmental disabilities (i.e., residents) who live in this group home.

13. How many people with developmental disabilities live in this home?

_____ Number of people

APPENDIX J: REGRESSION RESIDUAL ANALYSIS

Control Variable Regression Residual Analysis

Figure J1, a normal probability plot of the residuals for the control variable regression, indicates that the predicted residuals have a slightly sinusoidal relationship with the observed residuals; however, the maximum deviation from the 45° line which occurs at about .8 on the x-axis is relatively small, and not significantly different enough to violate the assumption of normality (Pallant, 2001).

Normal P-P Plot of Regression Standardized Residual

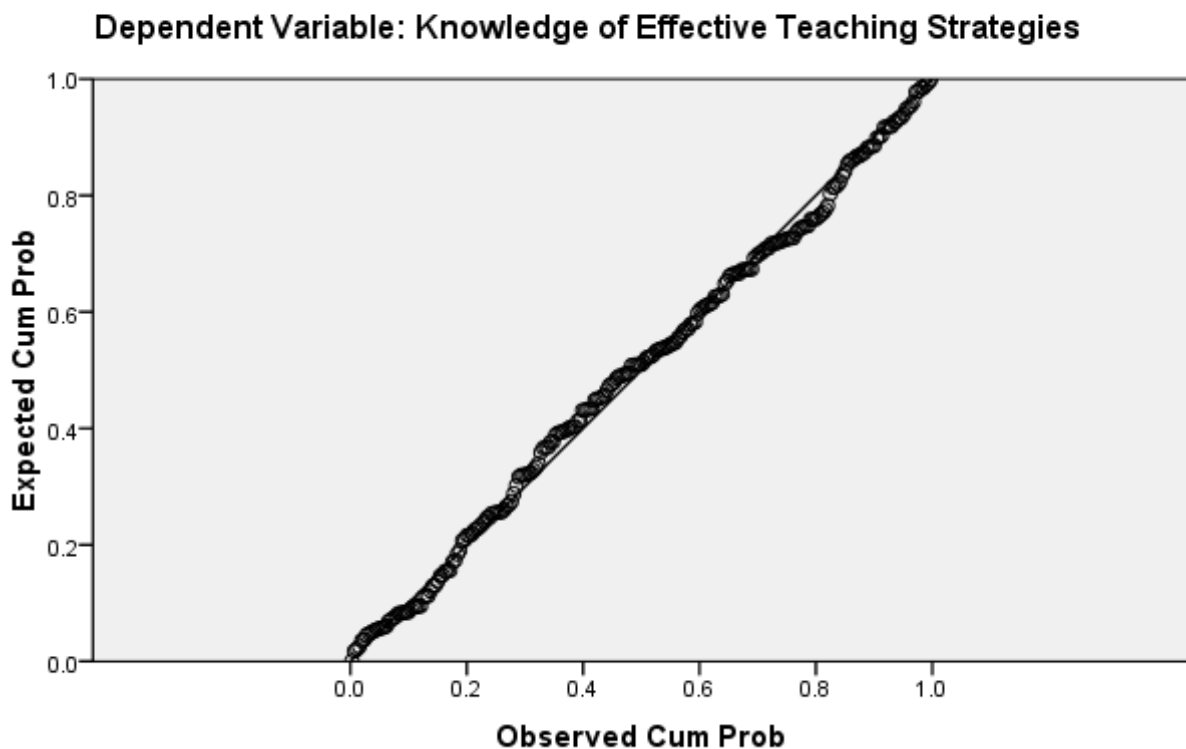


Figure J1. Normal Probability Plot of Regression Standardized Residual for Control Variable Model

Figure J2, a scatterplot of the residuals against the predicted values for the control variable regression, indicates that the data are linear as they seem to be located entirely randomly, centered at point (0, 0). Homoscedasticity maybe more of a concern as the width between the largest and smallest residuals seems to decline for predicted values greater than 0. However, there are so few extremely high residual points, and they occur over a range of the predicted values where there are many more points in general (Pallant, 2001).

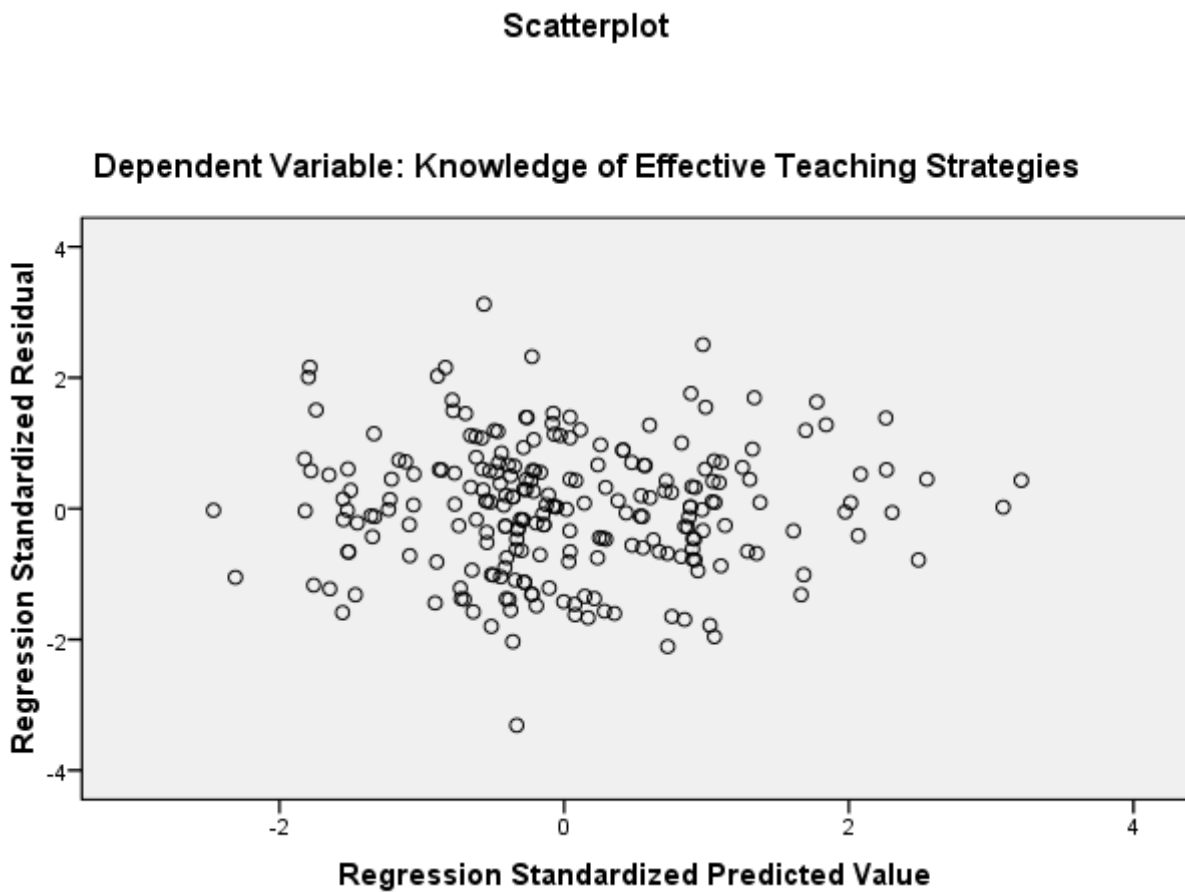


Figure J2. Scatterplot of Residuals vs. Predicteds for Control Variable Model

Figure J3, a histogram of the standardized residuals for the control variable regression, indicates that the data generally do follow a normal distribution, with a central peak and a sharp

decline away from the mean of 0. Especially telling are the mean and standard deviation for this sample, where the mean residual value is $-2.54E-15$ (essentially indistinguishable from zero), and the standard deviation of 0.974 is very close to the expected 1. Hence, the normality of residual errors is not a concern with this regression (Pallant, 2001).

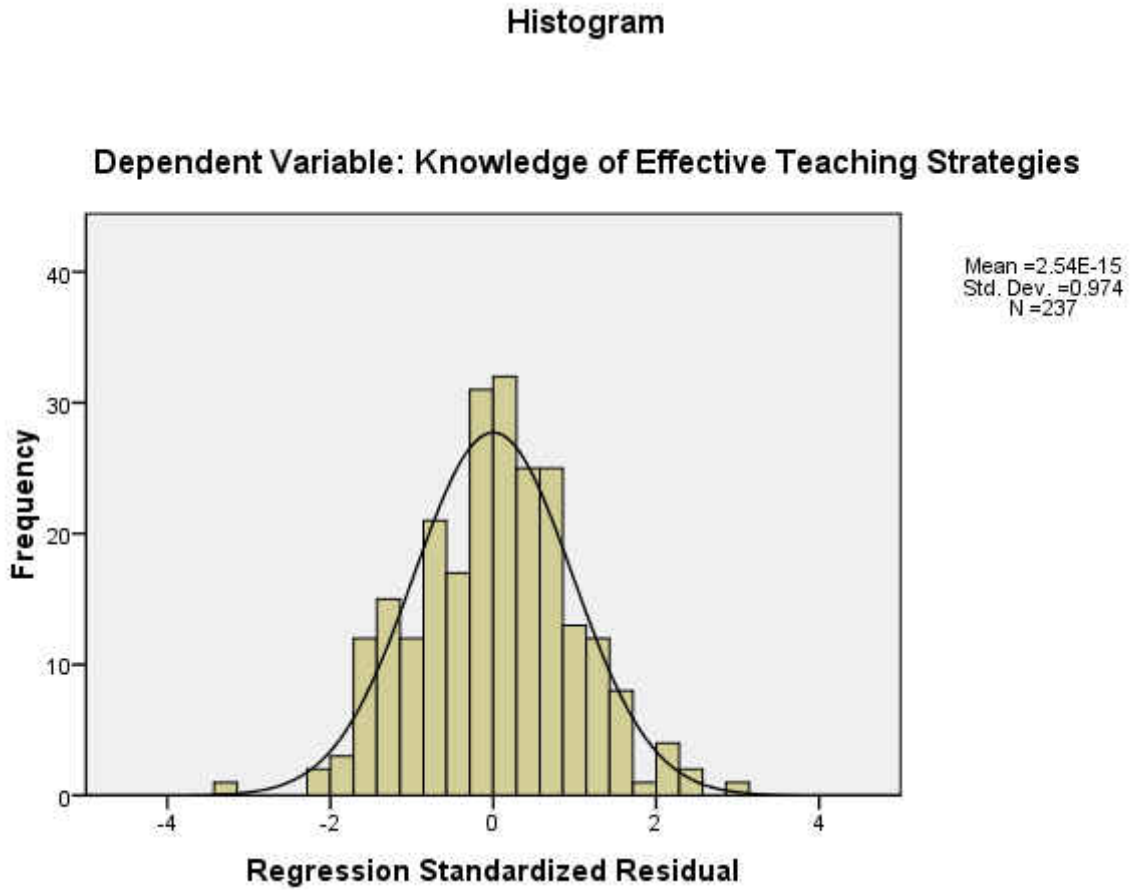


Figure J3. Histogram of Residuals for the Control Variable Model

Staff Training Regression Residual Analysis

Figure J7, a normal probability plot of the residuals for the regression model examining staff training, indicates that the predicted residuals have a very close relationship with the observed residuals, as the data follows nearly a complete 1:1 ratio from 0 to 0.4 on both the expected and observed scales. Although the plot of the residuals slightly differs from the 45° line between .7 and .8, it is not enough to affect the normality of the regression (Pallant, 2001).

