THE EFFECTS OF THE SELF-DETERMINED LEARNING MODEL OF INSTRUCTION ON THE SELF-DETERMINATION AND GOAL ATTAINMENT OF DEAF AND HARD-OF-HEARING MIDDLE SCHOOL AND HIGH SCHOOL STUDENTS

by

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A Dissertation Submitted to the Faculty of the

DEPARTMENT OF DISABILITY AND PSYCHOEDUCATIONAL STUDIES

In Partial Fulfillment of the Requirements

For the Degree of

DOCTOR OF PHILOSOPHY

WITH A MAJOR IN SPECIAL EDUCATION

In the Graduate College

THE UNIVERSITY OF ARIZONA

2014
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The Effects of The Self-Determined Learning Model of Instruction on the Self-Determination and Goal Attainment of Deaf and Hard-of-Hearing Middle School and High School Students

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ACKNOWLEDGEMENTS

To the teaching and academic mentors I have had along the way, thank you. Thank you to my committee members and to my advisor. A very special acknowledgement to Dr. Susan Palmer and Dr. Michael Wehmeyer from The University of Kansas. Thank you, Cindy Sobel Neal for your help!!! Thank you to Dr. Kelly Metz for her support and to the participating students, teachers, and interpreters who participated in and helped so much with this investigation.
DEDICATION

To my family, without whom I would be nothing.

Vladimir Spolsky, my father
Saundra Spolsky, my mother
Stephen, my brother
To my Grandparents
Auntie Toni and Uncle Hank
Cindy and Mandy
To my dearest of friends, Curtis and Martha Barnhill, and Peggy Marko-Sprague
To Chaz
Thank you from the bottom of my heart.
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ABSTRACT

Promoting student self-determination has been identified as best practice in special education as an effective way to promote goal attainment and successful post school outcomes for students with disabilities. There have been, however, limited evaluations of the effects of interventions to promote self-determination with students who are deaf or hard-of-hearing. This study reports finding from a quasi experimental switching replication study examining the impact of intervention using the Self-Determined Learning Model of Instruction on student self-determination and goal attainment for students who are deaf or hard-of-hearing. Findings within this study using the current research design and limited sample do not support the efficacy of the model for differential goal attainment and goal attainment facilitation by Group assignment but students who are classified as DHH were able to set goals and attain these at a better than expected level of progress. Measures of self-determination used in this study proved to have good internal reliability with students who have various levels of hearing loss and who use various modes of communication.
CHAPTER 1
INTRODUCTION

Historically, the basic tenets of a democratic society, including autonomy, independence, empowerment, and self-determination, are often overlooked for individuals with disabilities. Most professionals, parents, and caregivers underestimate the capacity of individuals with disabilities to make decisions. Self-determination is important for all individuals, including individuals with disabilities (Sands & Wehmeyer, 1996).

Skills leading to enhanced self-determination, like goal setting, problem solving, and decision making, enable students to assume greater responsibility and control in their lives. When individuals with disabilities show they can make things happen and take responsibility for planning and decision making, others change how they view them and what they expect from them. The self-determined individual is a causal agent (Wehmeyer, Agran, & Hughes, 1998; Wehmeyer, 1996; Wehmeyer, 1998) who causes things to happen in his or her own life (Wehmeyer & Garner, 2003). Individuals with disabilities have emphasized that having control over their lives instead of having someone else make decisions for and about them is important to their self-esteem and self-worth (Ward, 1996). Self-determination has roots in two specific skill areas: (1) the ability to plan and (2) the ability to act (Field & Hoffman, 1994). Part of planning is setting goals and envisioning goal attainment by setting long-term goals with short-term objectives to meet in order to accomplish the desired goal or task.

Definition of Self-Determination

Self-determined people make decisions without interference from other people (Wehmeyer, 1996). Use of the self-determination construct is closely tied to the ability of a person to overrule determiners of his or her behavior to act using his or her own volition
Volition means making choices with intention and consciousness. Self-determination relates to volitional actions by an individual (Wehmeyer et al., 2007). There are four specific components important to self-determination: (1) the person acts in an autonomous manner, (2) behaviors are self-regulated, (3) the individual acts in a self-realizing way, and (4) the individual initiates and responds to events in a psychologically empowered way (Wehmeyer, 1996).

For the purposes of this study, self-determination is: "acting as the primary causal agent in one's life and making choices and decisions regarding one's quality of life free from undue external influence or interference" (Wehmeyer, 1996, p. 22). Actions are self-determined if an individual acts autonomously, the behaviors are self-regulated, the individual initiates the action and responds in a psychologically empowered manner, and acts in a self-realizing way i.e., uses a "comprehensive, and reasonably accurate, knowledge of self and strengths and limitations to act in such a manner as to capitalize on this knowledge in a beneficial way" (Wehmeyer & Schwartz, 1997, p. 246).

Self-Determination and Positive Outcomes

Researchers have shown that individuals with disabilities who develop the core skills of self-determination experience more positive academic outcomes (Fowler, Konrad, Walker, Test, & Wood, 2007; Konrad, Fowler, Walker, Test, & Wood, 2007; Lee, Wehmeyer, Soukup, & Palmer, 2010), more positive employment and independent living outcomes (Martorell, Gutierrez-Recacha, Pereda, & Ayuso-Mateos, 2008; Thoma & Getzel, 2005; Wehmeyer & Palmer, 2003; Wehmeyer & Schwartz, 1997), increased involvement in leisure and community activities (McGuire & McDonnell, 2008), and more positive quality of life and life satisfaction outcomes (Lachapelle et al., 2005; Nota, Ferrari, Soresi, & Wehmeyer, 2007; Shogren, Lopez,
Wehmeyer, Little, & Pressgrove, 2006; Wehmeyer & Schwartz, 1998). Development of self-determination helps individuals with disabilities become more persistent, productive, and motivated as their self-confidence, self-esteem, and comfort increase in attempting difficult tasks. In some cases, behavior problems decrease when individuals with disabilities are allowed to exercise personal preferences within their daily activities and routines. Students with disabilities have made academic gains when goal-setting activities are integrated into reading, writing, and math areas (Sands & Wehmeyer, 2005).

Promoting self-determination of individuals with disabilities has come to be recognized as a best practice in special education (Field, Martin, Miller, Ward, & Wehmeyer, 1998; Wehmeyer, Aber, Mithaug, & Stancliffe, 2003; Wehmeyer et al., 2007). Teachers believe instructing students to be more self-determined is of great importance (Carter, Lane, Pierson, & Stang, 2008; Thoma, Pannozzo, Fritton, & Bartholomew, 2008; Wehmeyer, Agran, & Hughes, 2008).

If students with disabilities are to be self-determined when they leave school and enter adulthood, they need to develop certain skills and dispositions while in school (Wehmeyer & Schwartz, 1997). Skills leading to self-determination include knowledge about how to access resources needed as an adult; communicating interests, preferences, and needs; setting and monitoring goals; planning and managing time; identifying and solving problems; and self-advocating (Wehmeyer & Schwartz, 1997). Developing these skills and an increased level of self-determination ensures individuals with disabilities have significant influence and control over their own lives, are less dependent on others, and have a higher quality of life (Westling & Fox, 2004).
Statement about the Issue

Self-determination instruction, including instruction in problem-solving and goal setting, increases access to the general curriculum by giving students techniques to set goals linked to academic content access, problem solving to attain goals, and progress monitoring toward goal attainment (Wehmeyer, Lance, & Bashinski, 2002). Researchers, however, have concluded students with disabilities have limited exposure and opportunities to access curriculum augmentations (Lee, Soukup, Little, & Wehmeyer, 2009; Soukup, Wehmeyer, Bashinski, & Bovaird, 2007; Wehmeyer, Lattin, Lapp-Rincker, & Agran, 2003). Furthermore, researchers have examined the use of curriculum augmentations and modifications with students with disabilities across elementary, middle school, and high school settings and have found students were not consistently provided with augmentations and modifications (Soukup et al., 2007; Wehmeyer et al., 2003; Lee et al., 2009).

Providing students with instruction to become involved in their learning and to self-direct their learning leads to higher levels of self-determination (Wehmeyer, Palmer, Shogren, Williams-Diehm, & Soukup, 2013) and goal attainment (Agran & Alper, 2000; Agran, Cavin, Wehmeyer, & Palmer, 2006; Wehmeyer, Palmer, Agran, Mithaug, & Martin, 2000). There is a continuing need for research on interventions to promote self-determination, showing students with intellectual disability (Wehmeyer et al., 2007), learning disabilities (Field, 1996; Field, Sarver, & Shaw, 2003; Pierson, Carter, Lane, & Glaeser, 2008), emotional and behavioral disorders, and autism (Ward & Meyer, 1999; Wehmeyer & Shogren, 2008) are less self-determined than their nondisabled peers.

More specifically, researchers have shown the benefits of self-determination in attaining positive post-school, adult outcomes. However, a paucity of research with individuals who are
DHH has been conducted. Because individuals who are DHH have limited access to incidental learning through auditory channels, they often lack experience in goal setting, problem-solving, decision-making, self-regulated learning, and progress monitoring. They require practice and work with learning as the primary causal agent in their lives and may experience more positive post-school outcomes as result of learning how to set and monitor goals and increase their self-determination.

**Challenges to Deaf or Hard-of-Hearing Individuals**

An estimated 7.6 million people (3.1% of the population of the United States) including 1.1 million of whom have a severe loss of hearing (US Department of Labor, 2012). DHH individuals have significant and unique educational and communication needs. Major barriers to learning associated with deafness relate to language and communication, affecting many aspects of the educational process. Implementation of effective methods of instruction in a variety of educational settings, though widely researched, is not readily available. Self-determination is the inherent right of people to assume control of and make choices that have an impact on their lives, and is an important part of a successful transition. A self-determined person can identify and pursue goals, take an active part in decision-making, recognize their strengths and challenges and advocate for what they need. For individuals who are DHH, access to information is limited and opportunities to make decisions about their lives are often restricted. Many DHH individuals are not aware of the choices and options available to them because they do not have auditory access to be able to hear or listen to friends and family talk about their work or leisure activities. Some DHH individuals do not fully understand their disability and the accommodations they need, and cannot successfully advocate for themselves. Many people see a child who cannot communicate in traditional ways and assume the child is unable to make decisions or even have preferences.
DHH individuals often have reduced opportunities for social networking and participation in community activities. Barriers may include limited communications skills, physical limitations, and/or cognitive impairments. Despite numerous research studies, only one study has focused on self-determination for DHH students (Lipkowitz & Mithaug, 2003). Sebald (2013) addressed self-determination with DHH students, but in relation to teacher perceptions. Researchers have found differences between students with and without disabilities but few have included DHH student participants.

**Barriers to Self-Determination for Individuals with Disabilities**

For individuals with disabilities, families, teachers, and other well-intentioned individuals overprotect them from making mistakes and interacting freely with others hindering development of autonomy, self-regulation, psychological empowerment, and self-realization (Wehmeyer & Palmer, 2000). Researchers have confirmed students with disabilities are often unable to advocate for their own needs, wants and desires and are less prepared to make hard choices and decisions needed to take control of their own lives and become self-determined adults (e.g., Wehmeyer, 1993; Wehmeyer and Kelchner, 1995).

When an individual is provided few opportunities to make choices and decisions, is given low expectations and is communicated expectations of failure, and/or is in an environment reinforcing failure and discouraging goal attainment or attempts at achieving high expectations (Houghton, Bronicki, & Guess, 1987), self-determination is not easily developed. Other variables fostering development of learned helplessness are overprotection by adults and economic, academic, and/or social deprivation. As a result, individuals fail to practice and learn skills associated with self-determined behavior, which reduces their ability to exercise self-
determined behavior. Individuals are then unable to or are unaware of how to gain access to academic, interpersonal, and vocational opportunities (Clark, Mack, & Pennington, 1988).

