THE EFFECTS OF MOTIVATION AND TRAINING SCHEDULE ON SELF-EFFICACY AND KNOWLEDGE

by

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Abstract

It is estimated that 15,000 children under the age of five are experiencing homelessness in the Commonwealth of Virginia (Virginia Department of Education, 2011). Project Sprout (PS) is a prevention and awareness program designed to empower parents and families to help their children develop and learn regardless of the environment in which they live. Graduate student coordinators recruit and train undergraduate and leveling students as PS advocates. The advocate's role is to provide information, activities, and resources to families that target the development of early cognitive, language, literacy, and socio-emotional skills in children birth to five years old. To teach these concepts, a ten-hour training program was developed by first-year Communication Sciences and Disorders graduate students. The training program was offered twice at separately scheduled times, referred to as the distributed schedule and the massed schedule. Once trained, advocates visit families in pairs to target child development.

Evidence based research is lacking with regards to the efficacy of protocols and schedules needed to train undergraduate students specifically in the provision of prevention and awareness activities. To ensure quality and efficiency of the pilot PS Advocate Training Program (PS-ATP), the author investigated the effects of training schedule and type of motivation on level of self-efficacy and change in knowledge. The author sought to answer the following questions: (a) did the PS-ATP lead to a change in knowledge, (b) was the change in knowledge different for distributed versus massed schedules, (c) did the PS-ATP lead to a change in self-efficacy, (d) was the change in self-efficacy different for distributed versus massed schedules, and (e) was intrinsic motivation associated with change in knowledge?

The study included Radford University undergraduate and leveling students (n = 16) from five departments with an average age of 21 years. A quasi-experimental design, with pre-post

quantitative surveys, was used for this study. Data was obtained from quality control surveys embedded into the pilot PS-ATP.

Undergraduate students who participated in the pilot PS-ATP demonstrated significant changes in knowledge ($t(15) = -8.18$, $p = .00$, 2-tailed). Participants also demonstrated significant changes in level of self-efficacy ($t(15) = -2.81$, $p = .013$, 2-tailed). Results of the study did not reveal significant differences in change in knowledge or level of self-efficacy between distributed and massed practice, supporting the claim made by Mumford et al. (1994) that many studies have failed to demonstrate the distributed practice effect. Intrinsic motivation was found to be positively associated with change in participant knowledge, extending previous findings that intrinsic motivation is predictive of greater progress and higher levels of mastery (Schunk & Zimmerman, 2008).

Not only did the participants demonstrate a change in knowledge, the increase in self-efficacy validates that what they learned made them feel capable of becoming Project Sprout advocates. The participants who identified as being intrinsically motivated at the outset of the study demonstrated greater changes in knowledge. This supports the existing literature which suggests that for service learning projects, intrinsic motivation leads to greater levels of progress and sustained volunteer engagement.

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Introduction

Project Sprout: Helping Children Grow

According to the National Center on Family Homelessness (2003), two million people are dealing with homelessness in the United States at any given time. According to the Virginia Department of Education, in the Commonwealth of Virginia alone, it is projected that over 15,000 children under the age of five years are homeless (Virginia Department of Education, 2011). The research suggests that homelessness can be a barrier to a child's academic success; for example, in 2008 Walker-Dalhouse and Risko found that many children who experience homelessness are at risk for emotional, social, and behavioral problems that can later hinder their school attendance and performance. Early experiences with homelessness also tend to restrict children's language and literacy development (Fantuzzo & Periman, 2007); 75 percent of homeless children in the United States end up performing below grade level in reading (Rubin et al., 1996).

Not only does homelessness impact children's development, research has also shown that these experiences negatively impact parents' perception of their ability to facilitate their child's development (Swick, 2004). These parents often lack the knowledge, experience, and resources that are necessary to guide and support them when interacting with their own children (Bassuk et al., 2001).

In light of this, there is an irrefutable need for prevention and awareness programs whose purpose is to provide services to this population. Project Sprout is a prevention and awareness program sponsored by Radford University and the Waldron College of Health and Human Services that was designed for children between the ages of birth and five years with their

families who are experiencing homelessness in the New River Valley of Virginia, including the City of Radford and the counties of Montgomery and Pulaski.

Project Sprout was developed to provide information, activities, and resources to families that target the development of early cognitive, language, literacy, and socio-emotional skills in children birth to five years old. The goal of Project Sprout is to improve parents' confidence and competence in helping to facilitate their child's development, increase parents' awareness and knowledge regarding development as it relates to their own children, and empower parents to help their children develop and learn regardless of the environment in which they live.

In order to achieve the goals and objectives set forth by Project Sprout, Radford University undergraduate students enrolled in Communication Sciences and Disorders, Nursing, Psychology, Social Work, or Teacher Education & Leadership programs are trained by first year Communication Sciences and Disorders graduate students (Project Sprout student coordinators) to become advocates, go out into the community, and work with parents, helping them to engage in meaningful and positive interactions with their children. Advocates meet with families for one-hour visits in pairs. Project Sprout (PS) advocates are trained to model specific behaviors that target child development for the families with whom they work. Each family receives a bag that includes materials for children between the ages of birth to five years. Materials include age-appropriate toys and books that target child development. Each bag also contains developmental checklists and resources for additional services. Families can keep the bags or follow up with Project Sprout and trade their bags in for new ones.

The Role of Training Schedule in the Process of Learning

In March and April of 2013, the first annual PS advocate training program was conducted by the PS student coordinators. It was intended to develop skilled performance by Radford

University undergraduate students in prevention and awareness activities designed to address early cognitive, language, literacy, and socio-emotional skills, and parents' confidence and competence. A ten hour training program was developed by first-year Communication Sciences and Disorders graduate students. The model of Parent, Family, and Community Engagement (PFCE) from the office of Head Start was used as a resource for training materials and activities geared towards volunteer and parent/family collaboration (Head Start, 2014). Training materials were also borrowed and adapted from the Women's Resource Center of the New River Valley (WRC) Crisis Intervention Volunteer Training Program (WRC, 2013). The WRC provides extensive, interactive pre-service instruction which provides trainees with a wide variety of learning experiences revolving around family and sexual violence, crisis intervention, and helping skills.

The training program was offered twice at separately scheduled times. The initial presentation of the training program was broken into four 2.5- hour sessions, each of which took place on a weeknight over the course of two weeks. The second presentation of the training program consisted of one 10-hour session, which took place on a Saturday.

The training program was designed to target four modules: (1) Introduction to PS, (2) Overview of Child Development, (3) Communicating with Parents, and (4) Putting it Into Practice. Module 1 was designed to provide advocates with an introduction to Project Sprout and familiarize them with the structure of the program and their role within it. Module 2 was designed to provide an overview of child development and review the importance of understanding developmental milestones. Module 3 was used to teach effective collaboration with parents, discuss what makes communication effective, and review skills necessary for

working with the target demographic. Module 4 was used to provide advocates with an opportunity to practice what they had learned through role play and hands on experience.

PS advocate training programs are scheduled to take place annually; subsequently, the need for this study arose from a desire to document quality and efficiency of the pilot training protocols to inform future training programs. In the future, only one training schedule will be offered, and therefore the results of this study will be used to determine the training schedule which will be utilized in future PS advocate training programs.

To document quality and efficiency, quality assurance measures in the form of surveys were embedded into the spring 2013 pilot PS advocate training program. The content of the four Modules was used to assess the advocates' change in knowledge through pre and post surveys. Current research suggests that memory and learning receive considerable advantages when material is presented in a distributed fashion (Benjamin & Tullis, 2010). The existing literature on training schedule will be discussed, including how to differentiate distributed versus massed schedules, and which schedule is currently thought to have the most resounding effects on learning, based on the available literature.

The Role of Motivation and Self-Efficacy in the Process of Learning

Training schedule is a critical component of a quality training program; unfortunately, the scheduling of the training is not always the priority. Therefore, this study also seeks to shed light on other sources from which learners draw in their attempt to master new skills, specifically type of motivation and level of self-efficacy. Pre- and post-surveys were used to monitor the advocates' type of motivation and level of self-efficacy, as these constructs are known to predict student retention and achievement (Walker et al., 2006).

Deci & Ryan (1985) suggest that motivation is the driving force behind an individual's choice of activity, the effort with which they engage in activities, and the persistence with which they complete activities. In addition, an individual's motivational disposition coupled with a supportive environment can result in multiple opportunities for mastering new skills and acquiring new knowledge (Ryan & Deci, 2008; Wentzel & Wigfield, 2009)

Bandura (1993) describes self-efficacy as a belief in one's capabilities, which regulates human functioning by influencing how individuals motivate themselves. By influencing our choices and motivational level, beliefs of self-efficacy make a significant contribution to the acquisition of knowledge structures on which skills are founded (Bandura, 1998); furthermore, the most compelling source of self-efficacy is an individual's evaluation of their actual performance in a given situation. These experiences provide individuals with the most authentic appraisal of whether or not they have what it takes to succeed (Bandura, 1998). The theoretical framework of motivation and self-efficacy will further be explored in the literature review, along with a thorough description of how they contribute to the tasks of learning and volunteering.

What Are the Effects of Motivation and Training Schedule on Self-Efficacy and Knowledge?

The literature suggests that an individual's motivational disposition is closely related to academic achievement (Ames & Archer, 1988; Deci & Ryan, 2008; Nolen, 1988; Schunk & Zimmerman, 2008; Vallerand & Bissonnette, 1992; Wentzel & Wigfield, 2009). Quality assurance pre- and post-surveys were used to determine if the advocates' type of motivation was associated with their change in knowledge.

According to the existing literature, there is no clear understanding as to which training schedule offers the greatest advantage to learning and memory (Cepeda et al. 2006; Donovan &

Radosevich, 1999). Providing two training sessions allowed for between-group comparisons regarding the effects of training schedule on self-efficacy and knowledge. Quality assurance pre- and post-surveys were designed to explore specific questions. The most salient question was whether or not the pilot PS advocate training program succeeded as an effective intervention. In other words, did the advocates experience a change in knowledge because they participated? This question was then elaborated upon to explore whether or not the training schedule could affect the participants' change in knowledge; was there a greater benefit to participating in one schedule versus the other? Likewise, the level of self-efficacy was measured within and between groups. If one training schedule seemed to result in greater changes in knowledge, was it then logical to assume that greater changes in level of self-efficacy would also be observed for that same schedule?

Chapter 1: Review of the Current Literature

This study was designed to examine type of motivation (intrinsic/extrinsic) and type of training schedule (distributed/massed) as they relate to level of self-efficacy and change in knowledge of PS objectives, child development, and interpersonal communication skills. A review of the author's operational definitions of those variables is included in Appendix A. The following literature review closely examines the history and theoretical perspective of the variables included in this study. Training schedule, motivation, and self-efficacy will be defined and considerations within each construct will be presented as they relate to knowledge acquisition.

Training Schedule: Distributed versus Massed

The relationship between instruction (training) schedule and retention of material has long been examined (Cepeda et al., 2006; Donovan & Radosevich, 1999). Within the literature, instruction or training schedules have frequently been referred to as either distributed or massed (Baddeley et al. 1978; Cepeda et al. 2009; Donovan et al. 1999; Mumford et al. 1994; Seabrook et al. 2005). Currently, the practical application of either instructional schedule, be it distributed or massed, as it applies to classroom learning situations, is ill-documented (Cepeda et al. 2009). Although evidence suggests there is potential benefit to learning from distributed practice (Seabrook et al., 2005), discrepancies exist amongst schedules of distribution that are reported to have optimal outcomes (Cepeda et al. 2009).

In its early conception, distributed training simply referred to short training sessions (Baddeley, 1978). The operational definition has evolved over the years and now often refers specifically to a schedule that requires subjects to study the same material in two learning episodes separated by an interstudy gap (Cepeda et al., 2009). Similarly, massed training was

initially viewed simply as longer sessions (Baddeley, 1978) but is now understood to refer to study time that is devoted to a given item and not subject to any interruptions of intervening items or time (Cepeda et al., 2006).

To qualify as a distributed training schedule, presentation of the same material must be separated by either time or different material. The interval separating the study episodes of the same material is known as the interstudy interval (Cepeda et al., 2006). Researchers have also compared different levels of spacing through increased temporal lags between study episodes or increased items between two presentations of a repeated item (Seabrook et al., 2005; Cepeda et al., 2009). Comparison of different levels of spacing is known as the lag effect, whereas the term spacing effect is used to refer to the overall advantage of spaced compared to massed study on learning (Cepeda et al., 2006). In order to measure the effects of distributed training schedules on learning and memory, it is necessary to administer a final test once training has concluded. The time separating the final study episode and a later test is referred to as the retention interval (Cepeda et al., 2006). Research has shown that collectively, these factors lead to enhanced learning; this finding is known as the distributed practice effect, which refers to the effect of interstudy interval upon learning as measured on subsequent tests (Cepeda et al., 2006).

Massed training schedules refer to the concentrated teaching of a topic in a single session (Seabrook et al., 2005). To qualify as a massed training schedule, individuals must practice a task continuously without rest (Donovan & Radosevich, 1999). Research suggests there are individuals capable of learning large amounts of information in one learning session, and this style of learning is promoted for individuals who may already possess the requisite background knowledge (Mumford et al., 1994). The majority of research on training schedule has focused on

the benefits of distributed learning; however, Mumford et al. (1994) suggest that many studies have failed to reveal significant differences between distributed and massed practice.

One of the most obvious confounds in determining the relative benefits between distributed and massed training schedules is the type of learning or the skill that is to be mastered (Mumford et al., 1994). Although research supports the benefit of distributed practice in organizational training settings, education settings, and athletics skill acquisition, (Benjamin & Tullis, 2010), there is no consensus amongst researchers as to how the gap between learning episodes for different tasks truly impacts memory (Cepda et al., 2008).

Cepeda et al. (2006) conducted a review of the current literature on the distributed practice effect. In their review, studies were found that claimed to demonstrate advantages in word memory tasks, picture memory tasks, and motor skill acquisition when learning was distributed. The authors cited a previous review done by Moss (1996) in which 120 articles were organized by participant age and type of material being learned. In the review by Moss (1996), material to be learned was categorized by verbal information, intellectual skills, and motor learning. Longer interstudy intervals were found to facilitate learning of verbal information (e.g. spelling) and motor skills; however, only one third of intellectual skill (e.g. math computation) studies showed a benefit from the distribution of practice (Cepeda et al., 2006). Cepeda et al. (2006) also cited a study by T.D. Lee and Genovese (1988) who claimed that distributed practice improved motor skill acquisition.

Donovan and Radosevich (1999) conducted a meta-analytic review of the distributed practice effect. Results of their review indicate that task domain moderates the distributed practice effect. Their review revealed that different combinations of task and the interstudy interval lead to increased or decreased distributed practice effects. The authors found that longer

interstudy intervals had larger effects for verbal tasks; however when the lag was too long, the effect was undermined. Furthermore, the review revealed that longer interstudy led to smaller effects when learning motor skills (e.g. typing or gymnastics). Donovan and Radosevich (1999) concluded that interstudy intervals can be too long, regardless of the task domain. Cepeda et al. (2006) also cited a review by Janiszewski et al. (2003) which revealed results contrary to those suggested by Donovan & Radosevich. Janiszewski et al. (2003) proposed that longer interstudy intervals increased the distributed practice effect.

Cepeda et al. (2006) summarized the complex relationship between interstudy interval and material when they said, "Even though distributed practice benefits are robust, temporal moderators affect distributed practice through a complex interplay of time and task" (p.356).

Theories of Distributed Practice Effect

In 1885, Herman Ebbinghaus, a German psychologist, was among the first to experimentally investigate the properties of human memory (Wozniak, 1999). Memory refers to the structures and processes involved in the storage and retrieval of information (McLeod, 2007). Without memory, learning would not be possible. Memory allows us to remember our past and plan for our future through three distinct stages of information processing: (1) encoding, (2) storage, and (3) retrieval (McLeod, 2007).

Ebbinghaus was a pioneer in research on learning and memory; he discovered that distributing learning trials over time is more effective for memory than massing practice into a single session (Wozniak, 1999). After Ebbinghaus, research on instruction schedule plateaued between the 1950s and 1970s, and then slowly began to decline (Donovan & Radosevich, 1999). Recently, however, interest in instruction schedule has reemerged as researchers attempt to

identify principles that will inform teachers and students of ways to make learning efficient and durable (Rohrer & Pashler, 2010).

The belief that an interstudy temporal gap can have a positive impact on learning as measured by future assessments is known as the distributed practice effect (Cepeda et al., 2006) The effects of distributed practice should be accounted for by theoretical models of human learning and memory (Benjamin & Tullis, 2010). According to Cepeda et al. (2009), the literature on the distributed practice effect is abundant; however, there is no fundamental understanding of this phenomenon. Furthermore, there seems to be no consensus amongst proposed theoretical models that attempt to account for the effect (Cepeda et al., 2006). Donovan & Radosevich (1999), suggest that even in light of the abundant research on the distributed practice effect we are merely relying on common knowledge versus empirical findings to guide our assumption that distributed practice is superior to massed practice.

Cepeda et al. (2006) conducted a meta-analysis of the distributed practice effect and found that many theories claim to account for the phenomenon. The authors discuss four theories that emerged in their analysis, while acknowledging that still others exist (Cepeda et al., 2006). The four theories discussed in their review are deficient processing theory, encoding variability theory, consolidation theory, and study-phase retrieval theory (Cepeda et al, 2006). Theories of distributed practice often make predictions regarding how information is processed for spaced versus massed practice (the spacing effect) (Cepeda et al., 2006). Many theories of the distributed practice effect also attempt to account for the lag effect (Cepeda et al., 2006). The spacing and lag effects are cornerstone elements of the distributed practice effect, and each theory presented below attempts to account for both (Cepeda et al., 2006).

The deficient processing theory purports that certain mechanisms change how much focus is received by items (Cepeda et al., 2006). When the inter-study interval (ISI) is short, individuals allocate less attention to the second presentation of the material because it is relatively familiar, which may account for the inferiority of massed practice (Cepeda et al., 2006). This theory claims to account for the inefficiency of a short lag time compared to a longer lag time, and suggests that processing of two learning episodes should be independent of one another (Benjamin & Tullis, 2010).

Encoding variability theory states that aspects of the encoding process or environmental circumstances change over time (Benjamin & Tullis, 2010). Learning events that are farther apart in time are more likely to be different than learning events that are closer together (Benjamin & Tullis, 2010). As a learner attempts to remember a stimulus, contextual elements that become linked to the stimulus are subject to variability, as are the encoding processes used to memorize the stimulus (i.e. visual, acoustic, or semantic). This variability can result in a variety of representations of the stimulus (Benjamin & Tullis, 2010). Encoding variability benefits memory because the greater the variability of the memory, the greater the chance it will be recalled under testing circumstances (Benjamin & Tullis, 2010). This generalization can be attributed to the repetition of items with an increased ISI (Benjamin & Tullis, 2010). According to Benjamin & Tullis (2010), encoding variability theory is currently one of the predominant explanations of the spacing effect.

