

**EXAMINING THE EFFECTS OF THE SELF-DETERMINED LEARNING MODEL OF
INSTRUCTION ON STUDENTS WITH AND WITHOUT INTELLECTUAL
DISABILITY**

By

Toni Jenkins-Cook

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Chairperson Michael L. Wehmeyer, Ph.D.

Jennifer Kurth, Ph.D.

Angela Murray, Ph.D.

Karrie A. Shogren, Ph.D.

David Hansen, Ph.D.

Date Defended: May 26, 2016

The Dissertation Committee for Toni Jenkins-Cook certifies

that this is the approved version of the following dissertation:

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Chairperson, Michael L. Wehmeyer, Ph.D.

Date approved _____

ABSTRACT

This dissertation is composed of four chapters linked by the use of the Self-Determined Learning Model of Instruction (SDLCMI), a model of teaching to promote self-regulated goal setting and attainment. Chapter One provides an overview of self-determination, including component elements, essential characteristics, and anticipated outcomes from interventions that promote self-determination. A review of literature associated with student-directed learning strategies, the SDLCMI, promoting the self-determination of students with extensive support needs, and promoting the self-determination of elementary-aged students without disability is also included in Chapter One. Chapter Two reports a study conducted to determine the effectiveness of the SDLCMI when used with elementary school students who have extensive support needs. Chapter Three describes a study conducted to determine the effectiveness of the SDLCMI when used with elementary students without disabilities. Finally, Chapter Four summarizes the previous chapters and draws conclusions and implications for future research and practice for elementary school students with and without disability.

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Chapter 1: Introduction

Perspectives on Self-Determination

The World Health Organization (2011) defines disability as “the negative aspects of the interaction between an individual with a health condition (such as cerebral palsy, Down syndrome, or depression) and personal and environmental factors (such as negative attitudes, inaccessible transportation and public buildings, and limited social supports)” (p.7). Disability, however, is not defined as a permanent limitation of the person. This definition suggests that a person with a disability can overcome limitations that exist because of the lack of a fit between the person’s abilities and capacities and the demands of the environment in which he or she lives, learns, works, or plays. The role of supports is to bridge the gap between the person’s capacities and the demands of the environment.

If the person is self-determined, he or she is better able to address these demands and to identify the supports that enable him or her to be successful in that environment or context. Self-determination “refers to volitional actions that enable one to act as the primary causal agent in one’s life and to maintain or improve one’s quality of life” (Wehmeyer, 2006, p. 117). Actions that are volitional are made with purposeful intent (Wehmeyer, 2007). People with extensive support needs can learn the component skills of self-determined action, though they may require greater support to function successfully in typical environments. In a school setting, students with extensive support needs may require more intensive instruction, substantial adaptations, access to assistive technology, and individualized supports across major life activities to be successful in that environment. When these skills are introduced in early elementary school, additional time should be allowed to build the child’s capacity for choice making, decision making, goal setting, and problem solving (Palmer & Wehmeyer, 2003). Unless there are solid

foundational skills leading to greater self-determination established during the early elementary years, children will not be prepared to make things happen in their lives when the time comes to do so (Wehmeyer & Palmer, 2000).

Being self-determined can open the door to a life in one's community and with one's peers without disabilities, not just in school but beyond (Palmer, 2010). Too often, a person with extensive support needs is excluded from typical settings because he or she "is perceived as not ready to enter the classroom" or "needs to show improved behavior" before interacting in typical settings (Agran, Alper, & Wehmeyer, 2002, p. 131). Walker and colleagues (2011) found that the degree to which one is socially included affects one's opportunities to engage in self-determined actions. In other words, being a part of the community involves living a self-determined life. Palmer (2010) concurred that people with extensive support needs need the opportunity to acquire and practice the skills leading to greater self-determination to build better quality lives for themselves.

There are numerous component elements that make up self-determined action, including choice-making skills, problem-solving skills, and goal-setting skills (Wehmeyer, 1999). Few studies have been conducted to determine the effectiveness of teaching component elements of self-determined action at the elementary school level. In a meta-analysis on studies promoting self-determination, only 19.6% included children ages 5 to 13 and even fewer included children ages 5 to 9 (Algozzine, Browder, Karvonen, Test, & Wood, 2001). Several studies examine component elements of self-determined action at the elementary level (Palmer, 2010), but only one study examined all such elements of self-determined action with elementary students. In 2003, Palmer and Wehmeyer used the Self-Determined Learning Model of Instruction (SDLMI) with teachers of early elementary students to determine the degree to which this model might

enable educators to promote foundational skills of self-determined behavior in young children. The SDLMI will be discussed in detail subsequently, but the model supports teachers to teach students skills leading to later self-determination. Results from this study indicated that students as young as age five could set goals and work through the SDLMI with accommodations provided by the teacher. This suggests that young children can learn skills that lead to later self-determination.

Promoting self-determination is an evidence-based practice in special education (Wehmeyer et al., 2012). Such efforts have been identified as a predictor of more positive post-school outcomes for students with disabilities (Test, Fowler, White, Richter, & Walker, 2009). Educators need specific methods, materials, and instructional strategies to increase their student's capacity to be self-determined (Wehmeyer, Agran, & Hughes, 2000). There is a need to shift attitudes in education from questioning whether students with extensive support needs can become self-determined, to enabling students with extensive support needs to become as self-determined as possible (Wehmeyer, 1998). This is most likely to occur when interventions to promote self-determination begin with young children (Lee, Palmer, Turnbull, & Wehmeyer, 2006).

What is Self-Determination?

Wehmeyer defined self-determination as, “volitional actions that enable one to act as the primary causal agent in one’s life and to maintain or improve one’s quality of life” (Wehmeyer, 2005, p. 117). The words volition and causal agent, in this definition, refer to the understanding that self-determined actions are not the same as independent actions. Volition implies acting based on personal preferences with intent to achieve desired goals; actions taken are done so deliberately and purposefully (Wehmeyer, 1999). A causal agent acts with an end in mind

(Wehmeyer, Abery, Mithaug, & Stancliffe, 2003). The goal of promoting self-determination is not necessarily the same as promoting independence. The goal is to teach students the skills they need to make or cause the things they want for their own lives to happen (Wehmeyer, 2005).

Self-determination is a dispositional characteristic; people who are self-determined act in ways to make or cause things to happen in their own lives. The component elements of self-determined action are the building blocks for essential characteristics of self-determined behavior. These essential characteristics lead to specific expected outcomes. Table 1 provides visual representation of the self-determination construct, including the definition of self-determination and the outcomes of self-determined action.

Table 1.

The Construct of Self-Determination (SD)

<u>Component elements of SD</u>	<u>Essential characteristics of SD</u>	<u>Outcomes of SD</u>
Choice-making	Autonomy	General ed access
Decision-making	Self-regulation	Goal attainment
Problem-solving	Psychological empowerment	Impact on post-school outcomes
Goal setting and attainment	Self-realization	Impact on adult outcomes
<i>Self-monitoring</i>		Impact on quality of life
<i>Self-evaluation</i>		
<i>Self-instruction</i>		
<i>Self-reinforcement</i>		
Self-advocacy and leadership		
Internal locus of control		
Perceptions of self-efficacy		
Positive outcomes and expectations		
Self-awareness		
Self-knowledge		

Component elements of self-determined behavior. The component elements of self-determined behavior are critical to the development of the essential characteristics. These component elements include: choice-making; decision-making; problem-solving; goal-setting and attainment; self-monitoring, self-evaluation, self-instruction, and self-reinforcement skills;

self-advocacy and leadership skills; internal locus of control; perceptions of self-efficacy and positive outcome expectancies; self-awareness; and self-knowledge (Wehmeyer, 1999).

Teaching students and supporting them to practice the component elements of self-determined action should aid students in developing the essential characteristics of self-determined behavior and becoming more self-determined.

Essential characteristics of self-determined behavior. Autonomy, self-regulation, psychological empowerment, and self-realization are the four essential characteristics of self-determined behavior posited by the functional model of self-determination (Wehmeyer, 2001).

Behavioral autonomy. People employ behavioral autonomy when making choices in accordance with their own personal preferences, interests, and/or abilities (Wehmeyer, 1999). For these choices to be autonomous, they must be made “free from undue external influence or interference” (Wehmeyer & Field, 2007, p. 5).

Self-regulation. Self-regulated behavior includes four areas: self-management, goal setting and attainment, problem solving and decision-making, and observational learning strategies (Agran, 1997). Young children with extensive support needs are not typically taught self-regulation strategies because many educators believe that elementary school age students are not yet capable of self-regulating their own behavior (McGlashan-Johnson, Agran, Sitlington, Cavin, & Wehmeyer, 2004). Palmer (2010) suggested that young children can begin to learn self-regulation skills depending on their capacity and opportunities that are afforded to them. Wehmeyer, Yeager, Bolding, Agran, and Hughes (2003) found that teaching self-regulation strategies helped increase a student’s capacity and opportunity to self-direct his or her own learning experience and require less external support from adults. Therefore, even though a young child cannot completely self-regulate his or her own behavior, the skills to do so should be

introduced in the early elementary years so that they may develop over time.

Psychological empowerment. Psychological empowerment refers to a person's perceptions of the control he or she has over experiences that occur (Zimmerman, 1990). Students who believe that tasks cannot be adequately performed independently might feel that attempting tasks at all would be useless and, therefore, stop making attempts (Wehmeyer, 1999). Palmer (2010) suggested that a child's interpretation of his or her own capabilities within the environment will align with those of other people within that environment and will become a pattern of actions and reactions. If students are taught skills to promote psychological empowerment at the elementary school level, they may be more likely to attempt a greater number of tasks as they progress through school.

Self-realization. Wehmeyer and Fields (2007) described people with self-realizing behavior as those who use accurate and comprehensive knowledge of themselves to determine their own strengths and limitations. Self-realizing behavior focuses on self-awareness and the knowledge that all people possess unique attributes (Wehmeyer, 2005). Self-realizing behavior empowers people to acknowledge areas of weakness and learn to compensate for these limitations (Wehmeyer, 1999).

Why is Promoting Self-Determination Important?

Self-determination is an overarching construct that encompasses multiple elements and characteristics. Promoting self-determination involves promoting these multiple elements and characteristics. For example, among those multiple elements is choice making, and research has determined that providing choice opportunities improves behavioral outcomes (Shogren, Faggella-Luby, Bae, & Wehmeyer, 2004). Higher self-determination has been linked to improved academic responding (Lee, Wehmeyer, Palmer, Soukup, & Little, 2008), improved

outcomes from community-based instruction (Cooper & Browder, 1998), and increased engagement in vocational tasks (Wantanabe & Sturmey, 2003). Problem solving and decision making are additional elements of self-determined action, and have been linked to enhanced positive transition outcomes by increasing capacity to successfully maneuver through social situations (Khemka, 2000; Datillo & Hoge, 1999; Storey, 2002; O'Reilly, Lancioni, & O'Kane, 2000). Finally, problem-solving and decision-making skills are also critical to enhanced self-determination and research documents that they contribute to a student's success in education (Wehmeyer, 2007).

In this section, three benefits of teaching students skills leading to enhanced self-determination will be discussed, including: (1) the impact of self-determination on access to the general education curriculum and goal attainment, (2) the impact of self-determination on adult and post-school outcomes, and (3) the impact of self-determination on quality of life for people with extensive support needs.

Impact of self-determination on access to the general education curriculum and goal attainment. The IDEA amendments of 2004 emphasized that individualized education programs (IEPs) of students with disabilities should promote involvement with the general education curriculum and ensure progress in the general education curriculum (Palmer, Wehmeyer, Gipson, & Agran, 2004; Wehmeyer, 2006). The general education curriculum is defined in federal regulations as the same curriculum as provided to other students. As this curriculum changes to provide instruction to achieve the Common Core Standards (National Governors Association Center for Best Practices and Council of Chief State School Officers, 2010), special educators must attempt to align instructional practices with the prevailing reform efforts (Wehmeyer, Field, Doren, Jones, & Mason, 2004). The IDEA 2004 regulations

prohibited a student with a disability from being removed from the general education setting based solely on needed modifications to the general education curriculum.

Promoting self-determination has been identified as a means to promote access to the general education curriculum and to address content in the general education curriculum (Agran, Wehmeyer, Cavin, & Palmer, 2008; Wehmeyer et al., 2004). The Common Core Standards (2010) have been adopted throughout most of the country. Component elements of self-determined behavior are necessary for students to learn content from these standards. For example, a Kindergarten math standard (Standard K.NBT.1) requires that students: “compose and decompose numbers from 11 to 19 into ten ones and some further ones, e.g., by using objects or drawing, and record each composition or decomposition by a drawing or equation; understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.” To do this, students would have to possess the skills to problem solve, make decisions, self-instruct, and self-evaluate. If students with disabilities do not learn these skills, they are less likely to have success in the general education curriculum and classroom.

Wehmeyer and colleagues suggested that students with disabilities must learn how to put the component elements of self-determined behavior into practice so as to participate in all activities within the general education classroom (Wehmeyer, Field et al., 2004). Each component element of self-determined behavior is important in determining the benefit a student will receive from the general education curriculum. Instruction to promote self-determination can naturally occur by identifying content standards that contain component elements of self-determined action (e.g., standards that emphasize choice making, goal setting, or problem solving) and through the use of self-determination-related skills as curriculum modifications.

Component elements of self-determined behavior in the general education curriculum.

Frequently, state and local standards include goals and objectives with language pertaining to component elements of self-determined behavior (Wehmeyer, Field et al., 2004). Effective problem solving, decision-making, and goal setting processes and skills are expected of and valued for all students. Once these component elements of self-determined behavior are identified in the general education curriculum, teachers can promote self-determination across that curriculum (Wehmeyer, Field et al., 2004).

Self-determination and curriculum modifications in general education. Wehmeyer, Sands, Knowlton, and Kozleski (2002) proposed two levels of curriculum modifications to enable students to engage and interact with the general education curriculum. The first level involves curriculum adaptations. This refers to any effort to modify the curriculum or to modify the student's engagement with the curriculum to enhance access and progress (Rose & Meyer, 2002). Curriculum adaptations refer to the way information is presented to the student and how the student responds to the curriculum. For example, if a student is unable to write notes, a scribe might take notes for the student or a recorder might be used to record the teacher's lecture. When responding to tasks within the curriculum, a student may use a tablet device, such as an iPad, to record responses or cut-and-paste to answer instead of writing the answer. The second level of curriculum modifications involves curriculum augmentations (Knowlton, 1998; Wehmeyer et al., 2002). Curriculum augmentations enhance the standard curriculum with "meta-cognitive or executive processing strategies for acquiring and generalizing the standard curriculum" (Knowlton, 1998, p.100). The curriculum is not altered, but instruction on strategies that aid students to engage with the curriculum content are added. The component elements and essential characteristics of self-determined behavior are, themselves, curriculum augmentations;

they are skills (such as problem-solving, goal-setting, or self-regulation skills) that add to a child's repertoire and enhance his or her ability to attempt tasks in the general education curriculum.

Critical instructional areas to promote self-determination. There are eight critical instructional areas to which state and local district standards should be linked to promote self-determination. These areas include: choice making, problem solving, decision making, self-regulation, self-advocacy, perceptions of efficacy and control, self-awareness and self-knowledge, and goal setting and attainment.

Choice making. Making choices may seem like a rudimentary skill for most children, however, for children with extensive support needs, choices are too often made on their behalf throughout each day. For a student to learn how to make a choice that is truly his or her own, options need to be constantly presented, and student's preferences honored. For students with limited verbal language skills, picture cues or augmented communication devices should be used to teach students to choose between options. Once a choice is made, that selection should be presented to the student immediately (Bambara & Ager, 1992).

Providing choices can also decrease the expression of problem behaviors in the classroom. Palmer and colleagues (2013) found that opportunities to make choices may reduce behavior outbursts or allow students to avoid sensory overload. Bronson (2000) stated that children who feel competent and in control are less likely to behave in ways they believe are inappropriate or wrong. In addition, Bronson found that children might engage more fully in activities when they are allowed to choose from several options. When elementary school students feel self-directed, they are more interested in reaching the goals they have chosen. They invest more energy in pursuing them and feel more responsible for the outcome (Bronson, 2000).

Providing opportunities for children to make choices is a way to give them a sense of empowerment.

Problem solving. Wehmeyer (2007) noted that a “student’s capacity to solve problems is critical to his or her success in education and in life” (p. 33). This critical skill is difficult for students who have extensive support needs. Researchers have found that this population has difficulty adapting to new stimuli or demands when solving problems (Ferretti & Butterfield, 1989; Ferretti & Cavalier, 1991; Short & Evans, 1990). Bauminger (2002) found, however, that students who were taught interpersonal problem-solving skills did make improvement in their ability to generate appropriate solutions to problems. This finding makes it even more important to provide students with extensive support needs the opportunities they need to learn to solve problems. The goal of problem-solving instruction is not to make students independent problem solvers; it is to make students more involved in the problem-solving process when problems arise in the student’s life (Wehmeyer, 2007). It is imperative that educators begin teaching problem-solving skills at the elementary school level so students with more extensive support needs can have the opportunities they need to acquire such skills.