Individuals with disabilities are often less self-determined due to overprotection by family members and school personnel. Rules and regulations in the environment and how individuals interact with those who have disabilities often limit choice-making opportunities and in turn reduce self-determination (Walker et al., 2011). If students invest in assessment processes such as tracking and monitoring progress toward a goal as something they want to do to beneficial to them, they will use information comparing their performance with that of others as a call to action. Adults should provide directional feedback. Otherwise, students may use information to reinforce feelings of insecurity and failure. The educational literature shows students learn from “failure” experiences when such experiences are mitigated and students are enabled to repeat experiences with success (Ames & Archer, 1988; Wehmeyer & Kelchner, 1995). The need for self-determination skills by people with disabilities has been indicated by follow-up studies. These studies revealed that less than one third of all working-age adults with intellectual disability are employed, while the overall employment rate in the United States is about 95% (Harris & Associates, 1986). Fewer than 15% of all persons with disabilities who are out of school more than 1 year enroll in vocational training, compared to 56% of high school graduates without disabilities (Wagner, 1991). More than 40% of employed adults with disabilities earn below minimum wage (Hasazi, Gordon, & Roe, 1985; Neel, Meadows, Levine, & Edgar, 1988).

**Barriers to Self-Determination for Individuals who are Deaf or Hard-of-Hearing**

Hearing loss is a low-incidence disability often unrecognized in the larger community, and those with hearing loss face formidable communication barriers, preventing them from
living and working independently. By teaching students to be the primary causal agent in their lives through self-determination instruction, teachers have the ability to empower DHH students.

**Hearing Loss and Incidental Learning**

A significant amount of children’s learning is from incidental learning (Marschark, 2000). Incidental learning occurs through environmental exposure: what individuals hear, see, and experience and takes place in the natural course of events without intentionally directed instruction about how or what to learn (Calderon & Greenberg, 2003). A hearing loss of any type or degree can present a barrier to incidental learning (Luckner, 2011). Background knowledge is an important part of acquiring literacy skills and is largely developed from incidental learning (Snow, Scarborough, & Burns, 1999). Hearing children have opportunities to learn meanings of many abstract concepts after hearing or overhearing countless repetitions within meaningful contexts of conversation (Levy & Nelson, 1994).

Hearing people have access to a wealth of environmental information (primarily auditory) that is processed from casual conversations, television, radio, and the Internet. Up to 90% of what individuals know about interaction with the world is due to incidental learning (Luckner, 2011). DHH individuals often do not have access to information on the same level as hearing people, and pieces may be missing from their general knowledge base most hearing people would consider to be obvious. DHH children of hearing parents do not have similar access to incidental learning due to more limited access to language, both spoken and signed (Calderon & Greenberg, 2003).

**Incidental Learning and Self-Determination**

If skills and concepts are not directly addressed and taught to a DHH child one-on-one at home and at school in the communication mode the child prefers, he/she may never fully develop
important abilities, which hinder self-determination. DHH individuals encounter discrepancies on a daily basis between capacity to be self-determined and lack of opportunity to engage in self-determined behavior due to lack of incidental learning access through auditory means.

DHH children have fewer opportunities for incidental learning as a consequence of their hearing loss (Furth, 1966; Rapin, 1986). They lack access to many sources of information, and their incidental learning may suffer from this lack of opportunity. Consequently, some concepts hearing children learn incidentally in everyday life may have to be explicitly taught to DHH students in school (Nunez & Moreno, 2002). These concepts may include fundamentals of being able to engage in self-determined behavior such as the ability to problem solve, make choices, set goals, monitor goals, be self aware, be able to self-advocate, and be an effective communicator to others.

Post-School Benefits of Self-Determination

Developing student self-determination is often considered a best practice in special education (Test et al., 2009) and researchers have shown students with various disabilities can learn vital skills associated with self-determination (Algozzine, Browder, Karvonen, Test, & Wood, 2001). Higher levels of self-determination have been linked to positive post-school outcomes including independent living (Wehmeyer & Palmer, 2003; Wehmeyer & Schwartz, 2007), higher levels of community involvement (McGuire & McDonnell, 2008), experience with postsecondary education (Anctil, Ishikawa, & Scott, 2008; Getzel & Thoma, 2008), and a higher quality of life (Lachappelle et al., 2005).

Purpose Statement

The purpose of this study was to build on previous research to establish a causal relationship between instruction using the SDLMI and student levels of self-determination and
attainment of communication goals. The study determined the effects of a teaching model, the SDLMI, on the self-determination and goal attainment of deaf and hard-of-hearing middle school and high school students at three public schools in the Southwestern United States.

This research study informs educators and professionals about areas in which instructional and curricular foci may be required as well as to help researchers identify important areas and aspects in which to design and implement interventions centered on elements of self-determination that are of greatest need for DHH students. DHH youth need to be taught skills and knowledge and provided opportunities using the firm empirically research-based findings they need to foster self-determination skills, goal attainment, and self-regulated learning.

**Research Questions**

The three main questions of this investigation were:

1. How self-determined are the participating DHH students in this investigation?
2. Is there a difference in goal attainment between students who received instruction using the Self Determined Learning Model of Instruction and students who did not receive this intervention?
3. Is there a difference in self-determination levels between students who received instruction using the Self-Determined Learning Model of Instruction and students who did not receive this intervention?

**Significance of the Study**

This study adds to the body of knowledge in the area of self-determination and goal attainment using the SDLMI as an intervention tool. It provides valuable information to the field of Deaf Education by adding to existing research related to self-determination and DHH students who are educated in public schools. To date, no single research study has been conducted with
DHH students examining goal attainment and self-determination as a result of using the SDLMI. This study is the first attempt to train teachers of DHH students to implement the SDLMI in public school settings.

This research study will enable and empower teachers to use the model with future students across content areas. Furthermore, once teachers have learned the SDLMI, they can use the model with all students in all content areas.
**Definition of Terms**

**American Sign Language (ASL):** ASL is a visual language. With signing, the brain processes linguistic information through the eyes. The shape, placement, and movement of the hands, as well as facial expressions and body movements, all play important parts in conveying information.

**Autonomy:** Making decisions without the undue influence of others.

**Causal Agency:** An entity that produces an effect or is responsible for events or results.

**Causal Agent:** People are actors in their lives instead of allowing themselves to be acted upon by others.

**Choice-Making:** Making decisions based on preferences and interests.

**Deaf:** A hearing impairment that is so severe that the child is impaired in processing linguistic information through hearing, with or without amplification, that adversely affects a child’s educational performance (34 C.F.R. § 300.7(c)(3)).

**Goal:** The end result or achievement in which effort is directed.

**Attainment:** The action or fact of achieving a goal toward which one has worked.

**Goal Attainment Scaling (GAS):** Goal attainment scaling provides a means to assess the amount of relative change by considering information from any combination of measurement, observation, and/or reporting sources. The process does not determine whether goals are relevant (meaningful to a person’s wishes and needs) or reasonably challenging for an individual (Kiresuk, Smith, & Cardillo, 1994).

**Hard-of-Hearing:** An impairment in hearing, whether permanent or fluctuating, that adversely affects a child’s educational performance but that is not included under the definition of deafness in this section (34 C.F.R. § 300.7(c)(3)).
**Intervention:** “Any action, activity, or circumstance resulting in improved or enhanced self-determination. Interventions must be intentional, that is, they are purposely implemented to effect change. In this case, that change process refers to promoting self-determination (Walker et al., 2011).

**Self-Advocacy:** Skills associated with identifying strengths and needs within a specific area such as cognition and communication.

**Self-Determination:** Acting as the primary causal agent in one’s life and making choices and decisions regarding one’s quality of life free from undue or external influence or interference (Wehmeyer & Schwartz, 1997).

**Self-Determined Learning Model of Instruction (SDLMI):** A curriculum that teaches students to engage in self-directed and self-regulated learning.

**Self-Directed Learning:** An individual takes the initiative and the responsibility for what occurs. Individuals select, manage, and assess their own learning activities, which can be pursued at any time, in any place, through any means, at any age.

**Self-Monitoring:** The conscious process of watching one's own actions for problems and difficulties in order to successfully employ repair strategies to alter a situation or environment.

**Self-Realization/Self-Realizing:** Possessing knowledge and awareness of strengths and needs and possessing an understanding of what a person can supply to other people.

**Self-Reflection:** A fixing of the thoughts on something; careful consideration

**Self-Regulation:** The ability to monitor or change and control behavior based on the environmental conditions.

**Student Involvement:** Being present and aware in one’s education and learning in physical, social, academic, cognitive, and communicative areas.
Volition: Making choices with intention and consciousness.
CHAPTER 2
LITERATURE REVIEW

This chapter explains the research problem, describes its significance, offers justification for the study, details the research questions and objectives, and provides theoretical frameworks as the foundation of the study. The chapter concludes with a summary of research that lends support to investigating the role of self-determination instruction to increase the self-determination and goal attainment of DHH students.

As previously stated, self-determination is: "acting as the primary causal agent in one's life and making choices and decisions regarding one's quality of life free from undue external influence or interference" (Wehmeyer, 1996, p. 22). Actions are self-determined if an individual acts autonomously, the behaviors are self-regulated, the individual initiates the action and responds in a psychologically empowered manner, and acts in a self-realizing way i.e., uses a "comprehensive, and reasonably accurate knowledge of self, strengths, and limitations to act in such a manner as to capitalize on this knowledge in a beneficial way" (Wehmeyer & Schwartz, 1997, p. 246).

Background of Self-Determination

The self-determined person is a causal agent in his or her life (Wehmeyer, 1996; Wehmeyer, 1998; Agran & Hughes, 1998; Wehmeyer & Garner, 2003). Even individuals who are physically and/or cognitively limited can be empowered by using supports to help gain control in their lives and thus become a causal agent (Wehmeyer & Garner, 2003).

The self-determination construct is closely tied to the ability of a person to overrule determiners of his or her behavior in order to act using his or her own volition (Wehmeyer, Agran, Hughes, Martin, Mithaug, & Palmer, 2007). This means an individual has the capacity
and opportunity to make decisions and choices based on personal preference, not based on the preferences of others.

There are four specific component parts that are important to self-determination: (1) the individual acts in an autonomous manner, (2) the individual engages in self-regulated behaviors, (3) the individual acts in a self-realizing way as in understanding the effects a person’s actions have, and (4) the individual initiates and responds to events in a psychologically empowered way (Wehmeyer, 1996).

Self-determination is important for all people, including students with disabilities. The skills leading to enhanced self-determination, like goal setting, problem solving, and decision making, enable students to assume responsibility and control. Moreover, when students with disabilities show they can take responsibility for planning and decision-making, others change how they view them and what they expect from them.

People with disabilities have emphasized that having control over their lives, instead of having someone else make decisions for and about them, is important to their self-esteem and self-worth (Ward, 1996). Self-determination has roots in two specific skill areas: the ability to plan and the ability to act (Field & Hoffman, 1994). Part of planning is setting goals and envisioning goal attainment by setting long term goals with short term objectives to meet in order to accomplish the desired goal or task. Taking action and making concerted moves toward goal attainment is another skill in developing self-determination and also includes communicating needs, wants, desires, and preferences clearly and taking risk to achieve goals.

**Historical Roots of Self-Determination**

Nirje and Perske are pioneers in the self-determination movement and were the roots of the special education initiatives. A major initiative by the U.S. Department of Education, Office
of Special Education and Rehabilitative Services (OSERS), and the Office of Special Education Programs (OSEP) provided an important impetus for a focus on self-determination. The results from these model projects were infused into the state systems change programs and other federally funded projects. This initiative, which demonstrated the impact that self-determination can have on students with disabilities, established a catalyst for self-determination in special education programming and transition services.

Projects and curricula have been financially supported such as the first conference on Self-Determination in 1989. In the Individuals with Disabilities Education Act (IDEA, 1997), transition planning requires self-determination components to be addressed with students.