Consolidation is a neurological process that involves gradually converting information from short-term memory into long-term memory (Cherry, 2014). Consolidation involves stabilizing a memory trace after initial exposure to the stimulus and includes two specific processes, synaptic consolidation and system consolidation (Mastin, 2010). Synaptic

consolidation occurs shortly after a stimulus is first encoded whereas system consolidation refers to a longer period of time during which a memory becomes independent of the hippocampus (the part of the brain that is involved in memory forming) (Mastin, 2010). Long-term potentiation is the process which allows a synapse to increase in strength as multiple signals are transmitted between the two neurons (Mastin, 2010). Potentiation is responsible for neuron synchronization and sensitization and results in neural networks or pathways (Mastin, 2010); therefore, if an individual studies the same material regularly over a long period of time, the neural pathways involved in remembering that information become stronger and more familiar (Cherry, 2014). The change in strength and efficiency within the neural network is referred to as neural plasticity and is the foundation of human memory and learning (Mastin, 2010).

Consolidation theory suggests when a stimulus is presented to a learner for the second time, a new memory trace is formed which inherits the consolidation of the first memory trace (Cepeda et al., 2006). A longer ISI implies that more consolidation of the first presentation has occurred, and therefore, the second memory trace will include the more advanced state of consolidation (Cepeda et al., 2006). Conversely, if the ISI is too long, there is a risk that the initial memory trace has disappeared, and therefore, the second presentation inherits nothing.

Study-phase retrieval theory rests upon the notion that the second presentation of an item cues the memory to recall the first presentation (Cepeda et al., 2006). The importance of this theory rests on the interaction between the two study episodes as opposed to the independence of them (Benjamin & Tullis, 2010). It has been suggested that massed presentations do not yield advantages because the first trace of a memory is still active at the time of the second memory trace; therefore, the first trace is not retrieved or elaborated upon (Cepeda et al., 2006).

Benjamin & Tullis (2010) suggest that presently, there is little agreement as to how theoretical models account for the effects of training schedules, specifically the advantages of distributed learning. The authors propose that a unified theoretical framework is needed for a clear understanding of the effects of repetition and association on memory (Benjamin & Tullis, 2010).

Distributed Training Schedule and Knowledge Acquisition

A large body of evidence strongly advocates that instruction on a wide variety of material should be distributed over a period of time (Baddeley et al., 1978; Benjamin et al. 2010; Cepeda et al. 2009; Murrihy et al. 2009; Seabrook et al. 2005; Smith et al. 1984; Toppino et al. 2009). The distributed practice effect has been evidenced in a variety of learning tasks including basic word or picture memory, motor skill acquisition, and complex educationally relevant tasks such as statistics, reading comprehension, and mental health training (Benjamin & Tullis, 2010; Mumford et al, 1994; Murrihy et al., 2009; & Smith & Rothkopf, 1984).

Evidence is variable regarding just how long the gap or lag between learning episodes should be (Cepeda et al. 2009). Cepeda et al. (2009) make the case that a gap between study sessions that includes at least one night of rest may improve retention, although more substantial temporal gaps will ultimately lead to more durable learning and long-term retention. While common threads in learning occur, individual learning habits are highly variable and subject to the influence of basic cognitive skills such as attention and memory (Mumford et al., 1994).

Distributed practice provides students the time they need to work with new material and thus contributes to learning and performance when the task at hand stresses knowledge structure development (Mumford et al., 1994). Distributed practice also provides students with the time needed for deep, elaborative processing (Mumford et al., 1994). Unfortunately, there are some

obvious gaps in the research on the efficaciousness of distributing learning episodes. Many studies supporting distribution of practice have focused on simple motor tasks, and less is known about the acquisition of non-motor and verbal skills (Donovan et al. 1999). There are multiple factors that can contribute to or take away from learning, and research suggests that learning a large amount of material in one prolonged episode may be subject to factors that detract from maximum retention of material (Donovan et al. 1999). These prolonged learning episodes have long been criticized by names, such as 'cramming' or 'summer sessions,' (Cepeda et al., 2009) The quality of instruction, the nature and personality of the learner, and the material to be learned all contribute to learning styles, which influence abilities and task performance (Mumford et al. 1994).

Motivation

Motivation is the source of energy that gives rise to human behaviors (Deci & Ryan, 1985). Motivation is the reasoning behind the tasks in which humans choose to engage, and the force that helps sustain human behaviors (Deci & Ryan, 1985). Whether an individual's needs are innate, or acquired from the exposure within the environment, motivation directs the behavior individuals engage in to satisfy those needs (Deci & Ryan, 1985). It was once postulated that all behaviors were motivated by a drive to satisfy basic needs (Deci & Ryan, 1985), and human beings were simply operating in a reactive state. These early theories assumed that motivation was rooted in a need to satisfy physiological (i.e. biological) needs, and behavior was driven by outside forces. It was not until the 1950s that it became clear that human motivation is largely driven by a need to satisfy innate psychological (i.e. mental, emotional, physical, spiritual) urges. Most recently, it has been suggested that human beings are proactive and possess the desire to be effective members of their environment. If this is the case,

motivation to behave and engage is derived from a dynamic relationship between self and environment (Deci & Ryan 1985).

Theories of Motivation

Motivational theories can be viewed along a continuum of explanation regarding human nature and the reasons behind their behaviors. At one end of the continuum are theories that characterize humans as passive, reactive beings whose behaviors are primarily influenced by physiological drives and the environment. At the opposite end of the continuum, theories are presented that view humans as proactive organisms, motivated to behave not only by physiological drives, but also by their own desires (Deci & Ryan, 1985).

For those who supported the initial drive theories of motivation, it was assumed that behavior was driven solely by physiological needs. These needs, or drives, consisted of things such as hunger, thirst, sex, and avoidance of pain, and it was believed that these drives motivated all behavior (Deci & Ryan 1985). It became evident, however, that drive theories were not capable of explaining a considerable amount of behavior, and researchers began to expand the continuum of explanation for human behavior. In 1943, Maslow depicted a hierarchy of needs that included physiological drives, but he also accounted for the unique human need for self-actualization. Maslow acknowledged that physiological needs may be the chief determinant of behavior, but once those basic needs are met, humans are motivated by what Maslow referred to as "higher needs." According to Maslow (1943), the highest and most refined need of an organism is to experience self-actualization. Self-actualization refers to the human desire to realize one's potential and to fulfill one's desires through one's own efforts (Maslow, 1943).

Maslow was one of many researchers who were part of the movement that began to give credence to the notion that organisms are motivated by complex, internal, psychological needs.

His theory of self-actualization is echoed in White's 1959 seminal work that highlights the individual's desire to interact effectively with their environment. White defined this desire as competence. He, too, recognized that an individual's motivation to experience competence within the environment is not derived from a need to satisfy physiological drives. White began to pinpoint a variety of behaviors that could not be adequately explained by drive theories (i.e. language, thinking, exploring, and producing effective changes in the environment); rather, he suggested all of these behaviors are part of a process of interacting effectively within one's environment. This process involves a series of transactions with the environment that encompass a cycle of cognition, action, effect, and new stimulation. The process is motivated by a feeling of efficacy in these transactions with the environment, which White refers to as effectance motivation (White, 1959). Effectance motivation is a persistent influence on human behavior, only to be superseded by episodes of homeostatic crisis. Effectance motivation is aroused by novel stimulus conditions; an individual's interest is sustained when their actions produce effects (White, 1959).

Building on theories such as self-actualization and competence, Deci and Ryan (1985) proposed a more current theory of motivation known as self-determination theory (SDT). SDT is founded on the assumption that human beings tend to operate as active and constructive individuals; however, they may fall victim to a more passive, idle state of being. Deci and Ryan (2000) argue that these contrasting states of human nature cannot simply be explained by disposition or biology; rather, they imply diverse reactions to sociocultural conditions. Human nature is susceptible to influence from the social environment, and the result is a combination that either supports proactive, engaged behavior or circumvents it.

Through careful consideration of human interaction with social conditions, SDT purports that there are two distinct forms of motivation: autonomous and controlled. Autonomous motivation accounts for behavior that is volitional and is defined by the capacity to choose. Controlled motivation accounts for behaviors that humans engage in due to forces perceived to be external to the self (Deci & Ryan, 2008). SDT therefore accounts for contrasting states of human nature in terms of type of motivation. Furthermore, SDT proposes three innate psychological needs that all humans work to satisfy: (1) the need to feel competent, (2) the need to be autonomous, and (3) the need to feel related to others. Deci and Ryan (2008) argue that satisfaction of these needs is necessary for psychological well-being, which leads to enhanced autonomous motivation and optimal functioning.

In summation, within the evolution of motivational theories a clear shift towards a more organismic theory can be seen, with emphasis on the unity and integration of self, expressed through growth and development. Current motivational theories highlight the importance of proactive human nature, self-initiated behavior, and satisfaction of internal psychological needs. Humans engage within internal and external environments, driven by a desire to be effective and to satisfy their needs. There is a dynamic relationship between self and environment; as humans engage with their environment they continue to refine their representation of self and environment (Deci & Ryan, 2008).

Intrinsic Motivation

To acknowledge that humans have a natural propensity to engage in their interests, exercise their capacities, produce effective changes in the environment, and experience personal causation, is to acknowledge a single construct that gives energy to and directs this kind of behavior. Theories of self-actualization, competence, and autonomy all culminate in the

construct commonly known as intrinsic motivation (Deci & Ryan, 1985). When an individual participates in an activity or engages in a behavior in the absence of rewards or contingencies, they do so because they are intrinsically motivated. The individual's goal is the inherent satisfaction of participation in the activity (Deci & Ryan, 1985, Vallerand & Bissonnette, 1992).

Humans are self-determined organisms that act on the environment to satisfy their needs. Consequently, SDT is necessary for intrinsic motivation to be operative because humans must have the capacity to choose—and to have those choices be the determinants of their actions (Deci & Ryan, 2008). When individuals have freedom of choice to initiate their behavior, intrinsic motivation goes up as a function of the capacity to choose (Deci & Ryan, 1985, 2008).

Intrinsic motivation is a derivative of autonomous motivation, previously defined as behavior that is volitional and defined by the capacity to choose (Deci & Ryan, 2008). To experience a full sense of choice in our activities is to be intrinsically motivated. Even as young children, individuals engage in volitional behavior simply for the joy of the activity, in the absence of contingencies. Intrinsic motivation is a necessary life force that drives cognitive and social development (Deci & Ryan, 2000).

Intrinsic needs are different from primary physiological drives because they are not aroused by tissue deficits (Deci & Ryan, 1985). Humans' primary drives are cyclical, as can be seen in the sensations of hunger, as represented in Figure 1. Individuals become aware of their hunger and the drive motivates them to satiate their hunger. At this point, following satisfaction, the drive retreats into dormancy, but will undoubtedly repeat itself (Deci & Ryan, 1985). Intrinsic needs energize behavior by pushing individuals to achieve competence and self-determination (Deci & Ryan, 1985). Subsequently, intrinsic needs instigate their own unique on-going cycle, as shown in Figure 2. These needs motivate individuals to seek out and conquer

optimal challenges (Deci & Ryan, 1985). Challenges are events or tasks that push individuals to try something new and test their abilities; therefore, they can be viewed as a discrepancy or incongruity between individuals and their environment. Challenges are comprised of those activities in which individuals engage and hope to master, thus fulfilling their sense of competence (Deci & Ryan, 1985).

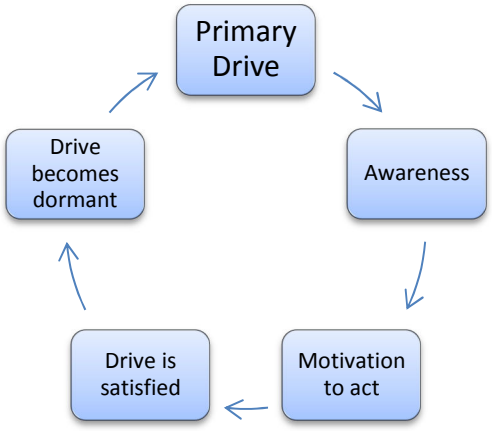

Figure 1 - Cycle of behavior motivated by primary drives (Deci & Ryan, 1985)

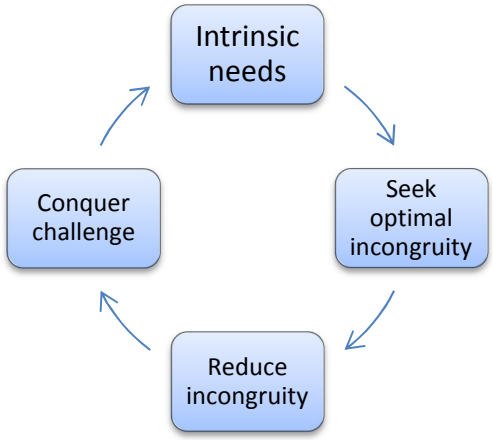

Figure 2 - Cycle of behavior motivated by intrinsic needs (Deci & Ryan, 1985)

Although intrinsic motivation is an inherent trait, certain conditions facilitate or impede this predisposition (Deci & Ryan, 2000). Cognitive evaluation theory (CET) aims to specify social and environmental factors that facilitate intrinsic motivation (Deci & Ryan, 2000). Intrinsic motivation is facilitated by environments that provide optimal challenges, enhance feelings of competence, support autonomous activity, and foster feelings of relatedness (Deci & Ryan, 1985, 2000). Under these ideal conditions, intrinsic motivation will be promoted and optimal behavior will be realized (Vallerand & Bissonnette, 1992). People who are intrinsically motivated display more interest, cognitive flexibility, excitement, and confidence in their behavior (Vallerand & Bissonnette, 1992). The consequences of their behavior tend to include enhanced performance, persistence, and creativity (Deci & Ryan, 2000).

Extrinsic Motivation

When an individual participates in an activity or engages in behavior because it leads to a consequence such as obtaining a reward or avoiding punishment, they do so because they are extrinsically motivated (Deci & Ryan, 2000, Vallerand & Bissonnette, 1992). The individual's goal extends beyond the inherent activity (Vallerand & Bissonnette, 1992) and behavior is said to be externally regulated (Deci & Ryan, 2000). Extrinsic motivation accounts for a large majority of human behavior. In fact, according to Deci and Ryan, intrinsic and extrinsic motivations are rarely mutually exclusive (Deci & Ryan, 2000). It was originally thought that extrinsically motivated behaviors took place only in the absence of self-determination, or the ability to exercise one's capacity to choose (Vallerand & Bissonnette, 1992). Therefore, these behaviors were thought to be regulated solely by external forces and have the least autonomy (Deci & Ryan, 2000).

Deci and Ryan also provide an explanation for the process by which individuals internalize behavior that is regulated by external factors, thus leading to behavior that becomes self-determined to a greater or lesser extent (Deci & Ryan, 2000). These behaviors will vary in their relative autonomy. Internalization is a process by which individuals "take in" a value or external regulation. In 2008, Deci and Ryan proposed three ways that externally regulated behavior can become internalized or self-determined: (1) introjection, (2) identification, and (3) integration (Deci & Ryan, 2008). These three processes (summarized in Table 1) are best explained along a continuum of self-determination, known as organismic integration theory, with introjection being the least internalized and integration referring to the fullest form of internalization.

Table 1 - Type of motivation and outcomes across domains

Domain	Intrinsic motivation
Motivation to learn	Leads to the development of: • Intrinsic goals (Deci & Ryan, 2008) • Mastery goal orientation(Ames & Archer, 1988) • Task involvement (Nolen, 1988). • Autonomy (Shunk & Zimmerman, 2008) • Self-regulated learning (Shunk & Zimmerman, 2008)
	Expected outcomes
	Learners: • Are attentive to their learning processes and outcomes • Demonstrate greater progress, higher levels of mastery • Direct their own learning • Experience satisfaction (Schunk & Zimmerman, 2008) • Use more effective strategies • Prefer challenging tasks • Believe that effort equates to success (Ames & Archer, 1988) • Have higher levels of self-efficacy • Self-identify as being intrinsically motivated • Seek out academic challenges (Deci & Ryan, 2008)
	Extrinsic motivation
	Leads to the development of: • Extrinsic goals (Deci & Ryan, 2008) • Performance goal orientation (Ames & Archer, 1988) • Ego involvement (Nolen, 1988)
	Expected outcomes
	Learners: • Identify with external indicators of worth (Deci & Ryan, 2008) • May not value the behavior and consequently put forth less effort (Deci & Ryan, 2000) • Believe ability is related to success (Ames & Archer, 1988) • Are concerned with the public perception of their ability (Ames & Archer, 1988) • Have a desire for superior performance on a task relative to other people (Nolen, 1988)
Motivation to volunteer	**Intrinsic motivation**
	• Volunteer because of altruistic motives (Clary & Snyder, 1999)

	Expected outcomes
	• Enhanced performance, persistence, and creativity (Clary & Snyder, 1999; Deci & Ryan, 2000)
	Extrinsic motivation
	• Volunteer because of egoistic motives (Clary & Snyder, 1999)
	Expected outcomes
	• Continue to stay engaged in the volunteer activity because of other perceived benefits (i.e. social benefits) (Gage & Thapa, 2012)
Motivation for service learning	**Intrinsic motivation**
	• Volunteer because of altruistic motives (Raman & Pashupati, 2002)
	Expected outcomes
	• More likely to continue volunteering and put in more hours (Raman & Pashupati, 2002)
	Extrinsic motivation
	• Volunteer because of egoistic motives (Raman & Pashupati, 2002)
	Expected outcomes
	• Helping behaviors are performed in the expectation of a personal benefit (Raman & Pashupati, 2002) • Perceived benefits must at least equal the cost of volunteering in order for volunteers to remain involved (Fitch, 1987)

Organismic integration theory involves the continuum that aims to describe functionally distinct forms of motivation, ranging from amotivation to intrinsic motivation (Deci & Ryan, 2000). Between the anchor points of "not motivated" and "self-determined" lay the various forms of extrinsic motivation, which vary as a function of autonomous regulation (Deci & Ryan, 2000).

Introjected regulation is a form of extrinsic motivation that involves taking in a regulation but not fully accepting it as one's own. Introjection is contingent upon self-esteem and characterizes behavior that is performed to prove ability, enhance pride, or maintain feelings of worth (Deci & Ryan, 2000). Introjected regulation guides behavior through pressure and control (Deci & Ryan, 2008). The most extreme version of extrinsic motivation (external regulation) is controlled by relations between persons, whereas control for introjected regulation comes from within the individual (Deci & Ryan, 2000).

Next on the continuum of self-determination is the form of extrinsic motivation known as *identified regulation* (Deci & Ryan, 2000, 2008). Identification occurs when someone consciously values a behavior; they accept the action as their own or "take it in." These behaviors are personally important to individuals; therefore, individuals do not feel pressured or controlled by an external force to engage in them (Deci & Ryan, 2000). Behavior is perceived as chosen (Vallerand & Bissonnette, 1992), and subsequently more autonomous and self-determined.

The most autonomous form of extrinsic motivation is referred to as *integrated regulation* (Deci & Ryan, 2000). Integration occurs when individuals identify regulations (external forces manipulating their behavior), and they assimilate or incorporate those regulations. Put another way, the individual deems the regulations to be in accordance with other values they hold (Deci & Ryan, 2000). Integrated regulation, a form of extrinsic motivation, is closely related to intrinsic motivation; however, it remains differentiable because separate outcomes motivate integrated behavior. Behavior is only thought to be intrinsic if an individual engages in it for the sheer pleasure and inherent enjoyment one receives from participating (Deci & Ryan, 2000).