Decision making. Making decisions involves coming to a judgment about the best solution for a situation (Wehmeyer, 2007). Elementary-aged students with intellectual disability have been shown to be able to participate in the decision-making process when the steps are simplified (Crone, Vendel, & ver der Molen, 2003). Decision-making is a skill that improves with experiences and age (Bronson, 2000). It is suggested, therefore, that a more effective approach to teaching decision-making skills at the elementary school level is for educators to focus on choice-making and problem-solving skills so as to support the development of decision-making skills later in life. Studies involving adults with extensive support needs have shown that

it is important to provide explicit instruction on decision-making skills to enable people to learn such skills (Wehmeyer, 2007). Given such instruction, however, people with intellectual disability can acquire decision-making skills that enable them to perform much more effectively across situations in which decisions are involved (Wehmeyer, 2007).

Self-regulation. Self-regulation strategies guide students to examine their context, determine how to utilize their own knowledge and skills to react to that context, and respond (Whitman, 1990). Research has shown that a child's ability to self-regulate and self-monitor his or her own learning is at least as important to achievement as his or her cognitive abilities (Pintrich & Degroot, 1990; Schunk & Zimmerman, 1994). Wehmeyer and colleagues (2003) concurred, noting that when students can self-regulate and self-manage, they may have better opportunities to receive instruction and better potential to benefit from instruction and progress in the general education curriculum. A child who is unable to self-regulate his or her behavior may face a myriad of issues within the general education environment. For example, students who are not given the opportunity to learn the skills to respond to situations in the classroom environment may be presented a task and not have the skills to begin the task independently. Many students with disabilities have been prompted to the point that they are prompt dependent in completing a task. Additionally, the self-regulation of sensory processing is a major component to participating in the general education classroom (Palmer, Summers, et al., 2013). A student with competing problem behaviors may need a calming break to self-regulate their emotions and behavior. Multiple strategies are available to teach students with disabilities how to manage their own behavior or direct their own learning. Some of these include picture cues and antecedent cue regulation, self-instruction, self-monitoring, self-evaluation, and self-reinforcement strategies (Agran, King-Sears, Wehmeyer, & Copeland, 2003).

Self-advocacy. To self-advocate means “to stand up for oneself and to advocate on one’s own behalf” (Wehmeyer, 2007, p.60). Students who have extensive support needs must learn to self-advocate so as to ensure that decisions made are based on their preferences and not the desires of someone else (Wehmeyer, 2007). It is essential that students with extensive support needs have the ability and supports to specify wants and needs and develop skills to ask for or attain those desires and protect their own rights. Wehmeyer (2007) suggested that teaching students to become more self-advocating involves teaching them about their rights and responsibilities; how to be assertive; how to communicate effectively; how to negotiate, compromise, and persuade; and how to be effective leaders or team members.

Perceptions of self-efficacy and control. Wehmeyer defined self-efficacy as the “degree to which persons expect that they can successfully execute the behaviors necessary to achieve desired outcomes” (Wehmeyer, 2003, p. 59). People who have positive efficacy perceptions are more likely to persist in tasks than those who do not (Bandura, 1977; Bandura & Cervone, 2000). Wehmeyer (1994) found that students with disabilities had lower perceptions of self-efficacy than peers without disabilities. Adults who are involved with students with extensive support needs should foster a positive perception of self-efficacy by enabling students to engage in problem-solving and goal-setting activities and to make choices and decisions that are meaningful to their lives (Wehmeyer, Abery et al., 2003). This allows the student to become more confident in his or her abilities to perform actions that lead to desired outcomes, therefore building positive perceptions of self-efficacy.

Self-awareness and self-knowledge. Students should develop an understanding of their strengths, abilities, and unique learning and support needs (Wehmeyer & Field, 2007). Students who are more self-aware have the opportunity to learn how to compensate for limitations and can

put supports in place as needed. Areas of strength can be highlighted and utilized so the student will be more engaged in growth opportunities such as job placement during transition.

Goal setting and attainment. Goal setting and attainment is at the heart of self-determined action (Wehmeyer, 2005). Goals specify what a person desires and motivate actions toward those desires (Wehmeyer & Field, 2007). Once a person sets a goal, he or she will be more likely to act in pursuit of that goal (Latham & Locke, 1991). Wehmeyer and Field (2007) stated that the process of teaching goal-setting and attainment skills to students involves three steps: (1) identify and define a goal clearly and concretely, (2) develop a series of objectives or tasks to achieve the goal, and (3) specify the actions necessary to achieve the desired outcome.

Goal setting is a component element of self-determined behavior that enhances a child's potential to engage with the general education curriculum. During the early years, teachers should help students align choices with individual goals (Wehmeyer, 2005). Additionally, teachers should work with students to set simple, achievable goals that relate to their interests or preferences, particularly in the context of academic work. Snyder and Shapiro (1997) found that instruction about goal setting could increase a student's self-determination, reduce problem behavior, and increase accountability for their actions. Wehmeyer and colleagues (2000) found that incorporating goal-setting instruction into a multicomponent model of teaching to promote self-directed learning and self-regulated problem solving led to evidence that students with intellectual disability could set and achieve educationally valid goals.

Impact of self-determination status on adult and post-school outcomes for individuals with extensive support needs. For young people to exert control in their adult lives, practices in education must align with practices in adult support systems to ensure that graduating students leave school as self-determined young people (Wehmeyer, Abery et al.,

2003). Studies have shown that students with disabilities who leave school more self-determined achieve more positive outcomes as adults than peers who are not self-determined (Wehmeyer & Palmer, 2003; Wehmeyer & Schwartz, 1997; Shogren, Wehmeyer, Palmer, Rifenbark, & Little, 2015.) Test and colleagues (2009) found that self-determination is an evidence-based predictor of positive post-school outcomes for students with disabilities.

As students progress through their transition from high school to adult life, it is important that their interests and desires are considered when determining transition plans (Wehmeyer & Schwartz, 1997). Van Reusen and Bos (1994) suggested that during transition, educators must actively involve students in educational planning, decision-making, and program implementation. McGlashing-Johnson and colleagues (2003) also suggested that successful transition outcomes teach students how to identify work references, select meaningful goals, determine how to achieve those goals, and identify ways to self-evaluate their performance. Additionally, students need to be taught how to access resources they need as adults, identify community interests and preferences, set and monitor goals, plan and manage use of time, identify and solve problems, and self-advocate (Wehmeyer, 2007).

Employment outcomes. Shogren and colleagues (2015) found that students who participate in interventions to promote self-determination during their high school years have improved post-school outcomes. Student self-determination status after high school predicted employment outcomes, with students with higher self-determined achieving more positive employment outcomes (Shogren, Wehmeyer et al., 2015). A successful transition to employment is important for youth with disabilities because work not only provides income; it is also a pathway to the community, to social networks, and for life-long learning (Lewis, 2011). According to the Current Population Survey (CPS) (2012), only 17% of people with disabilities

were employed. This percentage is thought to be even lower for people with intellectual and developmental disabilities (CPS, 2011). In addition, a federally-funded longitudinal study of transition outcomes found that a majority of students with disabilities do not live outside their parent's homes, do not obtain employment, and do not access community activities two years after leaving high school (Wagner, Newman, Cameto, & Levine, 2005).

Promoting self-determination could play an important role in reversing these trends. Wehmeyer and Parent (2011) suggested that self-determination is a vital element to individual control and involvement in employment leading to job satisfaction and success. Wehmeyer and Schwartz (1997) found that the employment outcomes of a sample of youth with cognitive disabilities one year after high school was significantly higher for students who had higher self-determination scores in their last year of high school than for students who had low self-determination scores. Wehmeyer and Palmer (2003) completed a similar study and found that one year after high school, 79% of students with higher levels of self-determination were employed, compared to 60% of students with lower levels of self-determination. Three years after high school, employment rates were similar except for the fact that those young people with higher self-determination had progressed to receiving benefits and were more financially independent.

Independent living outcomes. Wehmeyer and Bolding (2001) found that people with disabilities who lived in less restrictive environments showed gains in self-determination and autonomous functioning over those people who lived in a more restrictive environment. Mithaug (1998) suggested that the environment plays a significant role in enabling or limiting self-determination. Similarly, Stancliffe and Wehmeyer (1995) found that a person's level of self-determination differed depending on where the person lived. Adults with intellectual disability

who lived in larger congregate settings and group homes had the lowest levels of self-determination as compared to adults with intellectual disability who lived in a family home, an independent home with support, or an autonomous home. For a person with disabilities to maximize self-determination, the environment in which he or she lives should be community-based, person-focused, and support social inclusion and social competence (Wehmeyer & Bolding, 2001).

Impact of self-determination on quality of life for people with extensive support needs. Being self-determined can greatly improve the quality of life of people with intellectual disability (Lachapelle et al., 2005; Wehmeyer & Schwartz, 1997). The concept of quality of life has moved from the medical field to the field of intellectual disability (Claes, Van Hove, van Look, Vandevelde, & Schalock, 2009). The understanding that only scientific, medical, and technological advances could improve a person's quality of life shifted to a new perspective that personal, family, community, and societal well-being could do the same (Claes et al., 2009). One's quality of life covers a broad spectrum. Schalock (1996) identified eight core dimensions of quality of life, including: emotional well-being, interpersonal relationships, material well-being, personal development, physical well-being, self-determination, social inclusion, and rights.

Emotional and physical well-being. People with intellectual disability face a much higher rate of abuse and neglect for a longer duration than do peers without disabilities (Powers, Oschwalk, Maley, Saxton, & Eckels, 2002). The types of abuse may be physical, sexual, emotional and verbal, withholding supports, financial exploitation, manipulation of medication, or harming equipment (Powers et al., 2002). Several factors contribute to this heightened risk for abuse, including: reliance on abusive caregivers for support (Chang, Martin, Moracco, Dulli,

Scandlin, & Loucks-Sorrel, 2003); lack of options to leave an abusive situation (Chang et al., 2003; Powers, Oschwald et al., 2002); limited social opportunities to build social intuition (Curry, Hassouneh-Phillips, & Johnson-Silverber, 2001); and the tendency of support professionals to discredit reports of abuse (Curry et al., 2001; Powers , Oschwald et al., 2002). Hickson, Golden, Khemka, Urv, and Yamusah (1998) found that adults with intellectual disability were at peril for abuse in scenarios involving potential risk due to making less vigilant decisions pertaining to interpersonal interactions. People with extensive support needs too often lack problem-solving, decision-making, and assertiveness skills to address abuse (Heller et al., 2011).

There is a need to shift the mindset of professionals and others who support people with extensive support needs away from a priority on protection to and emphasis on empowerment (Heller, Schindler et al., 2011). Heller, Schindler, and colleagues (2011) noted five steps to improve the capacity of a person with extensive supports needs to avoid abusive situations. First, there is a need to promote and enhance skills related to self-determination by teaching self-awareness and problem-solving skills. Next, people with intellectual disability must be taught to recognize potentially abusive situations. Third, people with a disability should understand that support providers work for them and that they should only act in ways that are beneficial for the person with a disability. Fourth, people with intellectual disability should understand their rights and responsibilities. Last, a plan should be in place so people with disabilities know who to respond to abuse before it happens.

Receiving proper health care may lead to an increased quality of life. Self-determined actions are necessary to pursue appropriate care. Research indicates that people with intellectual disability are at a greater risk for secondary or chronic health conditions, engage in poor health

promotion behavior, and are less likely to have access to affordable and appropriate medical care (Drum, Horner-Johnson, & Krahn, 2008; Havercamp, Scandlin, & Roth, 2004). Lennox and colleagues (2004) found that active involvement and management of one's own health care resulted in improved health outcomes for individuals with intellectual disability. Heller and colleagues (2011) have targeted health interventions that enabled people with intellectual disability to reinforce skills related to self-determination while at the same time, learning new health-related content. This study found positive results in five outcomes pertaining to healthy behaviors, including improvement in the person's ability to understand the impact of personal behavior on health; the development of personal health care goals and plans; an increase in the person's use of tools to engage in goal-driven behaviors to self-monitor and self-evaluate progress toward goals; the maintenance and reinforcement of health goals over time; and improved collaboration of the individuals with support persons to facilitate goal achievement and sustainability.

Interpersonal relations and social inclusion. Mithaug (1998) found that the environment plays a significant role in promoting or limiting self-determination. Stancliffe and Wehmeyer (1995) similarly found that a person's level of self-determination differed depending on where the person lived. Adults with intellectual disability who lived in large, congregate settings and group homes had the least amount of self-determination as compared to adults with intellectual disability who lived in a family home, lived independently with support, or who lived autonomously. Large, congregate settings are barriers to the development and expression of self-determination (Heller, Miller, & Hsieh, 2002). This is hypothesized to be because there are very limited opportunities to make life decisions and make choices in such environments.

Community-based and person-focused environments support social inclusion and social

competence and provide opportunities for enhanced self-determination (Wehmeyer & Bolding, 2001).

Review of Literature

In the early 1990s, federal legislation mandated that students with disabilities be more involved in their own transition planning. By the time the President's Commission on Excellence in Special Education (2003) report was issued, promoting self-determination and student involvement had become best practice in the field. Further, the same Commission recognized self-determination as a determinant of success for students with developmental disabilities. These themes of self-determination and involvement were emphasized in other federal legislation as well. The Developmental Disabilities Assistance and Bill of Rights Act of 2000, for example, stated that self-determination must be promoted for people with disabilities to be fully included in the school and public community. As recognition of the importance of promoting self-determination has increased, a large number of studies have been conducted to determine the best means by which to teach students with disabilities the skills they need to become more self-determined. In this section, I will review studies that have been conducted on the efficacy of efforts to promote self-determination, including research on student-directed learning strategies, the *Self-Determined Learning Model of Instruction (SDLMI)*, promoting the self-determination of students with extensive support needs, and research on promoting the self-determination of elementary-aged students with disabilities.

Student-Directed Learning Strategies

There are numerous studies that examine interventions used to teach various component elements of self-determined behavior. The umbrella category to which these studies belong involves the concept of student-directed learning strategies. Agran and colleagues (2003)

suggested that student-directed learning strategies involve teaching students strategies to self-regulate their own behavior. Examples of such strategies include self-regulation strategies, self-monitoring strategies, and complex-problem solving strategies. Self-regulation and self-management strategies provide a pathway for students to receive and benefit from instruction in the general education classroom (Wehmeyer, Yeager et al., 2003). These strategies not only provide students with extensive support needs the capacity to participate in an inclusive classroom, but they have been shown to raise the expectations of teachers and peers of the capacities of students with extensive support needs (Wehmeyer, Yeager et al., 2003).

Koegel, Koegel, Hurley, and Frea (1992) conducted research to determine the effects of teaching four students with autism self-management techniques. The purpose of the research was to determine if self-management strategies could be used to improve social communication skills and, as a secondary benefit, reduce problem behaviors in community settings. A multiple-baseline-across-settings-and-subjects with a withdrawal condition design study with two students was implemented. The settings included a clinical and a community setting. Baseline data were collected in all settings and the self-management treatment sessions were conducted in the clinic. During these sessions, a communication partner was instructed to ask similar types of questions. Students were taught to discriminate between a correct response and an incorrect response and, then, to use a counter to record appropriate responses. During the baseline condition, students responded appropriately only 59%, 61%, 49%, and 35% of the time. After completion of the self-management training, all students responded appropriately 90% to 100% of the time. Additionally, following the implementation of the self-management procedures, disruptive behavior decreased in the community settings.

Agran, Blanchard, Wehmeyer, and Hughes (2001) examined the effects of selected

student-directed learning strategies on the classroom behavior of students with varying disabilities in general education settings. Six male students with intellectual disability participated in the study. Target behaviors were identified related to each student's Individualized Education Program (IEP) goals. Next, each student identified a goal related to a target behavior that he wanted to focus on in his general education classroom. To achieve the goal, students were taught to engage in the student-directed learning strategies of self-monitoring, self-evaluation, and self-reinforcement and were also engaged in learning a problem-solving strategy. Repeated measures of student performance were obtained throughout the study. Researchers utilized the Goal Attainment Scale (GAS; Carr, 1979; Kiresuk, Smith, & Cardillo, 1994) process to measure goal attainment. The effects of the student-directed learning strategies were evaluated using a multiple-baseline-across-groups design, with conditions including baseline, training, and post-training. During baseline, students achieved a mean score of 10.3% on performance toward individual goals. This score increased to 56.3% by the end of the training condition. When the reinforcer was changed to a monetary reinforcer, the mean score increased to 99.3%.

Gilberts, Agran, Hughes, and Wehmeyer (2001) examined the effects of peer delivered self-monitoring strategies on the classroom survival skills of five students, ages 12 to 15 years, with extensive support needs in general education activities. The primary dependent measure for this study was the percentage of occurrences of classroom survival skills displayed by each student. Survival skills were determined by general education teachers as characteristics that promoted classroom participation. Each survival skill was operationally defined to facilitate accurate observation and recording. Students and peer tutors collected data. Peer tutors also delivered self-monitoring instruction to students. A multiple-baseline-across-subjects design was

used to evaluate the effects of peer-delivered self-monitoring instruction on the percentage of occurrences of student classroom survival skills. Results from the study indicated that each student in the study increased their performance of classroom survival skills. The mean baseline performance score was 25.6%. This mean score increased to 87.2% during the maintenance phase. In addition, the social impact of instruction and self-monitoring on teachers and their students with disabilities in the general education classroom was examined. Overall, teachers and peers perceived students with extensive support needs more positively as a result of the intervention.