De-institutionalization included a push for individuals with disabilities to be mainstreamed into their own communities (Shreve, 1982). All five movements/factors contributed to the Independent Living Center movement rooted in the principle of self-determination (Deegan, 1992). Self-determination emerged as a promising practice for training students with disabilities as espoused by the U.S. Department of Education, Office of Special Education and Rehabilitative Services (OSERS), model programs in the 1990s. Hasazi, Gordon, and Roe (1985), Siegel, Waxman, and Gaylord-Ross (1992), and Sitlington, Frank, and Carson (1993) found helping students acquire and exercise self-determination skills is a strategy leading to more positive educational outcomes. Researchers confirmed students with disabilities are often unable to advocate for their own needs, wants and desires and are less prepared to make hard choices and decisions needed to take control of their own lives and become self-determined adults (e.g., Wehmeyer, 1993; Wehmeyer and Kelchner, 1994).
Importance of Self-Determination for DHH Individuals. As early as 1881, self-determination was tied to the deaf and hard-of-hearing communities, when deaf painter John Carlin presented about the importance of self-determination in deaf education to people who attended the Pennsylvania Society for the Advancement of the Deaf’s convention (Boyd & Van Cleve, 1994). In the years following World War II, the United States experienced rapid social and economic change. Returning soldiers, an increased work force, and the baby boom brought a need for new housing and jobs. Those same returning soldiers displaced many DHH workers in factories, just as women and others who had served the war effort from home lost their jobs.

Newspapers, magazines, and television brought news and an awareness of the disparity of income and rights (Deegan, 1992). Advocates of the civil rights movement of the 1960s performed marches, sit-ins, and protests as tools for change, and inspired many minority groups, including the DHH community, to press for greater self-determination and economic opportunity (Rose & Kiger, 1995). As many Americans came to accept cultural diversity, DHH individuals began to explore more openly their cultural-linguistic identity and assert their right to access information (Rose & Kiger, 1995). They stressed the need for interpreting services, film and television captioning, and telephone access (Rose & Kiger, 1995).

Self-determination and the DHH community became an issue at the forefront of the eyes of America in 1988, when Gallaudet University officials appointed a hearing person as president. Hundreds of protesters successfully challenged the decision by the university’s board of trustees to appoint a hearing president to lead the institution. At the time, Gallaudet had been in existence for 124 years, and, of the six presidents who had served since 1864, none were deaf. Many individuals felt that it was long past time for a deaf person to be the chief administrator of the world’s only liberal arts university for deaf students.
The protest, called Deaf President Now (DPN), became a revolution, and deaf and hard-of-hearing (DHH) university students displayed their self-determination skills to the world by calling for a deaf president through protests and self-advocacy. After a week of activities that garnered unprecedented media attention and captured the imagination of millions of people in the United States and around the world, the hearing president-designate resigned, as did the hearing chair of the board of trustees. The board selected a deaf person to be Gallaudet’s president and, also for the first time, selected another deaf person to lead the university’s board of trustees.

**Special Education and Policy Implications**

In 1975, Congress passed Public Law 94-142 (Education of All Handicapped Children Act), now codified as IDEA (Individuals with Disabilities Education Act). In order to receive federal funds, states must develop and put into practice policies that assure a free appropriate public education (FAPE) to all children with disabilities. One important aspect of the implementation of P.L. 94-142 is student involvement in educational planning and decision making. Student involvement in educational planning and decision making is one way to foster self-determination in students with disabilities (Field, 1996; Grigal, Neubert, Moon, & Graham, 2003; Algozzine, Browder, Karvonen, Test, & Wood, 2001).

**Self-Determination and Outcomes**

**Educational and employment outcomes.** Self-determination has been researched in the field of special education for approximately twenty years (Field, Martin, Miller, Ward, & Wehmeyer, 1998; Kebbeh & Mithaug, 2003; Lipkowitz & Mithaug, 2003; Luckner & Muir, 2002; Martin et al., 2003; Mithaug, Campeau, & Wolman, 2003; Powell & Mithaug, 2003; Wehmeyer, 1992; Wehmeyer, 1994; Wehmeyer, Palmer, Agran, Mithaug, & Martin, 2000). In 1998, Field, Martin,
Miller, Ward, and Wehmeyer published a book about promoting self-determination designed for professionals in the field of education working with special education students. Articles have been authored about best practices for professionals in terms of promoting self-determination for students with disabilities (Luckner & Muir, 2002; Wehmeyer, 1992, Wehmeyer et al., 2000).

Researchers have followed up with former participants of special education programs also providing another catalyst for a focus on self-determination for students with disabilities and concluded students with disabilities often achieve less than desired outcomes after completing special education programs (Murray, 2003). Upon completing educational programs, few people with disabilities live independently and few are employed in a full time capacity (Hasazi, Gordon, & Roe, 1985; Mithaug, Horiuchi, & Fanning, 1985; Siegel, Robert, Waxman, & Gaylord-Ross, 1992; Sitlington, Frank & Carson, 1993; Wagner, D’Amico, Marder, Newman, & Blackorby, 1992).

Self-Determination and Educational Outcomes

Wehmeyer and Schwartz (1997) concluded helping students acquire and exercise self-determination skills is a strategy that leads to more positive educational outcomes. They found that one year after graduation, students with learning disabilities or mental disabilities who were more self-determined were more likely to have achieved more positive adult outcomes, including being employed at a higher rate and earning more per hour, when compared to peers who were not self-determined. Additional research supports the relationship between self-determination and positive educational outcomes (Perlmutter & Monty, 1997; Realon, Favell & Lowerre, 1990; Schunck, 1985; Wang & Stiles, 1976).

Mithaug, Campeau, & Wolman (2003) examined teacher reports of more than 450 students with and without disabilities and their capacity to engage in self-determined behaviors.
Disability categories included: (1) emotional/behavioral disorders, (2) learning disabilities, (3) intellectual disability, and (4) physical and health impairments. Teachers rated students with physical and health impairments as having the highest capacity to self-determine while students with emotional/behavioral disabilities were rated as having the lowest capacity to self-determine. The results of this study raised issues about the impact of the school environment in student expectations and choices related to capacity to self-determine. Lipkowitz (2000) studied levels of self-determination of students with hearing loss and with vision loss. More than 200 students between the ages of 12 and 21 were included in the study. Using student records and questionnaires, Lipkowitz examined disability experience, disability group identity, self-determination, and learning preferences. Results showed that environment is a factor in the development or hindrance of self-determination and a relationship between disability and school placement. Wehmeyer and Bolding (1999) found that individuals living or working in less segregated, community-based settings demonstrated more self-determination, autonomy, satisfaction and had more choices than did matched peers living or working in congregated settings such as group homes, sheltered workshops, institutions, nursing homes, or day programs.

Self-Determination and Post School Outcomes

Individuals with disabilities often have encounters with individuals who exert control or influence over major decisions affecting the quality of their lives. Decisions such as where to live, what kind of work to do, and how to spend leisure time are personal choices in which each individual has a right to participate in. When educators teach students with disabilities to use self-determination strategies, they can take charge of their educational programs, set goals, and better prepare for life after graduation from high school. Researchers have shown advantages of self-determination instruction for individuals with disabilities (Agran et al., 1999; Grigal,
Researchers have followed up with former participants of special education programs and found students with disabilities often achieve less than desired outcomes after completing special education programs (Murray, 2003). Upon completing educational programs, few people with disabilities live independently and few are employed in a full time capacity (Hasazi, Gordon, & Roe, 1985; Mithaug, Horiuchi, & Fanning, 1985; Siegel, Robert, Waxman, & Gaylord-Ross, 1992; Sitlington, Frank & Carson, 1993; Wagner, D’Amico, Marder, Newman, & Blackorby, 1992). However, ability to gain and keep employment and retention in postsecondary education has connections with self-determination (Wehmeyer & Palmer, 2003; Wehmeyer & Schwartz, 1997). Additionally, Hasazi, Gordon, and Roe (1985), Siegel, Waxman, and Gaylord-Ross (1992), and Sitlington, Frank, and Carson (1993) found helping students acquire and exercise self-determination skills lead to more positive educational outcomes.

Wehmeyer and Schwartz (1997) concluded students with learning disabilities who had higher self-determination scores in their last year of high school were more likely to have expressed a preference to live outside the family home, have a savings or checking account, and be gainfully employed one year following high school. Of the youth who were employed, Wehmeyer and Schwartz found those who were more self-determined earned an average of $4.26/hour, while their peers who were less self-determined earned an average of $1.93/hour. Additionally, participants in the high self-determination group were more likely to have a checking account ($\chi^2 = 4.75, p < .05$), a savings account ($\chi^2 = 5.34, p < .02$), and were more likely to be employed ($\chi^2 = 6.75, p < .01$) three years post high school, compared to the group with lower self-determination scores (Wehmeyer & Schwartz, 1997).
Wehmeyer & Palmer conducted another study (2003) with young individuals with cognitive disabilities (mental retardation or learning) one and three years after graduation from high school and found similar results to Wehmeyer & Schwartz (1997) related to employment and independent living outcomes. They compared outcomes of youth with higher levels of self-determination to youth with lower self-determination scores as determined by the Arc’s Self-Determination scale (Wehmeyer & Kelchner, 2005) scores gathered in high school. The group with scores one standard deviation (18.25) above the mean (74.72) was significantly more likely to report improvements in access to overall benefits such as vacation and sick leave at their place of employment than the group that was one standard deviation below the mean.

Sarver (2000) found a positive relationship between scores on self-determination assessment and grade point average for postsecondary students with learning disabilities. Researchers have also shown children who help choose school activities show enhanced motivation to perform tasks are more likely to achieve their goals (e.g., Benz, Lindstrom & Yovanoff, 2000; Realon, Favell, & Lowerre, 1990; Schunk, 1985). Children who are better able to make choices and decisions are more likely to set and achieve goals, all of which lead to self-determined behavior and more positive outcomes across the lifespan.

Additionally, researchers have shown instructional strategies promoting self-determined behaviors result in more positive educational outcomes, and help students generalize skills to natural environments (Agran, 1997; Martin, Burger, Elias-Burger & Mithaug, 1988, Mithaug, Martin & Agrán, 1987). Fornes, Rocco, & Rosenberg (2008) studied the relationship between self-determination and work outcomes. They interviewed 100 adults with IQs between 50 and 67, considered to have intellectual disability, who were placed in agencies through employment services in Florida. They found that self-determination accounted for 24% of the variance in job
retention, 34% of the variance in job performance, and 26% of the variance in job satisfaction. The research team used a convenience sampling method, however, and it is unclear if the individuals requesting services through those agencies already had higher levels of self-determination than those not enrolled in employment agencies.

**Barriers to Fostering Self-Determination in School**

Powers, Wilson, Matuszewski, Phillips, Rein, Schumacher, & Gensert (1996) found that teachers do not have the opportunity, information, skills, and support needed to impact the self-determination of youth. Powers et al. (1996) concluded that promoting self-determination is seldom a focus of preservice and in-service training for educators. Most educators are required to function within educational structures that emphasize uniformity and compliance ahead of individualized programming, even in the field of special education.

When surveyed in a study, teachers and school personnel stated that although they found self-determination to be an important skill to be taught in the school setting, time and schedule constraints prevented them from fully implementing a curriculum aimed at increasing self-determination (Eisenman & Chamberlin, 2001). These same participants revealed that ideally, self-determination activities should be infused into already implemented academic areas (Eisenman & Chamberlin, 2001).

The Council for Exceptional Children conducted a survey of 523 various school personnel related to student IEP participation and teacher self-determination instruction and the results shows teachers believe self-determination training for school professionals is important in order to feel prepared to teach self-determined behaviors to their students (Mason, Field, & Sawilowsky, 2004). Results of the study included:
• A majority of respondents stated their school district of employment did not have a plan for teaching self-determination skills to students.

• A total of 50% of respondents stated they would benefit from more training in teaching students self-determination skills.

• Only 22% felt they were very prepared to teach their students self-determination skills in the classroom setting.

Wehmeyer, Agran, & Hughes (2000) conducted a national survey on self-determination and student-directed learning strategy use among 1,219 teachers who serve adolescents with disabilities between the ages of 14 and 21 from all 50 states and 2 United States territories. The majority of teachers indicated that they were responsible for the educational programming of students with moderate mental retardation (55%). However, 204 teachers, or 17% of the total respondents were responsible for the educational programming of students with hearing impairments. Between 80% to 90% of survey respondents reported that a given instructional domain within the component elements of self-determination was either moderately important or very important for the students they serve.