When individuals engage in behavior that is controlled by outside forces, and that which is not self-determined or chosen, their behavior is no longer autonomous and they are more likely to be uninterested in participating (Deci & Ryan, 2000). It is more likely that individuals will not value the behavior and consequently put forth less effort (Deci & Ryan, 2000). In a study by Ryan and Connell (1989), forms of extrinsic motivation were found to be related to specific behaviors in school children. Introjected regulation was found to result in putting forth more effort while feeling more anxious about failing. Identified regulation was found to increase

interest, enjoyment, and effort. Other studies have supported the claim that the more autonomous the extrinsic motivation, the better the engagement and performance (Deci & Ryan, 2000).

Study of Motivation

The study of motivation seeks to explore all aspects of an organism's needs and the channels by which those needs are expressed in behaviors (Deci & Ryan, 1985). Motivation has been the focal point of innumerable studies that seek to explain the conditions and processes that lead to sustained optimal performance (Deci & Ryan, 2008). Some believe that understanding motivation is the key to unlocking or mobilizing human behavior. For a variety of different situations, professionals often seek the answer to the complex question, "What motivates that person?" (Deci & Ryan, 2000). According to Deci & Ryan (1985), as individuals engage with their environment, they change. The task may remain the same, but one's motivation to engage in the task is dynamic. As the previous literature review has shown, motivation for behavior can be viewed along a continuum of self-determination, or autonomy. Without changing the task, an individual's behavior may shift in any direction along the continuum of motivation, from amotivated to extrinsically motivated to intrinsically motivated (Deci & Ryan, 2000, 2008, Wiehe & Isenhour, 1977). Such a dynamic relationship between motivation and behavior makes the question of "what motivates humans" a fleeting one. Like fuel for a car, motivation is the human energy that allows one to engage in life; it comes in multiple forms and provides individuals with the energy needed to perform a variety of tasks at different levels of performance.

A wide variety of professionals stand to benefit from recognizing what motivates humans (Deci & Ryan, 2000). This knowledge is relevant for teachers, managers, and parents, because it is a valuable part of cultivating everyday relationships (Deci & Ryan, 2000). Human beings take

on the role of motivator, and assume responsibility for affecting the behavior or others. Mothers know how to encourage their children to brush their teeth, managers help their employees improve productivity, and teachers help children learn new concepts. Exactly how do individuals in these roles energize the behavior of others to accomplish a given task?

Motivation to Volunteer

Motivation is susceptible to influence from internal and external stimuli, and it is therefore assumed that motivation may be influenced through manipulation of the environment (Deci & Ryan, 1985). One of the aims of this study is to examine the motivation of undergraduate students volunteering for a service learning project from the perspective of a trainer hoping to increase their knowledge and self-efficacy. The remaining discussion on motivation will focus on the existing literature that seeks to explain what motivates individuals to volunteer, what motivates individuals to learn, and the conditions and environments that are conducive to both.

Volunteering is planned helping and involves more than just spontaneously lending assistance (Clary et al., 1998). Volunteering requires due diligence. Individuals sometimes go to great lengths to plan, sort, and match their skills with existing volunteer organizations before becoming involved (Clary et al., 1998). Once involved, volunteerism is characterized by its sustained helping behavior (Clary et al., 1998).

The literature is replete with studies that examine the relationship between motivation and volunteering, but the findings are scattered and somewhat inconsistent (Cnaan & Goldberg-Glen, 1991). There are findings to support the claim that a combination of altruistic and egoistic motives is responsible for volunteerism (Fitch, 1987; Cnaan & Goldberg-Glen, 1991; Clary & Snyder, 1999). 'Altruistic motive' is a term used to explain behavior individuals engage in out of

unselfish concern for the welfare of others (Clary & Snyder, 1999). 'Egoistic motive' is a term used to explain behavior individuals engage in that is preoccupied with oneself and the gratification of one's own desires (Clary & Snyder, 1999).

Functionalist theory assumes that the same attitudes could serve different functions for different people (Katz, 1960). People can perform the same actions in the service of different psychological functions. For example, different people engage in the same volunteer activity but in an effort to fulfill different motives (i.e. altruistic or egoistic) (Clary et al., 1998). When a functional analysis is applied to volunteerism, one begins to see that acts of volunteerism that seem similar may actually reflect very different motivational processes (Clary et al., 1998). Different personal and social functions are served by volunteering, and volunteer experiences will influence the initiation and maintenance of volunteer activities (Clary & Snyder, 1999). An individual may volunteer initially because of altruistic reasons, but continue to stay engaged in the volunteer activity because of other perceived benefits (i.e. social benefits) (Gage & Thapa, 2012); therefore, programs should be capable of changing to keep pace with the changing motivations of volunteers (Gage & Thapa, 2012).

Appealing to the psychological functions of volunteers can impact their decisions to begin volunteering; therefore, these functions may influence the design and focus of recruitment efforts (Clary et al., 1998). Satisfying psychological functions also serves to maintain active participation (Clary et al., 1998). When the volunteer is given an active role in setting and pursuing agendas that reflect important features of their self and identity, they are more likely to receive functionally relevant benefits; subsequently, their service will be characterized by enhanced performance, persistence, and creativity (Deci & Ryan, 2000, Clary & Snyder, 1999).

Motivation to Learn

For more than 40 years, researchers have set out to understand what motivates students to achieve academic and social outcomes (Wentzel & Wigfield, 2009). Many believe humans have a natural desire to grow and flourish, and the talented educators are those who tap into a student's inner tendency to learn (Wentzel & Wigfield, 2009). Others believe they are responsible for guaranteeing that students do things correctly and institute controls to ensure success (Deci & Ryan, 2008). Both perspectives demonstrate a regulatory process, or type of motivation (Deci & Ryan, 2008).

All academic settings expect students to engage, learn, meet standards, adhere to rules, and cultivate relationships (Wentzel & Wigfield, 2009). Motivation is the key to understanding why students choose a task, and persist in their behavior, along with how they set standards for completion (Wentzel & Wigfield, 2009). Highly motivated students are attentive to their learning processes and outcomes; they demonstrate greater progress, higher levels of mastery, and direct their own learning (Schunk & Zimmerman, 2008). Motivated students experience satisfaction from the learning opportunities in which they are engaged (Schunk & Zimmerman, 2008). To understand academic motivation, though, one must understand the specific goals toward which individuals are oriented (Nole, 1988).

The familiar dichotomy of extrinsic versus intrinsic can also be applied to goal orientation. Extrinsic goals are focused on external indicators of worth (Deci & Ryan, 2008). Intrinsic goals are more directly linked to satisfaction of basic psychological needs such as autonomy, competence, and relatedness (Deci & Ryan, 2008). Other studies have identified similar goal orientations. Although they are called by different names, the nature of these goal orientations also reflects a division into two categories with properties akin to intrinsic and extrinsic motivation.

A study by Ames and Archer (1988) delineated two goal orientations referred to as performance and mastery. Students who identify with performance goal orientations believe their ability is related to success, and are concerned with the public perception of their ability (Ames & Archer, 1988). Students who identify with mastery goal orientations believe that developing a new skill is priority, the process of learning is valued, and mastery is related to effort (Ames & Archer, 1988). Mastery goal orientation was found to foster a way of thinking needed to sustain involvement in learning (Ames & Archer, 1988). When the classroom environment emphasizes mastery goals, students use more effective strategies, prefer challenging tasks, enjoy class, and believe that effort equates to success (Ames & Archer, 1988).

In a study by Nolen (1988), goal orientations were described as being ego involved or task involved. Ego involvement involves a desire for superior performance of a task relative to other people; whereas task involvement implies an interest in performing or doing one's best without regard to the performance of others (Nolen, 1988).

As demonstrated in the examples above, an individual may set a goal for oneself which may be autonomous in nature (e.g. learning for pleasure), or externally regulated (e.g. doing homework because it is expected). An individual may also have regulations (goals) imposed upon them (e.g. repetitive skill practice in the classroom). Although these goals originate from an external source, they may become internalized. Once internalized, regulations become valued and behavior gains autonomy (Deci & Ryan, 2000).

Relationship Between Intrinsic Motivation and Knowledge Acquisition

The research presented thus far has demonstrated that type of motivation is closely related to academic achievement (Ames & Archer, 1988; Deci & Ryan, 2008; Nolen, 1988; Schunk & Zimmerman, 2008; Vallerand & Bissonnette, 1992; Wentzel & Wigfield, 2009).

The earliest form of learning and development is witnessed in a child's curiosity and play behaviors, which are clear examples of intrinsically motivated behavior, as they need no outside reinforcement in order for them to occur. Therefore, it is implied that the earliest forms of development and cognitive growth are a direct result of intrinsically motivated behaviors (Deci & Ryan, 1985). This notion is supported by Walker et al. (2006), who emphatically state that "internal factors directly impact academic performance" (p.2).

It is well documented that certain environments will either facilitate or impede intrinsic motivation (Wentzel & Wigfield, 2009; Ryan & Deci, 2008). Recall that SDT assumes humans are inherently proactive; therefore, they thrive in social conditions that support intrinsic motivation and integration (the most self-determined form of extrinsic motivation) (Wentzel & Wigfield, 2009; Ryan & Deci, 2000). In contrast, when behavior is externally regulated, quality engagement is likely to be undermined (Deci & Ryan, 2008).

Just as important as situational variables, is the individual's predisposed motivational style (Vallerand & Bissonnette, 1992). Research has demonstrated that an individual's predisposed motivational style can influence his/her decision to engage in certain activities. Vallerand and Bissonnette, (1992) conducted a study in which they showed the predictive ability of intrinsic motivation on academic achievement. Their research showed that students who identified as being intrinsically motivated at the outset of the study were those who persisted and finished the academic course (Vallerand & Bissonnette, 1992). In 1985, a study done by Gottfried showed that "children who reported higher academic intrinsic motivation had significantly higher school achievement and more favorable perceptions of their academic competence" (p.642). Intrinsic motivation is associated with an individual's interest in the activity and the enjoyment they perceive through engaging (Shunk & Zimmerman, 2008).

Therefore, it is assumed that students tend to learn better when intrinsically motivated because they are more interested in the subject matter and they have the opportunity to experience autonomy and competence (Wentzel & Wigfield, 2009).

As students progress through school, they are gradually and continually expected to take responsibility for their own learning (Wentzel & Wigfield, 2009, Zimmerman & Cleary). Students are expected to develop autonomy and demonstrate self-initiated and self-sustained study (Wentzel & Wigfield, 2009, Zimmerman & Cleary). Self-regulation refers to *control* of one's current conduct based on motives related to a goal that one has set for himself or herself (Schunk & Zimmerman, 2008). Self-regulated learning refers to processes students use to activate and sustain behavioral conduct and cognitive functioning (Schunk & Zimmerman, 2008). This includes any effort a person makes toward changing their response, withstanding impulses, or substituting behaviors, all in the hope of achieving a desired goal (Luszczynska et al., 2005). Students that are not autonomously motivated are not likely to use self-regulatory skills on a regular basis, especially in less structured environments (Shunk & Zimmerman, 2008). Therefore, it is imperative that educators in any role seek to create environments that enhance autonomy and support intrinsic motivation. According to a study by Deci et al. (1981), when teachers are inclined to support student autonomy and self-regulation they are more likely to offer choices and give supportive feedback. Academic environments that support autonomy through climate and teacher orientation are more likely to be the environments that produce students who have higher levels of self-efficacy, self-identify as being intrinsically motivated, and seek out academic challenges (Deci & Ryan, 2008).

Motivation for Service Learning

Service learning projects combine public service with related academic work (Cohen & Kinsey, 1994). Service learning is a model of education that advocates student involvement in a variety of activities and assumes knowledge is derived from experience (Raman & Pashupati, 2002). Quality student volunteer opportunities are offered in higher education because community service is culturally valued and is believed to be an integral part of a well-rounded education (Fitch, 1987). One of the main objectives of service learning projects is to help develop active and concerned citizens (Raman & Pashupati, 2002).

Experiential service learning entails direct contact between the student and off-campus community group (Cohen & Kinsey, 1994), but projects can vary in terms of length, intensity, continuing involvement, and administration (Raman & Pashupati, 2002). Service learning projects can be administered as an integrated component of an academic curriculum or outside the classroom with no direct link to curriculum (Raman & Pashupati, 2002). It is in this instance, free from the prescribed curriculum that students chose to participate with no benefit of course credit or incentives linked to their grades (Raman & Pashupati, 2002).

Students have been found to engage in service learning for a variety of reasons. Not surprisingly, their reasons can be categorized as altruistic (helping behaviors that are aimed at benefitting others) or egoistic (helping behaviors that are performed in the expectation of a personal benefit) (Raman & Pashupati, 2002). These two forms of motivation are often not mutually exclusive, as helping others may ultimately result in a personal benefit (Raman & Pashupati, 2002). This phenomenon is demonstrated in a study by Fitch (1987), who examined the characteristics and motivations of college students. Results of his study indicate that benefits were important for college volunteers, leading to the conclusion that perceived benefits must at least equal the cost of volunteering in order for volunteers to remain involved (Fitch, 1987).

From the perspective of intrinsic and extrinsic motivation, it is assumed that intrinsic motivation leads to the act of helping others because of the characteristics of the volunteer (Raman & Pashupati, 2002). Extrinsic motivation, on the other hand, accounts for helping behavior in terms of rewards received for volunteer service (Raman & Pashupati, 2002). In their study, Raman & Pashupati (2002) proposed that intrinsically motivated volunteers were more likely to continue volunteering and put in more hours, thus supporting a previously noted study by Deci and Ryan (2000) that stated the consequences of intrinsic motivation included enhanced performance and persistence.

Relationships Between Motivation, Learning, Volunteering, and Service Learning

Motivation is a process that helps initiate, direct, and sustain action in all domains of life (Clary et al., 1998). Volunteerism is characterized by volitional, sustained, and on-going helping behavior just as learning is characterized by autonomous, self-regulated behavior used to activate and sustain academic behavior (Schunk & Zimmerman, 2008, Clary et al., 1998). Across individuals, the motivation to volunteer, learn, and participate in service learning projects can be variable; furthermore, motivation is constantly subject to change as individuals engage with their internal and external environments. Although motivation for these activities is variable and dynamic across individuals, it can typically be described as being either intrinsic or extrinsic. These two constructs are, of course, an oversimplification of the true nature between autonomous and externally regulated behavior; however, intrinsic and extrinsic motivations have proven to be predictive of different outcomes in different domains over the years, as illustrated in Table 1.

Self-Efficacy: General and Specific

Self-efficacy is the belief in one's capabilities to marshal the cognitive, motivational, and behavioral resources needed to execute a course of action, perform at designated levels, and

achieve desired goals given situational demands (Bandura, 1998; Scherbaum et al., 2006; Wentzel & Wigfield, 2009; Chen et al., 2013). Self-efficacy alone will not determine one's performance on a task; individuals will not experience competent performance if they lack the requisite skills (Wentzel & Wigfield, 2009). An individual's performance on a given task hinges not only upon their skills, but also the value they assign to the task, and the expectations they hold regarding the outcomes (Wentzel & Wigfield, 2009). When an individual possesses the needed skills, values the task, and expects positive outcomes, self-efficacy will then come into play as the predominant influence on motivation, knowledge acquisition, and self-regulation (Wentzel & Wigfield, 2009).

Pajares (2008) said, "people who are able, are typically those who believe they are able" (p.111). Put another way, the beliefs we hold about ourselves become rules of action that determine our behaviors (Shunk et al., 2008). Self-efficacy is a question of whether or not one can perform a task, and involves self-assessment of how our skills will translate into actions (Wentzel & Wigfield, 2009).

One of the most revered self-efficacy scholars, Albert Bandura, purports that self-efficacy is a not a belief that encompasses multiple domains; rather, self-efficacy beliefs are distinct and vary across domains of functioning (Bandura, 1998). For Bandura, self-efficacy only refers to an individual's belief in their capacity to perform in a given situation. Consequently, for Bandura, self-efficacy is viewed as a situation-specific competence (Scherbaum et al., 2006). This view of self-efficacy is narrow, and has been characterized as specific self-efficacy (SSE) (Chen et al., 2013).

More recently however, a number of researchers have proposed the construct of general self-efficacy (GSE) (Chen et al., 2013; Luszczynska et al., 2005; Scherbaum et al., 2006). GSE

refers to an individual's belief in their overall competence, and is considered a quality of one's personal nature (Chen et al., 2013). GSE describes individuals' belief in their ability to perform well in a variety of situations and their capacity to meet demands in different contexts (Scherbaum et al., 2006). It is believed that SSE is positively influenced by GSE; the vague belief that one can perform in numerous situations generalizes to specific situations (Chen et al., 2013). Not only does GSE positively influence SSE, it acts as a mediator for potentially negative influences that threaten to lower an individual's SSE (Chen et al., 2013).

A large majority of self-efficacy research remains focused on SSE; however, there is value to be found in studying the construct of GSE. As Chen et al. (2013) points out, positions obtained in today's workforce are more often than not very broad in nature; therefore, individuals with high levels of GSE who believe in their ability to meet the demands of a variety of contexts, are a valuable resource for an organization.

Theory of Self-Efficacy

The most substantiated explanation for self-efficacy is social cognitive theory (SCT), which developed from research initially done by Bandura in 1963 (Schunk & Zimmerman, 2008). Bandura sought to explain the social mechanisms than influence human learning (Denler et al., 2014). SCT is a model that can be used to explain how skills are developed and how individuals regulate their behavior (Bandura, 1998). One of the main tenets of SCT is that the way individuals operate in their daily lives is a direct result of the interaction between cognitive, behavioral, and environmental factors (Denler et al., 2014). These factors are assumed to be interactive because SCT purports that through cognitive processes, individuals are capable of exerting control over their behavior and the environment (Bandura, 1998). This control is referred to as personal agency or the power to generate actions intentionally for given purposes

(Bandura, 1998). According to Bandura, individuals purposefully "contribute to our functioning through mechanisms of personal agency" (p. 2) SCT proposes that humans are proactively engaged in their environment largely due to self-reflection and self-regulation, which contradicts the notion that individuals merely react to the environment, or act upon innate drives (Schunk & Zimmerman, 2008).

It is human nature to go to extraordinary lengths in an attempt to control one's environment (Bandura, 1998). As humans have changed and adapted throughout history, access to education has expanded and become more readily available (Bandura, 1998). By accessing education, individuals begin to believe in the power to shape their own destiny, and this belief fosters personal agency (Bandura, 1998). If individuals develop and exercise personal agency, they are capable of contributing to the direction of their lives. Beliefs of personal self-efficacy are essential to personal agency because unless people believe they can produce the desired effect, they have little reason to act (Bandura, 1998).

SCT has multiple components that are integrated into a centralized theory thought to govern human thought (Bandura, 1998). Self-efficacy is but one of those components and ultimately works to influence the others (Bandura, 1998). The central concepts of SCT are: (a) knowledge structures, (b) outcome expectations, (c) goal setting, (d) self-regulation, and (e) self-efficacy (Denler et al., 2014)

Knowledge structures refer to the rules and strategies we implement in order to achieve effective action within our environment (Bandura, 1998). These structures serve to inform and guide one's complex behavior, and can be obtained through multiple sources (Bandura, 1998). For example, people learn through observation, exploration, direct instruction, and through novel combinations of already acquired knowledge (Bandura, 1998). Individuals must be capable of

applying knowledge structures in a flexible manner so as to meet the demands of a variety of contexts (Bandura, 1998).