Normal P-P Plot of Regression Standardized Residual

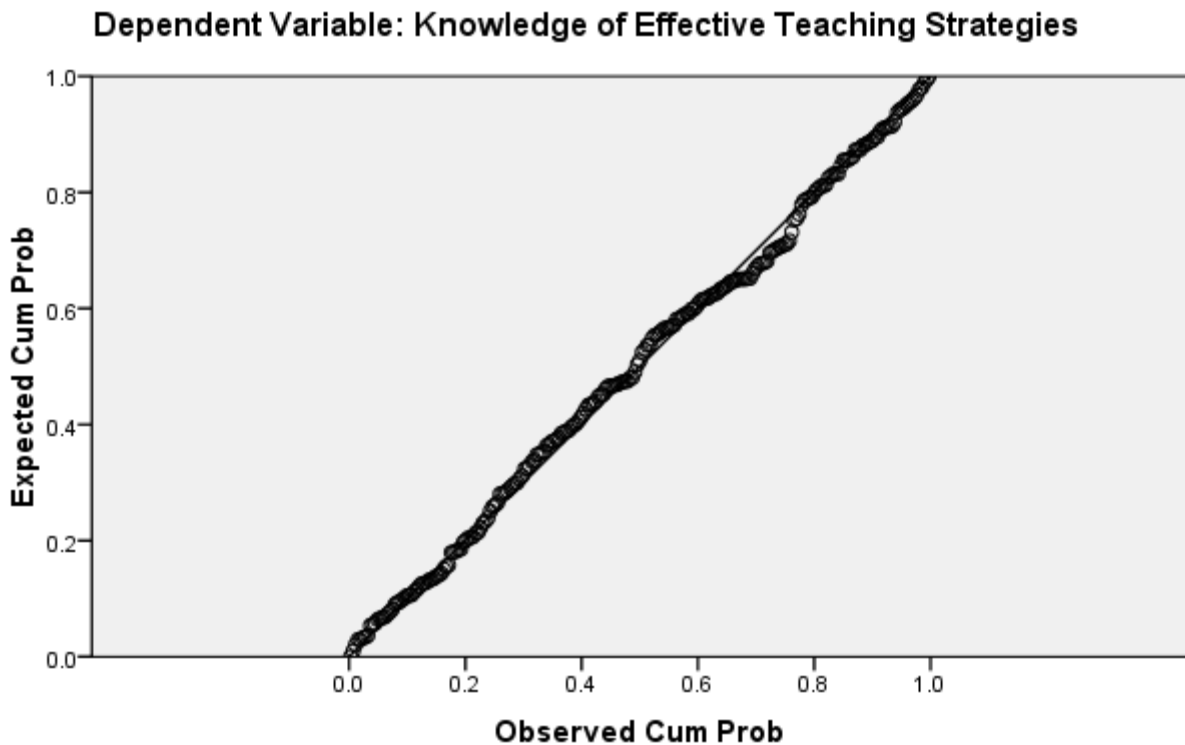


Figure J7. Normal Probability Plot of the Standardized Residual for the Regression model examining Staff Training

Figure J8, a scatterplot of the residuals against the predicted values for the regression examining staff training, indicates the data are once again linear as they seem to be located

randomly. Homoscedasticity is likewise a concern as the width between the largest and smallest residuals seems to decline for predicted values greater than 1. However, once again, there are few extremely high residual points, and they occur over a range of the predicted values where there are many more points in general; so the apparent decrease in variance for higher predicted values is probably not a concern (Pallant, 2001).

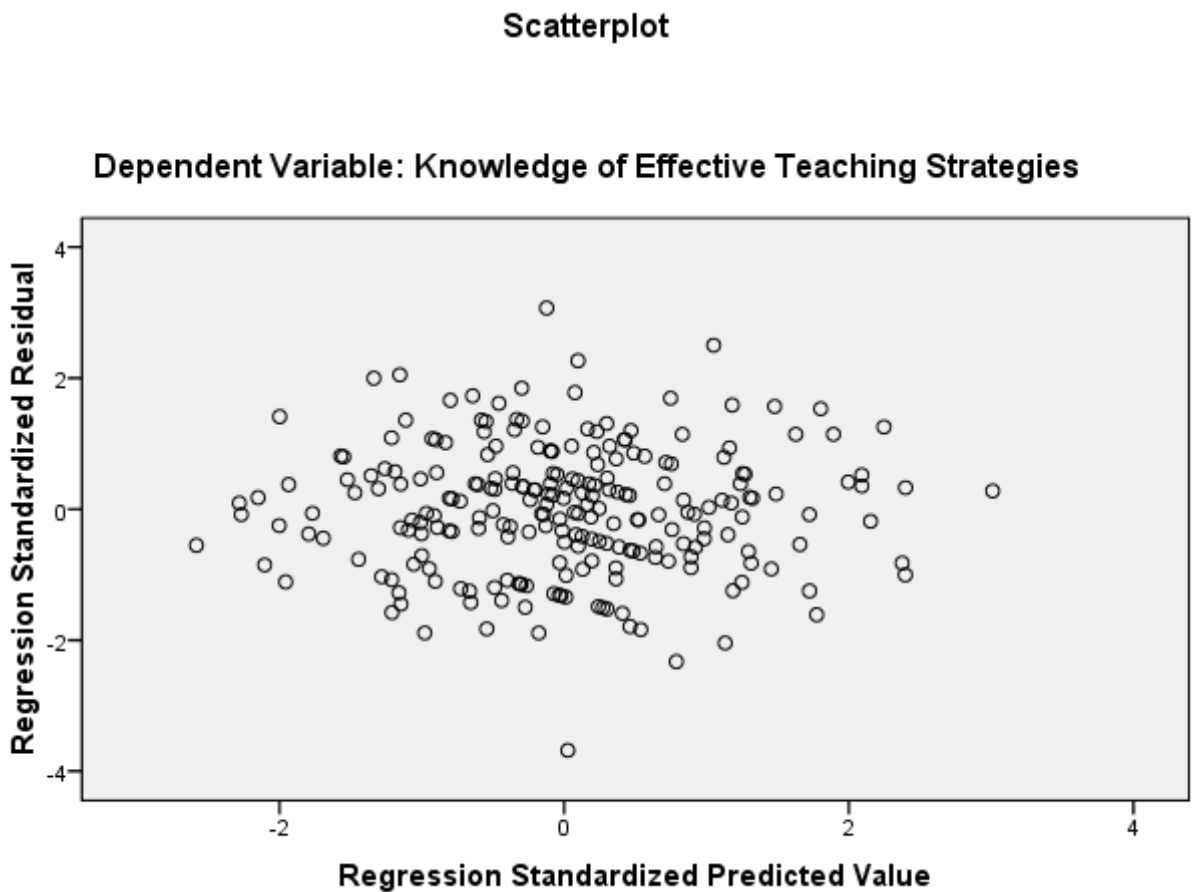


Figure J8. Scatterplot of Residuals vs. Predicteds for the Regression model examining Staff Training

Figure J9, a histogram of the standardized residuals for the regression examining staff training indicates that the data generally do follow a normal distribution, with a central peak at 0. Once again, the mean is very close to zero (1.03×10^{-14}) and the standard deviation is close to one

(.972), so even though the mean has a higher frequency than the predicted mean of the normal curve, normally-distributed residual errors can certainly not be rejected here (Pallant, 2001).

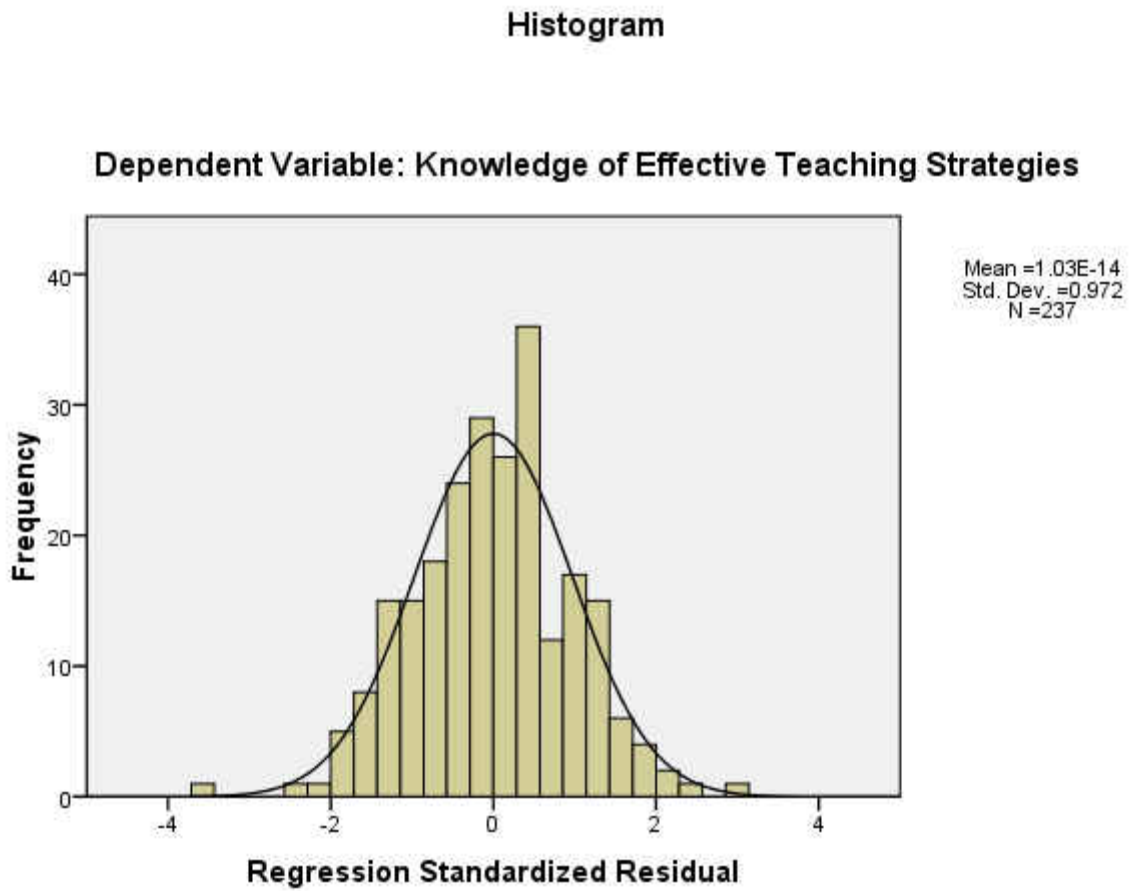


Figure J9. Histogram of Residuals for the Regression model examining Staff Training

Performance Management Feedback Regression Residual Analysis

Figure J10, a normal probability plot of the residuals for the Regression Model examining Performance Management Feedback, indicates that the predicted residuals have a very close relationship with the observed residuals. Although the plot of the residuals slightly differs from the 45° line between .6 and .8, the graph seems to gradually coil above and below the 45° line in a minor sinusoidal relationship. The graph is still very close to the line in general, so it is not significant enough to affect the normality of the regression (Pallant, 2001).