In another study, 69 special education teachers were surveyed on the value of self-determination and specific techniques students can use to develop and augment self-determined behavior (Agran, Snow, & Swaner, 1999). Results indicated only 8% of teacher respondents personally observed their students using choice making skills. These results show a dire need for teachers to have an empirically based teaching model to teach students how to engage in self-determined behavior, such as problem-solving, choice-making, and self-regulated learning. When teachers feel confident in how to teach self-determination, they will be more likely to
impart their knowledge and skills to students, resulting in a more self-determined student population (Agran et al., 1999).

Grigal, Neubert, Moon, & Graham (2003) surveyed 248 special education teachers about self-determination. Teachers *slightly agreed* they were familiar with self-determination and how to teach self-determination to students. Teachers *slightly agreed* that students who have disabilities have the opportunity to learn and practice self-determined behaviors at their school site. Survey results from multiple studies indicate the self-determination construct is largely unknown to teachers and that they feel ill equipped to teach self-determined behaviors to their students.

School personnel can either encourage or discourage the development and practice of self-determined behaviors through providing the opportunity to engage in self-determined behavior.

**Self-Determination Curricula**

Researchers have concluded teaching self-determination skills to individuals with disabilities is important and needed if students are to experience success after graduation from high school (Brinckeroff, 1994; Chadsey-Rusch, Rusch, & O’Reilly, 1991; Durlak & Rose, 1994, Field et al., 1998, Luckner & Muir, 2002; Martin, Marshall, & Maxson, 1993; Morgan, Bixler, & McNamara, 2002; Wehmeyer et al., 1998; Wehmeyer & Palmer, 2003; Wehmeyer & Schwartz, 1997). Various curricula have been designed for use by special educators as interventions with students in fostering self-determined behaviors. These curricula have been presented in various formats, from traditional workbooks and videotaped lessons to computer based software programs. The following section describes the different self-determination
curricula in use and the effects of the curricula on the self-determined behaviors of individuals with disabilities.

**TAKE CHARGE curriculum.** Powers and colleagues field tested the impact of their self-determination enhancement intervention called *TAKE CHARGE* using two small randomized controlled studies (Powers, Turner, Ellison, et al., 2001; Powers, Turner, Westwood, et al., 2001). These intervention studies varied slightly with one focusing on outcomes of activity accomplishments and psychosocial adjustment for 20 students with physical disabilities and health conditions (Powers, Turner, Ellison, et al., 2001) to the other study focusing on outcomes of transition planning by 43 students with various disabilities (Powers, Turner, Westwood, et al., 2001). In each study, self-determination was measured with the youth version of the Family Empowerment Scale (Koren, DeChillo, & Friesen, 1992), a 34-item self-assessment of one’s capacity to manage day-to-day circumstances, services, and advocate for others. The intervention model included coaching for youth in applying self-determination skills to reach their personal goals, mentorship experiences, and support to assist parents of the youth to promote achievement and positive self-attributions in their children. Intervention group youth in the Powers, Turner, Ellison et al. study (2001) participated in the intervention for 5 months, which included two 50-minute weekly sessions with a coach, monthly workshops for youth, their parents, and adult mentors, community activities for youth and mentors, and support for parents via telephone and home visitations. This intervention yielded positive results with the treatment group showing significant improvements over the comparison group from pre-test to post-test on psycho-social adjustment ($F = 11.36, d = .88, p < .01$), empowerment ($F = 14.91, ES = 1.55, p < .01$), and level of activity accomplishment ($F = 21.96, d = 2.05, p < .01$).
Additionally, Powers, Turner, Westwood, et al. (2001) randomly assigned 43 youth with diverse disabilities to either a control group or a treatment group that received the *TAKE CHARGE* intervention with specific goals of increasing youth involvement in transition planning, transition planning awareness, empowerment, and participation in transition planning meetings. After a 4-month intervention which included 50-minute coaching sessions two times per week, mentoring, and parent support, improved outcomes were found in all areas compared to the control group. For instance, youth receiving the intervention showed significant improvement with large effects in educational planning ($F = 21.04, p < .01, d = .71$), significant with medium effects in empowerment ($F = 15.56, p < .01, d = .61$), and significant with small to medium effects for student transition awareness ($F = 6.32, p < .05, d = .39$), compared to the non-treatment group.

*Steps to Self-Determination curriculum.* Bruno (2000) used a randomized control trial to compare the effects of a self-determination intervention called *Steps to Self-Determination* by Field and Hoffman (1992) on 73 sixth grade students from a single elementary school. While the study found non-significant differences between treatment and control groups on the outcome measures of self-determination, students in the intervention group showed decreased levels of depressive symptoms at posttest.

*Self-Directed IEP curriculum.* Using a randomized sample of 130 secondary students, Martin et al. (2006) examined the effectiveness of Self-Directed IEP, a curriculum designed to increase youth participation in IEP meetings. Researchers found that after completion of the program, students showed an increase in the amount of time they talked, started, and led their own IEP meetings. These studies show the importance of intervening to improve components of self-determination, such as choice-making skills, goal attainment, self-evaluation and regulation.
However, there remains a paucity of research related to effective self-determination curricula for DHH students.

**Teachers of the Deaf and Self-Determination Instruction**

Teachers of DHH students who were surveyed about self-determination revealed possible reasons for experiencing difficulties with teaching self-determination to students including (a) low language levels in students, (b) lack of students having world and a variety of world experiences, (c) not enough time in the school day (Velaski-Sebald, 2005). These same participating teachers recommended that self-determination should be taught to DHH students through (a) role play situations and scenarios, (b) giving students opportunity to practice solving real life problems, (c) supporting students in learning from successes and also from failures, (d) establishing realistic, attainable goals, and (e) encouraging students to sit up on the front of the classroom and ask questions (Velaski-Sebald, 2005). Teachers in this study believed self-determination is important for DHH students (Velaski-Sebald, 2005).

**Self-Determination and Deafness**

Numerous challenges face DHH individuals in developing self-determination. The numbers of opportunities provided to practice and engage in self-determined behavior are often limited by persons and by the environment, and by lack of knowledge of skills associated with self-determined behavior such as (1) autonomy, (2) self-realization, (3) choice making, (4) decision making, (5) self regulation, and (6) barriers to actively participating in one’s education in addition to language and literacy challenges. DHH individuals often experience great difficulty in developing self-determination because of language delays, deficiencies in mediated experiences, a need for opportunities in developing self-determined behaviors, a lack of internal
motivation, and a deprivation of funds and time in deaf education based programs to teach self-determination skills (Sebald, 2013).

Interactions and relationships with caregivers, parents, and peers can create an environment that either fosters competence and self-determination or hinders competence and self-determination. DHH children who are not permitted to engage in self-directed learning and who are not taught strategies to use to engage in this type of learning such as (a) problem-solving, (b) self-advocacy, and (c) choice-making struggle to develop self-determined behavior to become the primary causal agent in their life.

Positive social, emotional, and academic development are essential to any child, but are of great importance to DHH children due to the high risk of DHH children for delays attributable to impoverished language input and incidental learning experiences. If DHH children are not given explicit instruction and practice in language use, they will most likely enter school with delayed and impoverished linguistic skills (Moores, 2001). Most DHH children begin the preschool years with language delays (Meadow-Orlans, Mertens, & Sass-Lehrer, 2003; Marschark & Wauters, 2008). For DHH children, delays in the development of social, emotional, and academic skills results also in difficulties in developing self-determination.

Meadow and Dyssegaard (1983) concluded family members and school personnel who are overprotective and controlling with DHH children can potentially impede their development, including their self-determination. The researchers compared teacher ratings on the Meadow/Kendall Social Emotional Assessment Inventory (MKSEAI); (Meadow, 1983) of American and Danish deaf students. As an overall group, the deaf children displayed a lack of motivation and initiative hypothesized by the researchers as due to hearing parents and educators being highly directive and directional, which results in fewer opportunities and chances for deaf
children to take personal responsibility and independent actions for their decisions and conduct (Wall & Dattilo, 1995; Meadow & Dyssegaard, 1983).

Meadow-Orlans and Steinberg (1993) found that the behaviors of mothers with 18 month old deaf children were more problematic than mothers with same aged hearing children, with hearing mothers of deaf children rated as more intrusive displaying maternal over control and directiveness. Mothers who tend to be directive toward their DHH child inhibit the development of self-determined behavior by not allowing their child to explore, engage in risk taking, and learn from mistakes and errors. Opportunities to develop self-determination and self directed learning may be hindered in DHH children due to parental imposed safety limits that prevent a deaf child from exploring and developing autonomy (Schlesinger, 2000). Infants who are DHH have been found to be slightly more quiet and passive than infants who are hearing (Schlesinger, 2000). As a result, infants who are DHH may not actively explore their immediate environments and parents may allow their DHH children to be more passive rather than encouraging their children to explore the environment (Schlesinger, 2000).

Deaf children with hearing mothers show the least mature interactions, displaying simple interactions, low instances of child initiated interactions, and the highest instances of mother initiated interactions (Meadow, Greenberg, Erting, & Carmichael, 1981). Lederberg and Mobley (1990) found that DHH toddlers and their mothers interacted less than hearing toddlers and their mothers, mothers of DHH toddlers initiated more communication directed at their child than did mothers with hearing toddlers, and DHH toddlers were more likely to end an interaction due to not seeing or hearing the last interaction from the mother when compared to hearing toddlers.

In conclusion, DHH children can benefit from instruction in how to act in a psychologically empowered manner and in a self-realizing manner to begin to form the basis of
self-determined behavior and actions in order to become the primary causal agent in their life. These characteristics are taught by primary caregivers and by educators. The more exposure to self-directed learning strategies a DHH child is exposed to, the more time he or she has to practice engaging in self-determined behavior and to produce positive academic, social, and vocational outcomes.

DHH children show reduced abilities in many areas of social and emotional competence which increases their risk for negative outcomes such as low academic achievement, underemployment (Greenberg & Kusche, 1989; Marschark, 1993).

**Family Expectations and Integration**

Family variables and the climate within the family unit also affect the development of self-determination in DHH children. Bodner-Johnson (1986) examined the role of the family and family environment and the academic achievement of 9 to 13 year old DHH children and concluded that DHH students who excelled in reading at school integrated the DHH child successfully into the family unit and had high expectations for the child in the educational and occupational areas. Bodner-Johnson (1986) also found that DHH students with high skills in mathematics concepts and computation areas similarly had families who had high expectations and standards for success for their DHH child both academically and vocationally. In short, family variables and the family climate contribute to the low or high achievement of a DHH child in specific academic content areas (Bodner-Johnson, 1986).

**Incidental Learning and Deafness**

Incidental learning is the process by which information and knowledge is gained through passive exposure to events and information visually and auditorily. For DHH children, information must be presented visually and directly through explicit explanation and instruction
one-on-one (Greenberg, 2000). Due to a lack of auditory access to incidental learning opportunities (Allsop & Kyle, 1997; Brackenbury & Messenheimer, 2006; Calderon & Greenberg, 2003; Easterbrooks & Scheetz, 2004; Hadjikakou, K., Chrisodoulou, Hadjidemetri, Konidari, & Nicolaou, 2009; Hoffmeister, 1985; Kritzer, 2009; Most, Shina-August, Meilijson 2011), self-determination development is obstructed in many DHH individuals.

Use of ASL by hearing individuals is uncommon and DHH children have incomplete or nonexistent access to overhearing spoken conversations and dialogues, many different types of information are not readily available to DHH children (Greenberg, 2000). This information includes spoken messages involving problem solving, choice making, and television and radio discussions (Greenberg, 2000).

DHH children need explicit instruction in areas to fill in gaps in incidental learning from missed opportunities. These areas may include parent-child interactions, peer to peer interactions, how to communicate effectively with hearing people, and how to develop social and emotional competence through effective communication skills. For DHH children, incidental learning can be minimal to non-existent in the home and school settings. Many types of communication, especially interactions between hearing people, problem solving discussions in spoken language, overhearing and listening to telephone calls or strangers conversing in a grocery store line are challenging to access (Greenberg, 2000).