Outcome expectations reflect individuals' beliefs about what consequences are most likely to occur if particular behaviors are performed; subsequently these expectations influence an individual's course of action (Bandura, 1998; Delner et al., 2014). The frequency of a behavior is likely to increase if an individual values the expected outcome (Delner et al., 2014). Expectancy-value theories purport that individuals perceive how likely it is they will achieve a desired consequence, and even if the outcome is desirable, people must believe they are capable of attaining it (Schunk, 1991).

Goal setting is a cognitive process that influences motivation and reflects mental representations of preferred outcomes (Schunk, 1991; Delner et al., 2014). Goal setting is an expression of personal agency; as individuals develop knowledge structures they begin to imagine a desired future along with the outcomes they hope to achieve. Individuals then plan a course of action necessary to achieve these outcomes (Delner et al., 2014).

Self-regulation refers to controlling one's behavior because we are motivated to attain a goal (Schunk & Zimmerman, 2008). According to SCT, there are three components of self-regulation: (1) self-observation, (2) self-judgment, and (3) self-reaction (Delner et al., 2014). These three components work in concert to enable individuals to monitor their behavior, evaluate their actions, and respond to those evaluations by modifying their behavior as needed in order to progress towards their goals (Delner et al., 2014). Individuals must have goals and perceive they are able to attain them in order to activate the process of self-regulation (Delner et al., 2014).

As mentioned previously, self-efficacy influences the other components of SCT in a variety of ways (Bandura, 1998). Self-efficacy influences an individual's choice of activities and

their motivational level, both of which contribute to the formation of knowledge structures that lead to skilled performance (Bandura, 1998). After one becomes proficient in a skill, one draws on perceived efficacy for future performances of the same task; it is no longer necessary to waste time reflecting on the steps necessary to execute that task (Bandura, 1998). As long as individuals believe in their ability, they act on that belief and do not need to continuously assure themselves of their capability (Bandura, 1998). Self-efficacy is a product of an individual's past performances (Bandura, 1998). It is also derived from the observation and verbal persuasion of others in the environment, as well as an individuals' on-going physiological state (Bandura, 1998).

Sources of Self-Efficacy

According to Bandura (1977), self-efficacy is derived from four distinct sources. Furthermore, an individual's expectation of self-efficacy is subject to variance based on several factors, all of which can impact one's performance (Bandura, 1977). First, an individual's expectation of efficacy may vary based on the level of task difficulty or magnitude (Bandura, 1977). This implies that for some individuals, their level of efficacy may only apply to easier tasks, whereas for other individuals, they maintain a sense of self-efficacy throughout extremely difficult tasks (Bandura, 1977). Second, an individual's expectation of efficacy may vary based on the level of generality (Bandura, 1977). When an individual experiences success, it may or may not generalize beyond the situation (Bandura, 1977). Finally, an individual's expectation of efficacy may vary in its strength. Weak levels of self-efficacy are easily thwarted by failure, whereas strong levels of self-efficacy persevere regardless of negative experiences (Bandura, 1977).

Individuals assess their general and specific self-efficacy through the same four sources of information (Chen et al., 2013). According to Bandura, (1977) those sources are performance accomplishments (enactive mastery experiences), vicarious experience, verbal persuasion, and physiological states. Of those four, the most compelling source is an individual's evaluation of their actual performance in a given situation (Bandura, 1998). These experiences provide individuals with the most authentic appraisal of whether or not they have what it takes to succeed (Bandura, 1998). Performance mastery is an indicator of one's ability. Repeated success will enhance and serve to maintain self-efficacy just as repeated exposure to failure can potentially undermine an individual's self-efficacy (Bandura, 1977). Once an individual has established a perceived sense of self-efficacy it is likely to generalize to other situations (Bandura, 1977). While self-efficacy may generalize to diverse situations, it is most likely to predict performance on similar activities (Bandura, 1977).

Vicarious experience is another source from which individuals derive their sense of self-efficacy (Bandura, 1977). Individuals look to others as a source of self-efficacy and through comparison they gauge their abilities (Shunk & Pajares, 2009). As individuals observe others in their environment attempt and succeed at daunting tasks, they begin to identify with the observed capabilities; individuals often convince themselves that they too are capable of performing at similar levels (Bandura, 1977). This source of self-efficacy is by definition vicarious, and therefore, the inferred self-efficacy is weaker, and less dependable than self-efficacy derived from personal mastery experiences (Bandura, 1977).

Verbal persuasion is also used to enhance an individual's self-efficacy and influence behavior (Bandura, 1977). Social influence regarding one's capabilities leads one to believe they are able to cope with challenging situations (Bandura, 1977). Verbal persuasion results in a

weaker form of self-efficacy for the same reason as vicarious experience – it does not provide an individual with a first-hand account of success (Bandura, 1977). For maximum potential to be realized through verbal persuasion, individuals need verbal encouragement as well as concrete instruction on how to be effective (Bandura, 1977).

Finally, emotional arousal and physiological states serve to inform an individual's sense of self-efficacy (Bandura, 1977). As individuals engage in stressful or threatening situations, they respond emotionally. The emotional states that individuals associate with particular tasks are used to judge capability and vulnerability (Bandura, 1977). When individuals feel anxious or agitated, they usually do not perform as well as when they are relaxed (Bandura, 1977). When individuals learn to eradicate fear related to a certain situation, self-doubt is eliminated, performance improves, and self-efficacy may be strengthened (Bandura, 1977).

Mediating Processes of Self-Efficacy

Self-efficacy regulates human functioning by influencing how individuals feel about themselves, motivate themselves, and subsequently behave (Bandura, 1993). The processes through which self-efficacy beliefs affect an individual's behaviors are called mediating processes (Bandura, 1998). Self-efficacy regulates human functioning through four different processes: cognitive, motivational, affective, selection (Bandura, 1993).

Cognitive processes include problem solving, decision making, and the ability to engage in forethought (Bandura, 1998). Through these processes, self-efficacy produces distinct behavioral effects. Individuals with a high sense of self-efficacy look to their future by means of setting goals (Bandura, 1998). These individuals call upon their cognition to visualize success through forethought. They also problem solve and make decisions in order to plan the necessary course of action to achieve success (Bandura, 1998). When an individual has a higher level of

self-efficacy they have a firmer resolve to complete the task and use positive visualization to guide their performance (Bandura, 1993). Once goals are realized, self-efficacy is further strengthened (Bandura, 1998).

Self-efficacy makes a significant contribution to the regulatory processes through which individuals motivate themselves (Bandura, 1993). A future state alone does not provide the motivation to act; it is only through forethought that an anticipated future state becomes cognitively represented in the present (Bandura, 1998). The cognitive representation of a future state provides the incentive and motivation to act (Bandura, 1998). This form of motivation is referred to as cognitive motivation, and includes an individual's beliefs about what they are capable of, the outcomes they anticipate, the goals they set, and the plans they develop to execute a course of action (Bandura, 1998). Perceived self-efficacy, therefore, regulates cognitive motivation through the mechanism of personal agency (Bandura, 1998).

Three different forms of cognitive motivation have been proposed along with supporting theories (1) casual attributions (2) outcome expectancies, and (3) cognized goals (Bandura, 1998). The corresponding theories are: (1) attribution theory, (2) expectancy-value theory, and (3) goal theory respectively (Bandura, 1998). Attribution theory suggests that individuals retrospectively judge their performance which in turn effects their motivation (Bandura, 1998). Individuals with a high level of self-efficacy attribute failures to lack of effort, whereas individuals with a low sense of self-efficacy attribute failure to lack of ability (Bandura, 1993). Through these beliefs of self-efficacy, casual attributions will impact future motivation to act (Bandura, 1993).

Expectancy-value theory takes a more prospective stance. This theory proposes that an individual's motivation is influenced by the expectation that his/her behavior will produce a

valued outcome (Bandura, 1993). Expectancy-value theory is two-fold, in that individuals expect that certain behavior will result in certain outcomes, and individuals value those outcomes (Bandura, 1998). Self-efficacy contributes to the motivating potential of outcome expectancies because individuals act on beliefs of what they are capable of (Bandura, 1998). Although an outcome may be valued, an individual with a low sense of self-efficacy may choose not to pursue the outcome as a result of self-doubt (Bandura, 1993). Conversely, individuals with high levels of self-efficacy may value an outcome and choose to persevere through challenging situations in order to achieve the desired outcome (Bandura, 1998).

Individuals possess the power to exert influence over themselves by attempting challenging activities and evaluating their performance (Bandura, 1998). When individuals decide to challenge themselves, their behavior is directed by the envisioned goal (Bandura, 1998). Perception of self-efficacy regulates self-influence and contributes to motivation by impacting the challenges individuals choose to undertake as well as informing personal standards (Bandura, 1998). In an attempt to master a challenge, individuals with a low sense of self-efficacy may put forth less effort in the face of obstacles and settle for mediocrity (Bandura, 1998). Individuals with a stronger sense of self-efficacy believe in their capabilities; therefore, these individuals put forth greater effort and persevere until they reach a satisfactory standard of accomplishment (Bandura, 1998).

Self-efficacy also controls human functioning by contributing to the regulation of emotional states. The level of stress and depression that individuals experience in the face of challenging situations is mediated by the extent to which they believe in their ability to cope (Bandura, 1993). Individuals with a low sense of coping efficacy do not feel as though they can manage threatening situations; subsequently, they experience anxiety and a decline in

functioning (Bandura, 1993). For individuals with a strong sense of self-efficacy, the same threatening situations do not result in the burden of stress; these individuals are armed with the belief that they can control the stressors that would lead to anxiety (Bandura, 1993).

Cognitive, motivation, and affective processes are processes activated by self-efficacy that regulate human functioning and lead to optimal environments and a feeling of control or personal agency (Bandura, 1998). However, individuals' functioning is also a product of the environment they select to be a part of (Bandura, 1993). The selection process is regulated by self-efficacy, in that individuals choose environments that they believe they will be capable of succeeding in (Bandura, 1993). The social influences of selected environments will continue to promote distinct skills and values even after one's initial self-efficacy driven choice is made (Bandura, 1993). Therefore, by the choices individuals make, the resulting courses of their lives can be attributed to the environment as well as to effects produced by self-efficacy (Bandura, 1998).

Self-efficacy and Knowledge

As previously discussed, human functioning is influenced by self-efficacy in a variety of ways. Self-efficacy plays a role in establishing the beliefs, values, and goals that determine which task an individual will pursue (Wentzel & Wigfield, 2009). Self-efficacy also regulates the energy an individual brings to a task, and the standards they set to determine when a task has been accomplished (Wentzel & Wigfield, 2009). By influencing our choices and motivational level, beliefs of self-efficacy make a significant contribution to the acquisition of knowledge structures on which skills are founded (Bandura, 1998). Research has shown a positive correlation between GSE, the goals an individual sets for their learning, and their desire to achieve (Chet et al., 2013).

Self-efficacy is also mediated by our conception of ability. According to Bandura, (1998) ability is either viewed as an acquirable skill that can be gained through effort, or it is believed to be an inherent capacity. In the former scenario, personal improvement is the best gauge of success, not performance relative to others, and failure is an incentive for further self-development (Bandura, 1998) In the latter scenario, poor performance is indicative of poor intellectual capacity, and individuals are deterred from seeking out further opportunities to improve themselves (Bandura, 1993). Identifying with one of these conceptions of ability will affect how individuals cognitively process performance (Bandura, 1998). If poor performance is perceived as a reflection of oneself, self-efficacy may be undermined; however, if poor performance is perceived as a means of identifying areas to be improved upon, then self-efficacy remains unthreatened (Bandura, 1998).

The Relationship Between Intrinsic Motivation, Self-Efficacy, and Knowledge Acquisition

As put forth by Deci & Ryan in numerous writings (1981, 1985, 2000, 2008), intrinsically motivated individuals set goals for themselves rooted in the desire to satisfy basic psychological needs (e.g. autonomy, competence, and relatedness). The objective of their goals is to achieve task mastery; furthermore, they set these goals based on the inherent enjoyment gained from being involved in the task.

According to many writings by Bandura (1977, 1993, 1998, 2006), when individuals experience high levels of self-efficacy, they visualize their future; they call upon their cognition to visualize success through forethought. The cognitive representation of a future state provides the incentive and motivation to act. These individuals believe in their capabilities and set their goals based on this cognitive motivation. Once their goals are realized, self-efficacy is further strengthened.

Deci and Ryan (1985) acknowledge there is a close relationship between self-efficacy and intrinsic motivation; the more competent a person perceives him- or herself to be at some activity, the more intrinsically motivated he or she will be at that activity. Shunk (1991) echoes this proposition by suggesting that if individuals perceive that they are capable of cognitively processing information, they may be more motivated to make an attempt to learn; consequently as they learn and comprehend material, they continually enhance their self-efficacy, which will again reinforce their motivation.

For Deci and Ryan (2000), intrinsic motivation and high levels of self-efficacy result in similar benefits. People who are intrinsically motivated display higher levels of interest, excitement, and confidence towards an activity. The consequence of that behavior is enhanced performance, persistence, and creativity. The same results can be expected from individuals who demonstrate high levels of perceived self-efficacy for the activity. Bandura (1993) confirms that expectation by suggesting when an individual has a higher level of self-efficacy they have a firmer resolve to complete the task and use positive visualization to guide their performance.

Bandura (1998) makes the claim that individuals who support theories of humans' inherent need for self-determination and mastery are missing out on how self-efficacy is developed. Proponents of intrinsic motivation subscribe to the notion that the desire for personal control is an expression of an innate drive; therefore individuals come with it built in. Their theories focus on the conditions that facilitate or impede the drive. Bandura, however, questions whether "the exercise of control is pushed by an inborn drive or pulled by an anticipated benefit" (p.2).

Training Schedule, Motivation, and Self-Efficacy: What is Responsible for Learning?

Training schedule involves a complex interplay between time and task, where memory and learning are affected by how much attention an individual devotes to study episodes, the variety of contextual cues associated with a study episode, the consolidation of memories from short term to long term, and the positive interaction between study episodes (Cepeda et al., 2006). Individual learning styles will also influence abilities and task performance (Mumford et al. 1994); therefore, other considerations for learning must be made (i.e. motivation and self-efficacy).

Motivation is a process that helps initiate, direct, and sustain action in all domains of life, including the process of learning (Clary et al., 1998). Intrinsic and extrinsic motivation has proven to be predictive of different outcomes in different domains over the years. Most notable is the predictive ability of intrinsic motivation as it relates to the process of learning (Vallerand & Bissonnette, 1992). Self-efficacy plays a role in establishing the beliefs, values, and goals that determine which learning task an individual will pursue (Wentzel & Wigfield, 2009). Self-efficacy also regulates the energy an individual brings to the process of learning. By influencing our choices and motivational level, beliefs of self-efficacy make a significant contribution to the acquisition of knowledge structures on which skills are founded (Bandura, 1998).

Chapter 2: Purpose of Study and Research Questions

As previous discussion has demonstrated, there is ample evidence to support the need for prevention and awareness programs like PS in most communities across the country. When PS was developed in 2011, the framework for the program itself was guided by sound research and knowledge of childhood development. The PS training program was created using materials adapted from trusted national and regional training programs (Head Start, 2014; WRC, 2013). Unfortunately, specific evidence based research is lacking with regards to the efficacy of protocols and schedules needed to train undergraduate students, specifically in the provision prevention and awareness activities. This lack of evidence was the driving force behind the current study. The researcher sought to answer the following questions: (1) did the pilot PS advocate training program succeeded as an effective intervention (i.e. did the advocates experience a change in knowledge because they participated?), (2) what were the effects of training schedule (i.e. did one training schedule better facilitate advocates' change in knowledge), (3) did the advocates experience a change in self-efficacy, (4) what were the effects of training schedule on students' level of self-efficacy (i.e. did one training schedule lead to a greater effect on change in self-efficacy),and (5) did intrinsically motivated students demonstrate higher achievement?

Research Question #1: Did the participants who engaged in the PS advocate training program demonstrate a change in knowledge of PS objectives, child development, and interpersonal communication skills as measured by pre- and post-training surveys?

Hypothesis #1: It was hypothesized that participants who engaged in the PS advocate Training Program would demonstrate a change in knowledge of PS objectives, child development, and interpersonal communication skills.

Research Question #2: Was there a difference in change in knowledge of PS objectives, child development, and interpersonal communication skills between participants assigned to the distributed training schedule compared to participants assigned to the massed training schedule as measured by pre and post training surveys?

Hypothesis #2: It was hypothesized that participants engaged in the distributed training schedule would demonstrate a greater change in knowledge of PS objectives, child development, and interpersonal communication skills than participants engaged in the massed training schedule.

Research Question #3: Did participants engaged in the PS advocate training program demonstrate a change in self-efficacy as measured by pre and post training surveys?

Hypothesis #3: It was hypothesized that participants engaged in the PS advocate training program would demonstrate a change in self-efficacy.

Research Question #4: Was there a difference in change in self-efficacy between participants assigned to the distributed training schedule compared to participants assigned to the massed training schedule as measured by pre and post training surveys?

Hypothesis #4: It was hypothesized that participants engaged in the distributed training schedule would demonstrate a greater change in self-efficacy between pre and post-training than participants engaged in the massed training schedule.

Research Question #5: For the participants who identified as being intrinsically motivated on the pre-training intrinsic motivation survey, is there an association between the strength of initial intrinsic motivation and change in knowledge of PS objectives, child development, and interpersonal communication skills?

Hypothesis #5: It was hypothesized that higher initial levels of intrinsic motivation would be positively correlated with greater changes in knowledge of PS objectives, child development, and interpersonal communication skills.

Chapter 3: Method

Participants

Recruitment

Participants were recruited for voluntary inclusion by trained first-year graduate students who visited class sessions held in one of the following departments: Department of Communication Sciences and Disorders, School of Teacher Education and Leadership, Psychology, School of Nursing, and School of Social Work. The graduate students promoted the service learning program (PS) by sharing potential benefits of volunteering for this particular program with the students. Participants were informed that benefits to participating in PS may include increased knowledge and/or skills regarding child development, interpersonal communication skills, and an increased knowledge in regard to the issues related to homelessness. Interested students were asked to complete a survey (Project Sprout Volunteer Survey, Appendix D), indicating the training schedule to which they were willing to make a commitment. Contact information was requested. Ninety-two (92) undergraduate students initially expressed interest in the PS advocate training program. Graduate students contacted undergraduate students who expressed interest via email, phone call, or text message to verify their commitment to the training program. Participants were assigned to either the distributed or massed training schedule based upon their reported availability and willingness to commit.

Inclusion Criteria

Undergraduate students who ranked as juniors, based on academic credits completed, were selected to participate; in addition, students who ranked as seniors and/or leveling students who anticipated residency in the New River Valley during the course of the subsequent academic semester were invited to participate. Participants were currently enrolled or had already

completed one of the following courses: Psychology 230: Lifespan Development, Psychology 317: Child Psychology, or Human Development 300: Human Growth and Development Birth through Adolescence. These courses were selected as training prerequisites because their core components contribute to an understanding of the physical, social, emotional, and intellectual development of people throughout the lifespan. Personal, social, professional, and cultural perspectives related to working with children and adolescents are explored in these courses, creating a requisite foundation of knowledge needed to interact with the young children at different ages (birth to five years) to address cognitive, speech/language, emergent literacy, and socio-emotional milestones and skills.