Wehmeyer, Yeager, and colleagues (2003) examined the impact of a multi-component self-regulation intervention incorporating self-monitoring, self-evaluation, and self-reinforcement on the performance of adolescents with developmental disabilities in the general education setting. These researchers sought to determine if these strategies increased student participation in general education, or if problem behaviors that may limit student opportunities in general education were decreased. Three students participated in this study, two receiving special education services under the category of intellectual disability, the third receiving such services under the category of autism. The self-regulation strategies taught to students included antecedent cue regulation, self-monitoring, self-evaluation, and self-reinforcement. A multiple-baseline-design-across-participants design study was implemented using three conditions: baseline, intervention, and maintenance. Students were observed in the classroom and then counseled by the teacher to choose appropriate goals for the general education classroom. Data collection procedures were then determined for students to self-monitor progress. The Goal Attainment Scaling (GAS) process was also used as an indicator of student achievement. Results from this study revealed consistent improvement in behavior-related goals for all three students.

The mean GAS score, 63.3, indicated that students achieved more than the teacher expected across all goal areas.

Agran, Sinclair, and colleagues (2005) investigated the effects of self-monitoring on the participation of six middle school students with intellectual disability in general education settings. The participants were divided into two groups dependent on level of support needed; students in group one had limited to intermittent support needs and students in group two had extensive to pervasive support needs. The primary dependent measure in this study was the percentage of change in each student's performance of behaviors related to following classroom instructions. The target behaviors involved the student acknowledging the person giving a direction, beginning an activity, and completing that activity. Performance data were calculated as the percentage of successfully completed steps in a task sequence. Both the students and the observer recorded performance data. A multiple-baseline-across-subjects design was used to assess results of the self-monitoring intervention. In group one, student one performed at 9% during the baseline phase, 71% during intervention, and 99% during maintenance. Student two performed at 13% during the baseline phase, 63% during intervention, and 84% during the maintenance phase. Student three performed at 23% during the baseline phase, 77% during intervention, and 93% during maintenance. In group two, student one performed at 11% during the baseline phase, 55% during intervention, and 86% during maintenance. Student two performed at 14% during the baseline phase, 86% during intervention, and 97% during maintenance. Student three performed at 15% during baseline, 60% during intervention, and 69% during maintenance. The findings from this study suggested that students with intellectual disability can successfully employ self-monitoring in the general education classroom and improve behaviors that promote involvement in the classroom.

Amato-Zech, Hoff, and Doepeke (2006) conducted a study on the effectiveness of using an electronic beeper to increase on-task behavior in the classroom. The MotivAider (MotivAider, 2000) attaches to the student's waistband and can be programmed to emit a cue for any desired length of time on a continuous or intermittent schedule. These researchers examined the use of a tactile self-monitoring cue to enable students to self-monitor on-task behavior in the classroom. Three fifth grade students were chosen to participate in the study based on on-task behavior, which was less than 55% of the intervals observed for all participants. Direct observational data were collected for on- and off-task behavior using categories from the *Behavioral Observation of Students in Schools* (BOSS) structured observation code (Shapiro, 1996). Three possible categories of off-task behavior were recorded, including off-task motor, off-task verbal, and off-task passive behaviors. An ABAB-reversal design was used for each participant in the study with four experimental phases including baseline, student training, self-monitoring intervention, and generalization. During student training, students were taught to identify and track on and off task behaviors. Students wore the MotivAider during the self-monitoring intervention phase. The mean score among the three students during baseline observations of on-task behavior was 55%. The mean score of on-task behavior during the self-monitoring phase was 82%. When the intervention was discontinued, the mean score of on-task behavior fell to 78%. When the intervention was re-introduced, the mean score of on-task behavior increased to 93%. The results from this study indicated that the MotivAider could be a constructive tool to encourage self-monitoring and in turn, on-task behavior in the classroom.

Cote, Pierce, Higgins, Miller, Tandy, and Sparks (2010) developed a systematic problem-solving intervention to teach middle school students with intellectual disability to identify problems, possible solutions, and use self-evaluation strategies to determine the effectiveness of

their problem-solving processes. Four students receiving special education services under the category of intellectual disability in an urban middle school participated in the study. Two dependent variables were measured: identifying the problem and generating a possible solution. This study used a multiple-probe design with three phases: pre-study, treatment, and maintenance. During phase one, data were collected on students' problem-solving skills when presented with a problem situation. During phase two, students received comprehensive problem-solving instruction including: direct instruction, modeling, and role-play. During phase three, students' self-evaluated problem solving skills and post-test measures were conducted. The mean score for all four students at the treatment phase was 68%. The mean scores during maintenance and retention (7-9 weeks post-treatment) were 75% and 90% respectively. Results from this study indicated that even though students were unable to state the steps of problem-solving protocol, students did learn how to identify a problem and were somewhat successful in producing possible solutions.

The Self-Determined Learning Model of Instruction

Wehmeyer, Palmer, Agran, Mithaug, and Martin (2000) conducted a field test of the Self-Determined Learning Model of Instruction (SDLMI; the process is fully described in a subsequent chapter) with forty students with a mean age from 14.2 to 17.2. The purpose of the study was to determine if the SDLMI aided in teaching educationally relevant goals and to determine if the SDLMI promoted student self-determination. Using the Goal Attainment Scoring (GAS) process, results indicated that 30% of all students achieved their goals at levels of above expectations and 25% of all students achieved their goal as expected (e.g., at a satisfactory level of performance). At the end of the study, students reported that they were more aware of their own preferences, skills, and limitations.

Agran, Blanchard, and Wehmeyer (2000) evaluated the efficacy of the SDLMI as a means for educators to teach students to set and attain transition-related goals and to examine the degree to which students who received instruction using the SDLMI benefited in terms of self-determination and goal orientation outcomes. Nineteen middle and high school students, identified with learning disabilities or intellectual disability from public schools in the Midwest participated. Students set transition- or community-related goals and developed action plans and self-monitoring processes for each goal. During the study, teachers and paraprofessionals collected data on goal progress using the Goal Attainment Scaling (GAS) process for each student. The efficacy of the SDLMI was evaluated using a delayed-multiple-baseline design across three groups design that included baseline, training, and post-training phases. Results indicated that the data from students in group one increased from 56% at baseline to 90% at post-training, students in group two increased from 17% at baseline to 100% at post-training, and students in group three increased from 54% at baseline to 67% at post-training. The summative mean GAS score was 60, indicating that, on average, students exceeded teacher's expectations for achievement of their goals. Overall, 89% of student's goals were at or above the expected level of outcome as rated by their teachers.

McGlashing-Johnson, Agran, and colleagues (2003) examined the effects of using the SDLMI on community-based job performance with four high school students with intellectual disability. With the support of each student's supervisor, the percentage of correct responses on a task analysis was performed. The GAS scores of three out of four participants was 80%. Maintenance scores were 93%, 80%, 80%, and 80%, indicating that students were successful when using the SDLMI in the workplace.

Lee, Wehmeyer, and colleagues (2008) examined the relationship between self-

determination and access to the general education curriculum and investigated the impact of promoting self-determination as a curriculum augmentation on student access to the general education curriculum. Forty-five high school students were randomly assigned to a control group or a treatment group. Students chose target goals and used the SDLMI to work through the problem-solving process to set and attain those goals. The average GAS scores for these students was 52.50, indicating that students performed slightly above expectations. Teachers reported that student engagement increased and competing behaviors decreased.

Agran, Wehmeyer, and colleagues (2008) examined the effects of the SDLMI on the involvement of three middle school students with cognitive disabilities. Each student was classified as having extensive support needs. The primary dependent measure for the study was the percentage of occurrences of active participation skills performed by each student. These skills included coming to the classroom prepared, beginning journaling, taking required materials out when requested, beginning assignments, and engaging in in-group activities. An observer and each student recorded performance data. A multiple-baseline design across participants was used to evaluate the effects of the SDLMI. Experimental conditions included pre-baseline, baseline, intervention, and maintenance. Prior to the baseline phase, students completed phase one of the SDLMI, setting a goal. During the baseline phase, observers recorded active participation skills of the participants. The SDLMI was implemented at the intervention phase. During the maintenance phase, participants were presented opportunities to perform targeted behaviors. Each student exhibited gains in his or her specific goal. Participant one performed at 54% during the baseline phase and 85% during the maintenance phase; participant two performed at 54% during the baseline phase and 88% during the maintenance phase; participant three performed at 35% during the baseline phase and 93% during the maintenance phase. These

results reported consistent and stable effects for all participants in the study.

Agran, Wehmeyer, Cavin, and Palmer (2010) conducted a study to determine if promoting self-determination led to access to the general education curriculum and to determine the effects of the SDLMI to promote active engagement and access to the general education curriculum. Using a multiple-baseline-across-participant design, this study determined that students met their chosen goals and held a high percentage during the maintenance phase with scores ranging from 82% to 93%.

Mazzotti, Wood, Test, and Fowler (2010) examined the effects of a computer-assisted version of the SDLMI on students' knowledge of the SDLMI to determine if this had any effect on the students' disruptive behavior. Using a multiple-probe-across-participants design, Mazzotti and colleagues found that each student's knowledge of the SDLMI increased, while competing (e.g., problem) behaviors decreased. Student one demonstrated an increase in knowledge of the SDLMI from 3.75% to 81.3% and a decrease in competing behaviors from 60% to 16.7%. Student two demonstrated an increase in knowledge of the SDLMI from 4% to 73.5% and a decrease in competing behaviors from 62% to 20%. Student three demonstrated an increase in knowledge of the SDLMI from 4.3% to 74% and a decrease in competing behaviors from 65% to 20%.

Mazzotti, Test, and Wood (2012) also studied the effects of a multi-media goal-setting intervention (MGSI) on students' knowledge of the SDLMI and to determine if this knowledge had any effect on the student's disruptive behavior. The team used a systematic replication design with four ten- and eleven-year-old students receiving special education under the category of emotional disturbance. This study showed similar results, in that each student's knowledge of the SDLMI increased while competing behaviors decreased. Student one demonstrated an

increase in knowledge of the SDLMI from 4.3% to 72.7% and a decrease in competing behaviors from 63.3% to 30%. Student two demonstrated an increase in knowledge of the SDLMI from 5.7% to 77.8% and a decrease in competing behaviors from 63.3% to 30%. Student three demonstrated an increase in knowledge of the SDLMI from 11% to 86.7% and a decrease in competing behaviors from 60.33% to 36.8%. Student four demonstrated an increase in knowledge of the SDLMI from 6.4% to 71.7% and a decrease in competing behaviors from 69.4% to 40%.

Shogren, Palmer, Wehmeyer, Williams-Diehm, and Little (2012) conducted a study examining the causal relationship between the SDLMI and goal attainment and access to the general education curriculum. This study also explored the differences as a function of a student's level of impairment. Three hundred and twelve high school students from Kansas, Missouri, and Texas participated in this study. Thirty percent received special education services under the categorical area of intellectual disability and 70% received services under the category of learning disability. Researchers used a cluster- or group-randomized trial control group design with switching replication (Murray, 1998). The results from this study indicated that students with learning disabilities had significantly higher goal attainment scores on academic goals, while students with intellectual disability had higher goal attainment scores on transition goals. All students showed a significant increase in their access to the general education curriculum scores over time, although access to the general education curriculum was still determined to be low overall.

In a follow-up of the previously described study, Wehmeyer and colleagues (2012) examined the relationship between the SDLMI and student self-determination. This team used a group-randomized, modified-equivalent-control-group-time-series design (Murray, 1998).

Participants again were the 312 high school students with intellectual disability or learning disabilities from Kansas, Missouri, and Texas. Researchers collected data using The Arc's Self-Determination Scale (SDS) (Wehmeyer & Kelchner, 1994) and the AIR Self-Determination Scale (Wolman, Campeau, Dubois, Mithaug, & Stolarski, 1994) at three different times over two years to determine variance in self-determination. The SDS is a 72-item self-report measure based on the functional theory of self-determination. The AIR, student self-report version, has 24 questions with items relating to self-determination. Results revealed significant increases in self-determination scores on both the AIR and SDS between baseline and the end of year two for students in the treatment group; this was not the case for the students in the control group. The control group actually experienced a decrease in self-determination scores on both measures from time one to time two. Results also indicated that, on the AIR, students with learning disabilities had greater improvement in their self-determination scores as compared to students with intellectual disability.

Promoting the Self-Determination of Students with Extensive Support Needs

Research has shown that students with extensive support needs can become more self-determined, despite the belief of many in the field of education that they cannot or will not (Wehmeyer, 2005). Adults must provide the supports necessary for students with extensive support needs to internalize the component elements of self-determined behavior. Professionals must not allow their own perception of disability to result in low expectations for a student who has a disability (Wehmeyer, 2000). The fact that students with extensive support needs may not be able to make independent decisions or solve difficult problems does not negate the fact that educators should still provide that students instruction to enable him or her to become as self-determined as possible (Wehmeyer, Agran et al., 2000). Educators must move from questioning

whether this construct applies to students with extensive support needs to enabling students with extensive support needs to be as self-determined as possible (Wehmeyer, 1998).

Agran and colleagues (2002) surveyed the opinions of a sample of teachers who taught students with intellectual disability on issues related to opportunities for self-determination as a way to promote access the general education curriculum. A 22-item survey was mailed to educators certified to teach students with extensive support needs. Results indicated that 81% of these teachers reported that students with disabilities were included in the general education classroom at least part of the school day. Seventy-three percent of these teachers reported that students were included in small and large groups with students with and without disabilities. Fifty-seven percent of students were reported to use the support of a paraprofessional while only 7% used a peer for support. Fifty-three percent of the teachers reported that their district had no clear plan for ensuring access to the general education curriculum for students with intellectual disability. Results from this survey suggested that three barriers to access for students with intellectual disability are resistance from the general education teacher, student behavior, and resistance from administration. This study brought to light the idea that students with disabilities were expected to “earn” their way into the general education classroom (Agran et al., 2002), which is clearly not consistent with the expectations of IDEA.

Wehmeyer, Lattin, Lapp-Rinker, and Agran (2003) examined the degree to which students with extensive support needs had access to the general education curriculum and how factors such as placement and level of ability impacted such access. A time-sample observation method was used with 33 middle school students with intellectual disability. Wehmeyer and colleagues (2003) found that students who were included in the general education classroom were working on tasks linked to general education standards more often than students receiving

special education services in a resource classroom. Accommodations were provided to students only 5% of the time. Learning strategies were being applied less than .15% of the time in the general or special education classrooms. Students with extensive support needs were observed working on tasks not linked to standards for more significant intervals than were peers with limited support needs. The results from this study indicated that students with extensive support needs have limited opportunities to learn component elements of self-determined behavior.

Palmer and colleagues (2004) investigated the effects of engaging middle school students with intellectual disability in instructional efforts to promote self-determination. An interrupted-time-series-with-switching-replication design was employed with 22 middle school students receiving special education services under the category of intellectual disability. The intervention included instruction in problem-solving and study-planning skills to promote student involvement with and progress in the general education curriculum. Using The Arc's Self-Determination Scale (SDS), a pretest and posttest was given to determine if self-determination increased, decreased, or remained the same. Several criterion measures were developed to determine whether students made any changes in the instructional topics of problem solving, determining a solution to the dilemma, and setting up a learning plan. In the area of problem solving, the mean score was 18.5 at pretest and 22.92 at posttest. In the area of solutions, the mean pretest score was 9.33 and the mean posttest score was 15.42. Last, in the area of learning planning, the mean pretest score was 16.3 and the mean posttest score was 21.7.

Agran, Wehmeyer et al., (2008) examined the effects of the SDLMI on three middle school students with cognitive disabilities. A multiple-baseline-across-subjects design was used. Students set goals around active classroom participation skills. Once operational definitions of the target behaviors were formed, observers used a recording system to collect data. Each student

showed measurable gains on each individual goal. Student one performed at a mean of 24% during baseline and 80% at the intervention phase. Student two performed at a mean of 6% during baseline and 76% at the intervention phase. Student three performed at a mean of 20% during baseline and 81% at the intervention phase. During the final maintenance phase, each student maintained his or her ability to perform classroom participation skills around 80%. This study supports the suggestion that self-determination or student-directed learning strategies can promote access to the general education curriculum for students with extensive support needs (Agran et al., 2010).

Hughes, Cosgriff, Agran, and Washington (2013) investigated whether more inclusive school and community activities would be associated with greater self-determination-related skills usage and purposefully included residential and school settings where a majority of the population was from groups underrepresented in the disability literature (specifically children who were African-American or Hispanic). This study included students from three high schools located in a large urban district in the southeastern United States. Participants included 47 students receiving special education services under the category of intellectual disability, served in a program that emphasized functional academics and employment skills. Researchers interviewed students to obtain their perspective on IEP involvement and engagement in self-determined actions.

In relation to self-determination-related skills, School A participants reported significantly less frequent use of six of nine self-determination-related skills—including self-advocacy, choice-making, self-reinforcement, self-monitoring, self-evaluating, and problem-solving skills. Findings for the remaining three skills (goal-setting, self-instructing, and decision-making) were not significantly different from School A to Schools B-C. Results

indicated that students with intellectual disability who were primarily educated in a special classroom at School A reported significantly less use of six to nine self-determination-related skills than did students in Schools B & C. Students in these latter schools experienced significantly more opportunity for inclusion in school and community.