For most DHH children, communication and instruction must be specifically and individually directed to them and requires an environment free of distraction and a large effort to focus and concentrate on the part of the DHH child (Greenberg, 2000). The need to focus and pay attention with intensity can be exhausting and taxing not only on the DHH child, but also to the adult relaying the information (Greenberg, 2000).
**Limited Opportunities for Social Interaction**

DHH children may have lower quality of parent-child interactions and relationships, limited access to early communication and fewer positive social interaction experiences. Lack of quality relationships and interactions with others also hinders the development of self-determination as an individual who has had few positive and productive quality relationships with family members and other people does not have the chance to learn how to be self-determined or the chance to exercise self-determination skills even if they are acquired.

**Social Skills Interventions with DHH Children**

Alton et al. (2010) used another therapy program, the smiLE approach with elementary aged severely to profoundly deaf students between 7 and 11 years of age to assist in the development of communication with hearing persons within a targeted situation. Although results were promising, participants did not show generalization of skills over time.

Schloss, Smith, & Schloss (1984) evaluated the effects of a social skills training program in a consumer context with four deaf adolescents between the ages of 17 and 18 years. A card game was used to address the following four skills: (1) responding to small talk, (2) responding to suggesting selling, (3) asking questions, and (4) criticizing a product or a service. The researchers demonstrate the effectiveness of the consumer related social skills training program with the four participants. Although the researchers suggest there was evidence of generalization of the learned skills, there is no empirical proof to support these statements.

Rasing and Duker (1993) examined the effects of a training program of three specific social interaction behaviors, (1) initiation of interactions, (2) interactions with others, and (3) taking turns with nine language disabled deaf students between the ages of 12 and 13. All
participants improved their mean percentages in the three specific domains. Follow up showed positive carryover effects with all participants.

Gage, Lou, and Charlson (1993) examined the effects of a social learning curriculum for DHH middle school and high school students. Although there were increases in role-taking skills of participants, there were no effects on student comprehension of personal characteristics and attributes nor was there a control group or any follow up of skill generalization or maintenance with participants.

The PATHS Curriculum

The PATHS program is an elementary school curriculum that has been shown to significantly improve children's social and emotional skills. Social and emotional competence is a master skill that underlies both effective behavior and academic success. The PATHS program covers these five domains of social and emotional development: (1) self-control, (2) emotional understanding, (3) positive self-esteem, (4) relationships, and (5) interpersonal problem-solving skills. The lessons are sequenced according to increasing developmental difficulty. However, teachers may delay a specific lesson until later in the sequence to make sure that it matches their students’ emotional readiness.

Greenberg and Kusche examined the effectiveness of the PATHS (Promoting Alternative THinking Strategies) Curriculum on the social, cognitive, and behavioral status of elementary school-age deaf children. PATHS, a school-based preventive intervention model, was designed to improve children's self-control, emotional understanding, and problem-solving skills. The field trial included a quasi-experimental, wait-list control design involving 57 1st–6th graders in 11 self-contained classrooms. Teachers were trained in the intervention model and provided PATHS lessons during most of one school year. Researchers concluded the intervention led to
significant improvement in students' social problem-solving skills, emotional recognition skills, and teacher- and parent-rated social competence. There was no effect in this normative sample on teacher- or parent-rated psychopathology however, one-and two-year posttest results indicated maintenance of effects.

Issues of cultural diversity become a limitation of the study as 83% of the participants were Caucasian and the setting was in 11 self contained classrooms for deaf children in local elementary schools in the Seattle area.

An additional limitation is the absence of a comparison group that also received additional teacher training and support, but with training provided in either a different curricula or in a different academic area. Another problematic area with this particular intervention was the total length of the intervention. As the beginning lessons of the curriculum (self-control and emotion sections) required greater time for the younger children, these classes did not finish the Problem Solving Unit by the time of post testing. As such, the intervention was incomplete, and full potential effects that might have been difficult to confirm.

**Social Living Class Curriculum for DHH Students**

Barrett (1986) conducted a 12 week intervention study at a school for the deaf with freshmen high school students using the Social Living Class curriculum. This curriculum consisted of using psychodramatic theory and techniques to help a child’s ability to discover new and positive reinforcing social interactions. There was a control group that received no intervention and an experimental group that received instruction in the Social Living Class program. Barrett concluded that the experimental group showed significant increases on the Self-Image and Social Adjustment Scales of the Meadow/Kendall Social Emotional Assessment Inventory while the control group showed no change.
Summary

When DHH children are not given explicit instruction and practice in language use, they will most likely enter school with delayed and impoverished linguistic skills (Moores, 2001). Most DHH children begin the preschool years with language delays (Meadow-Orlans, Mertens, & Sass-Lehrer, 2003; Marschark & Wauters, 2008). Social, emotional, and academic skills are developed over time and every individual has the ability to develop and hone these skills although some individuals have more challenges to their development than others, depending on the environment and individuals in the environment at school and at home.

Self-determination is a personality characteristic ever changing across the lifespan and is embodied in the theories to be addressed below. The theories detailed in the next section have commonalities between one another and are related to the self-determination construct. Self-efficacy, self-worth, and self-determination are characteristics individuals use to define themselves. At the heart of self-efficacy is whether individuals believe they have the knowledge or skills to succeed in completion of a task. Although researchers have shown the advantages of self-determination instruction for individuals with disabilities (Agran et al., 1999; Grigal, Neubert, Moon, & Graham, 2003; Karvonen, Test, Wood, Browder, & Algozzine, 2004; Ward; 1996) none of these researchers have focused on DHH individuals as the center of investigation.

Social Cognitive Theory

Albert Bandura’s (1986, 2001) social-cognitive theory has several important concepts necessary for understanding self-determination in the context of student motivation and achievement. These concepts include self-efficacy, motivation, self-reflection, self-efficacy perceptions, and control.
Self-Efficacy and Motivation

Self-efficacy is an expectation people have about being capable of performing a task or succeeding in an activity. A person’s level of motivation influences motivation to perform a task or activity. To be motivated, an individual needs to have high outcome and efficacy expectations. Outcome expectations are beliefs that particular actions lead to particular outcomes such as success and efficacy expectations are beliefs that a person has the right requisite skills to achieve the desired outcome. Students with high efficacy and outcome expectations are confident about school tasks and do not give up when tasks are challenging and are motivated and self-determined to succeed. Conversely, students with low efficacy and outcome expectations are easily discouraged by failure and therefore are not motivated to learn (Bandura & Schunk, 1981; Bouffard-Bouchard, Parent, & Larivee, 1991). Self-efficacy is a critical determinant of behavior in school, sports, and social relationships (Bandura, 1977, 1997). In turn, self-determination is related to self-efficacy. When students as well as teachers feel confident and self-efficacious in new tasks to try, new goals to attain, and new responsibilities to undertake, their self-determination is increased and they become more likely to try new tasks despite the option of failing, to set goals once thought to be unattainable, and to accept higher levels of responsibility.

Teachers who want to enhance student levels of self-determination by increasing their self-efficacy need to understand what experiences shape self-efficacy. Individuals develop self-efficacy from four sources (Bandura, 1982; Bussey & Bandura, 1999): (1) past performance. Student self-efficacy levels increase when they achieve and attribute their success to ability or effort (Scholz, Dona, Sud, & Schwarzer, 2002; Zimmerman, 2000), (2) observing the performance of others. Observing the performance of someone else can enhance self-efficacy and self-determined behaviors. When students lack personal experience with a task, it is
especially important that the model be similar to them (Schunk & Miller, 2002), (3) verbal persuasion. Verbal persuasion includes reassuring students they can and will succeed. Parents and teachers who encourage their children to try different activities and provide them with support for doing so encourage their children’s self-efficacy (Bandura, 1997). (4) Emotional states. Fatigue, stress, and anxiety often are interpreted as indicators of lack of competence (Scholz et al., 2002; Tollefson, 2000). Confidence and eagerness are emotional signs of competence. Individuals with higher self-efficacy show decreased stress, anxiety, and depression when they are confronted with demanding school tasks, while those with lower self-efficacy tend to show depression, anxiety, and helplessness (Bandura, 1997; Scholz et al., 2002).

Self-efficacy also influences self-regulation in learners (Bong & Skaalvik, 2003; Pintrich & Schunk, 2002). Students with high self-efficacy are more likely to engage in self-regulatory and self-determined processes such as goal setting, self-monitoring, self-evaluation, and effective strategy use (Zimmerman, 2000). With higher self-efficacy, students are better empowered to use self-determined behaviors such as problem solving and choice making.

People are not only agents of action but they also have the capacity to examine one’s own functioning. The metacognitive ability to reflect on oneself and the sufficiency of one’s thoughts and actions is a distinctly core human feature of agency (Bandura, 2001). Individuals who feel confident in their ability to attain goals and become independent show the dedication and perseverance needed to attain and achieve goals (Sands & Doll, 1996) and to engage in self-determined behaviors such as goal setting and self-advocacy.

The core element of self-determination involves causal agency, which has roots in social cognitive theory. For a person to be an agent, the person must purposefully make things happen through his or her own actions, directly or indirectly. The important aspects of agency allow
people to play a role in their own self-development, adaptation, and self-renewal (Bandura, 2001). When individuals are faced with task demands, they act with purpose and direction to make desired outcomes occur rather than being passive recipients in their life (Bandura, 2001). Individuals often try to figure out what is desired from them in task situations. People set personal goals and motivate themselves to try to either make an impression upon others or to satisfy personal needs and wants. When challenges to accomplishing a task or goal occur, people may engage in self-talk and try to repair a situation if they feel another attempt will result in success, or they will feel helpless and hopeless if they feel their actions will result in failure (Bandura, 2001). Individuals will engage in behavior related to motivation and self-regulation to adjust their level of involvement in tasks and activities based on their feeling of potential for success or for failure. It is imperative to take into account that being a self-determined individual is not related to the amount a person can do by himself or herself, but is more about how much a person makes or causes things to happen in his or her own life (Wehmeyer & Garner, 2003).

Agency is related to acts committed with intention (Bandura, 2001). Acting with intention is a sign of proactive human behavior in relation to a future course of action to be undertaken. Exercising personal agency can result in positive or negative results and can also result in unintended or unforeseen consequences (Bandura, 2001). Learning to act in a self-directed, self-determined manner involves the process of acting with intention, but after careful forethought and consideration of possible negative and positive results, and what feasible consequences might occur. Acting with intention involves having a plan of action (Bandura, 2001). Engaging in planning agency has purpose in producing a variety of outcomes and intentions have focus on specific plans of action (Bandura, 2001). A person who is a causal
agent makes things happen in his or her own life and even those individuals who are physically and/or cognitively limited can be empowered by using supports to help gain control in their lives and thus become a causal agent (Wehmeyer & Garner, 2003).

A person who engages in agentic behavior must be a planner and engage in forethought, but must also be motivated and engage in self-regulated behavior (Bandura, 2001). Setting up a goal and a plan of action is not enough to produce a successful outcome. Human agency requires the ability to consciously shape one’s actions, engage in motivated behavior, and to engage in self-regulation of behavior to ensure the goal is attained. Self monitoring of behavior is the first requirement of being able to react and affect behavior to attain a desired outcome. Having goals is essential, as goals motivate by producing activities with meaning and purpose (Bandura, 2001). Using self-monitored behavior and reconciling behavior with personal standards, people create direction to their desires and make self-incentives to maintain their efforts for attaining goals (Bandura, 2001). When people use evaluative self-engagement by setting goals is affected by the characteristics of the goals themselves, such as how challenging the goal is, the proximity in time the goal might be attained, and how feasible the goal is to attain. Goals that are too general and broad do not serve to motivate individuals. The ability for a person to self-regulate the effectiveness of goal attainment is largely dependent upon the proximity in time the goal might be attained (Bandura, 2001). Proximal goals help to guide an individual in knowing what to do in the present time while distal goals are set too far in advance in time to provide direct incentives and motivation for action in the present time (Bandura, 2001).