Demographics

The 16 participants in this study were Radford University undergraduate/leveling students who were enrolled in one of the following departments: Department of Communication Sciences and Disorders, School of Teacher Education and Leadership, Psychology, School of Nursing, and School of Social Work. The distributed training schedule consisted of 6 participants (5 female, 1 male); the massed training schedule consisted of 10 participants (9 female, 1 male). The average age of participant was 21 years. All participants self-identified as White/Caucasian. Class standing of the 16 participants was 10 juniors, 3 seniors, and 3 levelers (a 3-year leveling track is available for graduate students who have not earned an undergraduate degree in Communication Sciences and Disorders; after completion of prerequisite coursework, "levelers" transition into their graduate program). The mean grade point average (GPA) of the 16 participants was 3.45.

Consent

All undergraduate and leveling students who participated in the pilot PS advocate training program completed pre- and post-training surveys during the scheduled training program sessions. Participants of this study, however, provided informed consent (Adult Informed Consent – Survey Research, Appendix B) specifically for their engagement in the study as it related to the use/analysis of the survey data by the author. Participants were informed of the study, provided with the consent form which was explained to them by the investigator, and asked to sign the consent form if they chose to participate. The (10) participants in the massed training session were asked to indicate their consent for the investigators' future records review on the day of the training (April 13, 2013). The (6) participants in the distributed training sessions were asked to indicate their consent for the investigators' retrospective records review.

Data Collection Instruments

Four instruments (included in Appendices E through K) were developed and utilized to obtain data for this study. Scales developed for motivation and self-efficacy that were used in this study were scored on a 7-point Likert scale that included anchors “strongly disagree” and “strongly agree.” On several indices of reliability, validity, and discriminating power, the two-point, three-point, and four-point scales performed relatively poorly, and indices were significantly higher for scales with more response categories, up to about 7 (Preston & Colman, 2000).

a. Demographics Survey: This instrument was created to obtain descriptive information from participants. The profile included participant demographics (age, gender, race/ethnicity, GPA, and class standing). Participants were asked about the timeline of their higher education (completing a 4-year degree immediately following graduation from high-school or returning to higher education after spending time in the workforce).

Self-efficacy varies as a function of prior experience (Schunk, 1991); therefore experience in the workforce may have had an impact on participant's initial perceived self-efficacy. Lack of experience in the workforce may have created a desire to gain practical experience towards a new career, which may have influenced participant's motivation to volunteer (Cnaan & Goldberg-Glen, 1991; Clary et al, 1998). Participants were also asked about their source of funding for college tuition and whether or not they had any previous volunteer experience.

b. Motivation Survey: This instrument was adapted from a pre-existing scale and designed to measure each participant's level of intrinsic and extrinsic motivation. The current study adapted scale items from a study by Raman and Pashupati (2002) who consulted a thorough literature review by Cnaan and Goldberg-Glen (1991) to create their scale. Reliability for items was assessed by computing Cronbach's alpha, which was 0.82 for items relating to intrinsic motivation and 0.68 for items relating to extrinsic motivation (Raman & Pashupati, 2002). All items on the instrument used in this study were scored on a 7-point Likert scale that included anchors "strongly disagree" and "strongly agree." The Likert format is one of the most widely used in all types of scales in the field of social sciences. Nevertheless, there is no definitive agreement on the number of response categories that optimizes the psychometric properties of the scales (Lozano et al., 2008). The optimum number of alternatives is between four and seven (Lozano et al., 2008). Scores indicate strength of identification with type of motivation (intrinsic vs. extrinsic). Type of motivation, based on pre-survey scores, was the variable assessed with this study.

c. New General Self-Efficacy Scale (NGSE): The NGSE is an eight-item scale created by Chen, Gully, and Eden (2001) designed to measure general self-efficacy. The instrument was adapted for use in this study through the inclusion of the context of the service learning project entitled Project Sprout. The eight items were presented as a series of statements with Likert 1 – 7 scale responses based on anchors "strongly disagree," and "strongly agree," thus, the total possible scores range from a low of 8 points to a high of 56 points, with higher scores indicating greater perceptions of self-efficacy. Change in self-efficacy, based on pre-survey scores compared to post-survey scores, was the variable assessed with this study. A study done by Scherbaum et al. (2006) found that, compared with two frequently used measures of self-efficacy, the NGSE has a slight advantage and outperforms the other measures in terms of item discrimination and information. Internal consistency of response to items on the NGSE ranges from .85 to .90, and the stability coefficients have ranged from r = .62 to r = .65 (Scherbaum et al., 2006). Furthermore, Item Response Theory analyses demonstrated that items on the NGSE have a strong relationship with the trait of general self-efficacy and adequate discriminatory abilities, thus indicating construct validity (Scherbaum et al., 2006). The NGSE may be a reliable and useful measure for explaining motivation and performance in a variety of settings, and subsequently may contribute to the development of optimal training programs (Chen et al., 2001).

d. Knowledge Acquisition Survey: This instrument was developed by first-year Communication Sciences & Disorders graduate students to be utilized by the PS coordinator to ensure optimization of the pilot PS advocate training program and to optimize training of PS advocates in the future. The survey was created and used

specifically for this study to gauge changes in knowledge of PS objectives, child development, and interpersonal communication skills. The author of this study used personal, subjective judgment to generate seven questions for each Module, for a total of 21 questions. A multiple-choice format was utilized, with the correct answer embedded into a field of four responses. Questions were designed to be factual representations of material presented in training Modules 1 through 3.

Procedures

This study took place between March and April of 2013, during the first annual PS advocate training program. First-year Communication Sciences and Disorders (COSD) graduate student coordinators obtained contact information for Radford University undergraduate and leveling students from the completed Project Sprout Volunteer Surveys (Project Sprout Volunteer Survey, Appendix D). Graduate student coordinators confirmed student participation in the training program through email. Willing participants were assigned via email to the training schedules based on their availability. Phone calls, emails, and text messages were sent to remind students of the upcoming training.

The training for PS, and therefore the research itself, took place in Radford University Waldron Hall classrooms where undergraduate and leveling student advocates participated in the training program. Training was presented by four trained first-year graduate students, all enrolled in COSD, in two separate 10-hour schedules: distributed and massed. The distributed training schedule was broken into four 2.5-hour sessions, each of which took place on a weeknight over the course of two weeks. The massed training schedule consisted of one 10-hour session, which took place on a Saturday. Each training schedule covered material that was organized into four modules.

Quality Assurance Surveys

Pre- and post-surveys were embedded within both schedules of the pilot PS advocate training program. These surveys were adapted and designed by the author of this study to be utilized by the PS student coordinators and PS director to ensure optimization of the training and to optimize training of PS advocates in the future (see Data Collection Instruments above and Appendices E through K). To ensure quality, the surveys were designed to determine whether or not the pilot PS advocate training program succeeded as an effective intervention (i.e., did the advocates experience a change in knowledge because they participated?). Surveys were also used to explore the effects of training schedule (i.e., whether or not one training schedule could better facilitate advocates' change in knowledge than the other). Surveys were also used to examine the effect of training schedule on students' level of self-efficacy (i.e., if one training schedule led to a greater effect on change in knowledge, was it then logical to assume that greater changes in level of self-efficacy would also be observed for that same schedule?). Finally, surveys were used to examine the relationship between intrinsic motivation and change in knowledge (i.e., did the intrinsically motivated students demonstrate characteristics of persistence, completion, and higher achievement?) The surveys were completed by all undergraduate and leveling students who participated in the PS advocate training program.

Distributed Schedule Enrollment

Participants who registered for the distributed training schedule reported for Module 1 of the training on March 25, 2013 and completed three quality assurance surveys: Motivation Survey (Appendices E & F), Demographics Survey (Appendix G), Self-efficacy Survey (Appendix H), and the pre-training Knowledge Acquisition Survey (Appendices I – K). In order to track respondents and assure anonymity, each participant created a unique four-digit

identification code which was recorded on each survey they completed. After completion of the surveys, the participants received training for Module 1. Participants reported for Module 2 on March 27, 2013 and began by reviewing Module 1. They then received training for Module 2. Participants reported for Module 3 on April 1, 2013 and began by reviewing Module 2. They then received training for Module 3. Participants reported for Module 4 on April 3, 2013 and received training for Module 4, followed by a review of Modules 1 through 3. Immediately following the final review, participants completed a post-training Motivation Survey (Appendices E & F), post-training Self-Efficacy Survey (Appendix H), and the post-training Knowledge Acquisition Survey (Appendices I – K). Participants recorded their four-digit identification codes on all surveys. Snacks were provided to the participants throughout each Module.

Student participants were provided with a certificate of completion for the training. Upon completion of the training, students were provided with an opportunity to participate in the community service project entitled Project Sprout.

Massed Schedule Enrollment

Participants who registered for the massed training schedule reported for training and immediately completed the same three quality assurance surveys: Motivation Survey (Appendices E & F), Demographics Survey (Appendix G), Self-efficacy Survey (Appendix H), and the pre-test Knowledge Acquisition Survey (Appendices I – K). In order to track respondents and assure anonymity, each participant created a unique four-digit identification code which was recorded on each survey they completed. Following completion of the surveys, the participants received training for Module 1. A 30-minute lunch break (during which meals were provided to the participants) was provided. The participants then received training for Modules 2 and 3. A

30-minute dinner break (during which meals were provided to the participants) was provided. Participants then received training for Module 4 followed by a review of Modules 1 through 3. Immediately following the final review, they completed the post-training Motivation Survey (Appendices E & F), post-training Self-Efficacy Survey (Appendix H), and the post-training Knowledge Acquisition Survey (Appendices I – K). Participants recorded their four-digit identification codes on all surveys.

Interstudy Interval and Retention Interval

Table 2, Table 3, and Table 4 depict the schedules for the distributed and massed training schedule, including interstudy and retention intervals.

Table 2 - Distributed schedule procedures

<table>
<tr><th></th><th>Monday 3/25/13</th><th>Wednesday 3/25/13</th><th>Monday 4/1/13</th><th>Wednesday 4/3/13</th></tr>
<tr><td>6:30 p.m.</td><td>Pre-surveys</td><td>Mod 1: Episode 2</td><td>Mod 2: Episode 2</td><td rowspan="3">Mod 4: Episode 1</td></tr>
<tr><td>7:00 p.m.</td><td rowspan="5">Mod 1: Episode 1</td><td rowspan="5">Mod 2: Episode 1</td><td rowspan="5">Mod 3: Episode 1</td></tr>
<tr><td>7:30 p.m.</td></tr>
<tr><td>8:00 p.m.</td><td rowspan="2">Mod 1 – 3: Final Episode</td></tr>
<tr><td>8:30 p.m.</td></tr>
<tr><td>9:00 p.m.</td><td>Post-surveys</td></tr>
</table>

Table 3 - Interstudy and retention intervals of distributed schedule

ISI between 1st and 2nd episode of Mod 1	45. 5 hr
ISI between 1st and 2nd episode of Mod 2	118.5 hr
ISI between 1st and 2nd episode of Mod 3	47.5 hr
RI for Mod 1 - 3	0.5 hr

Table 4 - Massed schedule procedures

<table>
<tr><td>10:00 a.m.</td><td>Pre-survey</td></tr>
<tr><td>10:30 a.m.</td><td rowspan="4">Mod 1: Episode 1</td></tr>
<tr><td>11:00 a.m.</td></tr>
<tr><td>11:30 a.m.</td></tr>
<tr><td>12:00 p.m.</td></tr>
</table>

12:30 p.m.	Mod 2: Episode 1
1:00 p.m.	
1:30 p.m.	
2:00 p.m.	
2:30 p.m.	Mod 3: Episode 1
3:00 p.m.	
3:30 p.m.	
4:00 p.m.	
4:30 p.m.	Mod 1-3: Final Episode
5:00 p.m.	Mod 4: Episode 1
5:30 p.m.	
6:00 p.m.	
6:30 p.m.	
7:00 p.m.	
7:30 p.m.	Post-survey
8:00 p.m.	

Student participants were provided with a certificate of completion for the training. Upon completion of the training, students were provided with an opportunity to participate in the community service project entitled Project Sprout.

Research Design

This study was conducted with Radford University Institutional Review Board approval (IRB Approval Letter, Appendix B). This study implemented the use of a quantitative survey design. A quasi-experimental intervention was provided in the form of the pilot PS advocate training program and data was collected via quality assurance surveys. The quality assurance pre- and post-surveys were initially designed for the sole use of the PS student coordinators and director. After obtaining Radford University Institutional Review Board (IRB) approval, the author of this study used the data obtained from the surveys to evaluate the relationship between the type of motivation to volunteer (intrinsic or extrinsic) and type of training schedule (massed or distributed), and their influence on level of self-efficacy and knowledge acquisition.

Participants voluntarily provided informed consent (Adult Informed Consent – Survey Research, Appendix C) specifically for their engagement in the study as it related to the use and analysis of the survey data by the author. Therefore, this quantitative survey-based study was both retrospective and concurrent.

Data Analysis

Data was analyzed using The Statistical Package for the Social Sciences (SPSS) software. Analyses assessed change in knowledge, change in level of self-efficacy, and the relationship between change in knowledge and strength of intrinsic motivation.

Research questions 1 through 4 were analyzed using a t-test with a two-tailed distribution. The t-test assesses whether the means of two groups are statistically different from each other. This analysis is appropriate for comparing the means of two groups. To test the significance, the risk level (alpha level) was set at .05. An alpha level of .05 was selected because the research questions were assumed to be non-directional (Schiavetti & Metz, 2002); furthermore, in most social research, the conventional alpha level is set at .05. The hypothesis was rejected if p was greater than .05; if p was less than .05 the hypothesis was accepted.

Research question 5 was evaluated using a correlation analysis. A correlation is a single number that estimates the degree of association between two quantitative variables, which for this study were the strength of intrinsic motivation and change in knowledge. The strength and direction between the variables was analyzed using the Pearson Product-Moment Correlation Coefficient.

Chapter 4: Results

This study sought to answer five questions that would collectively inform the author's knowledge of the quality of the pilot Project Sprout advocate training program. To determine the quality of instruction, the author investigated whether or not participating in the Project Sprout advocate training program would lead to a change in knowledge. To examine the effects of training schedule, the author investigated whether or not one training schedule led to greater changes in participants' knowledge. To determine the quality of the pilot training program, the author investigated whether or not participating in the Project Sprout advocate training program would lead to a change in self-efficacy. To examine the effects of training schedule, the author investigated whether or not one training schedule led to greater changes in participants' self-efficacy. Finally, to determine the quality of the pilot training program, the author investigated whether or not strength of intrinsic motivation was associated with participants' change in knowledge.

The relationships between motivation and training schedule and their effect on change in self-efficacy and knowledge were analyzed for significant and non-significant findings. The relevant data and results obtained from analysis are presented in the following section.

Demographics

Figure 3,Figure 4,Figure 5, and Figure 6 show a breakdown of demographic data for each of the two training schedules.

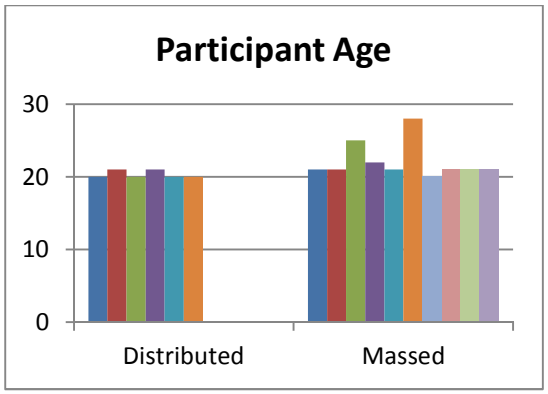

Figure 3 - Age of participants in training groups

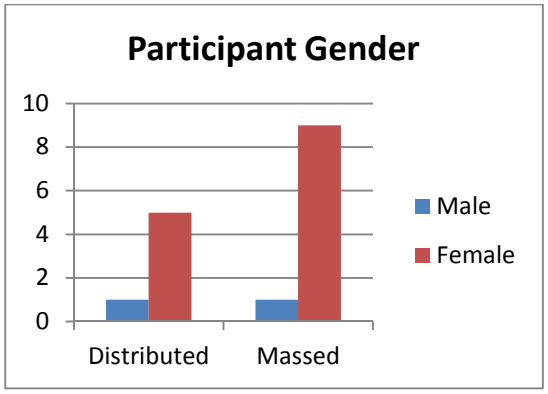

Figure 4 - Gender of participants in training groups

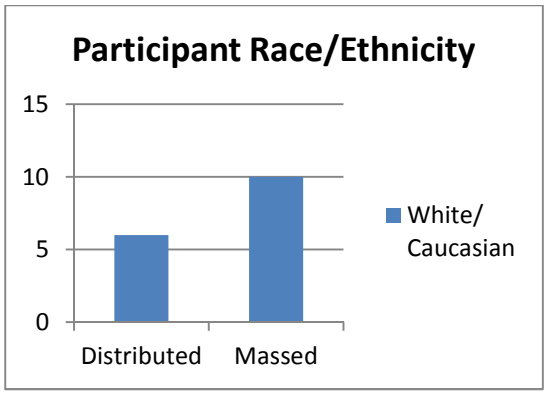

Figure 5 - Race/Ethnicity of participants in training groups

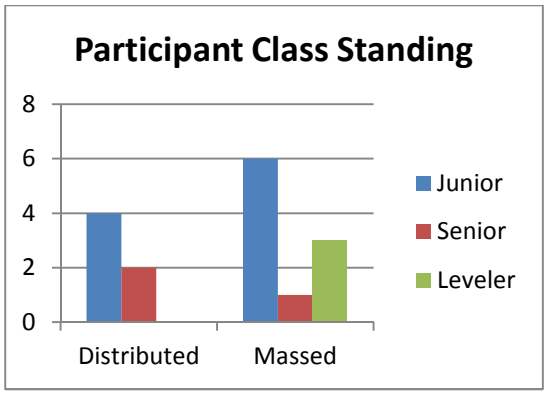

Figure 6 - Class standing of participants in training groups

Of the 16 participants engaged in the PS advocate training program, 14 participants indicated they had previous volunteer experience, and 14 participants indicated they were traditional college students, completing a 4-year degree immediately following graduation from high-school. Demographic data collected indicate that the participants were a homogeneous group.

Data Analysis

Data was collected from participants who completed quality assurance pre- and post-surveys within the PS advocate training program. Data was analyzed using The Statistical Package for the Social Sciences (SPSS) software. Analyses assessed change in knowledge,

change in level of self-efficacy, and the relationship between change in knowledge and strength of intrinsic motivation. Research questions 1 – 4 were analyzed using a t-test with a two-tailed distribution. To test the significance, the risk level (alpha level) was set at .05. An alpha level of .05 was selected because the research questions were assumed to be non-directional (Schiavetti & Metz, 2002); furthermore, in most social research, the conventional alpha level is set at .05. The hypothesis was rejected if p was greater than .05; if p was less than .05 the hypothesis was accepted.

Research question 5 was evaluated using a correlation analysis. A correlation is a single number that estimates the degree of association between two quantitative variables, which for this study were the strength of intrinsic motivation and the change in knowledge. The strength and direction between the variables was analyzed using the Pearson Product-Moment Correlation Coefficient. A Pearson correlation coefficient of 0 indicates that there is no association between the two variables; a value greater than 0 indicates a positive association.