Promoting the Self-Determination of Elementary-Aged Students with Disabilities

There is limited information about the perceptions of elementary teachers with regard to promoting self-determination when compared with that of secondary teachers (Cho, Wehmeyer, & Kingston, 2010). In a meta-analysis examining studies to promote self-determination, only 19.6% of the studies included children between the ages of five through 13 (Algozzine et al., 2001). One major barrier to promoting component elements leading to self-determination for elementary students is that teachers report they do not have enough time and do not know how to incorporate efforts to promote self-determination into reading, writing, and math instruction (Konrad, Walker, Fowler, Test, & Wood, 2008; Stang, Carter, Lance, & Pierson, 2008). Many educators also believe that young children, especially young children with extensive support needs, are not capable of learning the component elements of self-determined behavior (Cho et al., 2010). Though young children are not developmentally or emotionally capable of being fully autonomous and self-regulating, this does not negate the responsibility to enable all children to learn and develop the attitudes and skills they will need to become more self-determined as they get older (Wehmeyer & Palmer, 2000).

Bronson (2000) found that between the ages of five and seven, children become more responsible and more aware of their actions and thoughts. Additionally, elementary school children develop control of their thinking and learning processes as their strategies become increasingly adequate for independent functioning. The earliest efforts to promote autonomy

should focus on choice making and problem solving (Wehmeyer & Palmer, 2000). Palmer and Wehmeyer (2003) found that young children could benefit from instruction that incorporates opportunities to self-regulate, problem solve, and self-direct learning.

Efforts to promote self-determination should be practiced by educators working with children in the earliest stage of learning (Lee et al., 2006). Elementary school children are influenced by the expectations of adults (Bronson, 2000) and therefore, should be held to high expectations. Unless children receive instruction to promote early antecedents to later self-determination, they will not be prepared to assume greater control over their lives when the time comes to do so (Wehmeyer & Palmer, 2000). Further, as students practice the skills leading to later self-determination in early elementary school, more time is allowed to build the child's capacity for choice-making, decision-making, goal-setting, and problem-solving skills (Palmer & Wehmeyer, 2003).

Palmer and Wehmeyer (2003) conducted a study to evaluate the efficacy and extend the knowledge base of the SDLMI with teachers of early elementary school students. Fourteen teachers from Texas and Kansas participated in this study. Fifty students in grades kindergarten through third grade participated. These students were taught the SDLMI and worked through each stage of the model. Students set goals that were evaluated using the Goal Attainment Scaling (GAS) process. The mean teacher-rated GAS score was 52.9 and the mean student-rated GAS score was 54.3. Both means indicate that goal attainment was slightly higher than what was expected by teachers. The findings from this study indicated that students as young as five years of age can set goals and work through the SDLMI with assistance and support.

Lee, Soukup, Little, and Wehmeyer (2009) examined the degree to which student and teacher variables predicted access to the general education curriculum for students with

intellectual and developmental disabilities at the elementary school level. Nineteen students with intellectual and developmental disabilities in the Midwest participated in the study. Using a repeated-measures-observational-research design, data were collected using the Access CISSAR (Bashinski & Wehmeyer, 2002; Carta, Greenwood, Schulte, Arreaga-Mayer, & Terry, 1998) during 20-minute intervals. Data collection variables included: instructional grouping, physical room arrangements, and type of classroom. Multilevel modeling (Singer, 1998; Singer & Willet, 2003) was used to analyze the data. Lee and colleagues (2009) found that student and teacher variables were strong predictors of access to the general education curriculum for students with intellectual disability. These variables include the student's response to academic tasks, the teacher's response to instruction and competing behaviors, and teacher focus. Environmental factors also play a role in students' access to the general education curriculum, particularly the degree of difficulty of tasks in which students were engaged.

Cho, Wehmeyer, and Kingston (2010) conducted a survey to examine the knowledge and beliefs of 407 elementary school general and special education teachers. This survey was an adaptation of a national survey of secondary school special educators' promotion of self-determination (Wehmeyer, Agran et al., 2000). The survey had two sections, one to collect demographic information and the second asking about items relating to self-determination, including: the value teachers place on promoting self-determination, the frequency with which they taught skills promoting self-determination, their students' disability categories, and the barriers they perceived that inhibited promoting self-determination. The items were rated on a 6-point Likert-type scale ranging from (1) never to (6) very often. Results from this study showed that both general and special education teachers highly valued promoting self-determination, but that they only occasionally spent instructional time on such activities. Many teachers reported

that they felt students were too young to learn skills related to self-determination. The barriers mentioned by these teachers included the need for instruction in other areas more urgently, a lack of training in self-determination, and insufficient time.

Summary

Wehmeyer (2005) defined self-determination as “volitional acts that enable one to act as the primary agent in one’s life and to maintain or improve one’s quality of life” (p. 117). Turnbull and Turnbull (2001) defined self-determination as, “a means for experiencing quality of life consistent with one’s own values, preferences, strengths, and needs” (p. 58). A common theme in both definitions is that one’s quality of life is improved because decisions made are based on that person’s preferences. There are fourteen component elements of self-determined behavior and four essential characteristics, including autonomy, self-regulation, and psychological empowerment.

Research has shown that students with disabilities who leave school as self-determined young people achieve more positive outcomes than peers who are not self-determined (Wehmeyer & Palmer, 2003; Wehmeyer & Schwartz, 1997). Being self-determined can promote access to the general education curriculum and goal attainment. For students to receive the full benefit of the general education curriculum, they must be able to self-regulate learning and apply problem-solving strategies (Knowlton, 1998; Wehmeyer, Field et al., 2004).

Enhanced self-determination has also been linked to more positive post-school outcomes of students with extensive support needs. Youth with developmental disabilities are more likely to be employed if they have higher self-determination (Wehmeyer & Palmer, 2003). Students who are more self-determined also have the ability to set and attain goals to achieve more positive employment and independent living outcomes. The Association of University Centers

on Disability (2010) noted that self-determination is an essential element in control and involvement in employment, job satisfaction, and success for youth with disabilities. These young people are more prepared to choose their jobs, assist in job placement, speak up for their needs, request support, contribute to problem solving, and develop social relationships (Heller, Schindler et al., 2011).

Chapter 2

Study One: Examining the Effectiveness of the SDLMI with Elementary Students with Extensive Support Needs

Introduction

IDEA rules and regulations (64 C.F.R. 12592, 1999) require that students with disabilities be involved in the general education curriculum to the maximum extent appropriate. In addition, federal mandates and best practice emphasize that students with extensive support needs be educated with their non-disabled peers and be involved with and show progress in the general education curriculum (Browder, Wakeman, Spooner, Ahlgrim-Delzell, & Algozzine, 2006). Still, too little consideration has been given to the success of students with extensive support needs in the general education curriculum (Wehmeyer, Abery et al., 2003). Agran, Alper and colleagues (2002) conducted a survey and found that 53% of teachers reported that their districts have no clear plan for ensuring such access for students with extensive support needs.

The purpose of this study was to examine the effectiveness of the SDLMI with six students with extensive support needs. These students spent less than 40% of their school day in the general education setting. This time consisted of lunch, recess, a ‘specials’ class (art, physical education, music, or computers), and an average of 25 minutes in a grade-appropriate general education classroom. In the general education environments, a paraprofessional or

special education teacher accompanied the students. This continuous direct instruction led students to be reliant on adult support and less self-determined. Promoting self-determination provides students with disabilities with additional strategies to access the general education curriculum (Palmer, Wehmeyer et al., 2004).

Problem Statement

Federal law requires that students with extensive support be provided special education, related services, and supplementary aids and services that ensure student involvement with and progress in the general education curriculum. Research has found that students gain such access to the general education curriculum in the general education classroom. Research has also shown that although students with intellectual disability may be physically present in the classroom, few efforts are being made to provide the supports that would actually ensure involvement and progress in the general education curriculum (Agran, Alper et al., 2002; Wehmeyer, Abery et al., 2003). Wehmeyer, Abery, and colleagues (2003) noted that simply being present in a classroom does not guarantee that necessary modifications will be made to instructional methods and materials to ensure that students with extensive support needs make progress. Many times instructional strategies that benefit other students are not attempted with students who have intellectual disability (Wehmeyer, Lance, & Bashinski, 2002) because of the assumption that the student will not learn regardless of the strategy used.

Students who are more self-determined have greater access to the general education curriculum (Wehmeyer, Palmer et al., 2000). There is a need to determine specific methods, materials, and instructional strategies that can enhance a student's self-determination (Wehmeyer, Palmer et al., 2000). The Self-Determined Learning Model of Instruction (SDLMI) is an evidence-based model of teaching that is intended for teacher use to guide and direct

instruction to enable students to self-direct learning using a self-regulated problem-solving (Wehmeyer, Palmer et al., 2000). The SDLMI supports teachers to teach students to set an educational goal, develop an action plan to reach the goal, and self-evaluate to determine if sufficient progress is being made toward the goal. There is a need for more research examining the impact of the SDLMI on student progress in the general education curriculum and on its impact on student self-determination (Agran, Wehmeyer et al., 2008). In addition, there is a need for additional research to investigate the effects of the SDLMI with students with extensive support needs and communication challenges (Agran, Wehmeyer et al., 2010; Palmer, Wehmeyer et al., 2004). Turnbull and Turnbull (2001) emphasized that insufficient progress has been made to advance self-determination for people with significant cognitive disabilities.

Research Questions and Null Hypothesis, Study One

Many students with extensive support needs receive consistent one-to-one support services from teachers or para-educators (Cameron, Cook, & Tankersley, 2011). This type of support is typically necessary for a student with extensive support needs to participate in the general education classroom. The adult may assist in providing accommodations and/or modifications for the student to be successful in this environment. When students, especially students with extensive support needs who receive one-to-one support services, are prompted in every activity, the student may become prompt dependent (Clark & Green, 2004). Prompt dependency is a problem often associated in the education of students with disabilities (Oppenheimer, Saunders, & Spradlin, 1993). It also a logical presumption to assume that students who are prompt-dependent are less self-determined than students who are not prompt-dependent, as they are not acting as causal agents when completing academic tasks. Research for decreasing and preventing the development of prompt-dependency is limited (Cividini-Motta

& Ahearn, 2013).

The purpose of this study was to determine if implementing the SDLMI was effective at increasing the autonomous actions of six elementary students with extensive support needs in the general education environment as evidenced by a decrease in the number of prompts required for students to complete independent work systems in the general education classroom. Examples of prompts included verbal cues, gestures, visual cues, and physical assistance. Based on a thorough review of literature and through the application of multiple statistical methods, (including visual analysis, the TauU statistic, and Goal Attainment Scaling (GAS), research questions and hypothesis were investigated. The research questions are presented below, along with null hypotheses (*H_o*) and alternative hypotheses (*H_a*).

1. Does instruction using the Self-Determined Learning Model of Instruction (SDLMI) increase the autonomous actions of elementary students with extensive support needs in the general education environment as measured by a decrease in the number of prompts required for students to complete tasks?

H_a: Instruction using the SDLMI increases the autonomous actions of elementary school students with extensive support needs in the general education environment as measured by a decrease in the number or prompts required for students to complete tasks.

H_o: Instruction using the SDLMI does not increase the autonomous actions of elementary school students with extensive support needs in the general education environment as measured by a decrease in the number of prompts required for students to complete tasks.

2. Does instruction using the Self-Determined Learning Model of Instruction

(SDLMI) increase goal setting and attainment for elementary students with extensive support needs in the general education environment?

Ha: Instruction using the SDLMI increases goal setting and attainment for elementary students with extensive support needs in the general education environment.

Ho: Instruction using the SDLMI does not increase goal setting and attainment for elementary students with extensive support needs in the general education environment.

3. Does instruction using the Self-Determined Learning Model of Instruction (SDLMI) increase choice-making opportunities for elementary school students with extensive support needs in the general education environment?

Ha: Instruction using the SDLMI increases choice-making opportunities for elementary school students with extensive support needs in the general education environment.

Ho: Instruction using the SDLMI does not increase choice-making opportunities for elementary school students with extensive support needs in the general education environment.

Method

Participants and Setting

This study was conducted in a Midwestern, suburban elementary school with a population of approximately 500 students. Five teachers participated in this study: one special education teacher and four general education teachers. Each teacher was a Caucasian female. The average number of years teaching was 14 years, with a range of five to 20 years. Four of the

teachers held master's degrees and one teacher had a bachelor's degree.

Six students with extensive support needs receiving their education program in a self-contained classroom in the elementary school participated in this study. Five participants were male and one was female. Student E was African American, student C was of mixed race, and the remaining four students were Caucasian. Students who met eligibility to be in this classroom included students who were presumed to be eligible for the Missouri Alternate Assessment Program (MAP-A) when the student was of age to participate in state assessments. This determination was guided by five criteria: (1) the student was evaluated and found eligible for special education services under IDEA guidelines; (2) the student manifested significant cognitive impairments and limited adaptive skills, potentially combined with physical or behavioral limitations; (3) the student's cognitive impairment impacts his or her access to the general education curriculum and requires specialized instruction; (4) the student's cognitive impairment impacts the student's post-school outcome options; and (5) any additional factors, such as excessive absences, have been ruled out as a factor in the student's disability (Missouri DESE, 2013). All of the students in this study met these criteria. In addition, each student spent less than 40% of the day in the general education environment and had access to adult support 100% of the school day. Each student also exhibited problem behavior that competed with academic and learning behaviors (henceforth termed as competing behavior) as described in subsequent paragraphs.

Student A was a nine-year-old third grade student with an educational classification of autism as determined by scores from the Childhood Autism Rating Scale (Schopler, Reichler, DeVeliis, & Daly, 1988), the Gilliam Autism Rating Scale (Gilliam, 1995), and the Psychoeducational Profile – Revised (Schopler, Reichler, Bashford, Lansing & Marcus, 1990).

The student's IQ was 57 according to the Wechsler Intelligence Scale for Children (3rd ed.) (Wechsler, 1991). The student had limited verbal communication skills, only expressing one-word phrases such as *drink* or *bathroom*. Student A had difficulty remaining in the general education classroom because he would scream loudly as a means of communication. This behavior occurred if the student was presented with a non-preferred task, if an unexpected noise occurred in the environment, if he became extremely excited, or if he was unintentionally hurt (such as bumping his leg on the desk). This behavior impeded learning and was emotionally aversive to his general education peers. Over four years, the special education teacher had implemented numerous interventions to support this student's success in the general education classroom. During the time of this study, the student possessed an Augmentative and Alternative Communication (AAC) device and was reinforced with primary and secondary reinforcement for positive behaviors. These interventions showed various levels of success but did not ultimately reduce the screaming behavior.

Student B was an eight-year-old student in the third grade with a classification of intellectual disability. The student had an IQ of 48 as determined by the Wechsler Intelligence Scale for Children (3rd ed.) (Wechsler, 1991). This student did not display any verbal communication and used an AAC device to ask for preferred items. Student B would often refuse to complete difficult tasks or tasks that he found boring and would elope from the classroom. He was completely prompt dependent on adults or peers when starting and completing all activities.

Student C was a nine-year-old student in the third grade with an educational classification of autism as determined by scores on the Childhood Autism Rating Scale (Schopler et al., 1988), the Gilliam Autism Rating Scale (Gilliam, 1995), and the Psychoeducational Profile – Revised

(Schopler et al., 1990). This student's IQ was 54 according to the Wechsler Intelligence Scale for Children (3rd ed.) (Wechsler, 1991). This student had very limited verbal ability, but could express his wants and needs. Student C became physically aggressive when he was not immediately granted requests. He would throw and destroy objects and tear papers when he became angry. Because this student was large in stature, he caused potential physical harm to the staff and other students. Student C moved to a new school district before the conclusion of the study.

Student D was an eight-year-old student in the second grade with a classification of intellectual disability. According to the Wechsler Intelligence Scale for Children (3rd ed.) (Wechsler, 1991) her IQ was 40. Student D displayed many competing behaviors during academic activities, such as kicking the desk to make noise and telling the teacher activities were *stupid*. Student D used profanity towards adults and peers, displayed physical aggression towards adults and peers, destroyed property, and eloped from the classroom. It was determined that the function of this student's behavior was avoidance of difficult tasks. When the special education staff removed the student from the environment to master a task and generalized the task back into the general education classroom, the student was more successful.

Student E was a seven-year-old student in the second grade with the classification of intellectual disability. According to the Wechsler Intelligence Scale for Children (3rd ed.) (Wechsler, 1991), his IQ was 43. This student exhibited multiple health concerns and experienced numerous seizures per month that inhibited his independent performance. Student E needed multiple adult prompts to complete tasks. At times, this student would refuse to work when presented with new or challenging tasks.

Student F was a five-year-old kindergarten student with the educational classification of

autism according to scores on the Childhood Autism Rating Scale (Schopler, Reichler et al., 1988), the Gilliam Autism Rating Scale (Gilliam, 1995), and the Psychoeducational Profile – Revised (Schopler, Reichler et al, 1990). This student's IQ was 64 according to the Wechsler Intelligence Scale for Children (3rd ed.) (Wechsler, 1991). Student F participated in daily, structured activities in the general education classroom. He displayed competing behaviors, such as destroying materials, hitting adults, or hiding underneath tables when presented with a non-preferred task or an unexpected activity. This student needed multiple adult prompts to complete tasks.

Dependent Measures and Recording

Approval was obtained from the University of Kansas Human Subjects Committee, Lawrence Campus. Approval was then obtained from the school district for this study and finally, from the principal of the elementary school. Last, consent forms were sent home with each student in attendance of the classroom projected for the study.