Progress in goal attainment is most feasible by establishing goals that involve distal ambitions with guidance and self-regulation in proximal proportions. Furthermore, goals function through a self-reference process which provides the connections between goals and
taking action (Bandura, 1989). Goals created motivation in activities by making specific the conditional requirements for self-evaluation (Bandura, 1989). People inherently look for self-satisfaction and self-affirmation from being able to attain goals and satisfy aspirations and often continue to attain these goals despite feeling unhappy with actions that are unsuccessful or unfulfilling (Bandura, 1989).

Self-Reflection

Humans have the ability to self-examine and reflect upon their actions and behaviors. Through the process of self-reflection, humans judge their motivation levels and their pursuit of goals. People evaluate their accuracy of ways of thinking against the outcomes of actions and goals, the effects that other people produce in relation to one’s own actions and behaviors, and conclusions made from knowledge and experience. The belief that one is self-efficacious is one of the fundamental parts of human agency (Bandura, 1989). The development of self-regulation skills is useful across the lifespan. Self-regulation of behavior helps with interpersonal development, intrapersonal relationships, and in establishing and maintaining a career. Individuals in the workforce must constantly be able to adapt and develop multiple skills and abilities to fit new developments and technologies.

Self-Efficacy Perceptions

Perceived self-efficacy is another factor with an important role in self-regulation of motivation through the use of goal systems (Bandura, 1989). A person’s self-beliefs of efficacy have a large impact when choosing what challenges or goals to attain, how much effort to put into the challenge, and how long it is required to continue despite challenges and obstacles (Bandura, 1989). The goals people set at the initiation of a challenge are malleable because they are based on the levels of efficacy and progress made during the goal attainment process and as a
result, a person may modify a goal by lowering expectations and beliefs about successfully attaining the goal or raising expectations based on previous performance and experiences with goal setting and attainment. The ability for a person to adjust standards based on one’s personal achievements is yet another way in which individuals self-regulate behavior and levels of motivation (Bandura, 1989).

Control

Individuals are never in complete control of all aspects of their life at all times. Because of the lack of complete and total control at all times, individuals look to have their well-being, safety, and personal values exercised through the use of proxy agency. Using another individual for proxy agency occurs when an individual gains access to another person who has the means, power, and ability to act at his or her request to ensure desired outcomes. It is impossible for an individual to master and have access to all resources, skills, and people, places and financial abilities possible in life at all times. Human functioning requires a balance and mixture of using proxy agency and personal agency to engage in social and personal efficacy (Bandura, 2001). Individuals do not live in complete social isolation and as a result, must seek ways to attain goals with the help and agency of others and must work together to ensure specific goals not attainable through personal agency can be secured with the assistance of others.

Causal Agency/Causal Agency Theory

Embedded within the definition of self-determination for the purposes of this study is the idea of causal agency. Individuals who self-determine behave in a way to provide proof that their actions and behaviors are self caused and not caused by another source. People who are self-determined are causal agents in their lives who act with authority to make things happen in their lives (Wehmeyer & Agran, 2010). Additionally, the self-determined individual who is the
primary causal agent and makes things happen does so with the goal of accomplishing a specific task or to cause an alteration in a situation or circumstance using purposeful action as a means to a specific end (Wehmeyer & Agran, 2010). Causal action or causal behavior, therefore, seen as action or behavior that is purposeful, planned, and intentional. Such behavior can be in response to circumstances that are not planned, but a causal agent is someone who acts purposefully and planfully (Wehmeyer, 2004).

The end toward which this purposeful or planful action is applied varies in terms of outcomes, but ultimately serves to support self- (versus other) determination. An example of this would be a deaf person who uses sign language ensuring a sign language interpreter is present at a job interview. The sign language interpreter is a communication facilitator who serves to bridge the communication gap between a hearing and a deaf person with the deaf person ensuring his/her communication needs are met to promote a successful job interview process and to ultimately increase the likelihood of securing employment.

Within Causal Agency Theory are operators functioning to promote causal action. First, the capability to carry out causal actions or behaviors are further subdivided into agentic capability and causal capability, and second, there are challenges to a person’s self-determination through causal opportunities or causal threats (Wehmeyer, 2004).

Causal Capability

Causal capability is the mental or physical capacity to assist a person to make something happen and has two subcomponents, (a) causal capacities, the knowledge and behavioral skills required to manifest causal capability and (b) causal perceptions, the perceptions and beliefs a person holds about oneself and the surrounding environment required to exercise causal
capability (Wehmeyer, 2004). Agentic capability is the mental or physical capacity to direct
causal action (Wehmeyer, 2004).

**Challenges to Self-Determination: Opportunity and Threat**

There are two specific challenges to self-determination (1) opportunity and (2) threat
(Wehmeyer, 2004). Opportunity is linked to situations or circumstances that compel a person to
perform causal actions to achieve a specific goal or outcome. It is the situation that provides the
opportunity for a person to make a change or to make something happen based on a person’s
causal capability including causal capacity and causal perceptions (Wehmeyer, 2004). If an
individual has the causal capability to act in a specific situation, the situation can be perceived as
an opportunity. Conversely, if an individual does not have the causal capability to act in a
specific situation this may be viewed as a missed opportunity.

The second challenge to self-determination is *threat* (Wehmeyer, 2004), composed of
situations that pose a threat to an individual’s self-determination, compelling the person to use
causal action to increase the chances for a desired, favored outcome consistent with personal
preferences, likes and wants, not the preferences, likes and wants of other people. Causal affect
is another element in Causal Agency Theory, which include human emotions and feelings often
induced when a person is presented with a challenge. These feelings have the potential to
increase or decrease the capacity of an individual to respond effectively or ineffectively to a
challenge (Wehmeyer, 2004). Individuals who are self-determining are causal agents in their
lives and respond to a variety of challenges such as opportunities or threats by using causal and
agentic capabilities to increase their causal action and to act to achieve or maintain a desired
outcome or goal.
Causal Agency Theory allows for many opportunities for instruction and intervention to increase the capacity for people to become causal agents in their lives and to lead more self-determined lives. Through intervention, instruction, and guidance people can gain increased capacities to positively affect opportunities people have while minimizing threatening situations to causal agency and self-determination. Providing opportunities for people to set goals and to make decisions through enhancing goal setting abilities, decision making, problem solving, and self advocacy skills can enable them to enhance the number opportunities and in turn become more causally or agentically proficient in their lives.

**Summary**

The theories detailed in the above section have commonalities between one another and are all related to the self-determination construct. Self-efficacy, self-worth, and self-determination are characteristics that define people. Competence is a vital part of motivation in all the above mentioned theories. At the heart of self-efficacy is whether individuals believe they have the knowledge or skills to succeed on a task. Underlying our self-worth is a basic need to protect our perception of competence. A need to feel competent is at the center of self-determination.

**Introduction to the Self-Determined Learning Model of Instruction (SDLMI)**

The Self-Determined Learning Model of Instruction (SDLMI) is a teaching model that aims to promote self-determination in students with and without disabilities (Walker, Calkins, Wehmeyer, Walker, Bacon, Palmer, Jesien, Nygren, Heller, Gotto, Abery, & Johnson, 2011). The goal of this research study is not to create a new model or ideology of self-determination, but to propose a teaching model that answers how educators can be facilitate the development of self-determination, especially for teachers and students who are DHH (Walker et al., 2011).
A model of teaching is a pattern or course of actions that can be used to shape curriculums, to design instructional materials, and to facilitate instruction in the classroom (Joyce & Weil, 1980). The SDLMI is a counseling model, further based on The Nondirective Teaching Model of Carl Rogers (1951). The role of the teacher in the nondirective teaching model is to facilitate and guide student growth and development. The teacher has the responsibility of finding new ideas and perspectives about their lives, education, and relationships with others. The model has a focus on students being responsible for their learning and is largely dependent on the teacher and the student working together to share ideas and communicate openly with each other. This teaching model focuses on facilitating learning and to help students become more self-aware of their needs and what they value.

In nondirective teaching models such as the SDLMI, the teacher has respect for students’ abilities to identify their problems and to list possible solutions. In this model, the teacher is accepting of student views and opinions and is non-punitive, but also takes a role in guiding student actions through consensus. As a result, the teacher informally communicates to the student that his or her opinions and feelings are valid and acceptable. There are five parts to the nondirective interview process between student and teacher: (1) finding an initial problem and making an initial problem statement through discussion, (2) the teacher encourages the student to express feelings, views, and to explore the identified problem, (3) the student is helped to develop insight into the problem, (4) the student is led to a planning and decision making approach to solving the problem, and (5) the student and teacher discuss the actions taken to solve the problem and plans more actions toward solving the problem, if needed. The SDLMI is one such model based on the counseling model as proposed by Rogers.
An additional teaching model supported by the SDLMI is the Awareness Training model which focuses on (a) the fulfillment of a person’s potential, (b) awareness, and (c) basic interpersonal needs. Additionally, the Awareness Training Model has three additional component parts (a) taking responsibility, (b) focusing on feelings, and (c) feedback. Individuals who feel empowered by taking responsibility for themselves are more apt to fulfill their potential, people who are more in tune with their feelings are more aware, and teachers who provide feedback to students improve student interpersonal needs by feeling more connected to peers and adults and recognize different modes of behavior.

**Research and the SDLMI**

While there are many different types of instructional materials available to school personnel and teachers related to self-determination and the student population, there is a need for using specific strategies, materials, and teaching methods, to foster self-determination (Wehmeyer, Agran, & Hughes, 2000). The proposed study using the SDLMI provides the strategies, materials, and methods for teachers to use across subjects and content areas to help students increase levels of self-determination.

**Utility of the SDLMI**

The advantage of the Self Determined Learning Model of Instruction (SDLMI) is how it is able to be infused into all content areas. Infusion of instruction on self-determined, self-regulated learning must happen across the school day. Learning self-determination in isolation or in one class for one period a day over a semester or to view the transition teacher as the sole person responsible for teaching self-determination and goal attainment to students is invalid (Wehmeyer, Agran, & Hughes, 2000 An important aspect of the SDLMI is when students are in the process of learning to identify goals and barriers to goals, they are also learning which goals
are realistic and which goals may need to be adapted or changed to become more attainable (O’Regan Kleinert, Harrison, Fisher, & Kleinert, 2010) and helps students to learn and understand there are sometimes barriers to achieving goals, but they can overcome barriers through learning how to set realistic and feasible goals (O’Regan et al., 2010).

**Empirical Validity of the SDLMI**

Multiple researchers have used the SDLMI, and there is evidence of simultaneous increase in levels of student self-determination (Wehmeyer, Palmer, Agran, Mithaug, & Martin, 2000; Agran, Cavin, Wehmeyer, & Palmer, 2006; Mazzotti, Wood, Test, & Fowler, 2012) and use of the SDLMI increases student goal attainment (Shogren, Palmer, Wehmeyer, Williams-Diehm, & Little, 2012; Wehmeyer et al., 2000, Agran et al., 2006) Mazzotti et al., 2012, and use of the SDLMI resulting in overall positive effects (Wehmeyer et al.,, 2000; Wehmeyer et al., 2012; Agran et al., 2006; Mazotti et al., 2012). Teachers using the SDLMI have indicated they feel use of this learning model is of benefit to students who set to attain goals and self-determination (Mazzotti et al., 2012).