The Kolmogorov-Smirnov test (KS-test) was used to determine if the datasets differed significantly. The KS-test has the advantage of making no assumption about the distribution of data.

Research Question #1: Did the participants who engaged in the PS advocate training program demonstrate a change in knowledge of PS objectives, child development, and interpersonal communication skills as measured by pre- and post-surveys? Pre-training Knowledge Acquisition Survey results and post-training Knowledge Acquisition Survey results were used to determine if the participants who engaged in the PS advocate training program demonstrated a change in knowledge of PS objectives, child development, and interpersonal

communication skills. Figure 7 and Figure 8 show a frequency distribution of pre- and post-Knowledge Acquisition Survey results for the 16 participants:

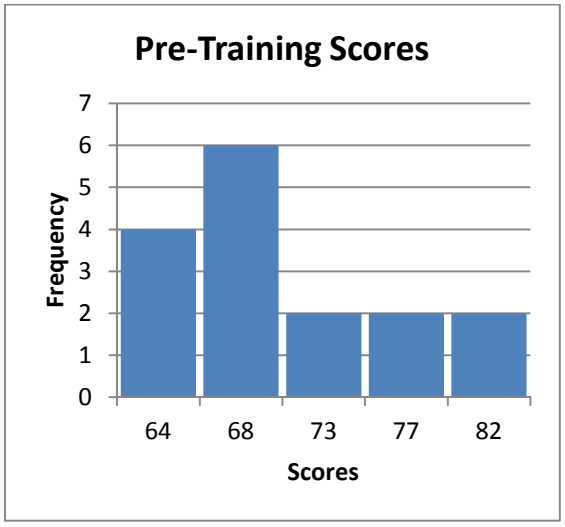

Figure 7 - Frequency distribution of pre-training Knowledge Acquisition Survey results

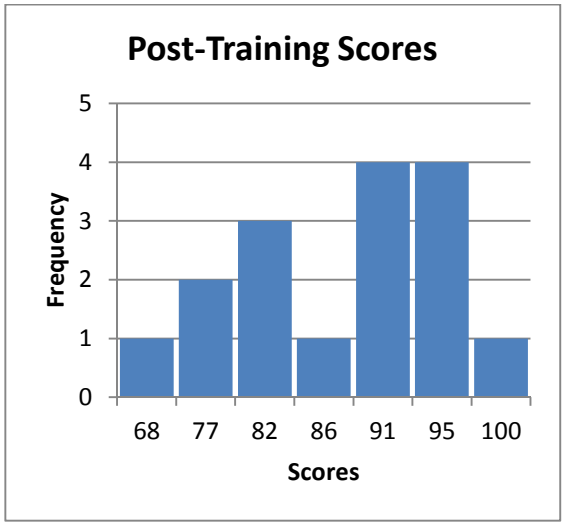

Figure 8 - Frequency distribution of post-training Knowledge Acquisition Survey results

Results indicated that the mean post-training knowledge acquisition score (M = 87.38, SD = 8.66) was significantly greater than the mean pre-training knowledge acquisition score (M = 70.5, SD = 6.15), t(15) = -8.18, p = .00 (2-tailed). Based on the results of the test, hypothesis 1 was accepted, which stated that participants who engaged in the PS advocate training program would demonstrate a change in knowledge of PS objectives, child development, and interpersonal communication skills. Results of the Komogorov-Smirnov (KS) indicate a deviation from normality (Table 5).

Table 5 - Research Question #1 Test of Normality

	Kolmogorov-Smirnov
	Sig.
Knowledge Acquisition Pre-test	0.001
Knowledge Acquisition Post-test	0.030

Research Question #2: Was there a difference in change in knowledge of PS objectives, child development, and interpersonal communication skills between participants assigned to the distributed training schedule and participants assigned to the massed training schedule as measured by pre- and post-training surveys? The difference in scores between pre-training Knowledge Acquisition Surveys and post-training Knowledge Acquisition Surveys was used to determine if there was a discrepancy in change in knowledge of PS objectives, child development, and interpersonal communication skills for participants assigned to the distributed training schedule compared to participants assigned to the massed training schedule. Figure 9 and Figure 10 show a frequency distribution of score changes for the six participants in the distributed schedule compared to the 10 participants in the massed schedule:

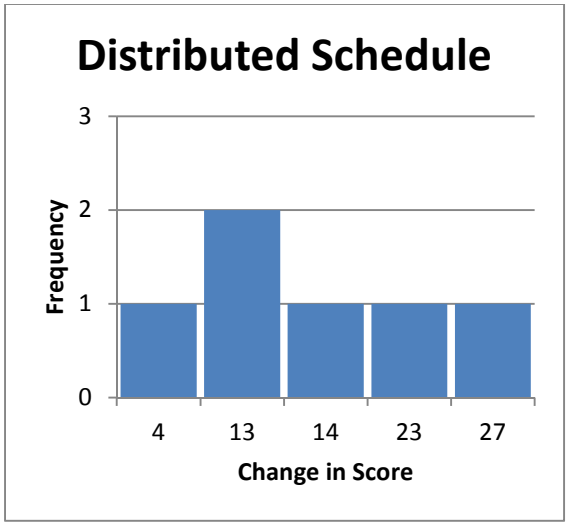

Figure 9 - Frequency distribution of change in knowledge for distributed schedule

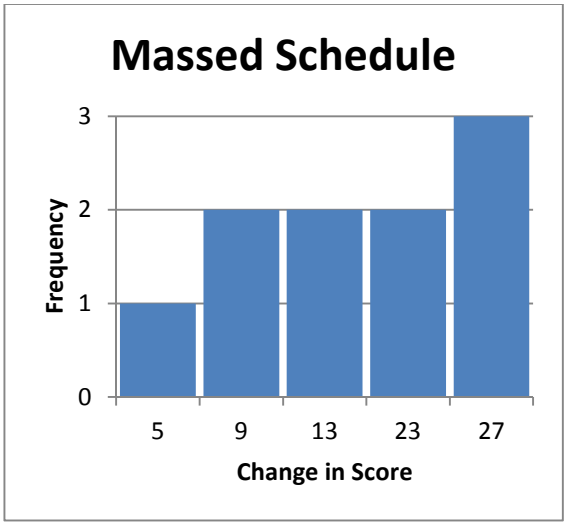

Figure 10 - Frequency distribution of change in knowledge for massed schedule

Results indicated that the change in knowledge for participants in the distributed training schedule (M = .16, SD = .08) was not significantly greater than the change in knowledge for participants in the massed training schedule (M = .18, SD = .09), t(11.15) = .448, p = .663 (2-tailed). Based on the results of the test, hypothesis 2, which stated that participants engaged in

the distributed training schedule would demonstrate a greater change in knowledge of PS objectives, child development, and interpersonal communication skills than participants engaged in the massed training schedule, was rejected. Results of the Komogorov-Smirnov (KS) indicate normality (Table 6).

Table 6 - Research Question #2 Test of Normality

	Kolmogorov-Smirnov
	Sig.
Change in Knowledge Acquisition - Distributed	0.200
Change in Knowledge Acquisition - Massed	0.129

Research Question #3: Did participants engaged in the PS advocate training program demonstrate a change in self-efficacy as measured by pre and post training surveys? Pre-training Self-Efficacy Surveys and post-training Self-Efficacy Surveys were used to determine if the participants who engaged in the PS advocate training program demonstrated a change in self-efficacy. Figure 11 and Figure 12 show a frequency distribution of the average level of self-efficacy for the 16 participants based on pre- and post-training survey results.

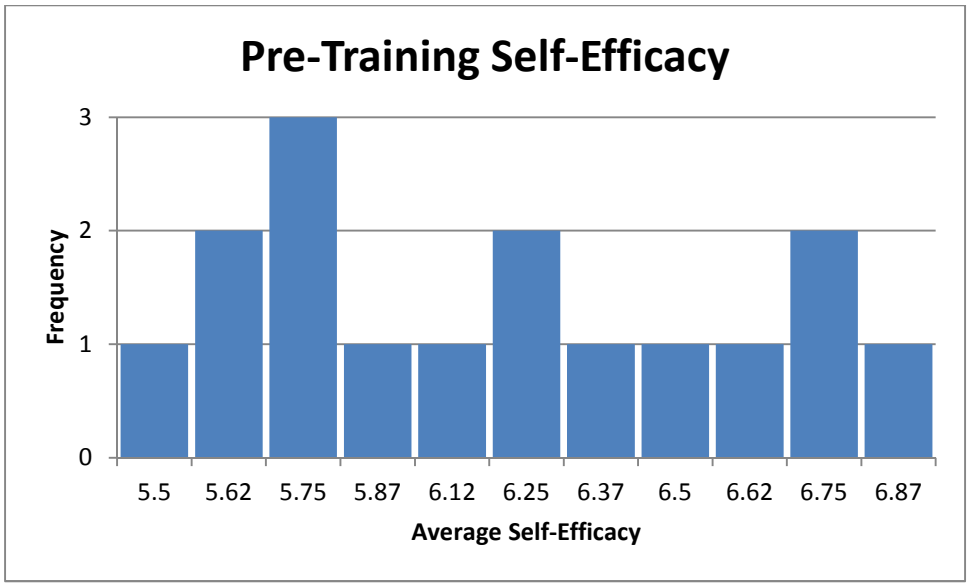

Figure 11 – Frequency distribution of average pre-training self-efficacy

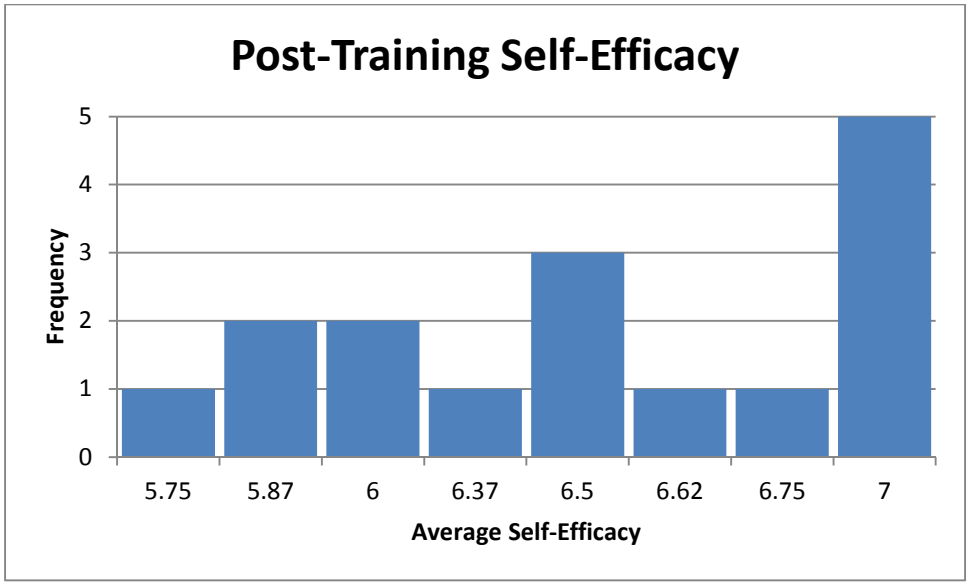

Figure 12 – Frequency distribution of average post-training self-efficacy

Results indicated that the mean self-efficacy post-test score (M = 6.48, SD = .46) was significantly greater than the mean self-efficacy pre-test score (M = 6.15, SD = .46), t(15) = -2.81, p = .013 (2-tailed). Based on the results of the test, hypothesis 3, which stated that

participants engaged in the PS advocate training program would demonstrate a change in self-efficacy, was accepted. Results of the Komogorov-Smirnov indicate normality (Table 7).

Table 7 - Research Question #3 Test of Normality

	Kolmogorov-Smirnov
	Sig.
Pre Self-Efficacy	0.176
Post Self-Efficacy	0.168

Research Question #4: Was there a difference in change in self-efficacy between participants assigned to the distributed training schedule compared to participants assigned to the massed training schedule as measured by pre-and post-training surveys? The difference between the average level of self-efficacy in the pre-training Self-Efficacy Surveys and post-training Self-Efficacy Surveys was used to determine if there was a discrepancy in average level of self-efficacy for participants assigned to the distributed training schedule compared to participants assigned to the massed training schedule. Figure 13 and Figure 14 show the change in level of self-efficacy for the 6 participants in the distributed schedule compared to the 10 participants in the massed schedule.

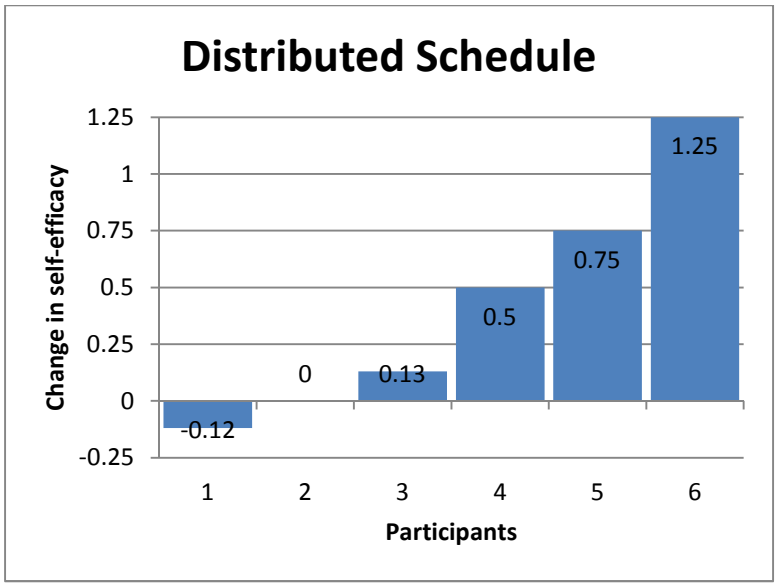

Figure 13 - Change in self-efficacy for distributed schedule

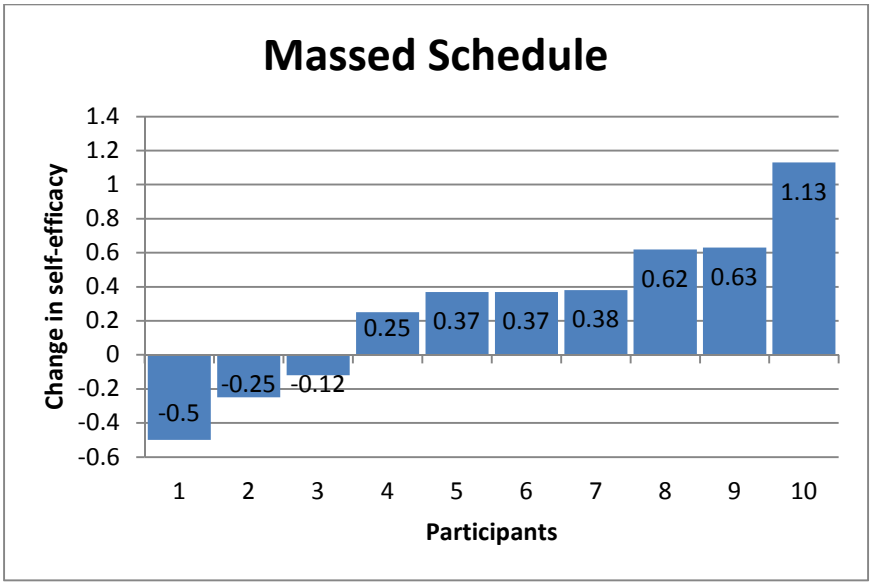

Figure 14 - Change in self-efficacy for massed schedule

Results indicated that the change in self-efficacy for participants in the distributed training schedule (M = .42, SD = .52) was not significantly greater than the change in self-efficacy for participants in the massed training schedule (M = .29, SD = .48), t(9.89) = -.50, p = .63 (2-tailed). Based on the results of the test, hypothesis 4, which stated that participants engaged in the distributed training schedule would demonstrate a greater change in self-efficacy

between pre- and post-training than participants engaged in the massed training schedule, was rejected. Results of the Komogorov-Smirnov indicate normality (Table 8).

Table 8 - Research Question #4 Test of Normality

	Kolmogorov-Smirnov
	Sig.
Change in Self-Efficacy – Distributed	0.200
Change in Self-Efficacy – Massed	0.200

Research Question #5: For the participants who identified as being intrinsically motivated on the pre-training intrinsic motivation survey, is there a relationship between the strength of initial intrinsic motivation (m) and change in knowledge of PS objectives, child development, and interpersonal communication skills (k)? The pre-training Intrinsic Motivation Survey was used to compare the strength of intrinsic motivation relative to the change in knowledge of PS objectives, child development, and interpersonal communication skills. Figure 15 shows a frequency distribution of the pre-training average level of intrinsic motivation for the 16 participants.

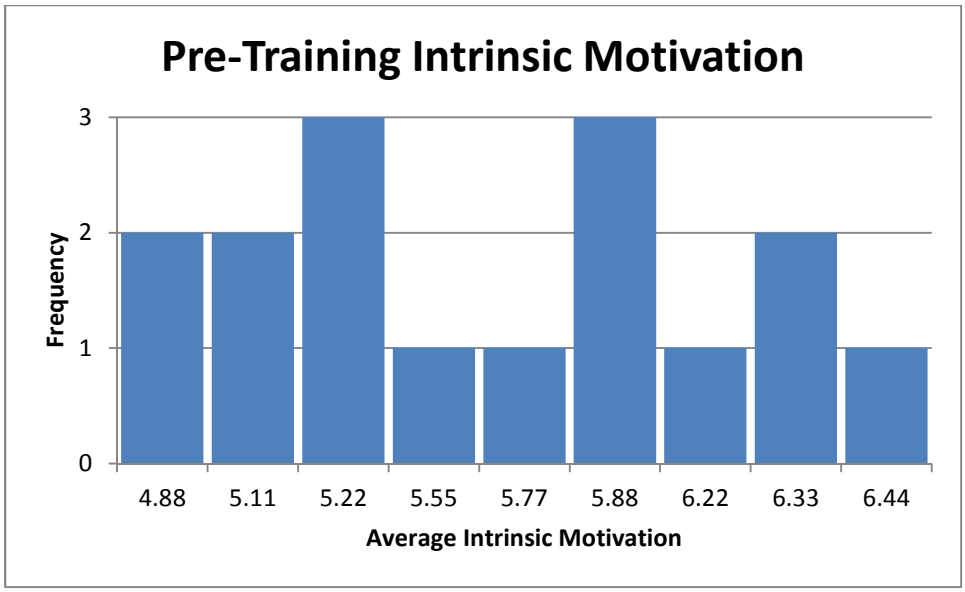

Figure 15 - Frequency distribution of pre-training average intrinsic motivation

Results indicated a positive relationship between initial intrinsic motivation (m) and change in knowledge (k) (r_{mk} = +0.936). Based on the results of the test, hypothesis 5, which stated that higher initial levels of intrinsic motivation would be positively correlated with greater changes in knowledge of PS objectives, child development, and interpersonal communication skills, was accepted. Results of the Komogorov-Smirnov indicate normality (Table 9).