A multiple baseline across students design was used to evaluate the effectiveness of the SDLMI when used with elementary students who have more extensive support needs. The experimental conditions included baseline, intervention, and maintenance. It should be noted that the three phases of the SDLMI do not align with the three experimental conditions of this multiple baseline design. It was necessary to complete phase one of the SDLMI, setting a goal, before baseline data on that goal could be collected. The dependent measure in this study was the number of prompts needed by each student to complete independent work systems in the general education classroom. These prompts included verbal cues, gestures, visual cues, and physical assistance.

Data collection. Each student was paired with an adult observer who recorded progress

data on the number of prompts needed to complete independent work systems in the general education classroom. The observer recorded these measures using event recording across all three experimental conditions: baseline, intervention, and maintenance. Data was recorded on a graph that included each step of completing a work system including: pick up box job, take job to seat/desk, set up box job, begin work, complete work, clean up, put box away, and get new box. Each data point recorded represents the number of prompts necessary for work system completion.

Observer training. The special education teacher in the classroom served as the primary observer in this study and three paraprofessionals employed in this classroom served as independent observers. Observer training consisted of three steps. First, an operational definition of prompting was recorded and discussed with observers. It was important to define the target so clearly that it was easy to determine if and to what extent the target behavior occurred (Richards, Taylor, & Ramasamy, 2014). Non-occurrences of prompts were also discussed to ensure that observers were fluent in collecting data on the specific goal. Precisely defining the dependent variable and how the dependent variable will be measured is a quality indicator of a single subject study (Horner et al., 2005).

Inter-observer agreement. To increase internal validity for this study, the primary and independent observers practiced observing students and recording adult prompts in the general education classroom. Horner and colleagues (2005) suggested that observers in a study reach an agreement of 80% before proceeding with formal data collection. In this study, a point-by-point agreement was used to calculate this figure. Point-by-point agreement is found by dividing the number of agreements by the number of agreements added to the disagreements and multiplied by 100. This procedure was used throughout the research. The mean of inter-observer

agreement across the baseline phase was 86%, across the intervention phase was 98%, and across the maintenance phase was 96%. Through each phase of the study, the primary observer observed approximately 20% of the data collection sessions as recommended by Hartmann, Barrios, and Wood (2004).

Self-Determined Learning Model of Instruction

The SDLMI is a model of teaching intended for teacher use to guide and direct instruction to enable students to self-direct learning using a self-regulated problem solving process (Wehmeyer, Agran et al., 2000). It enables teachers to support students to set a goal, develop an action plan to meet the goal, and to self-evaluate to determine if sufficient progress is being made toward the goal. The SDLMI was developed to move learning from teacher-directed to student-directed (Mithaug, Wehmeyer, Agran, Martin, & Palmer, 1998).

The SDLMI consists of three phases: (1) set a goal, (2) take action, and (3) adjust the goal or plan. Each phase consists of a problem to be solved by the student. In each phase, the student makes choices and decisions and is responsible for actions; the student is the causal agent in the problem-solving cycle. A set of student questions guide students through a problem-solving sequence in each phase.

Phase one, two, and three problems and questions. The student problem to solve in phase one is “What is my goal?” The following are questions students must answer to solve that problem: (1) what do I want to learn? (2) What do I know about it now? (3) What must change for me to learn what I don’t know? (4) How can I make this happen? The student problem to solve in phase two is: “What is my plan?” The following are questions answered by the student in phase two: (1) What can I do to learn what I don’t know? (2) What could keep me from taking action? (3) What can I do to remove these barriers? (4) When will I take action? The

student problem to solve in phase three is “What have I learned?” The following are questions answered by the student in phase three: (1) What actions have I taken? (2) What barriers have been removed? (3) What has changed about what I don’t know? (4) Do I know what I want to know? (Wehmeyer, Agran, & Hughes, 1998). These questions are a starting point for discussion between the teacher and the student (Wehmeyer & Palmer, 2000). The educator must listen effectively, re-state answers the student gives to clarify meaning, and focus on the child during the conversation (Palmer & Wehmeyer, 2003).

A set of teacher objectives accompanies each student question. These objectives guide teachers in supporting students to answer each question while allowing the student to be in control of the process. Teachers should facilitate the use of the SDLMI (Palmer & Wehmeyer, 2003), but the student should continually be an active participant in the overall instructional process (Wehmeyer, 2007). As educators work through the SDLMI with students, it is important to remember that the SDLMI is designed for an adult to implement, using the questions as a starting point for discussion between the teacher and the student (Wehmeyer & Palmer, 2000). Figures 1 through 3 provide problems to solve, student questions, teacher objectives, and educational support for each phase of the SDLMI (Wehmeyer & Palmer, 2000).

Instructional Phase One of the SDLMI SET A GOAL Problem for Student to Solve: <i>What is my goal?</i>	
Student Question 1: <i>What do I want to learn?</i> Teacher Objectives <ul style="list-style-type: none">• Enable students to identify specific strengths and instructional needs.• Enable students to communicate preferences, interests, beliefs and values.• Teach students to prioritize needs.	EDUCATIONAL SUPPORTS Student self-assessment of interests, abilities, and
Student Question 2: <i>What do I know about it now?</i> Teacher Objectives <ul style="list-style-type: none">• Enable students to identify their current status in	

<p>relation to the instructional needs.</p> <ul style="list-style-type: none"> Assist students to gather information about opportunities and barriers in their environments. <p>Student Question 3: <i>What must change for me to learn what I don't know?</i></p> <p>Teacher Objectives</p> <ul style="list-style-type: none"> Enable students to decide if action will be focused toward capacity building, modifying the environment or both. Support students to choose a need to address from prioritized list. <p>Student Question 4: <i>What can I do to make this happen?</i></p> <p>Teacher Objectives</p> <ul style="list-style-type: none"> Teach students to state a goal and identify criteria for achieving goal. 	instructional needs Awareness Training Choice-Making Instruction Problem-Solving Instruction Decision-Making Instruction Goal-Setting Instruction
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Figure 1. Phase 1 of the self-determined learning model of instruction. Adapted from “Promoting the acquisition and development of self-determination in young children with disabilities” by Wehmeyer and Palmer, 2000, *Early Education and Development* 11(4), 465-481.

<h3 style="text-align: center;">Instructional Phase Two of the SDLMI</h3> <h4 style="text-align: center;">TAKE ACTION</h4> <p style="text-align: center;">Problem for Student to Solve: <i>What is my plan?</i></p>	
<p>Student Question 5: <i>What can I do to learn what I don't know?</i></p> <p>Teacher Objectives</p> <ul style="list-style-type: none"> Enable student to self-evaluate current status and self-identified goal status. 	EDUCATIONAL SUPPORTS Self-Scheduling Self-Instruction
<p>Student Question 6: <i>What could keep me from taking action?</i></p> <p>Teacher Objectives</p> <ul style="list-style-type: none"> Enable student to determine plan of action to bridge gap between self-evaluated current status and identified goal status. 	Antecedent Cue Regulation Choice-Making Instruction Goal Attainment Strategies
<p>Student Question 7: <i>What can I do to remove these barriers?</i></p> <p>Teacher Objectives</p> <ul style="list-style-type: none"> Collaborate with student to identify most appropriate instructional strategies. Teach student needed student-directed learning strategies. Support student implemented student-directed learning strategies. 	Problem-Solving Instruction Decision-Making Instruction Self-Advocacy Instruction

<ul style="list-style-type: none"> Provide mutually agreed upon teacher-directed instruction. <p>Student Question 8: <i>When will I take action?</i></p> <p>Teacher Objectives</p> <ul style="list-style-type: none"> Enable student to determine schedule for action plan. Enable student to implement action plan. Enable student to self-monitor progress. 	<p>Assertiveness Training Communication Skills Training Self-Monitoring</p>
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Figure 2. Phase 2 of the self-determined learning model of instruction. Adapted from “Promoting the acquisition and development of self-determination in young children with disabilities” by Wehmeyer and Palmer, 2000, *Early Education and Development* 11(4), 465-481.

<p style="text-align: center;">Instructional Phase Three for the SDLMI ADJUST GOAL OR PLAN Problem for Student to Solve: <i>What have I learned?</i></p>	
<p>Student Question 9: <i>What actions have I taken?</i></p> <p>Teacher Objectives</p> <ul style="list-style-type: none"> Enable student to self-evaluate progress toward goal achievement. 	
<p>Student Question 10: <i>What barriers have been removed?</i></p> <p>Teacher Objectives</p> <ul style="list-style-type: none"> Collaborate with student to compare progress with desired outcomes. 	<p>EDUCATIONAL SUPPORTS</p> <p>Self-Evaluation Strategies</p>
<p>Student Question 11: <i>What has changed about what I don't know?</i></p> <p>Teacher Objectives</p> <ul style="list-style-type: none"> Support student to re-evaluate goal if progress is insufficient. Assist student to decide if goal remains the same or changes. Collaborate with student to identify if action plan is adequate or inadequate given revised or retained goal. Assist student to change action plan if necessary. 	<p>Choice-Making Instruction</p> <p>Problem-Solving Instruction</p> <p>Decision-Making Instruction</p> <p>Goal-Setting Instruction</p>
<p>Student Question 12: <i>Do I know what I want to know?</i></p> <p>Teacher Objectives</p> <ul style="list-style-type: none"> Enable student to decide if progress is adequate, inadequate, or if goal has been achieved. 	<p>Self-Reinforcement Strategies</p> <p>Self-Monitoring Strategies</p> <p>Self-Recording Strategies</p>

Figure 3. Phase 3 of the self-determined learning model of instruction. Adapted from

“Promoting the acquisition and development of self-determination in young children with disabilities” by Wehmeyer and Palmer, 2000, *Early Education and Development* 11(4), 465-481.

Experimental Design and Conditions

The current study was based on single-case design (SCD). This type of design is most relevant for defining educational practices at the level of individual learners (Horner, Carr et al., 2005), which is especially useful when examining interventions for low incidence populations, such as students with intellectual disability (Odom et al., 2005). Single-case design is experimental research that strives to find a functional relationship between the independent and dependent variables. In this study, the independent variable was instruction using the Self-Determined Learning Model of Instruction and the dependent variable was the number of prompts necessary for the student to complete work systems in the general education classroom.

A multiple baseline design across participants was used to evaluate the effects of the SDLMI on the number of prompts students required to complete tasks in the general education classroom, before, during, and after implementation of the intervention. Evaluation occurred using three different techniques so as to ensure the fidelity of the study, including: Visual Analysis (Parsonson & Baer, 1978), the Tau-U statistic (Vannest, Parker, & Gonon, 2011), and Goal Attainment Scaling (Kiresuk & Sherman, 1968).

Instrumentation

Visual Analysis. Visual analysis involves the systematic visual comparison of subjects' responses within and across the various conditions of a single-subject design study (Parsonson & Baer, 1978). The visual analysis of data is most often used when continuous numerical data are gathered, graphically depicted, and the researcher uses these graphs to analyze a study (Richards et al., 2014). Visual analysis involves the interpretation of six attributes during each of the study phases (baseline, intervention, and maintenance). These attributes include: level, the mean

performance during each phase; trend, the rate of increase or decrease in performance; variability of performance between the baseline and intervention; immediacy of effect; overlap of data points; and consistency of data patterns across multiple presentations of the intervention (Horner, Carr et al., 2005; Kratochwill et al., 2012).

Tau-U. Tau-U is a nonoverlap statistical method used in single-case design. Tau-U is one of two nonoverlap methods capable of controlling for Phase A trend (Parker, Vannest, & Davis, 2011). This statistic is well suited for small data sets and provides a *p* value as well as a confidence interval. This measure is a distribution free nonparametric technique with statistical power of 91%-95% when data conform to parametric assumptions (Vannest et al., 2011). When data are non-conforming, the power of Tau-U can exceed parametric techniques to 115%, demonstrating confidence intervals at 85%.

Goal Attainment Scaling. Goal Attainment Scaling (GAS) is a method of evaluation for determining goal achievement. When used with single subject design, this assessment is useful because it can be applied across cultures, age groups, and interventions (Marson, Wei, & Wasserman, 2009). The GAS involves six basic steps including: (1) identify concerns, (2) analyze concerns, (3) plan the intervention, (4) construct the goal attainment scale, (5) implement the intervention, and (6) evaluate the intervention (Roach & Elliott, 2005).

Once each student chose a target behavior or goal, the teacher predicts a desired outcome for each student. Using a GAS conversion table gives researchers a raw score, a sum of scale score, and a t-score for each student. In this study, possible outcomes for each student were: prompted as expected (sum of scale score = 0, t-scores = 50); prompted somewhat more than expected (sum of scale score = -1, t-score = 40); prompted much more than expected (sum of scale score = -2, t-score = 30); prompted less than expected (sum of scale score = +1, t-score =

60), prompted much less than expected (sum of scale score = +2, t-score = 70) (Baxter, 1993).

Procedures

Data Collection

Baseline data collection. Each student involved in this study spent less than 40% of the day with the general education population. For most students, time spent in the general education classroom was during a period when all students were completing independent work at different areas around the classroom. Students involved in this study used this time to complete work systems. Structured work systems (Hume & Odom, 2007; Mesibov, Shea, & Schopler, 2005) are individual sets of tasks accompanied by visual information that, in theory, allows the student to complete the tasks independently (Hume & Odom, 2007). The special education teacher and paraprofessionals in this program reported that very little, if any, work was being completed independently by the students. It was determined that data collection would occur during this time in the student's regular routine. The special education teacher in the program and paraprofessionals had already completed observer training and began to take baseline data. Data was collected on the frequency of prompts required by each student to complete work systems already in place for the participating students in the general education classroom. It should be noted that a system of least to most prompts (Neitzel & Wolery, 2009) was used during this study; prompts range from the least invasive to the student to the most invasive. This allows the student to remain as independent as possible, even when receiving a prompt. The prompt ranges included: gestural, verbal, visual, model, and full or partial physical. Prompts were recorded by placing a tally mark on a data record sheet. This sheet differentiated each step required to complete the task: pick up the work system, take the work system to seat, set up task, begin task, complete task, clean up, put work system away, and get a new work system.

Implementation of the SDLMI: Phase One. While baseline data were being collected, the special education teacher implemented phase one of the SDLMI: Set a Goal. Because of the students' cognitive impairments, the teacher needed to modify questions from the SDLMI so that students would better understand. Although questions were modified, the intent behind the questions remained the same, as per the requirements of the SDLMI. Wehmeyer (2007) suggested that some students would need the questions rephrased or paraphrased for clarification of meaning. Teacher objectives in this phase included: enabling the student to communicate preferences and interests, enabling students to identify instructional needs, and teaching students to state a goal. As many of the students required support to communicate, alternate means of communication were used to determine the student's interests including: observation, parent interview, teacher interview, use of AAC device, and picture choices. After a group discussion, each student chose the goal of becoming more independent in the general education classroom.

Implementation of the SDLMI: Phase Two. Once a goal was identified, the special education teacher began implementation of phase two of the SDLMI: Take Action. Teacher objectives in phase two are: enable students to determine a plan of action, collaborate with students to identify the most appropriate instructional strategies, and enable the student to implement an action plan. The teacher asked students how he or she might be more independent in the classroom and sought, through multiple means, to listen, watch, and come to a conclusion that was consistent with the student's preferences. Two students were able to say that working independently "means doing stuff by yourself" or completing a task independently. For the purposes of this study, "on-task engagement in an activity was the absence of adult prompting" (Hume & Odom, 2007, p. 1166) and this was considered independent functioning. Next, each student was asked what would make him or her more likely to complete a task independently.

Two students answered saying, “make it fun” and “make it something we like to do.” During the following days, the special education teacher created multiple work systems with tasks surrounding each student’s interests that also connected to academic or therapeutic tasks. When this was completed, each student chose three work systems to complete in the general education classroom. Table 2 describes each student’s interests, the type of communication supports used to determine interests, and the work systems chosen by each student. Intervention work systems were then implemented in a staggered fashion in order to create multiple baselines.

Table 2.

Student’s Interests, Communication Supports, and Work Systems

<u>Student</u>	<u>Communication</u>	<u>Interests</u>	<u>Work systems chosen</u>
A	Observation	Alphabet	Match pictures of
	Parent interview	Activities	occupational tools to
	Teacher interview	Puzzles	pictures of professionals
	AAC devices	Reading	Match association
		Looking at pictures	puzzles together
		Writing	Write the animal name below the animal picture
		Animals	
B	Observation	His family	Match Toy Story pictures into specified spots on paper (fine motor activity)
	Parent interview	Toy Story	
	Teacher interview	Spongebob	
	Peer interview	Pretend play	
	AAC device	Peers	Match velcro letters onto cards with vehicle pictures and labels below
		Toy vehicles	
		Looking at books	Type the names of Spongebob characters (with a picture example) using an iPad

C	Observation Visual aids Limited verbal Teacher interview	Ocean animals Craft activities (cutting and gluing)	Cut sight words and paste to match Match letters written on clothespins to the correct letter, labeling ocean animals with the picture above
D	Verbal	Pretend play Disney princesses Animals Hello Kitty Peers Music	Match princess pictures together and secure with a clothespin Trace sight words using a vibrating pen Lace strings around cards with pictures of farm animals
E	Verbal	Pretend play Dolls, cars Picture books Peers Legos Blocks	Put blocks into a pattern with a model Match animal pictures to animals in a picture book Put objects in order from big, medium, and small
F	Observation Limited verbal Parent interview Teacher Interview	Alphabet activities Craft activities (color, cut, glue) Legos Blocks Superheroes	Write the alphabet with a model Match blocks into a pattern with a model Cut out color words and glue to the color

Implementation of the SDLMI: Phase Three. Phase three of the SDLMI is: Adjust Goal or Plan. Teacher objectives in phase three are: enable student to self-evaluate progress toward goal achievement, collaborate with student to compare progress and desired outcomes, and enable student to decide if progress is adequate, inadequate, or if goal has been achieved. Two of the six students in this study were able to evaluate their performance during the intervention phase of this study and could provide feedback to the teacher. Other students were asked the following

questions: (1) Do you like to do work systems? (2) Do you want new work systems? (3) Do you want to keep these work systems? (4) Do you like doing the work system all by yourself?