Normal P-P Plot of Regression Standardized Residual

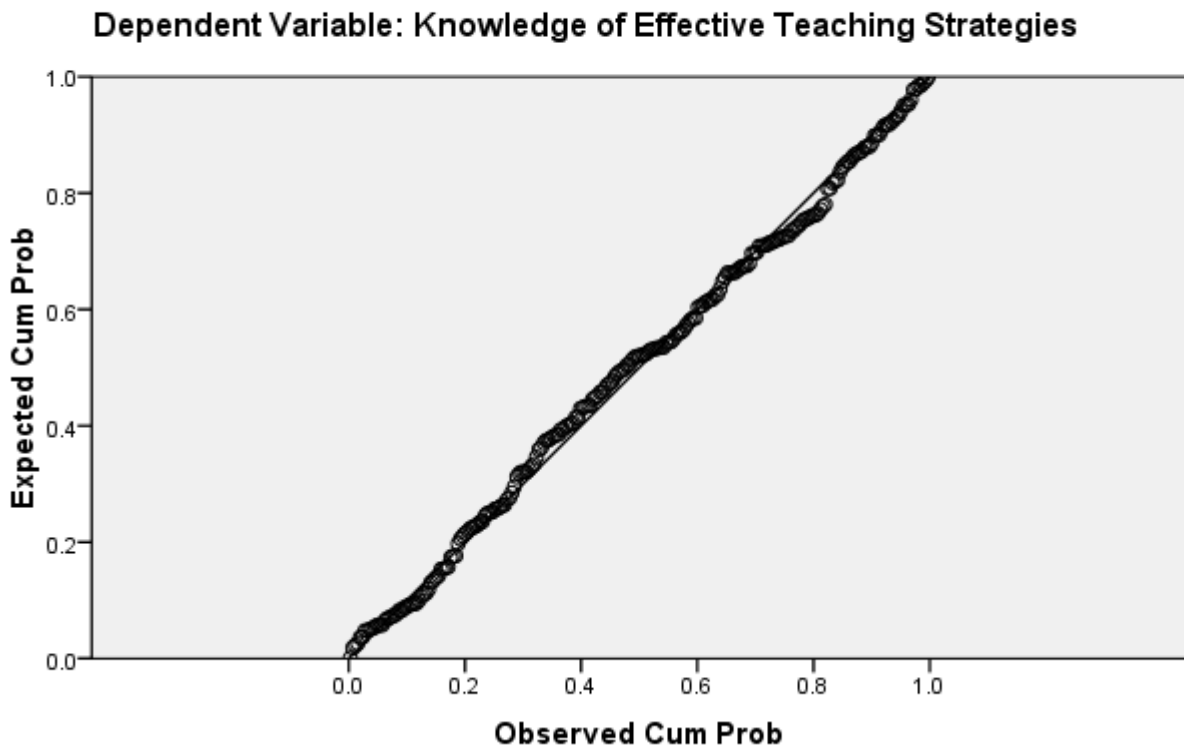


Figure J10. Normal Probability Plot of Standardized Residual for the Regression Model examining Performance Management Feedback

Figure J11, a scatterplot of the residuals against the predicted values for the for the Regression Model examining Performance Management Feedback, has a similar trend to all the

previous scatterplots. The data are still linear as they seem to be located randomly, centered at point (0, 0), but homoscedasticity may still be an issue for the same reason, as the width between the largest and smallest residuals seems to decline for predicted values above 1. However, once again, there are few extremely high residual points, and they occur over a range of the predicted values where there are many more points in general; so the apparent decrease in variance for higher predicted values is probably not a concern (Pallant, 2001).

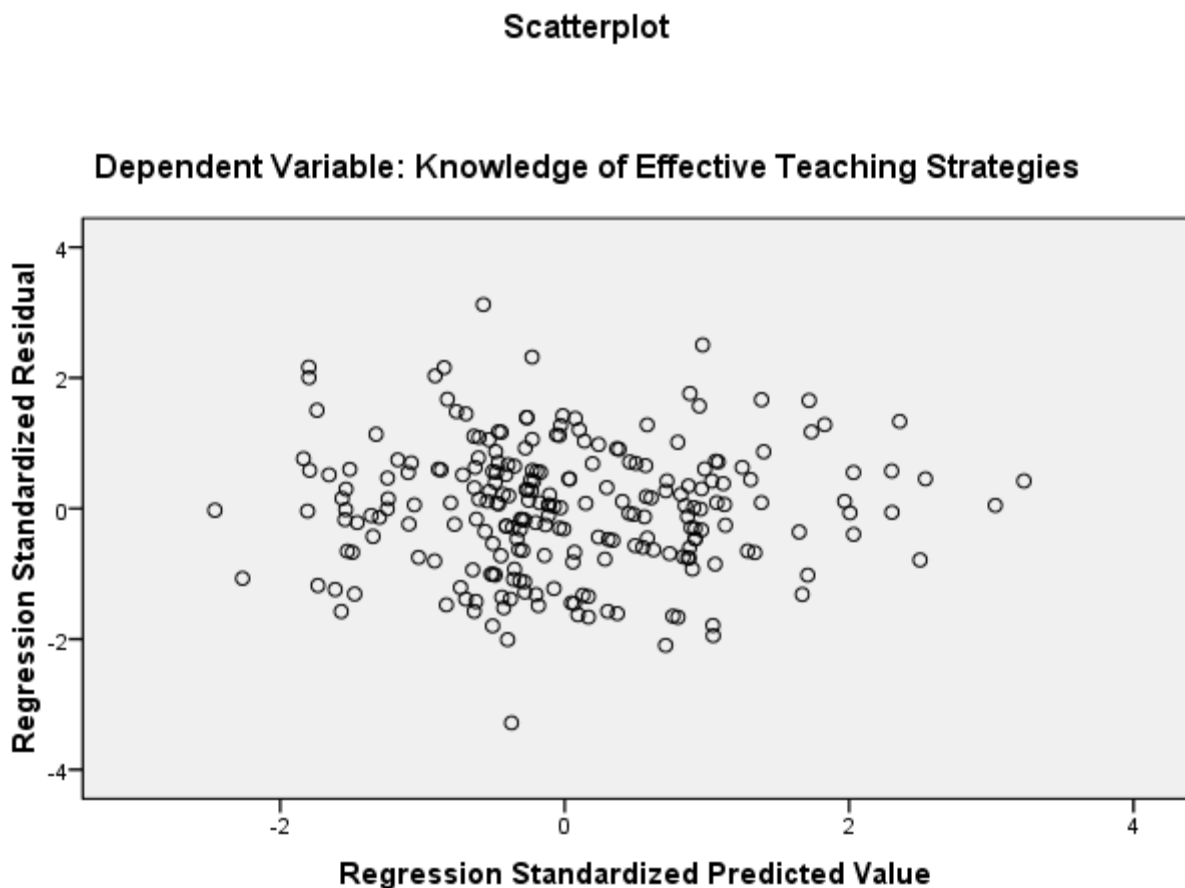


Figure J11. Scatterplot of Residuals vs. Predicteds for the Regression Model Performance Management Feedback

Figure J12, a histogram of the standardized residuals for the for the Regression Model examining Performance Management Feedback, indicates that the data generally do follow a

normal distribution. There is a central peak and a mean very near zero ($2.22E-15$). The standard deviation is close to one (.972). Hence, the normality of residual errors is not a concern with this regression (Pallant, 2001).

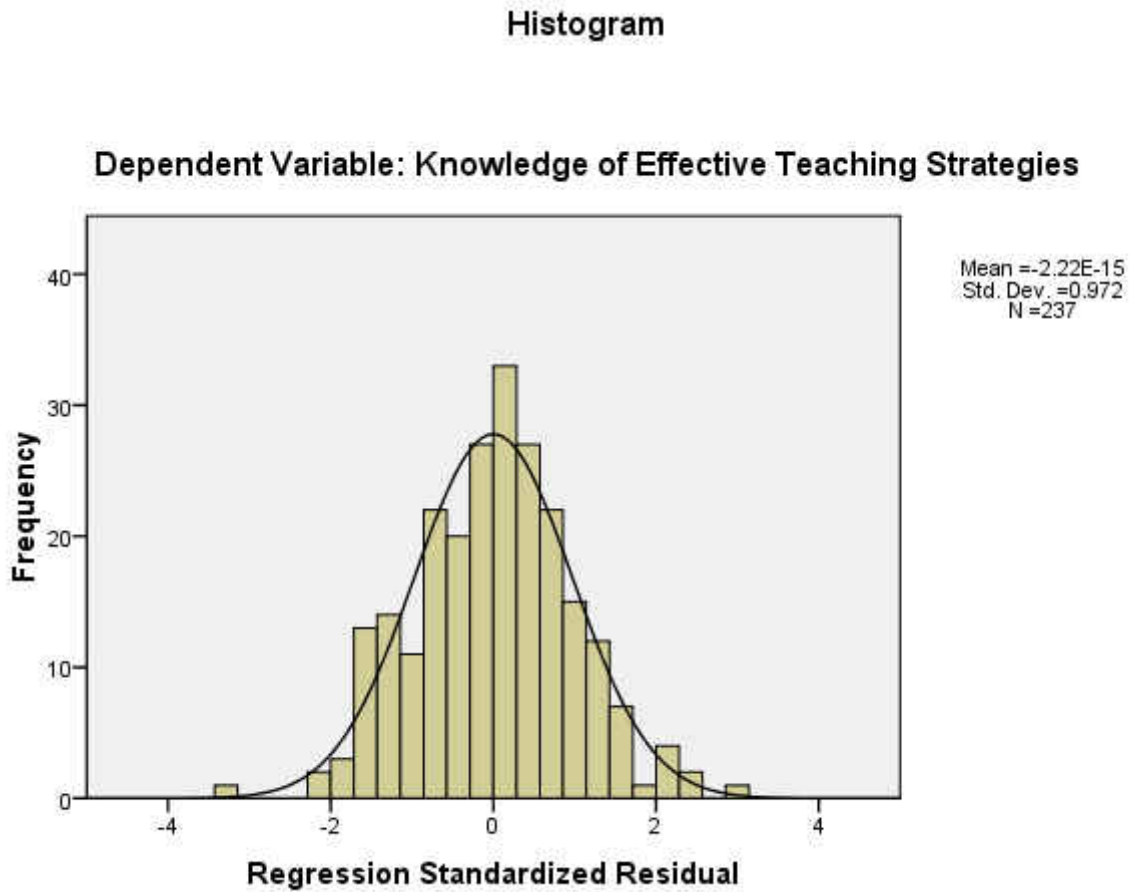


Figure J12. Histogram of Residuals for the Regression Model Performance Management Feedback