Table 9 - Research Question #5 Test of Normality

	Kolmogorov-Smirnov
	Sig.
Pre Intrinsic Motivation (m)	0.062
Change in Knowledge Acquisition (k)	0.061

Chapter 5: Discussion

Relationship Between Training Schedule and Change in Knowledge

The purpose of this study was to examine the quality of an advocate training program designed for undergraduate and leveling students volunteering for a service learning project

entitled Project Sprout. Quality was measured through participants' change in knowledge, and training schedule was considered as a variable that may have an effect on their change in knowledge. The advantages provided to memory by the distribution of practice have valid implications for developing effective training programs (Benjamin & Tullis, 2010). According to Donovan & Radosevich (1999), the research on training schedule has come predominantly from educational and classroom settings; however, these findings are relevant and important for the design and implication of organizational training programs.

Results of the study indicate significant changes in knowledge for all 16 participants following exposure to the PS advocate training program. These results suggest that within the context of either the distributed or massed training schedule, participants learned the material included in the PS advocate training program. Results of this study did not reveal significant differences between distributed and massed practice, supporting the claim made by Mumford et al. (1994) that many studies fail to demonstrate the distributed practice effect. Results of the study also suggest that the quality of instruction, the nature and personality of the learner, and the material to be learned influence performance (Mumford et al. 1994).

Relationship Between Intrinsic Motivation and Change in Knowledge

According to Deci & Ryan's 1985 self-determination theory, individuals strive for autonomy and competence. This inborn drive, along with environmental influences, impacts an individual's choice of activity along with their effort and persistence. When an individual participates in an activity or engages in a behavior in the absence of rewards or contingencies, they do so because they are intrinsically motivated. Intrinsic motivation has proven to be predictive of certain outcomes in different domains; therefore, to monitor the quality of the pilot

PS advocate training program, the relationship between intrinsic motivation and change in knowledge was examined.

Results of the study indicated that strength of initial intrinsic motivation was positively associated with change in knowledge, supporting findings by Schunk and Zimmerman that intrinsically-motivated learners demonstrate greater progress and higher levels of mastery (2008).

Relationship Between Self-Efficacy and Change in Knowledge

Self-efficacy influences our choice of activities and our motivational level, which contributes to the formation of knowledge structures that lead to skilled performance (Bandura, 1998). Furthermore, an individual's performance in a given situation serves as the most compelling source of self-efficacy, and repeated success will enhance and maintain individuals' perception of self-efficacy (Bandura, 1998). Quality of the PS advocate training program was measured through participants' change in self-efficacy, and training schedule was considered as a variable that may affect their change in self-efficacy.

Results of the study indicate significant changes in self-efficacy for all 16 participants after exposure to the PS advocate training program. These results suggest that within the context of either the distributed or massed training schedule, participants learned the material included in the PS advocate training program; subsequently, the participants gauged themselves as capable of becoming a PS advocate. Results of this study, however, did not reveal significant differences in self-efficacy between distributed and massed schedules, indicating that there were no advantages provided by a particular training schedule that led to a greater sense of capability or preparedness as it related to becoming a PS advocate.

Chapter 6: Limitations

The ability of the findings from the current study to be generalized is limited in two respects. Results of the study are limited to the training materials utilized for the Project Sprout advocate training program and to the college-age population. Some of the more significant limitations are noted that offer opportunities for future research.

Quasi-experimental studies lack key components of a true experiment. Although this study utilized a pre – post-survey design, random, matched assignments to training schedules were hindered by student preference and availability. It was assumed that participants picked their training schedule due to constraints in their availability. Although the pre – post-survey design allowed the author to make inferences on the quality of the advocate training program by looking at the difference in the pre-survey and post-survey results, interpreting the pre-survey and post-survey differences should be done with caution as there was no definitive treatment group and control group. Therefore, the author cannot be sure that the differences in pre- and post-surveys are causally related to the intervention (www.nationaltechcenter.org).

Parametric statistics are based on certain assumptions about the population from which the data is obtained. Not all of those assumptions could be satisfied by the data obtained from the Likert-type surveys. Parametric procedures were still used to analyze the data obtained, as they are considered statistically more powerful than analogous nonparametric tests (i.e., more sensitive to differences and relationships). When a distribution deviates markedly from normality there is a greater chance that using the parametric procedures could lead to incorrect conclusions (Shiavetti & Metz, 2002). Furthermore, due to the limited number of participants (n =16), conclusions drawn from this study must be made with caution.

Although demographic data suggested that the participants who participated in this study were a homogeneous group, they could also be conceived as representing a heterogeneous group. Each individual began the training with varied background knowledge, experience, and academic level. Therefore, it is not surprising that pre and post-test knowledge acquisition scores do not represent a normal distribution, as the scores are not reflective of a homogeneous group.

The distributed training schedule was not a true demonstration of the spacing effect. Students were exposed to Module 1 during the first session, and after an inter-study gap, were exposed to the same material through an abbreviated review. The same procedure was followed for Modules 2 and 3; however, the inter-study gap between Modules 2 and 3 was significantly greater. Each session was ultimately designed to address a different topic, indicating the current design was more a reflection of inter-study rest breaks versus the effect of spacing (Rohrer & Pashler, 2010)

Chapter 7: Implications

The decision as to which schedule will be used in the future to train Project Sprout advocates will depend heavily on considerations of student availability. The outcomes of this study, however, have considerable implications for future Project Sprout training protocols and schedules.

All 16 participants demonstrated a significant change in knowledge and self-efficacy which speaks to the quality of the training protocols and materials. Not only did the participants demonstrate a change in knowledge, the increase in self-efficacy validates that what they learned through the training program made them feel capable of becoming a Project Sprout advocate. The participants who identified as being intrinsically motivated at the outset of the study demonstrated greater changes in knowledge. This supports the existing literature, which suggests that for service learning projects, intrinsic motivation leads to greater levels of progress.

Results of this study did not reveal significant differences between distributed and massed practice, supporting the claim made by Mumford et al. (1994) that many studies fail to demonstrate the distributed practice effect. Outcomes of the study suggest that the quality of instruction, the nature and personality of the learner, and the material to be learned influence performance more than training schedule. Therefore, it is advantageous to consider the motivational disposition and level of self-efficacy of individuals learning new material.

Relationship Between Training Schedule and Change in Knowledge

The effects of training schedule may vary as a function of an individual's learning strategies, the ability and experience of the sample, and the targeted skill (i.e. verbal, motor, and intellectual). Massed and distributed practice may yield similar results on certain measures of learning and performance due to these variations (Mumford et al., 1994). Training schedule

requires more investigation as there is no sound theory to support the effects of distributed practice. Studies are needed that seek to differentiate between variables of content (i.e. what's being learned) and learner (i.e. qualities of the learner).

For future Project Sprout advocate training programs, distributed practice may provide advocates the time they need to process and internalize new material and thus contribute to learning and performance when the task at hand stresses knowledge structure development (Mumford et al., 1994).

Relationship Between Self-Efficacy and Change in Knowledge

The associations between self-efficacy and learning processes have implications for learning environments. Students should be aware that ability is an acquirable skill. Students should be taught to self-reflect and evaluate personal relative performance through feedback that is focused on their progress and accomplishments. Comparing performance to others should be discouraged (Bandura, 1993).

In Module 4, the PS advocate training program utilized role play activities to simulate family visits. These activities provided advocates with a performance on which to gauge their level of self-efficacy. According to Bandura (1998), the most compelling source of self-efficacy is individuals' evaluation of their actual performance in a given situation. Future training protocols should continue to consider the sources of self-efficacy, and create learning environments that provide opportunities for learners to evaluate their own performance on a task.

Relationship Between Intrinsic Motivation and Change in Knowledge

The current findings support existing literature that claims intrinsic motivation leads to greater progress and higher levels of mastery (Shunk & Zimmerman, 2008). Educators in a variety of roles who are oriented toward supporting students' autonomy and self-regulation

should refrain from using rewards and controls and instead offer more choices and supportive feedback (Wentzel & Wigfield, 2009). Intrinsic motivation is facilitated by environments that provide optimal challenges, enhance feelings of competence, support autonomous activity, and foster feelings of relatedness (Deci & Ryan, 1985, 2000). Volunteer programs should be capable of evolving to keep pace with the changing motivations of volunteers (i.e. being supportive of altruistic and egoistic motives to volunteer, or fostering a responsive sociocultural environment (Gage & Thapa, 2012).

Conclusion

The findings from this study are relevant to any scenario that strives to impart knowledge to a student, trainee, or client. Teachers and trainers alike should be interested in voluntary, sustained, and ongoing participation in learning. Therefore, educators should view learners from a motivational perspective and consider the learner's perceived self-efficacy in order to understand the processes that initiate, direct, and sustain one's behavior.

References

Ames, C., & Archer, J. (1988). Achievement goals in the classroom: students' learning strategies and motivation processes. *Journal of Educational Psychology*, 80(3), 260 – 267.

Baddeley, A.D. (1978). The influence of length and frequency of training session on the rate of learning to type. *Ergonomics*, 21(8), 627 – 635.

Bandura, A. (1977). Self-efficacy: toward a unifying theory of behavioral change. *Psychological Review*, 84(2), 191 – 215.

Bandura, A. (1993). Perceived self-efficacy in cognitive development and functioning. *Educational Psychologist*, 28(2), 117 – 148.

Bandura, A. (1998). Self-efficacy the exercise of control. New York: W.H. Freeman and Company.

Bandura, A. (2006). Guide for constructing self-efficacy scales. In F. Pajares & T. Urdan (Eds.), Self-efficacy beliefs of adolescents (p. 307 – 338). Greenwich, CT: Information Age.

Benjamin, A.S., & Tullis, J. (2010). What makes distributed practice effective? *Cognitive Psychology*, 61, 228 – 247.

Cepeda, N. J., Vul, E., Rohrer, D., Wixted, J. T., & Pashler, H. (2008). Spacing Effects in Learning: A Temporal Ridgeline of Optimal Retention. *Psychological Science* (Wiley-Blackwell), 19(11), 1095-1102.

Cepeda, N., Coburn, N., Rohrer, D., Wixted, J., Mozer, M., & Pashler, H. (2009). Optimizing distributed practice: theoretical analysis and practical implications. *Experimental Psychology*, 56(4), 236 – 246.

Cepeda, N., Pashler, H., Vul, E., Wixted, J., & Rohrer, D. (2006). Distributed practice in verbal recall tasks: a review and quantitative synthesis. *Psychological Bulletin*, 132(3), 354 – 380.

Chen, G., Gully, S., & Eden, D. (2001). Validation of a new general self-efficacy scale. *Organizational Research Methods*, 4(1), 62 – 83.

Clary, E., & Miller, J. (1986). Socialization and situational influences on sustained altruism. *Child Development*, 57(6), 1358 – 1369.

Clary, E., & Snyder, M. (1999). The motivations to volunteer: theoretical and practical considerations. *Current Directions in Psychological Science*, 8(5), 156 – 159.

Clary, E., Snyder, M., Ridge, R., Copeland, J., Arthur A., Haugen, J., & Miene, P. (1998). Understanding and assessing the motivations of volunteers: A functional approach. *Journal of Personality and Social Psychology*, 74(6), 1516 – 1530.

Cnaan, R., & Goldberg-Glen, R. (1991). Measuring motivation to volunteer in human services. *Journal of Applied Behavioral Science*, 27, 269 – 284.

Cohen, J., & Kinsey, D. (1994). 'Doing good' and scholarship: a service learning study. *Journalism Educator*, 48(4), 4 – 14.

Deci E., & Ryan, R. (1985). Intrinsic motivation and self-determination in human behavior. New York, N.Y.: Plenum Press.

Deci, E., & Ryan, R. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68 – 78.

Deci, E., & Ryan, R. (2008). Facilitating optimal motivation and psychological well-being across life's domains. Canadian Psychology, 49(1), 14 – 23.

Deci, E., Schwartz, A., Sheinman, L., & Ryan, R. (1981). An instrument to assess adults' orientations toward control versus autonomy with children: reflections on intrinsic motivation and perceived competence. *Journal of Educational Psychology*, 73, 642 – 650.

Denler, H., Wolters, C., & Benzon, M.(2014). Social cognitive theory. Retrieved from http://www.education.com/reference/article/social-cognitive-theory/

Donovan, J.J., & Radosevich, D.J. (1999). A meta-analytic review of the distribution of practice effect: now you see it, now you don't. *Journal of Applied Psychology*, 84(5), 795 – 805.

Fantuzzo, J., & Periman, S. (2007). The unique impact of out-of-home placement and the mediating effects of child maltreatment and homelessness on early school success. *Children and Youth Services Review,* 29(7), 941-960.

Fitch, T. (1987). Characteristics and motivations of college students volunteering for community service. *Journal of College Student Personnel*, 28(5), 424 – 430.

Gage, R., & Thapa, B. (2012). Volunteer motivations and constrains among college students: analysis of the volunteer function inventory and leisure constraints model. *Nonprofit and Voluntary Sector Quarterly*, 41(3), 405 – 430.

Gottfried, A.E. (1985). Academic intrinsic motivation in elementary and junior high school students. *Journal of Educational Pyschology*, 77(6), 631 – 645.

Head Start (2014). An Office of the Administration for Children and Families Early Childhood Learning & Knowledge Center (ECLKC), National Center on Parent, Family, and Community Engagement. Retrieved from http://eclkc.ohs.acf.hhs.gov/hslc/tta-system/family

Janiszewski, C., Noel, H., & Sawyer, A. (2003). A meta-analysis of the spacing effect in verbal learning: implications for research on advertising repetition and consumer memory. *Journal of Consumer Research*, 30, 138 – 149.

Lozano , L.M. Garcia-Cueto , E. & Muñiz , J. (2008). Effect of the number of response categories on the reliability and validity of rating scales. *Methodology*, 4(2), 73-79.

Luszczynska, A., Scholz, U., & Schwarzer, R. (2005). The general self-efficacy scale: multicultural validation studies. *The Journal of Psychology*, 139(5), 439 – 457.

Maslow, A.H. (1943). A theory of human motivation. *Psychological Review*, 50(4), 370 – 396.

Maslow, A.H. (1948). "Higher" and "lower" needs. *Journal of Psychology: Interdisciplinary and Applied*, 25, 433 – 436.

Mastin, L. (2010). Memory consolidation. Retrieved from http://www.human-memory.net/processes_consolidation.html.

McLeod, S. (2007). Stages of Memory - encoding storage and retrieval. Retrieved from http://www.simplypsychology.org/memory.html

Moss, V. (1996). The efficacy of massed versus distributed practice as a function of desired learning outcomes and grade level of the student. *Dissertation Abstracts international*: 56, 5204.

Mumford, M., Costanza, D., Baughman, W., Threlfall, & K., Fleishman, E. (1994). Influence of abilities on performance during practice: effects of massed and distributed practice. *Journal of Educational Psychology*, 86(1), 134 – 144.

Murrihy, R., Byrne, M., & Gonsalvez, C. (2009). Testing an empirically derived mental health training model featuring small groups, distributed practice, and patient discussion. *Medical Education*, 43, 140 – 145.

National Center on Family Homelessness. (2003). America's homeless children. Newton, MA: Author. Retrieved from www.familyhomelessness.org/pdf/fact_children.pdf

National Center for Technology Innovation (2014). Quasi-experimental study. Retrieved from http://www.nationaltechcenter.org/index.php/products/at-research-matters/quasi-experimental-study/

Nolen, S.B. (1988). Reasons for studying: motivational orientations and study strategies. *Cognition and Instruction*, 5(4), 269 – 287.

Preston , C.C., & Colman, A.M. (2000). Optimal number of response categories in rating scales: reliability, validity, discriminating power, and respondent preferences. *Acta Psychologica*, 104, 1-15.

Raman, P., & Pashupati, K. (2002). Turning good citizens into even better ones: the impact of program characteristics and motivations on service learning outcomes. *Journal of Nonprofit & Public Sector Marketing*, 10(2), 187 – 206.

Rohrer, D., & Pashler, H. (2010). Recent research on human learning challenges conventional instructional strategies. Educational Researcher, 39(3), 406 – 412.

Rubin, D.H., Erickson, C.J., San Agustin, M., Clear, S.D., Allen, J.K., & Cohen, P. (1996).Cognitive and academic functioning of homeless children compared with housed children. *Pediatrics,* 97(3), 289-294.

Scherbaum, C., Cohen-Charash, Y., & Kern, M. (2006). Measuring general self-efficacy: a comparison of three measures using item response theory. *Educational and Psychological Measurement*, 66(6), 1047 – 1063.

Schiavetti, N., & Metz, D. (2002) Evaluating Research in Communicative Disorders. Boston, MA: Allyn & Bacon.

Schunk, D. (1991). Self-efficacy and academic motivation. *Educational Psychologist*, 26(3 & 4), 207 – 231.

Schunk, D., & Zimmerman, B. (2008). Motivation and self-regulated learning; theory, research, and applications. New York, N.Y.: Taylor & Francis.

Seabrook, R., Brown, G., & Solity, J. (2005). Distributed and massed practice: from laboratory to classroom. *Applied Cognitive Psychology*, 19, 107 – 122.

Smith, S.M., & Rothkopf, E.Z. (1984). Contextual enrichment and distribution of practice in the classroom. *Cognition and Instruction*, 1(3), 341 – 358.

Swick, K. (2004). The dynamics of families who are homeless. *Childhood Education*, 80(3), 116-120.

Toppino, T., Cohen, M., Davis, M., & Moors, A. (2009). Metacognitive control over distribution of practice: when is spacing preferred? *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 35(5), 1352 – 1358.

Vallerand R., Pelletier, L., Blais, M., Briere, N., Senecal, C., & Vallieres, E. (1993). On the assessment of intrinsic, extrinsic, and amotivation in education: evidence on the concurrent and construct validity of the academic motivation scale. *Educational and Psychological Measurement*, 53, 159 – 172.

Vallerand R., Pelletier, L., Blais, M., Briere, N., Senecal, C., & Vallieres, E. (1992). The academic motivation scale: a measure of intrinsic, extrinsic, and amotivation in education. *Educational and Psychological Measurement*, 52, 1003 – 1017.

Vallerand, R., & Bissonnette, R. (1992). Intrinsic, extrinsic, and amotivational styles as predictors of behavior: a prospective study. *Journal of Personality*, 60(3), 599 – 620.

Virginia Department of Education. (2011). Education for homeless children and youth (EHCY) Program Profile. Retrieved from http://education.wm.edu/centers/hope/stats/StateEHCYfacts.pdf.

Walker, C., Greene, B., & Mansell, R. (2006). Identification with academics, intrinsic/extrinsic motivation, and self-efficacy as predictors of cognitive engagement. *Learning and Individual Differences*, 16, 1 – 12.

Walker-Dalhouse D., & Risko, V. (2008). Homelessness, poverty, and children's literacy development. *The Reading Teacher*, 62(1), 84 – 86.

Wentzel, K., & Wigfield, A. (2009). Handbook of motivation at school. New York, N.Y.: Routeledge.

White, R.W. (1959). Motivation reconsidered: the concept of competence. *Psychological Review*, 66(5), 297- 333.

Women's Resource Center of the New River Valley (2013). Volunteer Opportunities, Crisis Intervention Volunteers. Retrieved from http://www.wrcnrv.org/howYouCanHelp/vo_.shtml

Wozniak, R. (1999). Introduction to memory, Hermann Ebbinghaus. Retrieved from http://psychclassics.yorku.ca/Ebbinghaus/wozniak.htm

Appendix A: Terminology

I. Intrinsic motivation
    a. When an individual participates in an activity or engages in a behavior in the absence of rewards or contingencies. The individual's goal is the inherent satisfaction of participation in the activity.