Students were able to answer by saying yes or no, using an AAC device to answer, by nodding or shaking his or her head, or by touching a card with “yes” or “no” written on the card.

Results

During this study, a mean of five baseline data collection dates was calculated with 22 minutes as the average duration of observation. Inter-observer agreement during the baseline phase was 86%. A mean of four data collection dates was calculated during the intervention phase with 18 minutes as the average duration of observation. Inter-observer agreement during the intervention phase was 98%. During the maintenance phase, a mean of three data collection dates was calculated with 19 minutes as the average duration of the observation. Inter-observer agreement during the maintenance phase was 96%.

Descriptive Statistics.

Descriptive statistics were run to analyze data. When comparing the three phases of the study, the mean number of prompts for the baseline phase was 11.67. During the intervention phase, the mean number of prompts dropped to 5.92. During the maintenance phase, the mean number of prompts increased to 11.25.

A paired samples t test was conducted to evaluate student performance between the baseline and intervention phases of the study. The results indicated that prompts given during the baseline phase for student A ($M = 9.75, SD = 2.87$) were significantly fewer during the intervention phase ($M = 3.50, SD = .58$), $t(3) = 4.54, p = .02$. The 95% confidence interval between the two phases was 1.87 to 10.63. The results also indicated that prompts given during the baseline phase for student F ($M = 10.13, SD = 5.82$) were significantly fewer during the

intervention phase ($M = 3$, $SD = 2.12$), $t(4) = 3.98$, $p = .02$. The 95% confidence interval between the two phases was 2.61 to 14.59. Results are shown in Table 3.

Table 3.

Paired-samples t test Results, Study One: Comparing the Number of Prompts between the Baseline and Intervention Phases

Student	Baseline <i>M (SD)</i>	Intervention <i>M (SD)</i>	<i>t (df)</i>	<i>p < .05</i>	95% CI
A	9.75 (2.87)	3.50 (.58)	4.54 (3)	.02	[1.87, 10.63]
B	10 (1.73)	10.50 (4.04)	.12 (2)	.91	[-11.41, 12.07]
C	20.40 (8.50)	6.50 (2.12)	9 (1)	.07	[-9.27, 54.27]
D	11.67 (10.39)	4 (1.58)	1.56 (4)	.19	[-6.4, 22.8]
E	10 (5.70)	7.25 (1.50)	.47 (3)	.67	[-10.18, 13.68]
F	10.13 (5.82)	3 (2.12)	3.98 (4)	.01	[2.61, 14.59]

Visual Analysis

When using visual analysis as a means of interpreting data it is suggested that level, trend, variability, immediacy of effect, overlap, and consistency of data patterns across multiple presentations of the independent variable are discussed. Student A had a baseline mean (level) of 10 with a range of 6 to 12 and an intervention mean of 4 with a range of 3 to 4. Student A left the study before completing the maintenance phase. This student did not demonstrate a predictable baseline pattern. The number of prompts needed during the intervention phase was flat, showing very little variability. Student A did demonstrate an immediacy of effect and very little overlap of data points.

Student B had a baseline mean of 10 with a range of 4 to 14, an intervention mean of 11 with a range of 4 to 14, and a maintenance mean of 23 with a range of 10 to 36. Student B was the only student in the study to demonstrate a predictable baseline pattern, however, overall trend rose throughout the study and drops at the end of the maintenance phase, which is opposite of

what the researcher had anticipated. The data shows numerous points of overlap in the data.

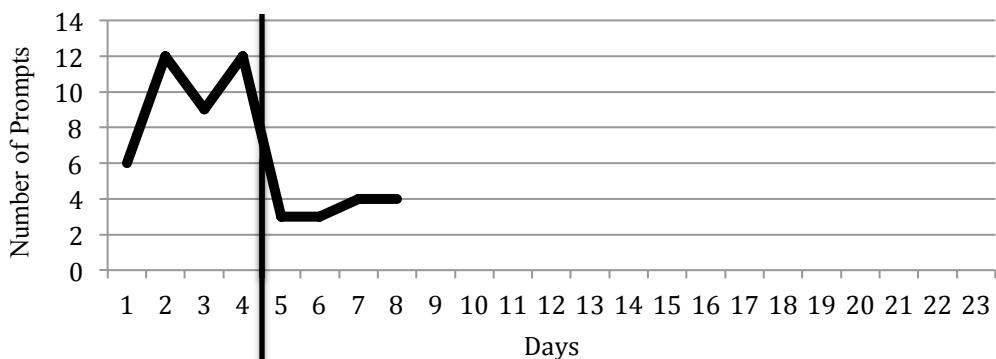
Student C had a baseline mean of 20 with a range of 12 to 33, and intervention mean of 7 with a range of 5 to 8. Student C left the study before completing the maintenance phase. During baseline, there was no consistent pattern in the data. The trend decreases throughout the study. There is little overlap in the data points, but there are fewer total data points because the student did not complete the maintenance phase.

Student D had a baseline mean of 12 with a range of 4 to 31, an intervention mean of 4 with a range of 2 to 6, and a maintenance mean of 8 with a range of 5 to 11. There is no predictable pattern in baseline and there is a downward trend, indicating this student's performance improved before the introduction of the intervention. Data is variable throughout each phase of the study, with many points of overlap.

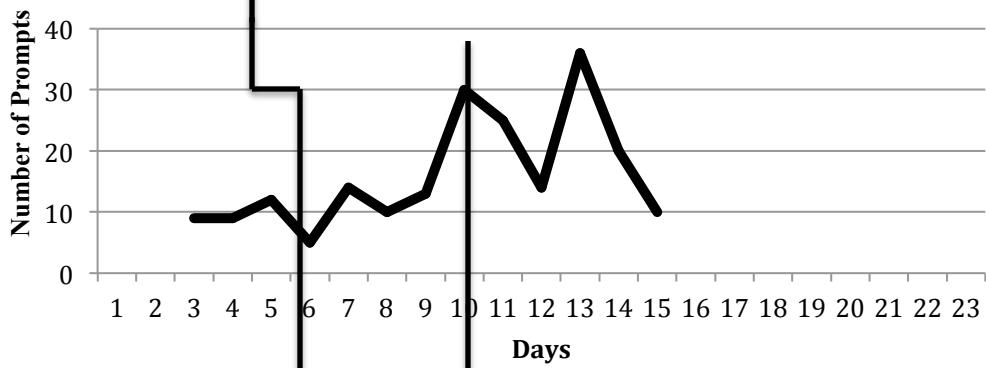
Student E had a baseline mean of 10 with a range of 3 to 16, an intervention mean of 7 with a range of 6 to 9, and a maintenance mean of 9 with a range of 5 to 14. There is not predictable pattern in baseline. Data overlaps at many points, as the variability is high.

Student F had a baseline mean of 8 with a range of 1 to 19, an intervention mean of 3 with a range of 0 to 5 and a maintenance mean of 5 with a range of 3 to 8. There was not predictable trend in baseline, however, the number of prompts does decrease before the intervention phase. Each phase has large variance and many overlapping data points.

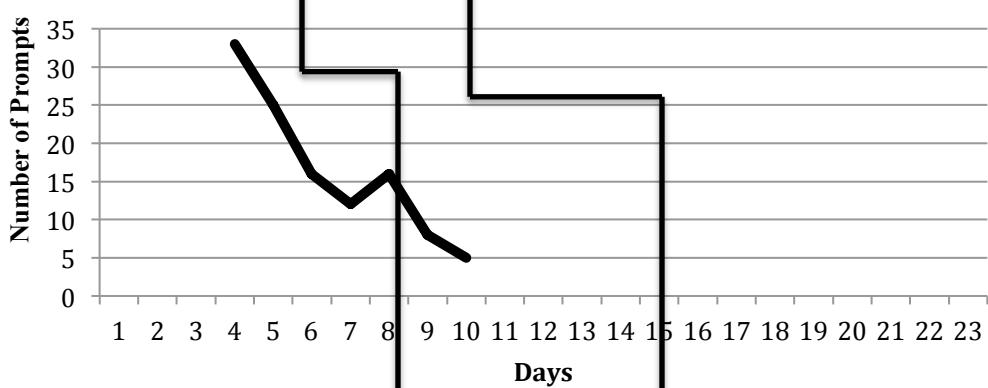
Number of Prompts Student A



Number of Prompts Student B



Number of Prompts Student C



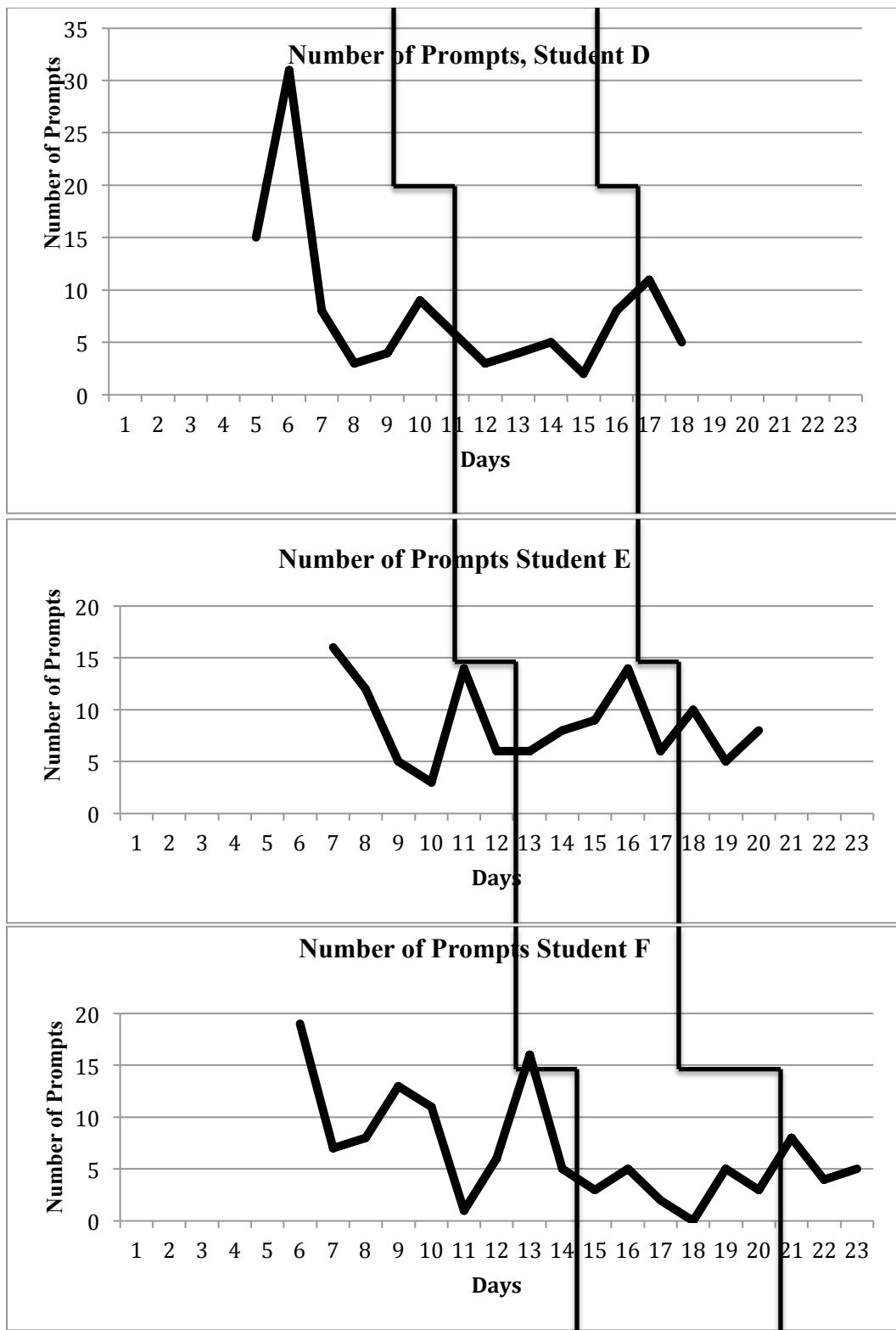


Figure 4. Visual analysis of the number of prompts needed to complete work tasks, study one.

Effect Size. Effect size was calculated to determine the degree to which the intervention

had a quantifiable effect on the students' independence in completing work systems (Richards, Taylor, & Ramasamy, 2014). For this study, the percentage of non-overlapping (PND) data points was used (Scruggs, Mastropieri, & Castro, 1987) to determine effect size. PND scores can range from 0% to 100% with the following interpretation guidelines: >70% for effective interventions, 50% to 70% for questionable effectiveness, and <50% for no observed effect (Scruggs & Mastropieri, 1998). In order to do this, a line is drawn from the lowest point in Phase A and the number of data points in Phase B below that line are counted (if the intent is to decrease the DV). This number is divided by the total number of points in Phase B and multiplied by 100. Students A and C demonstrated an effect size of 100% indicating that the intervention was effective for them. None of the other students' effect sizes indicated efficacy. The use of the Tau-U statistic allows for further analysis in this study.

Tau-U

Tau-U is a measure that combines non-overlap between phases with trends from within the intervention (Parker, Vannest, Davis, & Sauber, 2011). This statistical analysis is used in conjunction with visual analysis to compliment the findings from that quantitative measure. Tau-U is a "distribution free" nonparametric which makes it well suited for small data sets. Tau-U follows the sampling distribution and provides a *p* value and a confidence interval (Davis, 2013). Tau-U statistics were computed on a Tau-U calculator comparing each student's baseline phase data to his or her own intervention phase data. This Tau-U calculator is available at www.singlecaseresearch.org/calculators/tau-u. As previously discussed, the Tau score for Students A and C indicated a perfect correlation between the three phases with scores of -1. The *p* value for each student was calculated with two scores indicating a significant difference in scores between the baseline and intervention phases of the study. The *p* value of student A was

.02 and the *p* value of student F was .01. The *p* value for student C was approaching a significant difference at .05. The 85% confidence interval for the mean difference between two phases was -1.71 to .29 for student A, the 85% confidence interval for the mean difference between two phases was -1.85 to .15 for student C, and the 85% confidence interval for the mean difference between two phases was -1.32 to .26 for student F. (see Table 4).

Table 4.

Tau-U Output Displaying Student Baseline Scores Versus Student Intervention Scores

<u>Student baseline v. student intervention</u>	<u>Sample</u>	<u>Pairs</u>	<u>Tau</u>	<u>Variance (continuous variable)</u>	<u>SD</u>	<u>SD Tau</u>	<u>p<.05</u>	<u>85% CI</u>
A BL V. A Int	-16	16	-1	48	6.93	.43	.02	[-1.71, .29]
B BL V. B Int	4	12	.33	32	5.66	.47	.48	[-.44, 1.11]
C BL V. B Int	-10	10	-1	26.67	5.16	.52	.05	[-1.85, .15]
D BL V. D Int	-18	30	-.60	120	10.95	.37	.10	[-1.20, .01]
E BL V. E Int	-4	20	-.20	66.67	8.17	.41	.62	[-872, .47]
F BL V. F Int	-38	48	-.79	240	15.49	.32	.01	[-1.32, .26]

Goal Attainment Scaling (GAS)

Goal attainment scaling (GAS) is an evaluation methodology for measuring student goal attainment (Marson, Wei & Wasserman, 2009). The GAS process involves three basic steps: select a target behavior, describe the desired behavior or academic outcome in observable terms, develop three to five descriptions of the probable outcomes from “least favorable” to “most favorable” (Elliott, Sladeczek & Kratochwill, 1995). Before beginning the study, the teacher

predicted a range of scores in which each student would most likely fall. This range of scores was used as the “expected” range. The researcher then created a scale indicating the range of scores that would be more than expected, much more than expected, less than expected, and much less than expected. In this study, student A performed as expected and student B performed higher than expected. Students C, D, E, and F performed much higher than expected (refer to Table 5). The average GAS t-score for all students was 65, indicating that as a group, students performed higher than expected in this study.

Table 5.