Behavior Analyst Involvement Regression Residual Analysis

Figure J13, a normal probability plot of the residuals for the regression examining the behavior analyst involvement, indicates that the predicted residuals are quite close to the observed residuals, but there are a few instances where there is notable deviance from the 45° line (such as at the origin and for x-values of between .6 and .8), although the rest of the curve lies tightly on the line (Pallant, 2001).

Normal P-P Plot of Regression Standardized Residual

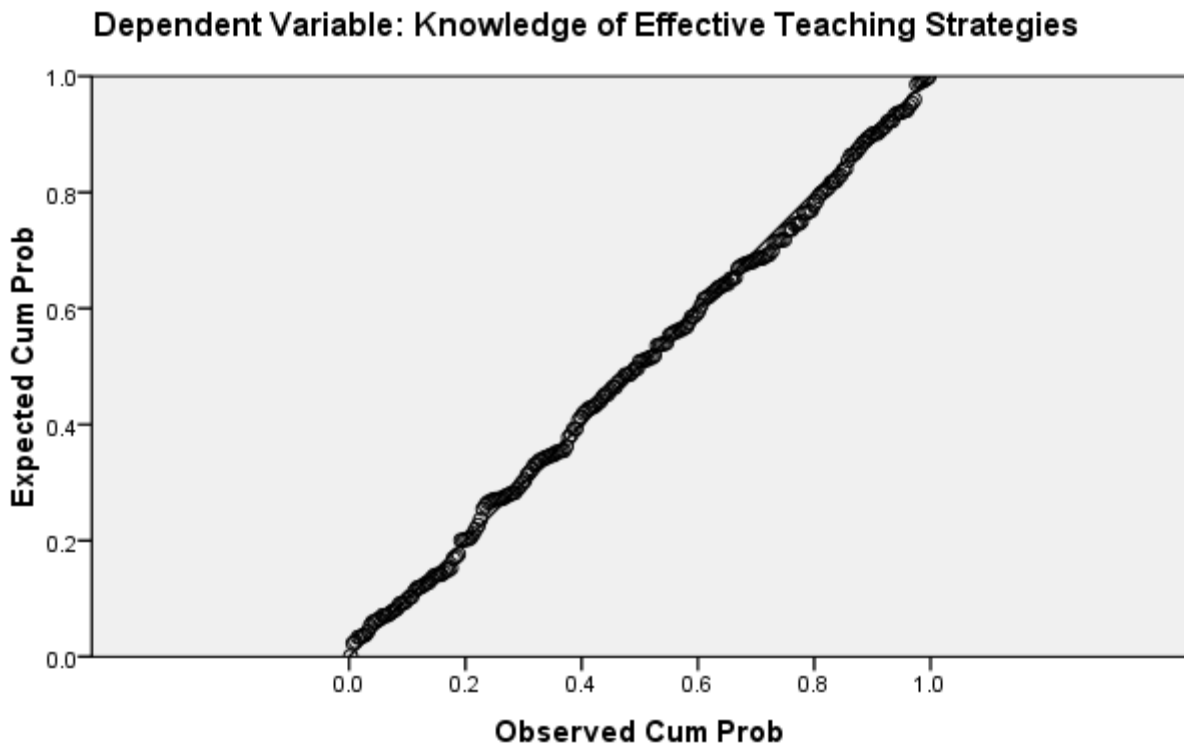


Figure J13. Normal Probability Plot of the Standardized Residual for the Regression examining the Behavior Analysts Involvement

Figure J14, a scatterplot of the residuals against the predicted values for the regression examining the behavior analyst involvement has the same trend as all the other scatterplots. The data are linear as they seem to be located randomly, apart from a possible decline in variance for predicted values greater than 1. Once again, there are few extremely high residual points, and they occur over a range of the predicted values where there are many more points in general; so the apparent decrease in variance for higher predicted values is probably not a concern (Pallant, 2001).

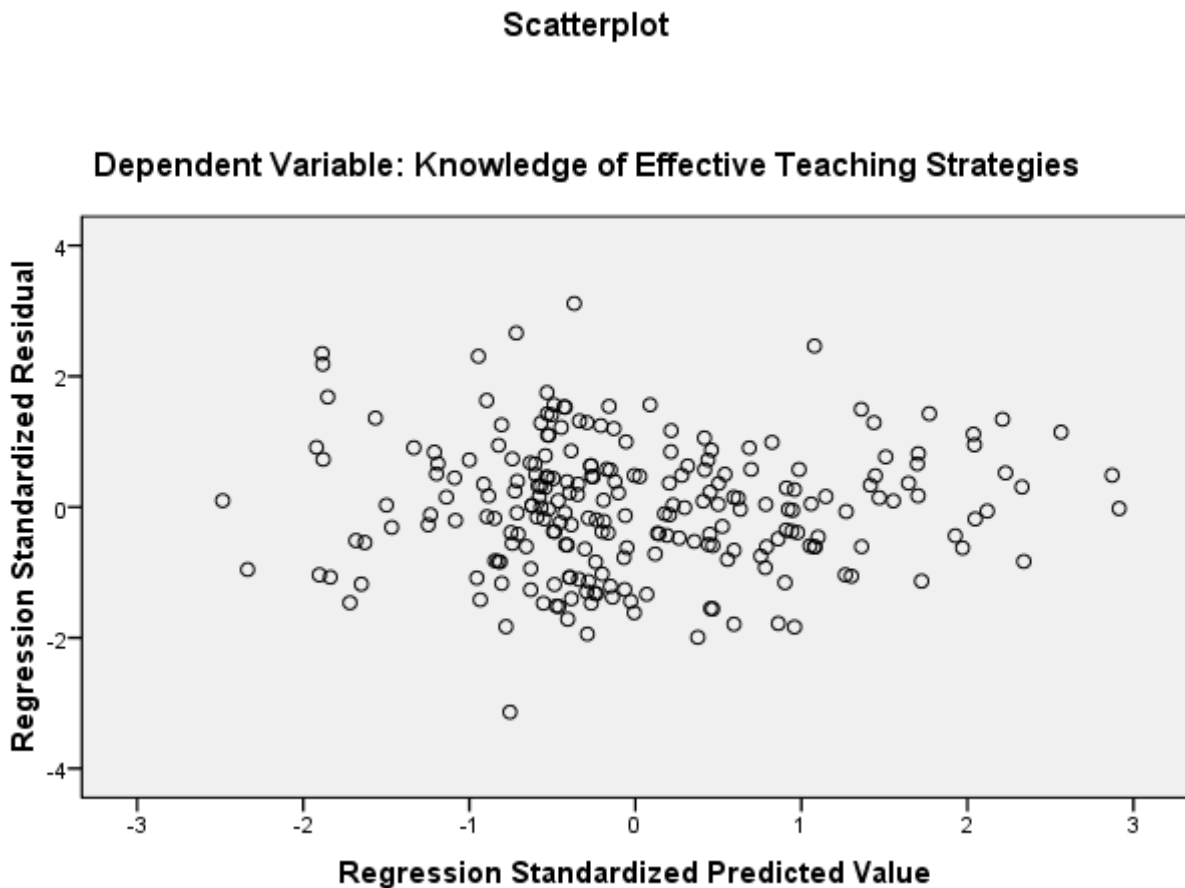


Figure J14. Scatterplot of Residuals vs. Predicteds for the Regression examining the Behavior Analysts Involvement

Figure J15, a histogram of the standardized residuals for the regression examining the

behavior analysts involvement, indicates that the data generally do follow a normal distribution, it is less clear because the graph slightly varies from the bell-shaped curve. Once again, the mean is very close to zero ($3.32E-15$) and the standard deviation is close to one (.972), so normality is probably still reasonably supported (Pallant, 2001).