II. Extrinsic motivation
    a. When an individual participates in an activity or engages in behavior because it leads to a consequence such as obtaining a reward or avoiding punishment. The individual's goal extends beyond the inherent activity.

III. Self-efficacy
    a. A perception that an individual holds about their ability to function in different domains at designated levels of performance

IV. Distributed training schedule
    a. For the purposes of this study, the distributed schedule refers to the four, two and one half hour sessions, each of which took place on a weeknight over the course of two weeks

V. Massed training schedule
    a. For the purposes of this study, the massed schedule refers to the one, ten hour session, which took place on a Saturday

Appendix B: IRB Approval Letter

Radford University's Institutional Review Board
Office of Sponsored Programs and Grants Management
P.O Box 6926 Radford, VA 24142 | Phone: (540) 831-5290 | Fax: (540) 831-6636 | irb-local@radford.edu

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April 2, 2013

TO:	Corey Cassidy, Ph.D.
FROM:	Laura Noll (lnoll@radford.edu) *Radford University IRB*
RE:	Approval for FY13-096: The Effects of Motivation and Training Schedule on General Self-Efficacy and Knowledge
STUDY TITLE:	[446494-1] The Effects of Motivation and Training Schedule on General Self-Efficacy and Knowledge
IRB REFERENCE #:	FY13-096
SUBMISSION TYPE:	New Project
ACTION:	APPROVED
EFFECTIVE DATE:	April 2, 2013
EXPIRATION DATE:	April 1, 2013
REVIEW TYPE:	Expedited Review
REVIEW CATEGORY:	Expedited review category #7

This is to confirm that the above-referenced study submitted for Expedited Review to Radford University's Institutional Review Board (IRB) has been granted approval.

Your IRB-sanctioned approval ends on April 1, 2013, by which date a closure report is due. If you wish to continue your research beyond this date, you must request a continuance no later than 10 days prior to the expiration of this approval. Because your study requires documentation of informed consent, you must use the stamped copy of your approved consent document.

If your protocol should change, please submit a request for modification. IRB forms can be accessed from your Forms and Templates library in IRBNet.

As the principal investigator for this project, you are ultimately responsible for ensuring that your study is conducted in an ethical manner. You are also responsible for filing all reports related to this project.

If you have any questions, please contact Laura Noll at (540) 831-5290 or lnoll@radford.edu. Please include your study title and reference number in all correspondence with this office.

Good luck with this project!

Appendix C: Adult Informed Consent—Survey Research

The Waldron College of Health and Human Services
Department of Communication Sciences & Disorders

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Title of Research: The relationship between motivation, self-efficacy, and training schedule and their influence on knowledge acquisition

Researcher(s):
Dr. Corey H. Cassidy, Ph.D., CCC-SLP
Whitney Morris, B.B.A.

We ask you to be in a research study designed to examine the relationship between type of student motivation (intrinsic/extrinsic) and type of training schedule (massed/distributed) as it relates to general self-efficacy and knowledge acquisition by students engaged in a targeted training program. If you decide to be in the study, you will be asked to commit to 10 hours of volunteer training and complete pre and post questionnaires regarding motivation, general self-efficacy, and knowledge. Approximately 20 - 30 undergraduate students from the Department of Communication Sciences and Disorders, School of Teacher Education and Leadership, Psychology, or School of Nursing will be asked to participate in the study.

This study has no more risk than you may find in daily life.

There is no compensation from being in this study.

Benefits to participating in this study may be increased knowledge and/or skills regarding child development, interpersonal communication skills, and an increased knowledge in regard to the issues related to homelessness. Student participants will also be provided with a certificate of completion for the training; this certificate may be noted on students' resumes or graduate school/employment applications. Upon completion of the training students will be provided with an opportunity to participate in a community service project.

You can choose not to be in this study. If you decide to be in this study, you may choose not to answer certain questions or not to be in certain parts of this study.

This research study is supported by Waldron College of Health and Human Services and the Dept. of Communication Sciences and Disorders. There are no costs to you for being in this study. There is no compensation for you to be in this research study.

If you decide to be in this study, what you tell us will be kept private unless required by law. If we present or publish the results of this study, your name will not be linked in any way to what we present.

If at any time you want to stop being in this study, you may stop being in the study without penalty or loss of benefits by contacting: Dr. Corey H. Cassidy (cherd@radford.edu) or Whitney Morris (wdmorris@radford.edu).

If you have questions now about this study, ask before you sign this form.

If you have any questions later, you may talk with Whitney Morris (wdmorris@radford.edu), or Dr. Corey H. Cassidy (cherd@radford.edu).

If this study has raised any issues that you would like to discuss with a professional, you may contact Dr. Corey H. Cassidy (cherd@radford.edu).

This study has been approved by the Radford University Institutional Review Board for the Review of Human Subjects Research. If you have questions or concerns about your rights as a research subject or have complaints about this study, you should contact Dr. Dennis Grady, Dean, College of Graduate and Professional Studies, Radford University, dgrady4@radford.edu, 1-540-831-7163.

It is your choice whether or not to be in this study. What you choose will not affect any current or future relationship with Radford University.

If all of your questions have been answered and you would like to take part in this study, then please sign below.

_____	_____	_____
Signature	Printed Name(s)	Date

I/We have explained the study to the person signing above, have allowed an opportunity for questions, and have answered all of his/her questions. I/We believe that the subject understands this information.

_____	_____	_____
Signature of Researcher(s)	Printed Name(s)	Date

_____	_____	_____
Signature of Researcher(s)	Printed Name(s)	Date

Note: A signed copy of this form will be provided for your records.

Appendix D: Project Sprout Volunteer Survey

Project SPROUT is a prevention and awareness program for children birth – five years old and their parents who are experiencing homelessness in the New River Valley.

This semester we are planning to recruit and train the first cohort of volunteers for the program (Project SPROUT Advocates). Advocates will be trained to go out into the community in teams of two to work with families experiencing homelessness. You will interact with children and coach parents by modeling age-appropriate developmental skills with the use of backpacks that include materials for children between the ages of six months and five years.

You don't need to be an expert in child development, but we are interested in students who have completed at least one class in child development:

- Psychology 230 (Lifespan Developmental Psychology)
- Psychology 317 (Child Psychology)
- Human Development 300 (Human Growth and Development Birth through Adolescence).

We are not asking for a commitment today. We simply want to know if you are interested! Joining Project SPROUT will benefit you regardless of your career choice. You will gain skills in counseling, collaborating with parents, and interacting with children. Being an Advocate with Project SPROUT will not only be a great resume builder, it may also change the way you view the world.

If you have any interest, please answer the following questions. We will contact you shortly after spring break.

Full name:	
Email:	
Phone:	

What is the best way to contact you?

_____

PROJECT sProut "Helping children grow..."

1. Would you be willing to commit to four* training sessions that are 2.5 hours each (for a total of 10 hours of training) over a two week period?

YES	NO

Monday March 25th, 6:30 – 9:00 p.m.
Wednesday March 27th, 6:30 – 9:00 p.m.
Monday April 1st, 6:30 – 9:00 p.m.
Wednesday April 3rd, 6:30 – 9:00 p.m.

****NOTE: attendance is required at ALL FOUR sessions***

2. Would you be willing to commit to one training session that is 10 hours long (when provided a 1 hour lunch and breaks) over a weekend day?

YES	NO

Saturday April 13th, 10:00 – 8:00 p.m.

3. Would you be willing to commit to either training schedule if randomly assigned?

YES	NO

Thank you!
Project Sprout team

Bre Metz, 1st year graduate student clinician, COSD
Morgan Moran, 1st year graduate student clinician, COSD
Whitney Morris, 1st year graduate student clinician, COSD
Shannon Lisowe, 1st year graduate student clinician, COSD
Dr. Corey H. Cassidy, Ph.D., CCC-SLP (cherd@radford.edu)

Appendix E: Intrinsic Motivation Survey

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Please answer the following questions on a scale of 1 to 7:

1 = strongly disagree and 7 = strongly agree

1. Volunteering for Project Sprout is an opportunity to do something worthwhile.

Strongly disagree --- 1 --- 2 --- 3 --- 4 --- 5 --- 6 --- 7 --- Strongly agree

2. I have past experience providing services similar to the goals of Project Sprout.

Strongly disagree --- 1 --- 2 --- 3 --- 4 --- 5 --- 6 --- 7 --- Strongly agree

3. Volunteering for Project Sprout enables the organization to provide more care for less money.

Strongly disagree --- 1 --- 2 --- 3 --- 4 --- 5 --- 6 --- 7 --- Strongly agree

4. Volunteering for Project Sprout makes me feel better about myself.

Strongly disagree --- 1 --- 2 --- 3 --- 4 --- 5 --- 6 --- 7 --- Strongly agree

5. Volunteering for Project Sprout is an opportunity to develop relationships with others.

Strongly disagree --- 1 --- 2 --- 3 --- 4 --- 5 --- 6 --- 7 --- Strongly agree

6. Volunteering for others through Project Sprout makes me feel better about my living circumstances.

Strongly disagree --- 1 --- 2 --- 3 --- 4 --- 5 --- 6 --- 7 --- Strongly agree

7. Volunteering for Project Sprout will help me understand other people, their communities, and issues.

Strongly disagree --- 1 --- 2 --- 3 --- 4 --- 5 --- 6 --- 7 --- Strongly agree

8. No other program can give me the same volunteering opportunities as Project Sprout.

Strongly disagree --- 1 --- 2 --- 3 --- 4 --- 5 --- 6 --- 7 --- Strongly agree

9. Volunteering for Project Sprout is a way to continue a family tradition of volunteering.

Strongly disagree --- 1 --- 2 --- 3 --- 4 --- 5 --- 6 --- 7 --- Strongly agree

Appendix F: Extrinsic Motivation Survey

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Please answer the following questions on a scale of 1 to 7:

1 = strongly disagree and 7 = strongly agree

1.I am volunteering for Project Sprout because I did not have anything else to do with my time.

Strongly disagree --- 1 --- 2 --- 3 --- 4 --- 5 --- 6 --- 7 --- Strongly agree

2. I am volunteering for Project Sprout because I wanted to gain some practical experience towards my career.

Strongly disagree --- 1 --- 2 --- 3 --- 4 --- 5 --- 6 --- 7 --- Strongly agree

3. I am volunteering for Project Sprout because I wanted to broaden my horizons.

Strongly disagree --- 1 --- 2 --- 3 --- 4 --- 5 --- 6 --- 7 --- Strongly agree

4. I am volunteering for Project Sprout because being involved with this agency is considered prestigious.

Strongly disagree --- 1 --- 2 --- 3 --- 4 --- 5 --- 6 --- 7 --- Strongly agree

5. I am volunteering for Project Sprout because most people I know volunteer.

Strongly disagree --- 1 --- 2 --- 3 --- 4 --- 5 --- 6 --- 7 --- Strongly agree

6. I am volunteering for Project Sprout because I wanted to see new places.

Strongly disagree --- 1 --- 2 --- 3 --- 4 --- 5 --- 6 --- 7 --- Strongly agree

7. I am volunteering for Project Sprout because my friends are also volunteering.

Strongly disagree --- 1 --- 2 --- 3 --- 4 --- 5 --- 6 --- 7 --- Strongly agree

8. I am volunteering for Project Sprout because it is a school requirement.

Strongly disagree --- 1 --- 2 --- 3 --- 4 --- 5 --- 6 --- 7 --- Strongly agree

9. I am volunteering for Project Sprout because it is required by my sorority/fraternity.

Strongly disagree --- 1 --- 2 --- 3 --- 4 --- 5 --- 6 --- 7 --- Strongly agree

10. I am volunteering for Project Sprout because it is part of my church activities.

Strongly disagree --- 1 --- 2 --- 3 --- 4 --- 5 --- 6 --- 7 --- Strongly agree

11. I am volunteering for Project Sprout because the program cost was low.

Strongly disagree --- 1 --- 2 --- 3 --- 4 --- 5 --- 6 --- 7 --- Strongly agree

Appendix G: Demographics Survey

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Please answer the following questions:

Age: _____

Gender: ____ Male ____ Female

Race/Ethnicity: _____

What is your estimated GPA? _____

What is your current class standing? (Circle one)

Freshman Sophomore Junior Senior Leveler

Are you a traditional student (completing a 4-year degree immediately following graduation from high-school)? (Circle one)

Yes No

If you answered no, are you a non-traditional student (returning to higher education after spending time in the workforce)? (Circle one)

Yes No

How are you paying for college? (Circle all appropriate answers)

Job Financial Aid Grants Parents/Spouse GI Bill Other

Do you have any previous volunteer experience?
(List the organization and a brief description of your duties)

Appendix H: Self-Efficacy Survey

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Please answer the following questions on a scale of 1 to 7:

1 = strongly disagree and 7 = strongly agree

1. I will be able to achieve most of the goals I set for myself as a Project Sprout Advocate.

   Strongly disagree --- 1 --- 2 --- 3 --- 4 --- 5 --- 6 --- 7 --- Strongly agree

2. When facing difficult tasks as a Project Sprout Advocate, I am certain that I will accomplish them.

   Strongly disagree --- 1 --- 2 --- 3 --- 4 --- 5 --- 6 --- 7 --- Strongly agree

3. In general, I think that I can obtain outcomes that are important to me as a Project Sprout Advocate.

   Strongly disagree --- 1 --- 2 --- 3 --- 4 --- 5 --- 6 --- 7 --- Strongly agree

4. I believe I can succeed at most any endeavor as a Project Sprout Advocate to which I set my mind.

   Strongly disagree --- 1 --- 2 --- 3 --- 4 --- 5 --- 6 --- 7 --- Strongly agree

5. I will be able to successfully overcome many challenges as a Project Sprout Advocate.

   Strongly disagree --- 1 --- 2 --- 3 --- 4 --- 5 --- 6 --- 7 --- Strongly agree

6. I am confident that I can perform effectively on many different tasks as a Project Sprout Advocate.

   Strongly disagree --- 1 --- 2 --- 3 --- 4 --- 5 --- 6 --- 7 --- Strongly agree

7. Compared to other people, I can do most Project Sprout Advocate tasks very well.

   Strongly disagree --- 1 --- 2 --- 3 --- 4 --- 5 --- 6 --- 7 --- Strongly agree

8. Even when things are tough, I can perform quite well as a Project Sprout Advocate.

   Strongly disagree --- 1 --- 2 --- 3 --- 4 --- 5 --- 6 --- 7 --- Strongly agree

Appendix I: Knowledge Acquisition Survey Module 1

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Please circle one answer in response to each question:

1. Under which of the three following living situations would an individual be considered homeless?
   a) Sharing housing, living in a car, living in an apartment
   b) Living in transitional housing, living in a park, emergency housing
   c) Living alone, living with an adoptive family, living in a camping ground
   d) Migratory students, living in a car, owning a condo

2. Approximately how many people are homeless in the United States?
   a) 1 million
   b) 2 million
   c) 3 million
   d) 4 million

3. Early experiences with homelessness tend to restrict children's language and literacy development.
   a) True
   b) False

4. Which 3 of the following variables are necessary to guide and support parents when interacting with their children?
   a) Education, opportunity, empowerment
   b) Money, education, resources
   c) Empowerment, money, housing
   d) Housing, opportunity, resources

5. What are 4 skill areas that are necessary for a young child's academic success?
   a) Self-help skills, basic math skills, language development, play skills
   b) Cognitive development, counting, knowledge of the alphabet, literacy
   c) Literacy, basic math skills, potty training, knowledge of colors
   d) Language development, literacy, socio-emotional development, cognitive development

6. One major barrier to successful acquisition of foundational learning skills is:
   a) Parent's education level
   b) The child's environment
   c) The child's cognition
   d) Poor parenting

7. What is the goal of Project SPROUT?
    a) To prevent homelessness in the New River Valley
    b) To encourage parents to find housing if they are homeless and have children
    c) To teach children the basic skills they need to enter kindergarten
    d) To empower families experiencing homelessness to help their children develop and learn and they grow

Appendix J: Knowledge Acquisition Survey Module 2

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Please circle one answer in response to each question:

1. The 5 periods of development include which of the following?
   a) newborn, baby, toddler, childhood, adolescence
   b) prenatal, baby, infant, childhood, adolescence
   c) prenatal, infancy, early childhood, middle childhood, adolescence
   d) newborn, baby, early childhood, middle childhood, adolescence

2. The 3 domains of development include which of the following?
   a) Physical domain, cognitive domain, social/emotional domain
   b) Language domain, motor domain, cognitive domain
   c) Physical domain, language domain, attention domain
   d) Attention domain, social/emotional domain, motor domain

3. What is a developmental milestone?
   a) Age specific tasks that most children can do within a specific age range
   b) An accomplishment for a child that should be celebrated
   c) Tasks that children need to accomplish by a specific age or they are considered developmentally delayed
   d) Chores that all children need in order to develop independence

4. Why are developmental milestones important?
   a) Children need to acquire them to demonstrate typical cognition skills
   b) They provide an outline of skills expected at specific ages so we can encourage development of those skills
   c) They prepare children for standardized tests later in their schooling
   d) Homeless families never meet developmental milestones

5. Two skills we would expect to see in a 1 year old may include:
   a) Naming colors and feeding self
   b) Naming colors and expressing affection
   c) Counting and running
   d) Sitting independently and crawling

6. An appropriate piece of advice that you could give to a parent of a 2 year old might be:
   a) Let child have tummy time
   b) Encourage child to tell stories
   c) Assign chores
   d) Read and look at books

7. A skill we would expect from a 5 year old might be:
   a) Reading simple chapter books
   b) Writing in cursive
   c) Counting 5-10 objects
   d) Counting up to 100

Appendix K: Knowledge Acquisition Survey Module 3

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Please circle one answer in response to each question:

1. Which of the following is not something that fosters effective communication?
   a) Opening communication in a positive way
   b) Tailoring your communication to match the individual
   c) Making sure your partner knows you understand their situation and know exactly how they feel.
   d) Communication of information that is relevant, appealing, and clearly expressed

2. Conveying _____ is at the heart of all successful communications.
   a) Empathy
   b) Humor
   c) Respect
   d) Happiness

3. What two things, when added together, lead to effective communication?
   a) Speaking carefully and listening well
   b) Respecting the person and knowledge
   c) Shared experiences and allowing for feedback
   d) Proper training and speaking slowly

4. Three forms of feedback include which of the following?
   a) Helpful, hurtful, neutral
   b) Factual, emotional, solution-focused
   c) Positive, negative, neutral
   d) Opinion, factual, neutral

5. _____ listening skills are valuable in building short term helping relationships.
   a) Active
   b) Passive
   c) Quiet
   d) Proper

6. Active listening is a set of skills that involves more than just "hearing" someone. What are three components of active listening?
   a) Being quiet, eye contact, mutual understanding
   b) Attending, following, reflecting
   c) Listening, nodding, responding

d) Making appropriate comments, understanding, good body posture

7. What are minimal encouragers?
   a) Simple responses that encourage the speaker to tell their story while keeping the listener active
   b) Simple phrases to say to keep the speaker happy
   c) Nodding and saying, “Mhmm” after everything.
   d) Phrases like, ‘Good job!” or “You’re doing great!”