Goal Attainment Scaling, Examining the Effectiveness of the SDLMI with Elementary Students with Extensive Support Needs

<u>Student</u>	<u>Teacher expectation</u>	<u>Level of Attainment</u>	<u>T-score</u>	<u>Range</u>
A	Much more than expected	+2	70	0-1
	More than expected	+1	60	2-3
	As expected	0	50	4-5
	Less than expected	-1	40	6-7
	Much less than expected	-2	30	8-9
B	Much more than expected	+2	70	9-10
	More than expected	+1	60	11-12
	As expected	0	50	13-14
	Less than expected	-1	40	15-16
	Much less than expected	-2	30	17-18
C	Much more than expected	+2	70	6-9
	More than expected	+1	60	10-13

	As expected	0	50	14-17
	Less than expected	-1	40	18-21
	Much less than expected	-2	30	22-25
D	Much more than expected	+2	70	7-8
	More than expected	+1	60	9-10
	As expected	0	50	11-12
	Less than expected	-1	40	13-14
	Much less than expected	-2	30	15-16
E	Much more than expected	+2	70	5-7
	More than expected	+1	60	8-10
	As expected	0	50	11-13
	Less than expected	-1	40	14-16
	Much less than expected	-2	30	17-19
F	Much more than expected	+2	70	0-3
	More than expected	+1	60	4-6
	As expected	0	50	7-9
	Less than expected	-1	40	10-12
	Much less than expected	-2	30	13-15

Limitations

This study examined the impact of implementing the SDLMI on the level of prompts needed to perform independent work by elementary students with extensive support needs. Before summarizing these findings, it is important to note the limitations of the study. First, student A and student C left the study before it was completed. Student A demonstrated significant competing behaviors that kept him from the general education classroom for a time period during the maintenance phase of the study. Student C moved to a different school district and was unable to complete the study.

Baseline instability is another limitation of this study. Five of the six students did not demonstrate stability within the baseline phase of the study. Without a stable baseline, it is difficult to determine if a change occurred when the intervention was introduced (Horner et al., 2005). In this study, the researcher made the decision to move forward with the intervention phase before stability in the baseline was achieved. One reason for this was to reduce error introduced by practice effects. In addition, however, time was a limiting factor in the decision to move forward without stable baseline, as the semester was nearing completion. Richards, Taylor, and Ramasamy (2014) state that although stability in trend is optimal, the dependent variable may not change until the independent variable is introduced. In this study, the SDLMI (or the independent variable) was introduced before stability was found in the baseline phase.

Additionally, student A was the only student to demonstrate immediacy of effect in this study. A quicker effect demonstrates that the change came from the intervention. Additionally, each student except for A and C demonstrated a large amount of variability and numerous overlapping of data points. This large proportion of overlapping points decreased the strength of the effect of the intervention (Kratochwill et al., 2010).

A significant limitation to this study was the lack of implementation fidelity of the SDLMI. When using the SDLMI, students should each choose an individual goal. In this study, the researcher guided students in choosing the same goal across all students. This was done to make data collection feasible. Fidelity checks were put in place to ensure data were collected correctly (such as the number of prompts needed to complete work tasks), however, there was a lack of fidelity in the actual implementation of the SDLMI process. In addition, students were did not complete phase three of the SDLMI, which would have given them the chance to adjust their goal or action plan and, eventually, achieve their goal. These fidelity issues significantly limit the degree that one can impact, one way or another, to the SDLMI, as the model was, essentially, implemented only partially.

Discussion

The lack of fidelity to the SDLMI precludes making any conclusions, ultimately, about the impact of the SDLMI. Visual inspection of data and examination of data from the Tau-U showed, essentially, no effects, with some students showing reduced prompt levels, others showing no discernable trend. It is important to note that the number of prompts a student receives may be as much of a function of the prompter not possessing the skills to fade prompts appropriately as it is a function of student need for fewer prompts. Taking into account these findings, the study still makes some contribution to the knowledge-base. First, there are very few studies of students with extensive support needs and this study did show that when provided opportunities to work more autonomously in classrooms, some student could do so. Wehmeyer and colleagues (2000) suggested that even when a student doesn't have the capacity to complete each area of self-determined behavior independently, this does not diminish the importance of providing instruction to make him or her as self-determined as possible. One benefit seen in this study was that it

promoted access to the general education classroom for the participating students because they were able to remain engaged in independent activities alongside their peers.

The first research question focused on the impact of the implementation of the SDLMI on levels of prompts. When looking at raw data, five out of six students demonstrated a decrease in the number of prompts necessary to complete work tasks in the general education classroom once the SDLMI was introduced. When comparing each student's baseline phase with each student's intervention phase, using a paired samples *t*-test, statistical significance was found with two of the six students. When computing these scores using the Tau-U statistic, statistical significance was again found with two of the six students. When using the GAS to analyze student achievement, Student A performed "as expected," Student B performed "better than expected," and students C, D, E, and F performed "much better than expected." Each student performed at or above what the teacher expected. The results indicate that the SDLMI did have a positive impact on students' autonomy relative to teacher expectations.

The second question in Study One asked if implementation of the SDLMI increases students' goal setting and attainment. The results of the Goal Attainment Scaling process indicated positive trends. The limited fidelity to the implementation of the SDLMI and the fact that GAS ratings may be influenced by low expectations to begin with are caveats that limit any interpretation of this data. In essence, if teachers had low expectations for students, then changes in GAS scores could reflect changes in teacher attitudes or expectations as much as student progress. That said, even that outcome would be positive. Overall, GAS data were promising and suggest further exploration is necessary. Student A performed "as expected", student B performed "more than expected" and students C, D, E, and F performed "much more than expected".

The last question in this study asked if using the SDLMI increased effective choice-making

opportunities for students with extensive support needs. In the process of this study, students made choices and expressed interests in the subjects and/or topics included with work tasks they completed in the general education classroom. In addition, once work tasks were assembled, students chose which tasks they wanted to complete in the general education classroom. Last, students were allowed to choose the order in which they completed work tasks in the classroom.

Chapter 3. Study Two. Examining the Effectiveness of the SDLMI Used with Goal Notebooks with General Education Elementary Students

Introduction

Being more self-determined has been shown to improve learning and education outcomes for all students, not just students with disabilities. Teaching skills related to self-determination in the general education classroom for younger children provides added time for building student's capacity for choice, decision making, goal setting, and problem solving, all of which are essential for later self-determination (Palmer & Wehmeyer, 2003). In a survey of elementary teachers conducted by Cho, Kingston, and Wehmeyer (2010), there were significant barriers identified for teaching self-determination-related skills to young children, including an urgent need for instruction in other areas, a lack of training in the area of teaching skills leading to later self-determination, and insufficient time to teach these skills. In addition, Carter, Lane, Pierson, and Stang (2008) found that special education teachers assign higher importance to teaching self-determination-related skills than do general education teachers.

Teachers at a Midwest elementary school were using district-implemented goal notebooks for students to self-monitor their reading growth. This study utilized the Self-Determined Learning Model of Instruction (SDLMI) to provide teachers with an instructional strategy to improve student self-monitoring and self-regulation (Palmer & Wehmeyer, 2003). Palmer and Wehmeyer (2003)

found that when teachers implemented the SDLMI with early elementary school age children with disabilities, they could learn to self-regulate and self-direct learning. The purpose of this study was to compare the effectiveness of using the SDLMI along with district-implemented goal notebooks to use of goal notebooks alone when examining elementary general education student growth in the area of reading.

Problem Statement

Few studies have been conducted to determine the effectiveness of teaching component elements of self-determined behavior at the elementary school level (Algozzine, Browder et al., 2001). Algozzine, Browder, and colleagues (2001) conducted a meta-analysis of studies promoting component elements of self-determined behavior, and only 19.6% of these studies included children ages five to thirteen, and even fewer included children ages five to nine. In one of the only studies examining efforts to promote foundational skills leading to later self-determination of elementary school students, Palmer and Wehmeyer (2003) examined the effects of the SDLMI with teachers of early elementary students to determine the degree to which this model enabled them to support young children with disabilities to be involved in the goal setting and attainment process. Results from this study indicated that students as young as age five can be actively involved in setting goals and work through the student questions in the SDLMI with support provided by the teacher.

Even with the knowledge that young children with disabilities can benefit from instruction using the SDLMI, few elementary teachers implement instruction to promote the foundational skills leading to later self-determination for students with disabilities (Wehmeyer, Agran et al., 2000). If students with disabilities are expected to become self-determined young people, instruction must begin early in a child's school career (Lee, Palmer et al, 2006). Palmer (2010)

found that early elementary school grades provide an excellent setting to build capacity and provide opportunities for students to learn and practice component elements of self-determined behavior. As such, there is a need for research examining the effectiveness of the SDLMI with elementary students with and without disabilities (Palmer & Wehmeyer, 2005; Wehmeyer, Shorgren et al., 2012).

Research Questions and Null Hypothesis, Study Two

The purpose of this study was to compare the effectiveness of instruction with the SDLMI coupled with the use of school district-implemented goal notebooks with the use of the goal notebooks alone on reading achievement for elementary school students without disabilities. The following research questions and hypotheses were investigated. The research questions, null hypotheses (*Ho*) and alternative hypotheses (*Ha*) investigated were:

1. Does instruction using the Self-Determined Learning Model of Instruction (SDLMI) coupled with district-implemented goal notebooks increase the number of words read in one minute by first grade students more than goal notebooks alone?

Ha: Implementation of the SDLMI with goal notebooks does increase the number of words read in one minute by first grade students.

Ho: Implementation of the SDLMI with goal notebooks does not increase the number of words read in one minute by first grade students.

2. Does implementation of the Self-Determined Learning Model of Instruction (SDLMI) coupled with goal notebooks increase the motivation to read of first grade general education students more than goal notebooks alone?

Ha: Implementation of the SDLMI with goal notebooks does increase the motivation to read of first grade general education students more than goal

notebooks alone.

Ho: Implementation of the SDLMI with goal notebooks does not increase the motivation to read of first grade general education students more than goal notebooks alone.

3. Does implementation of the Self-Determined Learning Model of Instruction (SDLMI) coupled with goal notebooks increase the goal setting and attainment of first grade general education students more than goal notebooks alone?

Ha: Implementation of the SDLMI with goal notebooks does increase the goal setting and attainment of first grade general education students more than goal notebooks alone.

a. *Ho:* Implementation of the SDLMI with goal notebooks does not increase the goal setting and attainment of first grade general education students more than goal notebooks alone.

Method

Participants and Setting

A Midwestern, suburban elementary school with a population of approximately 480 students served as the setting for this study. The first grade level had four sections with each class containing approximately 22 students. Each first-grade general education teacher participated in this study. Each teacher was a Caucasian female, and the mean age of teachers was 42 years. All of the teachers held Master's degrees: two in administration, one in reading, and another in curriculum and instruction. The average number of years teaching was 13.

Fifty-four general education first grade students participated in this study. Twenty-one students were male and 33 were female. Forty-one students were Caucasian, eight students were of

mixed race, four students were African American, and one student was of Asian descent (see Table 6.) To participate in the study, students had to be in first grade and parents had to sign and return the consent form.

Table 6.

Description of Participants in Study Two: Examining the Effectiveness of the SDLMI used with Goal Notebooks for Goal Attainment of General Education Students at the Elementary Level

Classroom	Female	Male	White	Af Am	Mixed	Other
A	8	6	10	1	3	0
B	11	4	13	0	2	0
C	4	8	9	1	2	0
D	10	3	9	2	1	1
Total	33	21	41	4	8	1

Dependent Measures and Data Recording

Approval for the research was obtained from the Human Subjects Committee, Lawrence Campus. Next approval was obtained from the school district, the principal of the elementary school, and, last, consent forms were sent home with each student in first grade. Parents were given the choice to allow their child to participate in this study, and additionally, they were given the choice if they would allow their child to be video recorded for fidelity purposes.

A group randomized trial design (Murray, 1998) was conducted with four first grade classrooms; two classrooms were randomly assigned to a control group and two to an intervention group. Three different measures were used to determine the effectiveness of the SDLMI on reading-related outcomes. A Reading Curriculum Based Measure (R-CBM) was administered

three times during the study to determine the number of words a student could read in one minute. The Motivation to Read Profile (MRP; Gambrell, Palmer, Codling, & Mazzoni, 1996) was administered to determine each student's perceived value for reading and reading self-concept. A baseline measurement was taken as well as a measurement at the completion of the study. Last, Goal Attainment Scaling was utilized as a measure of student progress in reading fluency-related goals during this study.

Reading curriculum based measure (R-CBM). The Reading Curriculum Based Measure (R-CBM) used in this study was published by Pearson (2012). This measure is an individual test of oral reading skills that can be given to students in grades one through twelve. It is designed to screen students to identify those who may need reading interventions (Pearson, 2012). Administrators may give this assessment on paper or via a computer. In this study paper was used. The special education teacher in the elementary school served as the primary examiner. Two student aides assisted the researcher in administering R-CBM probes to students.

Materials. The materials necessary to administer this measure included: an R-CBM probe to be read by the student, a corresponding probe for the administrator to score, a timer that shows time to the second, and a pencil or pen for scoring.

Observer training and data collection. To standardize the administration of the R-CBM probes, specific directions were given to all administrators. First, students sat in a specific seat in the hallway facing the administrator. The administrator provided the student a paper probe when he or she sat down. The administrator gave the following instructions (as stipulated in the administration manual): "When I say, "begin," start reading aloud at the top of this page. Read across the page. Try to read each word. If you come to a word you don't know, I'll tell it to you. Be sure to do your best reading. Are there any questions?" Administrators discussed the *three-*

second rule; that is, if a student struggled with a word for more than three seconds, the administrator could tell the student the word, but mark it as incorrect on the scoring sheet. When marking on the scoring sheet, administrators were told to use a slash (/) through the incorrect word. If students inserted words, the administrator was asked to write that word above the line of text where the insertion was made. If a student self-corrected within three seconds, the word was marked with ‘sc.’ At the end of one minute, the administrator was to say *stop*. The student then returned to the classroom and the next student was called.

Motivation to Read Profile (MRP). The Motivation to Read Profile (Gambrell, Palmer, Codling, & Mazzoni, 1996) measures two dimensions of reading motivation, including a student’s perceived value of reading and self-concept as a reader. The creators of this assessment used Eccles (1983) expectancy-value theory of motivation, which posits that motivation is strongly influenced by a person’s expectation of success or failure at a task, as well as the value the individual places on the task. The reading survey has 20 items and uses a 4-point response scale. Sample questions on this survey include: “My friends think I am: (a) a very good reader, (b) a good reader, (c) an okay reader, or (d) a poor reader” and “Knowing how to read well is: (a) not very important, (b) sort of important, (c) important, and (d) very important.”

A conversational interview is included to provide examiners authentic insights into a student’s reading experiences (Malloy, Marinak, Gambrell, & Mazzoni, 2013). This part of the survey is administered individually to each student. The conversational interview included questions such as, “What kind of reader are you?” “What kinds of books do you like to read?” and “What could teachers do to make reading more enjoyable?” (Gambrell, Palmer, Codling, & Mazzoni, 1996).

Observer training and data collection. Examiners were given instructions to administer

the survey by reading each question and answer option aloud to the entire section of first grade students. Examiners were to say the following: "This is a survey to find out how you feel about reading. I will read each item to you with each possible answer. Please circle the answer choice that best fits you. You will not be graded on your response, as there is no right or wrong answer. If you need an item repeated, please raise your hand and I will read the item again. Do you have any questions?" (Gambrell, Palmer, Codling, & Mazzoni, 1996). The surveys were scored using a scoring sheet provided. The most positive response was given the highest score (4), while the least positive response was assigned the lowest number (1). Two sub-scales (Self Concept as a Reader and The Value of Reading) could be computed as well as an overall motivation to read score.

Goal Attainment Scaling (GAS). Goal attainment scaling (GAS) is an evaluation methodology for measuring student goal attainment (Marson, Wei & Wasserman, 2009). The GAS process involves three basic steps: select a target behavior, describe the desired behavior or academic outcome in observable terms, develop three to five descriptions of the probable outcomes from "least favorable" to "most favorable" (Elliott, Sladeczek & Kratochwill, 1995). A scale is created to reflect what an expected (acceptable) outcome might be and that is placed the middle of the scale. A score of zero and a t-score of 50 is the outcome if the student performs as the teacher or researcher determined as expected before beginning the intervention. If a student performs below expectations, a score of -1 and a t-score of 40 is assigned. If the student performed far below expectations, a score of -2 and a t-score of 30 is assigned. If a student performs higher than expected, a score of +1 and a t-score of 60 is assigned. If a student performs much higher than expected, a score of +2 and a t-score of 70 is assigned. For this study, the target for GAS was the number of words a student read in one minute as measured by the R-CBM. The desired behavior was for each student was to increase the number of words read at each testing session. In this study,

teachers identified one of the levels at which they thought the student would achieve, and the researcher coded the final outcome to determine the GAS scores.

Implementing the SDLMI

During the implementation of the SDLMI, each teacher in this study allowed the researcher multiple classroom sessions to complete steps of the SDLMI as a whole class activity. The researcher conducted a classroom activity with students before beginning implementation of the SDLMI. During activity one, students were encouraged to brainstorm activities they enjoyed doing at home and at school (see Figure 5). Students first answered questions about their interests. The researcher filled out Figure 5 with students and included activities such as reading, riding a bicycle, creating crafts, and playing games. Students were then asked to answer questions about different things they would like to learn about. Again the researcher answered the question as well for an example and included: how to use an iPad, how to re-finish furniture, and how to cook healthy meals.

Name: _____ Date: _____

The Self-Determined Learning Model



Exploring My Interests
What do I like to do at school and home?

What do I want to learn?

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Figure 5. Brainstorming activity with first grade general education students.