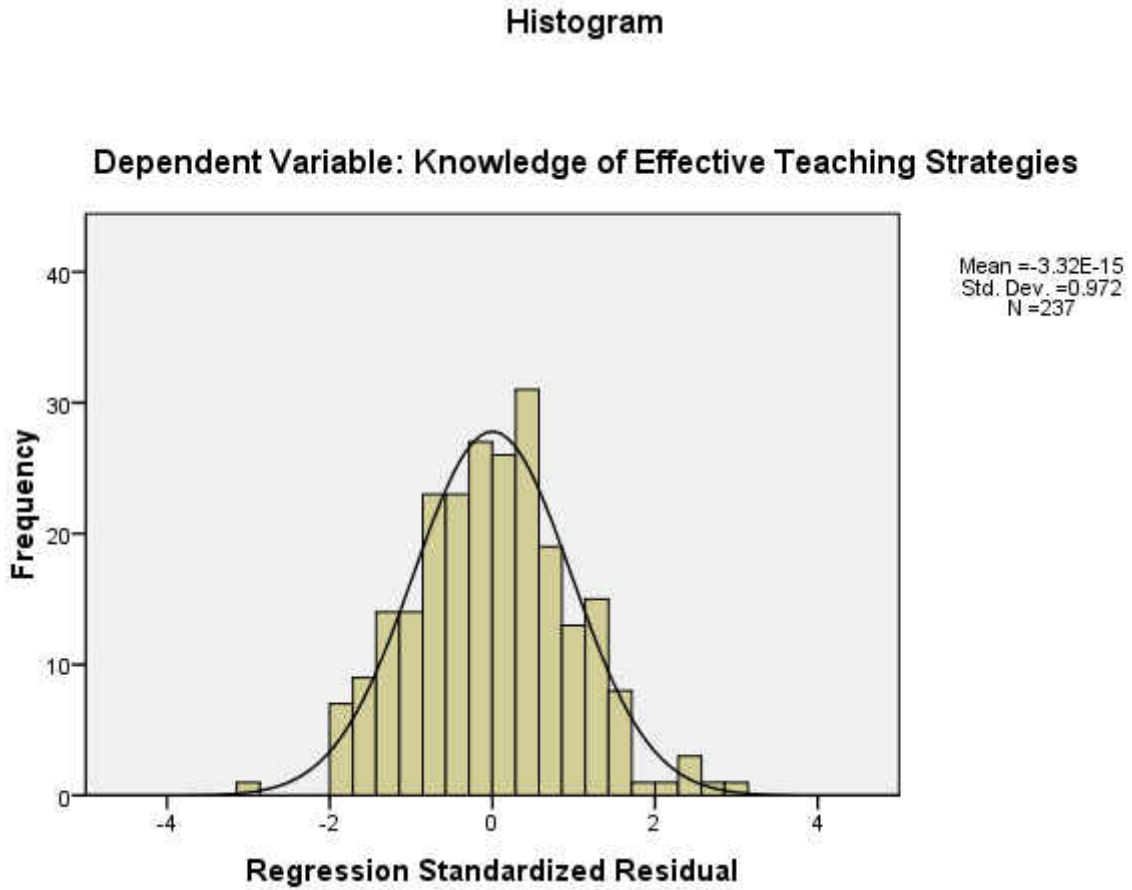


Figure J15. Histogram of Residuals for the Regression examining the Behavior Analysts Involvement

Staff Training, Performance Management Feedback and Behavior Analyst Involvement

Regression Residual Analysis

Figure J4, a normal probability plot of the residuals for the regression model examining staff training, performance management feedback and behavior analyst involvement, indicates that the predicted residuals have a very close relationship with the observed residuals, as the data follows nearly a complete 1:1 ratio from 0 to 0.6 on both the expected and observed scales. Although the plot of the residuals slightly differs from the 45° line between .6 and .8 on the x-axis, it is not significant to affect the normality of the regression (Pallant, 2001).

Normal P-P Plot of Regression Standardized Residual

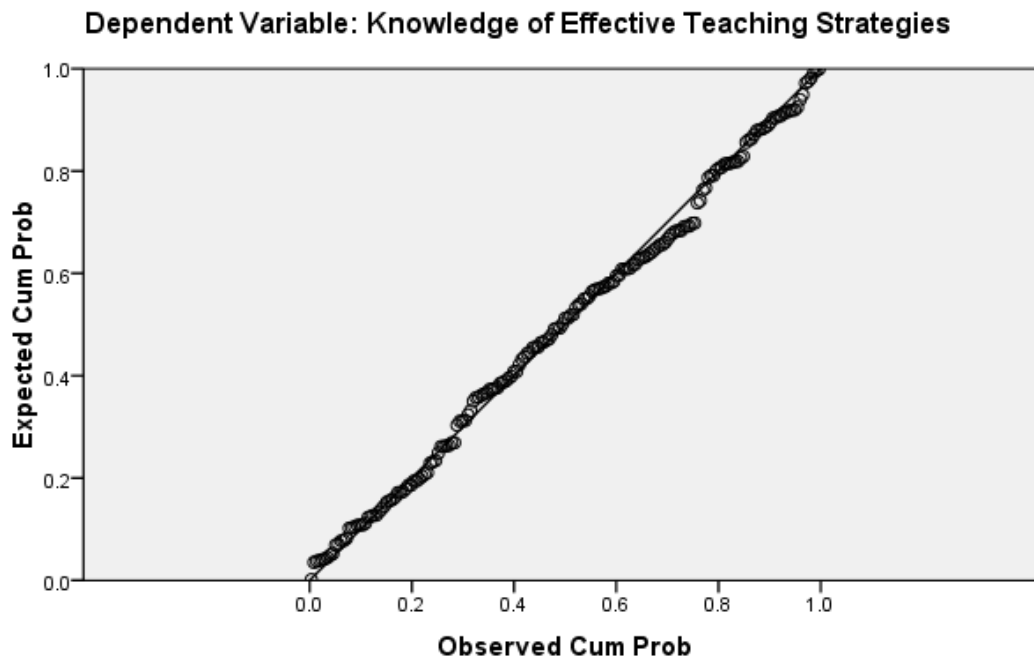


Figure J4. Normal Probability Plot for the Regression Model examining Staff Training, Performance Management feedback and Behavior Analyst Involvement

Figure J5, a scatterplot of the residuals against the predicted values the regression model

examining staff training, performance management feedback and behavior analyst involvement, indicate the data are linear as they seem to be located randomly, centered at point (0, 0).

Homoscedasticity is likewise a concern as the width between the largest and smallest residuals seems to decline for predicted values greater than 1. However, there are few extremely high residual points, and they occur over a range of the predicted values where there are many more points in general, so the apparent decrease in variance for higher predicted values is probably not a concern (Pallant, 2001).

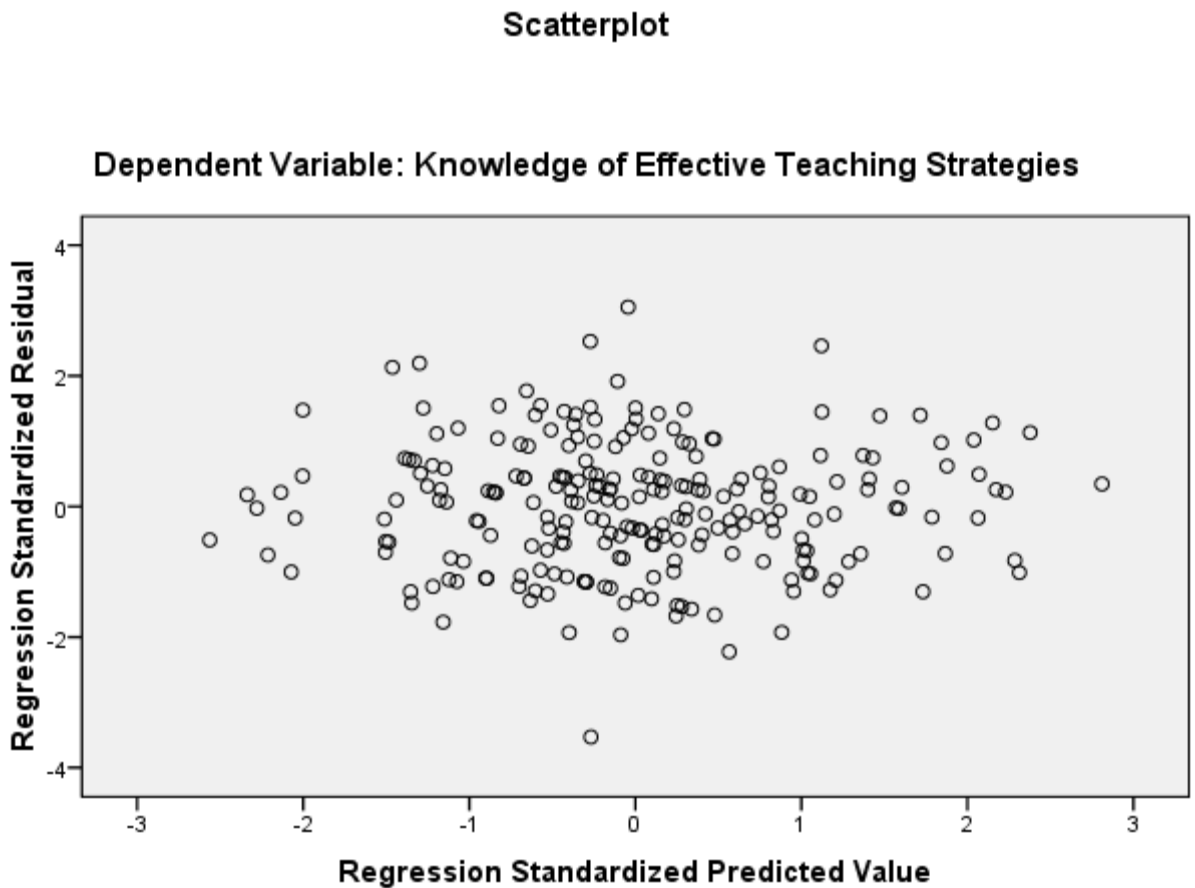


Figure J5. Scatterplot of Residuals vs. Predicted for the Regression Model examining Staff Training, Performance Management Feedback and Behavior Analyst Involvement

Figure J6, a histogram of the standardized residuals the regression model examining staff training, performance management feedback and behavior analyst involvement, indicates that the data generally do follow a normal distribution, with a central peak and an even sharper decline away from the mean of 0 than in Figure 4. Once again, the mean is very close to zero ($2.82E-14$) and the standard deviation is close to one (.959), so even though the mean is considerably higher than the predicted mean of the normal curve, there appears to be normally-distributed residual errors (Pallant, 2001).