**The SDLMI and Use with Children with Disabilities**

The SDLMI is utilitarian across a variety of disability categories such as learning disabilities (Wehmeyer et al.,2000; Mazzotti et al., 2012; Wehmeyer et al., 2012; Palmer & Wehmeyer, 2003), emotional or behavioral disorders (Wehmeyer et al., 2000), mild to moderate to severe intellectual disability (Agran et al., 2006; Mazzotti et al., 2012; Wehmeyer et al., 2012; Palmer & Wehmeyer, 2003), Attention Deficit Disorder, Attention Deficit Hyperactivity Disorder (Mazzotti et al., 2012), speech and language impairments (Palmer & Wehmeyer, 2003; Wehmeyer et al., 2012), as well as with gifted students (Palmer & Wehmeyer, 2003).
When teachers use the SDLMI, students are able to set and achieve their goals (Wehmeyer et al., 2000; Agran et al., 2006; Mazzotti et al., 2012; Wehmeyer et al., 2012; Palmer & Wehmeyer, 2003) and has been proven to be useful and valid for students across ages: adolescents between 14 and 17 years of age (Wehmeyer et al., 2000), middle school aged students (Agran et al., 2006), students who are 10 years old (Mazzotti et al., 2012), high school aged students (Wehmeyer et al., 2012), and 5 to 9 year olds in elementary school (Palmer & Wehmeyer, 2003). Various self-determination models have been shown to be associated with outcomes such as academic improvement through increased problem solving and goal setting (Wehmeyer, et al., 2000). When students are in the process of learning to identify goals and barriers to goals, they are also learning which goals are realistic and which goals may need to be adapted or changed to become more attainable (O’Regan Kleinert, Harrison, Fisher, & Kleinert, 2010) and helps students to learn and understand that there are sometimes barriers to achieving goals, but there are ways to overcome these barriers through learning how to set realistic and feasible goals (O’Regan et al., 2010).

**SDLMI Procedures**

The main goal of the SDLMI is to help teachers to instruct students to engage in self-directed learning. The first step (Appendix C) in using the SDLMI is to conference with the student to discuss what will happen and why it will be happening. Teachers highlight how they want to teach the student to learn in a way that will help him or her to solve problems and learn what needs to be done in order to get what the student wants in his or her life. Teachers emphasize that there are always multiple ways to solve a problem and that problems are not only bad or negative, but that they are related to goals. The teacher should carefully define and explain for the student what a goal is and that the teacher’s primary responsibility is to instruct
the student what he or she needs to learn, how to set a goal, and how to achieve a goal, not just teaching the goal, but the process involved in goal attainment.

The 12 Questions Used in the SDLMI Implementation Phase

<table>
<thead>
<tr>
<th>Step</th>
<th>Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>Set a goal</td>
</tr>
<tr>
<td>• What do I want to learn in this class/area?</td>
<td></td>
</tr>
<tr>
<td>• What do I know about it now?</td>
<td></td>
</tr>
<tr>
<td>• What must change for me to learn in this class/area what I don’t know?</td>
<td></td>
</tr>
<tr>
<td>• What can I do to make this happen?</td>
<td></td>
</tr>
<tr>
<td>Step 2</td>
<td>Take action</td>
</tr>
<tr>
<td>• What can I do to learn what I don’t know?</td>
<td></td>
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<tr>
<td>• What could keep me from taking action?</td>
<td></td>
</tr>
<tr>
<td>• What can I do to remove these barriers?</td>
<td></td>
</tr>
<tr>
<td>• When will I take action?</td>
<td></td>
</tr>
<tr>
<td>Step 3</td>
<td>Adjust the goal and plan</td>
</tr>
<tr>
<td>• What action have I taken?</td>
<td></td>
</tr>
<tr>
<td>• What barriers have been removed?</td>
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<tr>
<td>• What has changed about what I don’t know?</td>
<td></td>
</tr>
<tr>
<td>• Do I know what I want to know?</td>
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</tbody>
</table>

The next phase of the SDLMI is to identify an area of instructional need. For the purposes of the study, students will be selecting two goals (1) an academic goal and (2) a social or transition related goal. The teacher should help the student answer the first question “What do I want to learn?” The student desire to learn a new skill or concept is related to the strength of the desire to which is achieves a desired outcome. One of the underlying purposes of this first question is to facilitate an exploration between the student and the teacher about goals, outcomes, skills needed to fulfill the specific goal, and then develop a specific goal to serve a guide for an action plan to ensure a positive outcome.
The student response to “What do I want to learn?” will most likely involve a broad, general answer. As a result, students may need to experience the phases more than one time and may experience any given phase multiple times. Part of the focus on student learning is for students to learn how to narrow their goal scope, set more realistic, feasible goals, and to compose a focused plan of action to achieve a goal. Student should be helped to identify what a student already knows and future needs should focus on building on existing strengths and abilities. Responding to “What do I want to learn?” provides an opportunity for a student to focus on personal interests, beliefs, and skills.

The target outcome of the first Student Question is to identify an area of need based on a teacher/student discussion based on personal preferences and desires. Students should take into consideration strengths and needs and which of these needs is of most importance. The instructional needs identified in the initial step of the SDLMI serve as the basis for Student Question 2 (What do I know about it now?) The purpose with answering the second question is to provide a picture of the student’s current functioning about the area identified, which may range from learning everything to strengthen current levels of knowledge along with a discussion about the barriers that may impede achieving the desired goal.

Student Question 3, “What must change for me to learn what I don’t know?” helps a student to explore capacity building and activities that need to take place and to examine barriers and opportunities that are present in the environment. The first two questions in the model identified the problem and also helped to label possible solutions to solving the problem the student previously identified. This question requires a student to pick an area of need and actions that will solve the problem. The desired outcome to answering this question is to have student examine all possible options and then choose an area of instructional need.
Student Question 4, “What can I do to make this happen?” is a catalyst for the student to set a goal and identify the appropriate criteria for evaluating the progress of attainment of the goal. The teacher helps the student to change the actions identified in previous questions into a statement. The teacher will most likely need to provide instruction and guidance in how to write measurable goals and how to track progress toward the specific goal attainment.

In summation, the first four Student Questions help students to find solutions to a problem established in the first phase, then leading into the problem to solve in phase two. Students solve this problem by answering four additional questions. The first three questions are logically sequenced to help the student to set up an action plan to address the attainment of the goal set in Phase 1. Phase 2 works on the student evaluating current states compared to the final evaluation criteria for master set at the end of Phase 1. This is the baseline data collecting process, and the information collected at this point will serve as the benchmark data students will use to evaluate their progress toward the goal.

**Conclusion**

The literature related to the question of the effects of the SDLMI on goal attainment and levels of self-determination and the DHH population’s beliefs of the construct of self-determination is further complicated by the various variables of what is currently acceptable about the learning and teaching needs of DHH students, the unique language, literacy, and communication needs of DHH students. For the purpose of this investigation, preliminary findings of this study could help to uncover the construct of self-determination, the role of teachers and students, and how the SDLMI can possibly help to increase DHH student goal attainment and self-determination levels.
The main purpose of the proposed research study is to examine the effects of The Self-Determined Learning Model of Instruction (SDLMI) on the self-determination and goal attainment of middle school and high school deaf and hard-of-hearing students at a school for the deaf. Self-determination is an essential personality characteristic for each individual. Multiple barriers and challenges are placed in front of deaf and hard-of-hearing (DHH) individuals due to the larger society’s lack of awareness and understanding of DHH individuals.

The SDLMI has the potential to be a powerful facilitator of self-determination development and in goal attainment for DHH students. Having the SDLMI delivered to students by teachers is another powerful aspect of this study, as teachers have the ability to be positive, influencing forces on students. With self-determination and the ability to attain goals, DHH students have the potential to face barriers and challenges presented in society and are better equipped to break down these barriers and challenges with effective strategies and skills in the present and in the future.

Preliminary findings of this study could help to uncover the construct of self-determination more thoroughly and define with more clarity the role of teachers and students in the goal attainment process. Finding might also show how the SDLMI can possibly help to increase DHH student goal attainment and self-determination levels.

**Limitations of Past Research**

The base of research in education of DHH students lacks evidence in quantity and in quality of effective instructional practices for increasing DHH students’ self-determination levels and goal attainment. Specifically, only one study has been conducted to date that accounts for (a) investigation of the self-determination construct with DHH students but this study compared self-determination levels to those of blind and visually impaired students.
Furthermore, by developing facility with the appropriate use and application of strategies, it is reasonable to expect that D/HH students can increase their levels of self-determination and goal attainment abilities. This chapter was also aimed to establish a rationale to justify the proposed study of teachers delivering the SDLMI to DHH students and attempts to add to the dearth of research in Deaf Education related to self-determination by examining the effects of the SDLMI on the goal attainment and levels of self-determination of DHH students. The proposed study identifies directions for future studies and research endeavors as the existing paucity of research related to the proposed topic exemplifies the need for this study.
CHAPTER 3

METHOD

The goal of this study was to investigate the effects of teaching the Self-Determined Learning Model of Instruction (SDLMI) on levels of self-determination and goal attainment of deaf or hard-of-hearing (DHH) middle and high school students at three public schools. The study was approved by the Institutional Review Board (IRB) of the University of Arizona.

The following chapter contains information regarding the method used for this study. Research questions and hypotheses, criteria for selecting participants, measurement of self-determination and goal attainment, instrument construction and validity, collection of data, and data analyses as related to the study are presented.

Research Questions

1. How self-determined are the participating DHH students in this investigation?
2. Is there a difference in self-determination levels between students who received instruction using the Self-Determined Learning Model of Instruction and students who did not receive this intervention?
3. Is there a difference in goal attainment between students who received instruction using the Self-Determined Learning Model of Instruction and students who did not receive this intervention?

Null and Research Hypotheses

Null Hypothesis: The participating DHH students in this investigation are not self-determined.
Research Hypothesis: The participating DHH students in this investigation are self-determined.

Null Hypothesis: There is no difference in the mean scores of goal attainment using evaluative GAS procedures between students who have received instruction using the Self-Determined Learning Model of Instruction (SDLMI) and students who have not received the intervention.

Research Hypothesis: There is a positive, non-zero difference in the mean scores of goal attainment using evaluative GAS procedures between students who have received instruction using the Self-Determined Learning Model of Instruction (SDLMI) and students who have not received the intervention.

Null Hypothesis: There is no difference in self-determination change scores on the AIR SDS between students who have received instruction using the Self-Determined Learning Model of Instruction and students who have not received this intervention.

Research Hypothesis: There is a positive, non-zero difference in self-determination change scores between students on the AIR-SDS who have received instruction using the Self-Determined Learning Model of Instruction and students who have not received this intervention.

Null Hypothesis: There is no difference in self-determination change scores on the ASDA between students who have received instruction using the Self-Determined Learning Model of Instruction and students who have not received this intervention.

Research Hypothesis: There is a positive, non-zero difference in self-determination change scores between students on the ASDA who have received instruction using the Self-Determined Learning Model of Instruction and students who have not received this intervention.
**Research Design Overview**

The investigation used a quasi experimental switching replication design with two groups receiving the intervention at different points in time. All students were pretested on two measures of self-determination. Group 1 then received the intervention for a period of four weeks while Group 2 received nothing new or novel, serving as the control group. At the end of the fourth week, students in Group 1 were rated on goal progress by their teacher using the Goal Attainment Scaling process. Then all students regardless of group were given the same two measures of self-determination. Group 2 then received the intervention for a period of four weeks while Group 1 received nothing new or novel. At the end of the fourth week, students in Group 2 were rated on goal progress by their teacher and all students regardless of group were given the same two measures of self-determination.

Investigation one examined the levels of self determination of students pre and post intervention. studied the Investigation two examined the effects of a teaching model, the SDLMI, on the goal attainment of middle school and high school DHH students using a posttest only design. The design of investigation three was to examine the effects of a teaching model, the SDLMI, on the self-determination of middle school and high school DHH students.

**Study Setting**

This study was conducted by three certified teachers of the deaf at two public high schools and 1 public middle school with mainstreaming and self-contained programs for students with disabilities. There were six middle school student participants and sixteen high school student participants in this investigation. The first participating teacher has a self-contained classroom for middle school DHH students. Students who are able to participate in content area classes with interpreting support are mainstreamed in regular education classrooms at various
periods of the school day. The second teacher participant has a similar classroom, but with high school aged DHH students. The third participating teacher is an itinerant teacher who also has a two hour study hall block for DHH high school students.

**Study Participants**

Study participants were a total of 22 middle school and high school students who are deaf or hard-of-hearing with or without a concomitant disability at three public schools in the southwestern portion of the United States. A total of three teachers at each site were recruited and trained on use and implementation of the SDLMI with students in the area of communication.