Phase one. Students then began phase one of the SDLMI. In this phase, setting a goal is the student's task. Because students had already brainstormed activities they enjoyed, the researcher used a worksheet packet to help students put these ideas to paper. In the first section of the packet, students were asked to fill in squares answering the question, "What do I like to do at

school and/or home?" Examples of answers given were, "ride my bicycle," "play soccer," and "play video games." The next question on the worksheet was, "What do I want to learn?" Some student answers included, "I want to learn how to cook," "I want to learn how to play Minecraft," and "I want to learn how to cook with my mom." The following question was, "What is my goal?" Students were given a chart with two columns (see Figure 6). The first was a column for the student's school goal, which the researcher set for the students: I will be a better reader. Students then answered the following three questions about reading as a group: "What do I know about it now?" Answers from students included: "letter sounds" and "how to squish sounds together." Next students answered, "What must change for me to learn what I don't know?" Student answered, "I need to practice reading." Last, students answered, "What can I do to make this happen?" Student answered "practicing reading more." The second column of this worksheet was for the student's personal goal. Students were encouraged to choose one interest from all of the activities that were discussed during the brainstorming activity and create a goal. Some personal goals students chose included, "learn to play basketball," "learn how to cook with my mom," and "play Minecraft." Students were then guided to answer the same three questions about their personal goal.

Phase I, Set a Goal
 Problem to Solve: What is my goal?

School Goal	Personal Goal
What do I know about it now?	What do I know about it now?
What must change for me to learn what I don't know?	What must change for me to learn what I don't know?
What can I do to make this happen?	What can I do to make this happen?



Figure 6. Form used to complete the SDLMI, phase one with first grade general education students.

Phase two. In phase two of the SDLMI, taking action is the student's task. The student's problem to solve in this section is, "What is my plan?" Again, students were given two columns to write a plan for their school goal as well as their personal goal. The students completed the school goal together, determining that the way to reach their goal of improved reading would be to read three books during silent reading time, to use known strategies of unknown words and to ask for help if needed, and to be ready to read books aloud to their teacher or to the researcher. The researcher created a self-monitoring sheet for students to track reading during silent reading time

(see Figure 7.)

Goal: I will become a better reader.

- *I will read all three of my books during silent reading time.*
- *If I cannot figure out a word, I will ask for help.*
- *I will be ready to read my books aloud.*

	<i>Monday</i>	<i>Tuesday</i>	<i>Wednesday</i>	<i>Thursday</i>	<i>Friday</i>
<i>Book 1</i>					
<i>Book 2</i>					
<i>Book 3</i>					

Figure 7. Form used by first grade general education students to practice reading in order to reach the goal set in phase one of the SDLMI.

The three questions asked during this phase included, “What can I do to learn what I don’t know?” Students answered, “practice reading and ask for help when I don’t know a word”. Students then answered the question, “What could keep me from taking action?” Students answered, “if I choose not to read” and “if I don’t ask for help when I need it.” Last students answered, “What can I do to remove these barriers?” Students agreed, “I will read all three of my books during silent reading time.” Figure 8 was used to support students in answering these questions.



Phase 2, Take Action
Problem to Solve: What is my plan?

What can I do to learn what I don't know?	What can I do to learn what I don't know?
What could keep me from taking action?	What could keep me from taking action?
What can I do to remove these barriers?	What can I do to remove these barriers?
When will I take action?	When will I take action?

Figure 8. Form used to complete the SDLMI, phase two with first grade general education students.

Phase three. In phase three, the student's task was to adjust the goal. The problem to solve was, "What have I learned?" At the end of the study, students were presented with their baseline and post-intervention scores on the R-CBM and the Motivation to Read survey. As a class, the researcher explained these scores to the students. Students were asked to self-reflect on their scores and decide how they felt about their gains or lack of gains. Next, students filled in a chart for their reading goal and their personal goal answering the following questions, "What actions have I taken?" Some students said they read their three books every day and some students

admitted that they did not always read during silent reading time. Next students were asked, “What barriers have been removed?” Students answered that they understood what goals were and planned on setting more goals. Last, students were asked, “What has changed about what I don’t know?” and “Do I know what I want to know?” Some students said they had learned how to do their personal goal. (see Figure 9). Students who did not increase in the number of words read and/or in reading motivation were encouraged to adjust that goal and were asked if they felt like the self-monitoring sheet helped them reach their reading goal. Because of end of year activities and the release of school for the summer, the researcher was unable to collect data on the adjustment of school goals or personal goals.

Phase 3, Adjust Goal	
Problem to Solve: "What have I learned?"	
What actions have I taken?	What actions have I taken? 
What barriers have been removed?	What barriers have been removed?
What has changed about what I don't know?	What has changed about what I don't know?
Do I know what I want to know?	Do I know what I want to know?

Figure 9. Form used to complete the SDLMI, phase three with first grade general education students.

Results

Data were obtained from three measures to examine the effects of the SDLMI in conjunction with a school district-identified goals notebook process. The goal set by students was to increase the number of words read during the semester. Measures used to examine the impact of the SDLMI included the R-CBM, the Motivation to Read Survey, and a Goal Assessment Scale (GAS).

Reading-Curriculum Based Measure

Data analysis of the number of words read took place simultaneously with data collection. Debriefing sessions were held with students to determine if reading scores increased from one session to another. A paired-samples *t* test was conducted to evaluate if the reading scores of the intervention group of first grade students before the implementation of the SDLMI ($M = 58.24$, $SD = 28$) showed a significant increase after the implementation of the SDLMI ($M = 76.07$, $SD = 28.75$), $t(28) = 5.98$, $p < .01$. The 95% confidence interval for the mean difference between pre and post scores for the intervention group was -23.94 to -11.72.

A paired-samples *t* test was also conducted to evaluate if the reading scores of the control group of first grade students demonstrated a significant difference in pre scores ($M = 53.08$, $SD = 31.33$) and post scores ($M = 67.8$, $SD = 29.17$), $t(24) = 4.96$, $p < .01$. The 95% confidence interval for the mean difference between pre and post scores for the control group was -20.84 to -8.6.

An independent-samples *t* test was conducted to evaluate the differences in the results of the number or words read of the intervention group ($M = 17.86$, $SD = 16.03$) and the control group ($M = 14.72$, $SD = 14.84$). The test was not significant, $t(52) = .74$, $p = .46$. The 95% confidence

interval for the difference in means was -5.34 to 11.62. (See Table 10.)

Motivation to Read Profile

The Motivation to Read Profile included two sub-tests: Self-Concept as a Reader and Value of Reading. Those two tests result in an overall Motivation to Read score, with 100 as the highest score attainable. A paired-samples *t* test was conducted to evaluate whether the intervention group improved in reading motivation from the pre-test ($M = 78.70, SD = 11.8$) to the post test ($M = 78.8, SD = 11.5$), $t(27) = .68, p = .50$. A 95% confidence interval for the mean difference between the pre and post scores was -2.01 to 1.01.

A paired-samples *t* test was also conducted to evaluate whether the control group improved in reading motivation from the pre-test ($M = 83.92, SD = 9.71$) to the post-test ($M = 87.92, SD = 11.2$), $t(11) = 4.79, p = <.01$. A 95% confidence interval for the mean difference between the pre and post-test scores was -5.84 to -2.16.

An independent-samples *t* test was run to evaluate the differences in scores of the intervention and control groups. The test was significant, $t(38) = 2.80, p = .01$, indicating that the control group ($M = 4, SD = 2.89$) demonstrated greater gains in the area of reading motivation than that of the intervention group ($M = .43, SD = 3.99$). The 95% confidence interval for the difference in means ranged from -6.16 to -.99. (See Table 7.)

Table 7.***Study Two: Examining the difference in scores from pre to post intervention***

Reading Curriculum Based Measure					
	Pre-intervention <i>M (SD)</i>	Post-intervention <i>M (SD)</i>	<i>t (df)</i>	<i>p <.05</i>	<i>95% CI</i>
Intervention group	58.24 (28)	76.07 (28.75)	5.98 (28)	<.01	[-23.94, -11.71]
Control group	53.08 (31.33)	67.80 (29.17)	4.96 (24)	<.01	[-20.84, -8.60]
Difference scores	Intervention group <i>M (SD)</i> 17.86 (16.03)	Control group <i>M (SD)</i> 14.72 (14.84)	<i>t (df)</i> .74 (52)	<i>p <.05</i> .46	<i>95% CI</i> [-5.34, 11.62]

Motivation to Read Profile					
	Pre-intervention <i>M (SD)</i>	Post-intervention <i>M (SD)</i>	<i>t (df)</i>	<i>p <.05</i>	<i>95% CI</i>
Intervention group	78.25 (11.87)	78.75 (11.49)	.68 (27)	.50	[-2.01, 1.01]
Control group	83.92 (9.71)	87.92 (11.20)	4.79 (11)	<.01	[-5.84, -2.16]
Difference scores	Intervention group <i>M (SD)</i> .43 (3.99)	Control group <i>M (SD)</i> 4 (2.89)	<i>t (df)</i> 2.80 (38)	<i>p <.05</i> <.01	<i>95% CI</i> [-6.16, -.99]

Note. The control group Motivation to Read scores included data from only one classroom. Data were missing from the second classroom included in the control group of this study.

Goal Attainment Scaling

Using Goal Attainment Scaling (GAS) each teacher predicted the goal attainment of every student in her classroom by completing a form indicating if each student in her class would perform as expected, which would be the mean score of the class, more than the mean, much more than the mean, less than the mean, or much less than the mean. Scores on the GAS scale were selected using the mean score from the intervention group as the “as expected” score for the intervention group and the mean score from the control group as the “as expected” score for the control group. The parameter of numbers for the categories “more than expected.” “much more

than expected.” “less than expected.” and “much less than expected” were selected using the standard deviation for each group mean and dividing it. Next, scores were placed within the correct category and given a *t* score of 30, 40, 50, 60, or 70 depending on the distance of the actual score and the score predicted by the teacher. GAS scores may have been distorted in this study because the teachers did not predict a specific range of scores, as discussed subsequently.

A paired-samples *t* test was conducted to evaluate the difference in GAS scores for the intervention group from pre-intervention to post-intervention. The results indicated that the mean score before intervention ($M = 46.79, SD = 13.07$) was not significantly different than the mean GAS score after intervention ($M = 48.93, SD = 13.70$), $t(27) = 1.06, p = .30$.

A second paired-samples *t* test was conducted to evaluate the difference in GAS scores for the control group from pre-intervention to post-intervention. The results indicated that the mean score before intervention ($M = 46.40, SD = 14.11$) was not significantly different than the mean GAS score after intervention ($M = 47.60, SD = 14.22$), $t(24) = .77, p = .45$.

To determine if there was a significant difference in the different mean GAS scores of the intervention and control groups, an independent-samples *t* test was conducted. A significant difference was not found between the two groups, $t(51) = .36, p = .72$. The difference scores in the intervention group ($M = 2.14, SD = 10.67$) were higher than the difference scores in the control group ($M = 1.20, SD = 7.81$). (See Table 8.)

Table 8.

Study Two: Examining the difference in GAS scores from Expected Outcome to Actual Outcome

	<u>Expected outcome <i>M (SD)</i></u>	<u>Actual outcome <i>M (SD)</i></u>	<u><i>t (df)</i></u>	<u><i>p<.05</i></u>	<u>95% CI</u>
Intervention group	46.79 (13.07)	48.93 (13.70)	1.06 (27)	.30	[-6.28, 1.99]
Control group	46.40 (14.11)	47.60 (14.22)	.77 (24)	.45	[-4.42, 2.02]
Difference in GAS scores of intervention and control groups	2.14 (10.67)	1.20 (7.81)	.36 (51)	.36	[-4.27, 6.15]

Limitations

There were multiple limitations to this study that impact the degree to which results can be interpreted. First, with regard to evaluating the efficacy of the SDLMI, because of time and resource issues, the fidelity of implementation was not maintained. It is intended that each student will choose his or her own goal as a result of working through Phase 1 of the model. The researcher was limited in resources to collect data on 54 individual goals; so a single goal was set for each student in the intervention group (increase number of words read). Students worked through Phase 1 of the model to set a leisure or personal goal, but did not do so to set the reading goal. Second, there were no means to collect information about teacher implementation of the SDLMI, and it is not possible to determine if teachers worked through the steps in the second phase of the model. In essence, this study cannot say anything, either positive or negative, about the SDLMI, because of the lack of fidelity. Further, students did not work through the third phase of the model, which would have had them alter their action plan or goal as needed to achieve their goal.

Two other limitations pertain to the data collection. There was missing data from one of the two classrooms in the control group for the Motivation to Read survey. Without this data, it is difficult to determine if a significant difference would have been found in the independent samples t test. Second, the implementation of the GAS was altered. Typically, teachers identify specific outcomes that reflect expected and greater or less than expected outcomes. In this case, teachers simply identified if they thought the student would perform as expected, or above or below. The researcher coded the final outcomes instead of the teacher.

Discussion

The first question in Study Two asked if the SDLMI along with goal notebooks increase the number of words read by first grade general education students. Students in both the

intervention and control groups made gains throughout the semester, both of which were significant when comparing the intervention group to itself and the control group to itself. However, when a comparison of differences was computed, there was no significant difference between the two groups according to an independent samples *t* test. Due to issues with implementation of the SDLMI, however this data cannot speak to the efficacy or lack thereof of the SDLMI.

The next question asked if the SDLMI along with goal notebooks increased the motivation to read of first grade general education students. The data demonstrated that there was a statistical difference in the scores of the intervention and control groups, but it was the opposite of expected. The control group demonstrated a significant increase in motivation to read scores instead of the intervention group. But, as noted before, there missing data from one classroom of the two control group classrooms. This, combined with the lack of fidelity to the SDLMI, means that there can be no conclusions drawn about the SDLMI's impact.

The last question asked if the SDLMI along with goal notebooks increased the goal setting and attainment of first grade general education students. There was no evidence in this study that the SDLMI influenced goal setting and attainment in a positive or negative manner. Issues with fidelity limit any findings.

Chapter Four. Implications and Conclusions

The studies set forth in this dissertation have multiple limitations. Fundamentally, it is not feasible to draw any conclusions about the impact of the SDLMI from either study because of fidelity-related issues.

Social Validation. Students who were verbally able to do so reported that they liked being in the general education classroom without an adult sitting beside him or her. The general education teacher reported that students with extensive support needs were able to have the same type of classroom experience as their typical peers.

One paraprofessional who works with students who have extensive support needs reported that she became more mindful of giving students the opportunity to problem solve before stepping in to give a prompt. A system of least to most prompts was used, so if it was necessary to prompt, the least invasive type of prompt was used. Other adults who participated in this study reported that they gained knowledge of ways to help students become more self-determined. Basic activities, such as making a lunch choice, zipping up a jacket, and toileting independently are all examples of activities that could be independent for most students. Each of these simple activities, done mostly independently, can lead a student to become more self-determined. Once adults in this classroom were taught the elements of self-determination and followed the SDLMI as it was presented to students, more effort was made to allow and teach students skills that will lead to their self-determination.

Conclusions. Wehmeyer and Bolding (2001), Stancliffe and Wehmeyer (1995), and Mithaug (1998) conducted research to determine if the living environments of a person with a disability had an impact on the level of self-determination. The findings from each study indicated that a person living in a more restrictive environment, such as a group home or congregate setting, had lower levels of self-determination and/or fewer opportunities to practice self-determination skills as compared to a person living in a family home, an independent home with support, or an autonomous home. This ties to research that investigates access to general education and self-determination skill usage and opportunities in the general education classroom as compared to a special education resource room. Wehmeyer, Lattin, Lapp-Rinker, and Agran (2003) found that students with a disability who were included in the general education classroom were more likely to be working on tasks linked to the general education standards than those students in the resource room. Agran and colleagues (2002) surveyed teachers who taught students with intellectual disability on issues of self-determination. The results of this survey indicated that barriers to access for students with intellectual disability

included resistance from the general education teacher, student behavior, and resistance from administration. In addition, 53% of these teachers reported that their school districts had “no clear plan for ensuring access to the general education curriculum for students with ID”.

If a person with a disability is five years old or 55 years old, the research speaks the same words: access to opportunities provided to all people are greater when living and educated with the general population. The question in schools is how to make this possible for those students with the most significant support needs. In the review of literature, multiple studies have proven that the SDLMI can increase skills in self-determination, which increases opportunities for access to the general education, social interactions, opportunities for choice-making and goal setting and attainment. Further, these opportunities can and should begin at the elementary level. Research conducted by Wehmeyer and Palmer (2000), Palmer and Wehmeyer (2003), and Lee et al., 2006 provide findings that indicate students at the elementary level can work through the phases of the SDLMI. If younger students begin to learn how to set goals and self regulate, it leads one to consider that barriers, such as competing behaviors or off-task behaviors, might be resolved sooner ensuring more access to general education. Palmer and Wehmeyer (2003) stated that as students practice skills of self-determination, more time is allowed for the student to build capacity for choice making, decision-making, goal setting, and problem-solving.

The results from the two studies presented in this paper cannot assess the efficacy of the SDLMI. A lack of fidelity of implementation has been noted in the limitations of each study. Providing instruction of the SDLMI to elementary students with and without extensive support needs should be examined more thoroughly in a study with fidelity of implementation. The implications of expanding this research could lead to greater access to the general curriculum, but also to social inclusion and ultimately, a greater quality of life for elementary students with and without disability.

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