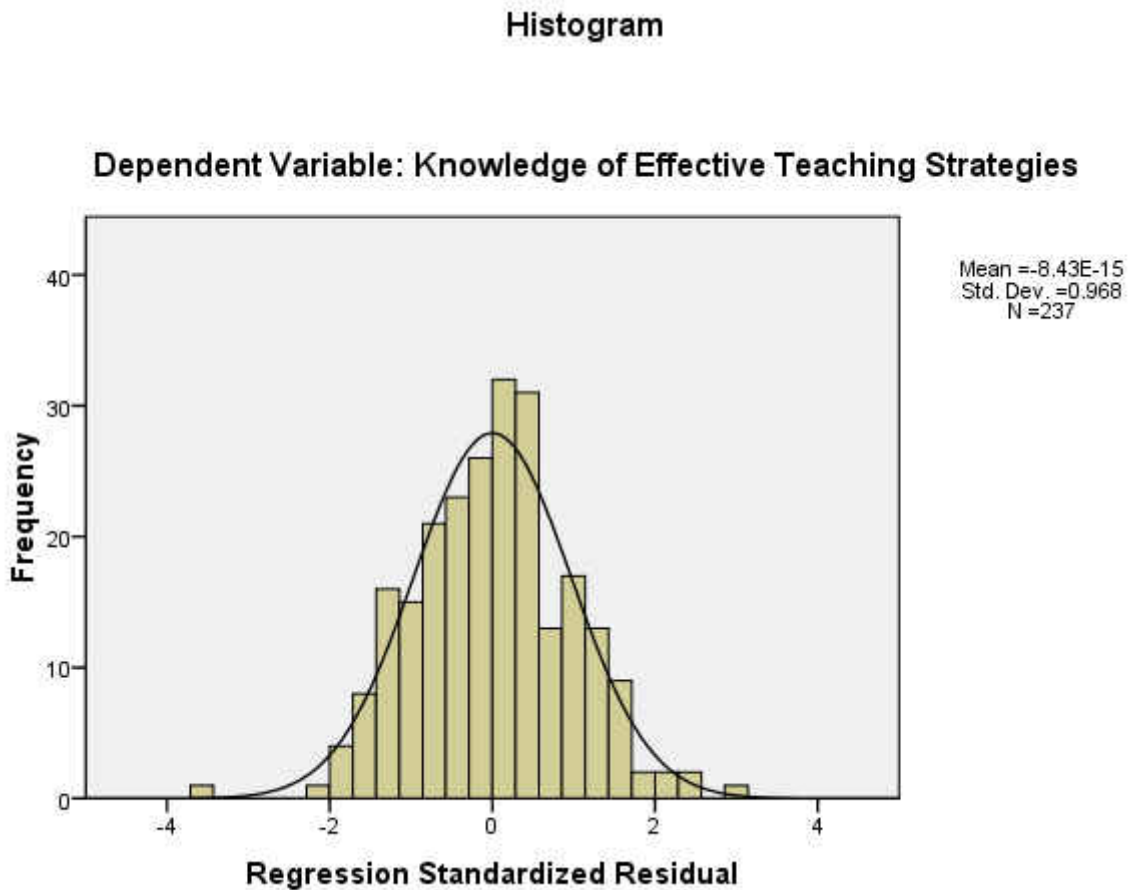


Figure J6. Histogram of Residuals for the Regression Model examining Staff Training, Performance Management Feedback and Behavior Analyst Involvement

Reduced Model Regression Residual Analysis

Figure J16, a normal probability plot of the residuals for the reduced regression model indicates that the predicted residuals are still quite close to the observed residuals, but there are a few instances where there is notable deviance from the 45° line, although the rest of the curve lies tightly on the line (Pallant, 2002).

Normal P-P Plot of Regression Standardized Residual

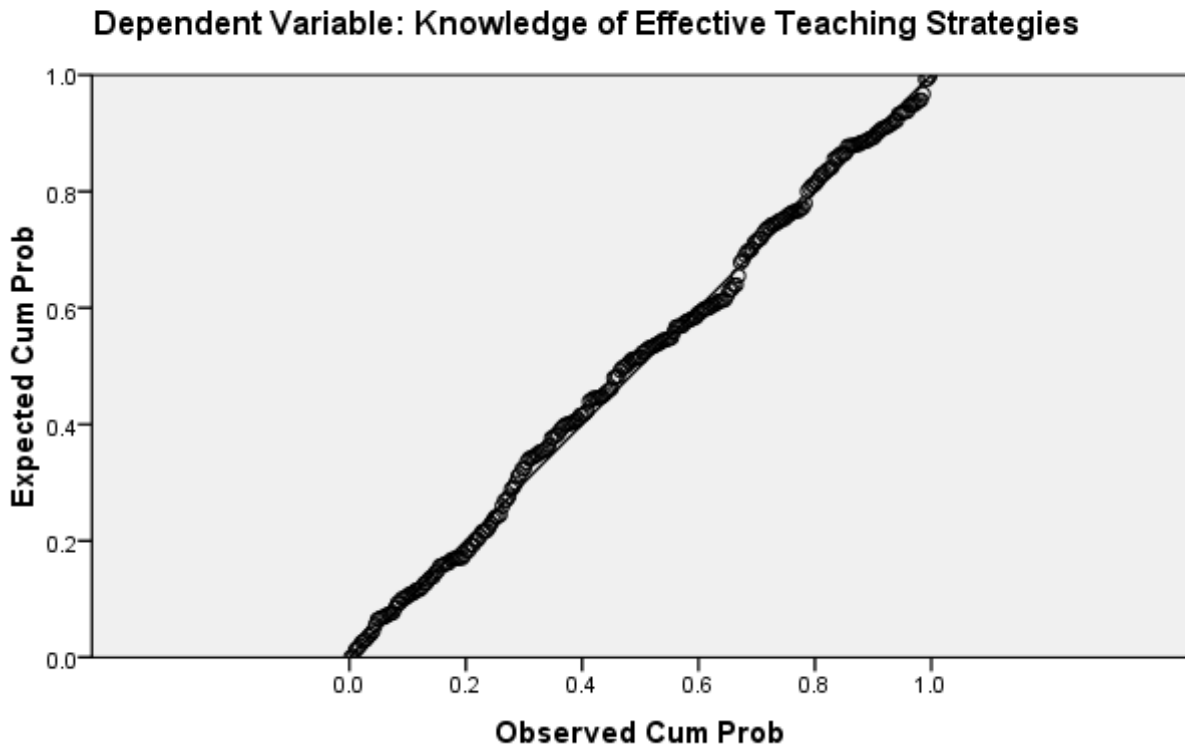


Figure J16. Normal Probability Plot of Regression Standardized Residual for reduced model.

Figure J17, a scatterplot of the residuals against the predicted values for the reduced regression model, has the same trend as all the other scatterplots. The data are linear as they

seem to be located randomly, apart from a possible decline in variance for predicted values greater than 1. There are few extremely high residual points, and they occur over a range of the predicted values where there are many more points in general; so the apparent decrease in variance for higher predicted values is probably not a concern (Pallant, 2001).

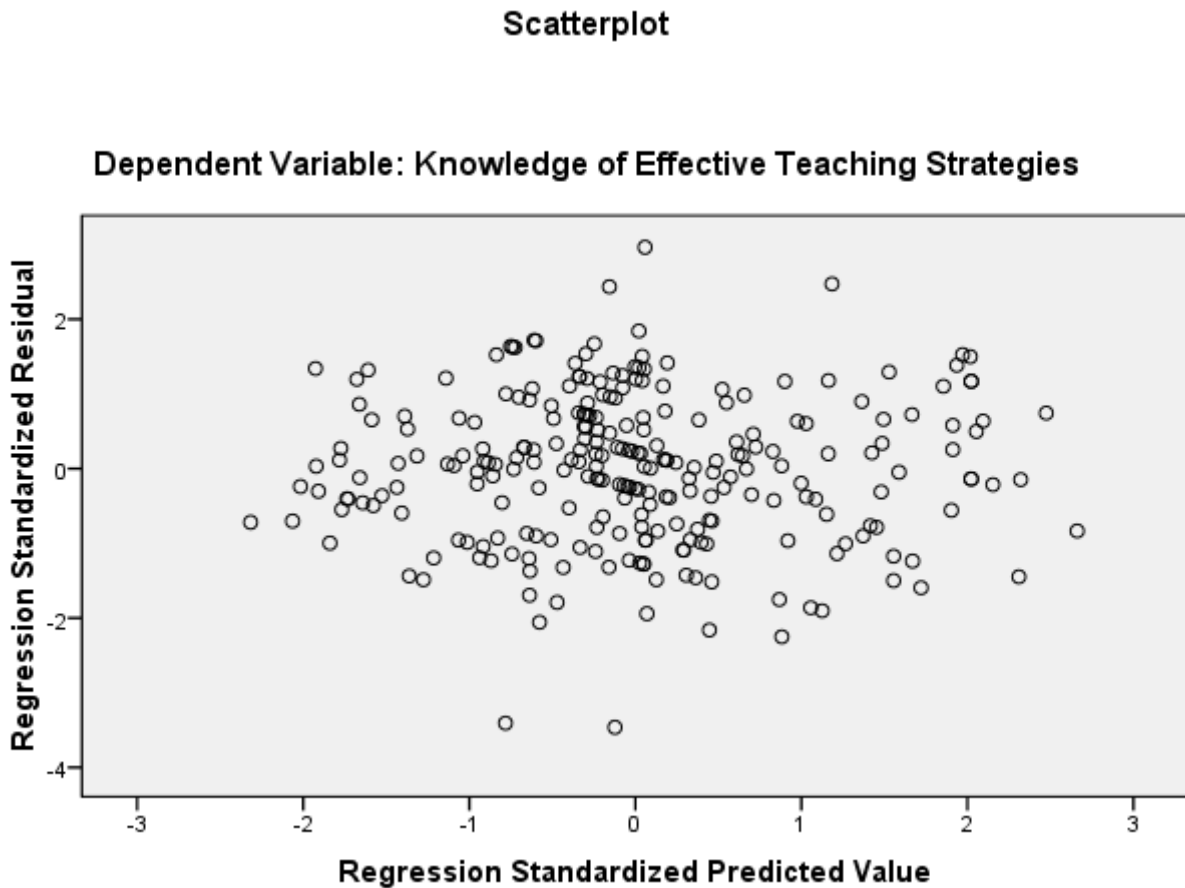


Figure J17. Scatterplot of Residuals vs. Predicted for the reduced model.

Figure J18, a histogram of the standardized residuals for the reduced regression model, indicates that the data, generally do follow a normal distribution, with a central peak at 0. Once again, the mean is very close to zero ($-2.38E-15$) and the standard deviation is close to one (.99), so even though the mean has a higher frequency than the predicted mean of the normal curve, the

residual errors appear to be normally-distributed.

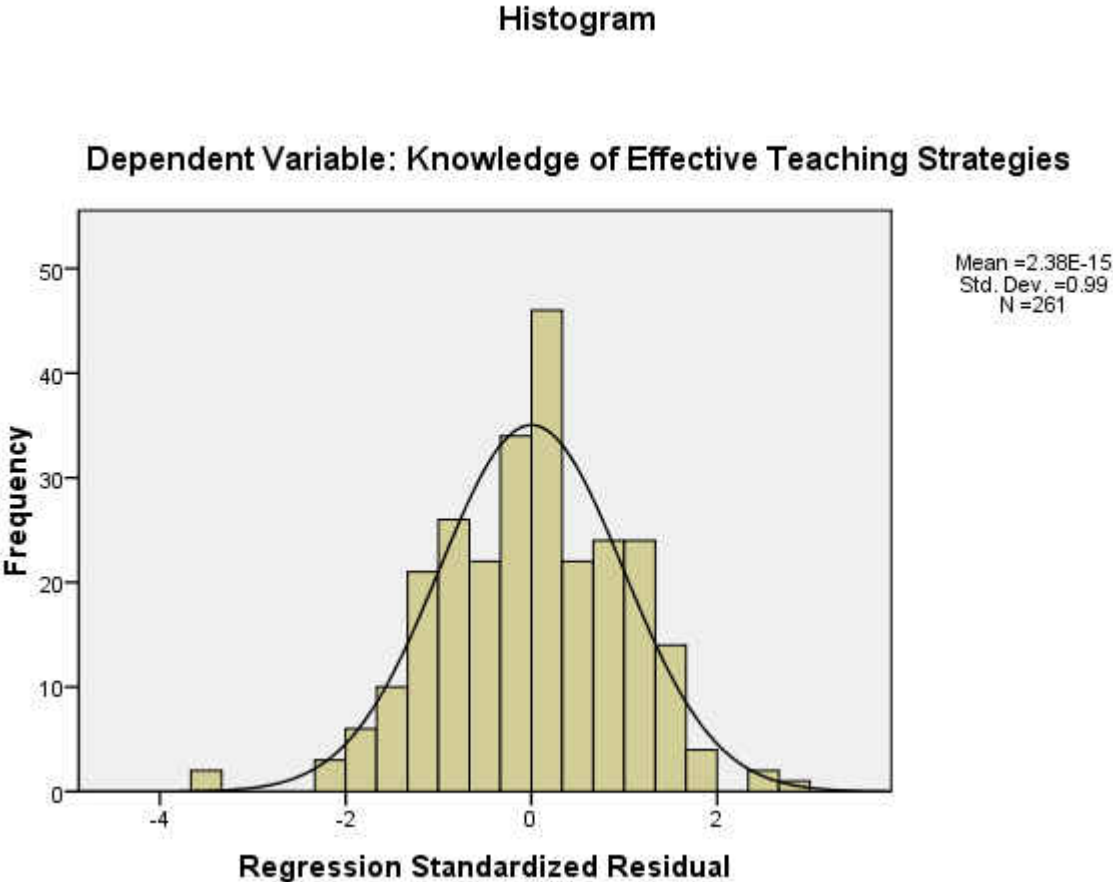


Figure J18. Histogram of Residuals for the reduced model.

REFERENCES

- Agency for Persons with Disabilities - Florida (2005). Senate Committee on Children & Families. Retrieved March 1, 2006 from <http://apd.myflorida.com/2005-sc-handout-organize.htm#residential-sup>
- Alavosius, M. P., Sulzer-Azaroff, B. (1990). Acquisition and maintenance of health-care routines as a function of feedback density. *Journal of Applied Behavior Analysis, 23*, 151-162.
- Alvero, A. M., Bucklin, B. R., & Austin, J. (2001). An objective review of the effectiveness and essential characteristics of performance feedback in organizational settings (1985-1998). *Journal of Organizational Behavior Management, 21*, 3-29.
- American Association on Mental Retardation (AAMR). (2002). Mental retardation: Definition, classification, and systems of support. Washington, DC: Author.
- Arco, L. (2008). Feedback from improving staff training and performance in behavioral treatment programs. *Behavioral Interventions, 23*, 39-64.
- Arco, L., & Birnbrauer, J. S. (1990). Performance feedback and maintenance of staff behavior in residential settings. *Behavioral Residential Treatment, 5*, 207-217.
- Austin, J. & Carr, J. E. (Eds.). (2000). *Handbook of applied behavior analysis*. Reno, NV: Context Press.
- Babbie, E. (2001). *The practice of social research* (9th ed.). Belmont, CA: Wadsworth/Thomson Learning.
- Baer, D. M., Wolf, M. M., & Risley, T. R. (1968). Some current dimensions of applied behavior analysis. *Journal of Applied Behavior Analysis, 1*, 91-97.
- Balcazar, F., Hopkins, B. L., & Suarez, Y. (1985). A critical, objective review of performance feedback. *Journal of Organizational Behavior Management, 7*, 65-89.
- Bandura, A. (1977). *Social learning theory*. New Jersey: Prentice Hall.
- Berman, E. M. (2002). *Essential statistics for public managers and policy analysts*. Washington, DC: CQ Press.
- Brinker, W. A., Morgan, D. G., & Grabowski, J. G. (1972). Development and maintenance of a behavior modification repertoire of cottage attendants through T.V. feedback. *American Journal of Mental Deficiency, 77*, 128-136.

- Burch, M. R., Reiss, M. L., & Bailey, J. S. (1987). Competency-based "Hands-on" training package for direct-care staff. *The Association for Persons with Severe Handicaps, 12*, 67-71.
- Burg, M. M., Reid, D. H., & Lattimore, J. (1979) Use of self-recording and supervision program to change institutional staff behavior. *Journal of Applied Behavior Analysis, 12*, 363-375.
- Burgio, L.D., Whitman, T. L., & Reid, D. H. (1983). A participative management approach for improving direct care staff performance in an institutional setting. *Journal of Applied Behavior Analysis, 16*, 37-53.
- Burning, J. L., Kintz, B. L. (1987). *Computational Handbook of Statistics* (3rd ed.). Glenview, IL: Scott, Foresman and Company
- Byrd, D. A., Miller, S. W., Reilly, J., Weber, S., Wall, T. L., Heaton, R. K. (2006). Early environmental factors, Ethnicity, and adult cognitive test performance. *The Clinical Neuropsychologist, 20*, 243-260.
- Crockett, J. L., Fleming, R. K., Doepke, K. J., & Stevens, J. S. (2007). Parent training: Acquisition and generalization of discrete trials teaching skills with parents of children with autism. *Research in Developmental Disabilities, 28*, 23-36.
- Daniels, A. C. (2004). *Performance management: Changing behavior that drives organizational effectiveness*. Atlanta, GA: Performance Management Publications.
- Demchak, M., (1990). Response prompting and fading methods: A review. *American Journal of Mental Retardation, 94*, 603-615.
- Dib, N., & Stormey, P. (2007). Reducing student stereotypy by improving teachers' implementation of discrete-trial teaching. *Journal of Applied Behavior Analysis, 40*, 339-343.
- Downs, A., Downs, R. C., and Kathryn Rau. (2008). Effects of training and feedback on discrete trial teaching skills and student performance. *Research in Developmental Disabilities, 29*, 235-246.
- Downs, A., Downs, R. C., Johansen, M., Fossum, M. (2007). Using discrete trial teaching within a public preschool program to facilitate skill development in students with developmental disabilities. *Education and Treatment of Children, 30*, 1-27.
- Doyle, P. M., Wolery, M., Ault, M. J. & Gast, D. L. (1988). System of least prompts: A literature review of procedural parameters. *The Association for Persons with Severe Handicaps, 13*, 28-40.
- Ducharme, J. M. , & Feldman, M. A., (1992). Comparison of staff training strategies to promote generalized teaching skills. *Journal of Applied Behavior Analysis, 25*, 165-179.
- Erdfelder, E., Faul, F., & Buchner, A. (1996). GPOWER: A general power analysis program. *Behavior Research Methods, Instruments, & Computers, 28*, 1-11.

- Fleming, R. K., & Sulzer-Azaroff, B., (1989). Enhancing quality of teaching by direct care staff through performance feedback on the job. *Behavioral Residential Treatment, 4*, 377-395.
- Florida Medicaid: Developmental Disabilities Waiver Services Coverage and Limitations Handbook. (June, 2005). Tallahassee, FL: State of Florida Medicaid Program.
- Florida Statute Chapter 393 Developmental Disabilities 2001. <http://www.leg.state.fl.us/statutes/>
- Foxx, R. M. (1982). Increasing behavior of the severely retarded and autistic persons. Champaign, IL: Research Press
- Gardner, J. M., (1972). Teaching behavior modification to nonprofessionals. *Journal of Applied Behavior Analysis, 5*, 517-521.
- Greene, B. F., Willis, B. S., Levy, R., & Bailey, J. (1978). Measuring client gains from staff-implemented programs. *Journal of Applied Behavior Analysis, 11*, 395-412.
- Gujarati, D. N. (2003). Basic Econometrics (4th Ed.). New York: McGraw-Hill
- Hair, J. F., Anderson, R. E., Tatham, R. L. & Black, W. C. (1998). Multivariate data analysis (5th Ed.). Upper Saddle River, New Jersey: Prentice-Hall, Inc.
- Harchik, A. E., Sherman, J. A, Sheldon, J. B., & Strouse, M. C. (1992). Ongoing consultation as a method of improving performance of staff members in a group home. *Journal of Applied Behavior Analysis, 25*, 599-610.
- Harchik, A. E., Sherman, J. A., Hopkins, B. L, Strouse, M. C., & Sheldon, J. B., (1989). Use of behavioral techniques by paraprofessional staff: A review and proposal. *Behavioral Residential Treatment, 4*, 331-357.
- Harcik, A. E., & Campbell, A. R. (1998). Supporting people with developmental disabilities in their homes in the community: The role of organizational behavior management. *Journal of Organizational Behavior Management, 18*, 83-101.
- Hardy, N. & Sturmey, P. (1994). Portage guide to early education, III: A rapid training and feedback system to teach and maintain mothers' teaching skills. *Educational Psychology, 14*, 345-358.
- Hewitt, A., Larson, S. A., & O'Neil, S. (1996). National Voluntary Credentialing for Direct Care Staff. Policy Research Brief, 8 (2), 1-8. Minneapolis: Research and Training Center on Residential Services and Community Living, Institute on Community Integration, University of Minnesota.
- Hile, M. G., & Walbran, B. B. (1991). Observing staff-resident interactions: What staff do, what residents receive. *Mental Retardation, 29*, 35-41.
- Hrydowy, E. R., & Martin, G. L., (1994). A practical staff management package for using in a training program for persons with developmental disabilities. *Behavior Modification, 18*, 66-

- Jahr, E. (1998). Current issues in staff training. *Research in Developmental Disabilities, 19*, 73-87.
- Kazdin, A. E. (2001). Behavior modification in applied settings. Belmont, CA: Wadsworth.
- Kazdin, A. E., (1973). Issues in behavior modification with mentally retarded persons. *American Journal of Mental Deficiency, 78*, 134-140.
- Killu, K. (1994). The role of direct-care staff. *Behavioral Interventions, 9*, 169-176.
- Kissel, R. C., Whitman, T. L., & Reid, D. H., (1983). An institutional staff training and self-management program for developing multiple self care skills in severely/profoundly retarded individuals. *Journal of Applied Behavior Analysis, 16*, 395-415.
- Koegel, R. L., Russo, D. C., & Rincover, A., (1977). Assessing and training teachers in the generalized use of behavior modification with autistic children. *Journal of Applied Behavior Analysis, 10*, 197-205.
- Korabek-Pinkowski, C. A., Reid, D. H., Wilson, P. G. (1991). Analysis of public verbal feedback as a staff management procedure. *Behavioral Residential Treatment, 6*, 263-277.
- Lafasakis, M. & Sturmey, P. (2007). Training parent implementation of discrete-trial teaching: Effects on generalization of parent teaching and child correct responding. *Journal of Applied Behavior Analysis, 40*, 685-689.
- Larson, S., Lakin, K. C., & Hewit, A. (2002). Embarking on a new century for direct support professionals, In R. Schalock (Ed.) A century of concern (rev. ed.). Washington, D.C.: American Association on Mental Retardation.
- Leblanc, M. P., Ricciardi, J. N., Luiselli, J. K. (2005). Improving discrete trial instruction by paraprofessional staff through an abbreviated performance feedback intervention. *Education and Treatment of Children, 28*, 76-82.
- Matson, J. Benavidez, D., Compton, L., Paclawskyj, T., & Baglio, C. (1996). Behavioral treatment of autistic persons: A review of research from 1980 to the present. *Research in Developmental Disabilities, 17*, 433-465.
- Matson, J. L, Smalls, Y., Hampff, A., Smioldo, B. B., Anderson, S. J. (1998). A comparison of behavioral techniques to teach functional independent-living skills to individuals with severe and profound mental retardation. *Behavior Modification, 22*, 298-306.
- Mcallum, I., Demie, F. (2001). Social class, ethnicity and educational performance. *Educational Research, 43*, 147-159.

- McBride, B. J. & Schwartz, I. S. (2003). Effects of teaching early interventionists to use discrete trials during ongoing classroom activities. *Topics in Early Childhood Special Education, 23*, 5-17.
- McCallahan, L. E., & Krantz, P. J. (1993). On systems analysis in autism intervention programs. *Journal of Applied Behavior Analysis, 26*, 589-596.
- McEachin, J. J., Smith, T., & Lovaas, O. I. (1993). Long-term outcome for children with autism who received early intensive behavioral treatment. *American Journal on Mental Retardation, 97*, 359-372.
- Miltenberger, R. G. Behavior modification: Principles and procedures. (2nd Ed.). Belmont, CA: Wadsworth
- Nguyen, H.D., O'Neal, A., & Ryan, A.M. (2003). Relating test-taking attitudes and skills and stereotype threat effects to the racial gap in cognitive ability test performance. *Human Performance, 16*, 261-293.
- Nolan, T. V., Jarema, K. A., & Austin, J. (1999). An objective review of the journal of organizational behavior management: 1987-1997. *Journal of Organizational Behavior Management, 19*, 83-114.
- O'Dell, S. L., Tarler-Benlolo, L., Flynn, J. M. (1979). An instrument to measure knowledge of behavioral principles as applied to children. *Journal of Behavior Therapy and Experimental Psychiatry, 10*, 29-34.
- O'Brien, R. M. (2007). A caution regarding rules of thumb for variance inflation factors. *Quality and Quantity, 41*, 673-690.
- Page, T. J., Iwata, B. A., & Reid, D. H. (1982). Pyramidal training: A large-scale application with institutional staff. *Journal of Applied Behavior Analysis, 15*, 335-351.
- Pallant, J. (2001). *SPSS[®] survival manual: A step by step guide to data analysis using SPSS[®]*. Buckingham, England: Open University Press.
- Paraprofessional Healthcare Institute. (2009). Facts: Who are direct-care workers? *PHI Facts, 3*, 1-3.
- Pallant, J. (2007). *SPSS Survival Manual: A step-by-step guide to data analysis using SPSS for Windows (Version 15)*. Sydney: Allen & Unwin.
- Parsons, M. B., & Reid, D. H., (1995). Training residential supervisors to provide feedback for maintaining staff teaching skills with people who have severe disabilities. *Journal of Applied Behavior Analysis, 28*, 317-322.
- Parsons, M. B., Reid, D. H., & Crow, R. E. (2003). Best and works ways to motivate staff in community agencies: A brief survey of supervisors. *Mental Retardation, 41*, 96-102.

- Parsons, M. B., Reid, D. H., & Green, C. W. (1993). Preparing direct care service staff to teach people with severe disabilities: A comprehensive evaluation of an effective and acceptable training program. *Behavioral Residential Treatment*, 8, 163-185.
- Parsons, M. B., Reid, D. H., & Green, C. W. (1996). Training basic teaching skills to community and institutional support staff for people with severe disabilities: A one-day program. *Research in Developmental Disabilities*, 17, 467-485.
- Parsons, M. B., Rollyson, J. H., and Reid, D. H. (2004). Improving day-treatment services for adults with severe disabilities: A norm-referenced application of outcome management. *Journal of Applied Behavior Analysis*, 37, 365-377.
- Prouty, R. H. & Lakin, K. C. (2000). Residential services for persons with developmental disabilities: Status and trends through 1999. Report #54. Minneapolis: University of Minnesota, Research and Training Center on Community Living.
- Realon, R. E, Lewallen, J. D., Wheeler, A. J., (1983). Verbal feedback vs. verbal feedback plus praise: The effects on direct care staff's training behaviors. *Mental Retardation*, 21, 209-212.
- Realon, R. E., Wheeler, A. J., Spring, B., Springer, M. (1986). Evaluating the quality of training delivered by direct-care staff in a state mental retardation center. *Behavioral Residential Treatment*, 1, 199-212.
- Reid, D. (1998). Organizational behavior management and developmental disabilities services: Accomplishments and future directions. New York: Haworth Press, Inc.
- Reid, D. H. & Green, C. W., (1990). Staff Training. In J. L. Matson (Eds.), *Handbook of behavior modification with the mentally retarded*. (2nd ed., pp. 71-90). New York: Plenum Press.
- Reid, D. H., Parsons, M. B. (1996). A comparison of staff acceptability of immediate versus delayed verbal feedback in staff training. *Journal of Organizational Behavior Management*, 16, 35-47.
- Reid, D. H., Parsons, M. B., & Green, C. W. (1989). *Staff management in human services*. Springfield, IL: Charles C. Thomas.
- Reid, D. H., Rotholz, D. A., Parsons, M. B., Morris, L., Braswell, B. A., Green, C. W., & Schell, R. M. (2003). Training human service supervisors in aspects of PBS: Evaluation of a statewide, performance-based program. *Journal of Positive Behavior Interventions*, 5(1), 35-46.
- Roth, P. L., Bevier, C. A., Bobko, P., Switzer, F. S., III, & Tyler, P. (2001). Ethnic group differences in cognitive ability in employment and educational settings: A meta-analysis. *Personnel Psychology*, 54, 297-330.

- Saloviita, T., Lehtinen, U. (2001). Paraprofessional staff teaching adults with mental retardation. *Education and Training in Mental Retardation and Developmental Disabilities, 36*, 103-106.
- Sarokoff, R. A. & Sturmey, P. (2004). The effects of behavioral skills training on staff implementation of discrete-trial teaching. *Journal of Applied Behavior Analysis, 37*, 535-538.
- Schepis, M. M., Ownbey, B. J., Parsons, M. B., & Reid, D. H. (2000). Training support staff for teaching young children with disabilities in an inclusive preschool setting. *Journal of Positive Behavior Interventions, 2*, 170-178.
- Schepis, M. M., Reid, D. H., Ownbey, J., & Parsons, M. B. (2001). Training support staff to embed teaching within natural routines of young children with disabilities in an inclusive preschool. *Journal of Applied Behavior Analysis, 34*, 313-327.
- Shaddock, A. J., Hattie, J. A., Edwards, H. E., Bramston, P., & Brummel, V. A. (1986). Identifying the training needs of staff working in community residences for people with developmental disabilities. *Australia and New Zealand Journal of Developmental Disabilities, 12*, 263-267.
- Shore, B. A., Iwata, B. A., Vollmer, T. R., Lerman, D. C., Zarone, J. R. (1995). Pyramidal staff training in the extension of treatment for severe behavior disorders. *Journal of Applied Behavior Analysis, 28*, 323-332.
- Skinner, B. F. (1953). *Science and human behavior*. New York: Free Press.
- Skinner, B. F., (1969). *Contingencies of reinforcement: A theoretical analysis*. New York: Appleton-Century-Crofts.
- Smith, T. (2001). Discrete trial training in the treatment of autism. *Focus on Autism & Other Developmental Disabilities, 16*, 86-92.
- Snell, M. E., & Gast, D. L. (1981). Applying the time delay procedure to the instruction of the severely handicapped. *Journal of the Association for the Severely Handicapped, 6*, 3-14.
- SPSS for Windows, Rel. 16.0.1. 2007. Chicago: SPSS Inc.
- Sturmey, P. (1998). History and contribution of organizational behavior management to services for persons with developmental disabilities. *Journal of Organizational Behavior Management, 18*(2/3), 7-32.
- Taras, M. E., & Matese, M. (1990). Acquisition of self help skills. In J.L. Matson (Ed.), *Handbook of behavior modification with the mentally retarded* (2nd. Ed.)(p.73-303) New York: Plenum Press

- Van Houten, R., Axelrod, S., Bailey, J. S., Foxx, R. M., Iwata, B. A., & Lovaas, O. I. (1988). The right to effective behavioral treatment. *Journal of Applied Behavior Analysis, 21*, 381-384.
- Vonderen, A., & Bresser, A. (2005). The effect of supervisory feedback, self-recording, and graphic feedback on trainer behavior during one-to-one training. *Behavioral Intervention, 20*, 273-284.
- Walker, J.E. & Shea, T.M. (1999). *Behavior Management: A practical approach for educators*. Seventh Edition. New Jersey: Prentice Hall
- Watson, L. S., Jr., & Uzzell, R. (1980). A program for teaching behavior modification skills to instructional staff, *Applied Research in Mental Retardation, 1*, 41-53.
- Watson, L., S., Gardner, J. M., and Sanders, C., (1971). Shaping and maintaining behavior modification skills in staff members in an MR institution. *Mental Retardation, 9*, 39-42.
- Whitman, T. L., Scibak, J. W., & Reid, D. H. (1983). *Behavior modification with the severely and profoundly retarded*. New York: Academic.
- Wolery, M., Bailey, D. B., & Sugai, G. M. (1988). *Effective teaching: Principles and procedures of applied behavior analysis with exceptional students*. Boston, MA: Allyn and Bacon, Inc.
- Wolpe, J. (1961). The systematic desensitization treatment of neuroses. *Journal of Nervous and Mental Disease, 132*, 189-203.
- Wyatt vs. Stickney, 325 F. Supp. 781 (M.D. Ala. 1971)
- Zlomke, L. C, Benjamin, V. A., Jr. (1978). Staff in-service: Measuring Effectiveness through client behavior change. *Education and Training of the Mentally Retarded, 18*, 125-130.