**Descriptive Data**

Participating teachers filled out a brief demographic form related to educational and teaching experience and level of knowledge in self-determination. They also completed a short demographic form related to each of their participating students related to ethnicity, primary disability, and experience with goal setting.

**Table 1**

*Participant Characteristics for Typical School Day*

<table>
<thead>
<tr>
<th>School Track</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Diploma</td>
<td>22</td>
<td>96</td>
</tr>
<tr>
<td>Vocational Track</td>
<td>1</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hours per day with TOD</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 1 hour</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>1-3 hours</td>
<td>12</td>
<td>52</td>
</tr>
<tr>
<td>4-5 hours</td>
<td>3</td>
<td>13</td>
</tr>
<tr>
<td>Student not seen daily</td>
<td>7</td>
<td>30</td>
</tr>
</tbody>
</table>

Note: DHH= deaf or hard-of-hearing. TOD = teacher of the deaf or hard-of-hearing.
<table>
<thead>
<tr>
<th>Table 2</th>
<th>Group 1 n (%)</th>
<th>Group 2 n (%)</th>
<th>Total n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total students with permission to participate</strong></td>
<td>14 (--</td>
<td>8 (--</td>
<td>22 (100)</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>8 (57)</td>
<td>6 (75)</td>
<td>14 (64)</td>
</tr>
<tr>
<td>Female</td>
<td>6 (43)</td>
<td>2 (25)</td>
<td>8 (36)</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>0 (0)</td>
<td>3 (13)</td>
<td>3 (14)</td>
</tr>
<tr>
<td>15</td>
<td>3 (21)</td>
<td>3 (37)</td>
<td>6 (27)</td>
</tr>
<tr>
<td>16</td>
<td>3 (21)</td>
<td>1 (13)</td>
<td>4 (18)</td>
</tr>
<tr>
<td>17</td>
<td>3 (21)</td>
<td>0 (0)</td>
<td>3 (14)</td>
</tr>
<tr>
<td>18</td>
<td>3 (21)</td>
<td>1 (13)</td>
<td>4 (18)</td>
</tr>
<tr>
<td>19</td>
<td>2 (14)</td>
<td>0 (0)</td>
<td>2 (9)</td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>4 (29)</td>
<td>3 (37)</td>
<td>7 (32)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>10 (71)</td>
<td>5 (63)</td>
<td>15 (68)</td>
</tr>
<tr>
<td><strong>Disability</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hearing Impairment/Deafness</td>
<td>8 (57)</td>
<td>2 (2)</td>
<td>10 (45)</td>
</tr>
<tr>
<td>DHH + Speech/Language Impairment</td>
<td>3 (21)</td>
<td>3 (44)</td>
<td>6 (27)</td>
</tr>
<tr>
<td>DHH + Specific Learning Disability</td>
<td>2 (14)</td>
<td>2 (22)</td>
<td>4 (18)</td>
</tr>
<tr>
<td>DHH + Specific Learning Disability + Speech/Language Impairment</td>
<td>1 (7)</td>
<td>0 (0)</td>
<td>1 (5)</td>
</tr>
<tr>
<td>DHH + Vision Impairment/Blindness</td>
<td>0 (0)</td>
<td>1 (4)</td>
<td>1 (5)</td>
</tr>
</tbody>
</table>

*Note: DHH = deaf/hard-of-hearing.*
### Hearing Loss Demographics

**Table 3**  
**Student Participant Degree of Hearing Loss**

<table>
<thead>
<tr>
<th>Degree of hearing loss</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild (26-40 dB HL)</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>Sloping Mild to Moderate</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Moderate (41-55 dB HL)</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>Sloping Moderate to Severe</td>
<td>3</td>
<td>13</td>
</tr>
<tr>
<td>Severe (71-90 dB HL)</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>Sloping Severe to Profound</td>
<td>5</td>
<td>22</td>
</tr>
<tr>
<td>Profound (91+ dB HL)</td>
<td>6</td>
<td>26</td>
</tr>
<tr>
<td>Mild left ear/Profound right ear</td>
<td>1</td>
<td>4</td>
</tr>
</tbody>
</table>

**Table 4**  
**Type of Hearing Loss**

<table>
<thead>
<tr>
<th>Type of hearing loss</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensorineural</td>
<td>21</td>
<td>91</td>
</tr>
<tr>
<td>Conductive</td>
<td>1</td>
<td>4</td>
</tr>
</tbody>
</table>

**Table 5**  
**Hearing Loss and Ears Affected**

<table>
<thead>
<tr>
<th>Ears Affected</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unilateral</td>
<td>3</td>
<td>13</td>
</tr>
<tr>
<td>Bilateral</td>
<td>19</td>
<td>83</td>
</tr>
</tbody>
</table>
Amplification Demographics

Table 6

<table>
<thead>
<tr>
<th>Amplification Type</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Binaural hearing aids</td>
<td>12</td>
<td>52</td>
</tr>
<tr>
<td>Binaural cochlear implants</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Unilateral cochlear implant</td>
<td>3</td>
<td>13</td>
</tr>
<tr>
<td>Unilateral hearing aid and unilateral cochlear implant</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Binaural hearing aids but recent cochlear implantation</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>No amplification</td>
<td>4</td>
<td>17</td>
</tr>
</tbody>
</table>

Table 7

<table>
<thead>
<tr>
<th>Amplification Use Consistency</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consistent</td>
<td>12</td>
<td>52</td>
</tr>
<tr>
<td>Not consistent</td>
<td>4</td>
<td>17</td>
</tr>
<tr>
<td>No amplification</td>
<td>4</td>
<td>17</td>
</tr>
<tr>
<td>Hearing aid consistent, cochlear implant inconsistent</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Unknown/unsure</td>
<td>1</td>
<td>4</td>
</tr>
</tbody>
</table>

Self-Determination Information Pre-Intervention

In the area of self-determination, 70% \((n = 16)\) reported having a goal for the future while 30% \((n = 7)\) did not yet have a goal for the future. 13% \((n = 3)\) were rated proficient at goal setting, 39% \((n = 9)\) had some experience with goal setting, while a majority of the participants, 48%, \((n = 11)\) had no experience setting goals. A total of 91% \((n = 21)\) attended their last IEP meeting, 4% \((n = 1)\) did not attend the most recent IEP meeting, and 4% \((n = 1)\) was unknown due to being new to the school and to the teacher.
Exclusion Criteria

Participants rated by their teacher as being severely limited in all areas of the Gallaudet Functional Rating Scale (Appendix E) were excluded from study participation. No students were rated as being severely limited in all areas therefore all potential students who could be included in the study were actively recruited.

Teacher Demographics

Teacher 1 was in Group 2 and is 39 years old, has 18 years of teaching experience, and has an undergraduate degree in Special Education, including education of the deaf or hard-of-hearing and a Master’s Degree in Elementary Education, grades K-8. Teacher 1 has experience working in a resource classroom and at a residential school for the deaf. Teacher 1 reported never receiving goal setting information in the past and reported having intermediate skills in promoting self-determination.

Teacher 2 was in Group 2 and is 48 years old, 26 years of teaching experience, and has an undergraduate degree in Special Education. Teacher 2 has experience working in a resource classroom, in a co-teaching setting, and in a self-contained classroom. Teacher 2 reported never receiving goal setting information in the past. Teacher 2 reported having between intermediate and advanced level skills in promoting self-determination.

Teacher 3 was in Group 1 and is 53 years old, has 23 years of teaching experience, and has an undergraduate degree in General Education and a Master’s degree in Special Education, an alternative certificate in Supported Employment, and a doctoral degree in Educational Leadership. Teacher 3 has experience working in a resource room, in a co-teaching setting, in a general education setting, at a residential school for the deaf, at and community worksites.
Teacher 3 reported receiving goal setting information in the past and reported having intermediate skills in promoting self-determination.

**Instruments**

This study used one screening tool to eliminate students functioning at a level too low to accurately track changes in self-determination and goal attainment. To measure self-determination, two student self-report surveys were used. To measure goal attainment one post-only measure was used.

**Gallaudet Functional Rating Scale**

Teachers filled out the Gallaudet Functional Rating Scale (Appendix E) to provide information about each student participant’s expressive and receptive communication abilities in the child’s current educational placement. The scale has a three point rating of audiological, communicative, communicative, social, and behavioral skills within a specific school setting in which the child is educated (Antia, Jones, Reed, Kreimeyer, 2009). Psychometric validity has been conducted and the scale has been found to be valid and interpretable.

Each participating student’s teacher rated communicative skills and linguistic fluency based on the student’s main mode of communication. A high score reflects student ability to communicate with teachers and peers with fluency and ease while a middle range score reflects the student encountering struggles to communicate effectively in the classroom, but can repair situations using repetition and explanations. A low end score indicates the student struggles often to communicate in the classroom even when accommodations are provided, such as interpreters and assistive technology. The scale is valid for use with students who use sign language to communicate as well as students who use oral language as a main mode of communication.
The second area of investigation in this study was to determine the level of effect of the SDLMI on participant self-determination. The researcher used two measures of self-determination prior to and after each teacher delivery of the SDLMI at three points in time. These two measures are the American Institutes of Research Self-Determination Scale (AIR-SDS) and the Adolescent Self-Determination Assessment-Short Form (ASDA).

**AIR-SDS**

The AIR-SDS (Wolman, Campeau, DuBois, Mithaug, & Stolarski, 1994) (Appendix D) provides information on a student’s capacity and opportunities to exercise self-determination. The AIR-SDS provides teachers and educators with information on student capacity and opportunity levels in relation to attaining goals and fulfilling goals beneficial across the lifespan. The scale has roots in a theory of the self, providing information how individuals interact with opportunities to improve chances of attaining goals related to needs and desires in life. The AIR Self-Determination Scale was first field tested by various educators in 70 schools and educational programs in California and New York in 1994. Over 450 students with and without disabilities were assessed in the field testing process.

The Scale is separated into three categories, all related to self-determination: (1) Thinking, (2) Doing, and (3) Adjusting. Within each category, two steps are included. (1) Thinking: (a) identify and express needs, interests, and abilities, and (b) setting expectations to attain goals to satisfy needs, interests, and abilities, (2) Doing: (a) making choices and plans to attain goals, (b) taking proper action to ensure goals are attained, and (3) Adjusting: (a) evaluating actions and courses of action taken to meet goals, and (b) if applicable, modify plans and actions to meet goals.
The Scale has three sections related to capacity: (1) ability, (2) knowledge, (3) perceptions and two sections related to opportunity: (1) opportunity at home, and (2) opportunity at school. There are four forms of the scale: (1) the educator form for special education teacher use, (2) the parent form, (3) the student form, and (4) research form. The educator form includes the five areas previously described. To successfully complete the form, the assessor completes the frequency with which the behavior is observed or exhibited using a 5-point rating scale (Never, Almost Never, Sometimes, Almost Always, and Always). The assessor must complete all items, but may consult with others if clarity is needed. Each item is added up and the total score is written in the right hand side box on the scale form. After completing the scale, the profile must be completed. Each section has six items. Scores from two subscales (Things I Do, How I Feel) are added together to provide the student’s capacity to self-determine. Scores from the other two subscales (What Happens at School, What Happens at Home) are totaled to provide the student’s opportunity to self-determine. The assessor then adds the capacity and opportunity scores together to find a total number for level of self-determination. Level of self-determination is then converted into a percentage of self-determination, from 0% to 100%.

Students are able to assess themselves. The scale can be modified in delivery to meet student needs. For example, students who may not be strong readers but who may have more receptive communication skills in American Sign Language (ASL) may have the items on the scale signed in ASL to meet their linguistic needs. For the purpose of fidelity of assessment in this investigation, each assessment was signed in ASL by an interpreter, recorded, and played for students. When the recording was clearly too difficult for a group of middle school students to understand without providing expansions, the researcher signed the assessment to the group with expansions and explanations.
Reliability of the AIR

Reliability tests were conducted on the AIR instrument. An alternative item reliability assessment was conducted as well as a split half reliability assessment. Testing produced results in correlations on the alternative item portion in the range of .91 to .98 (Wolman et al., 1994). Testing produced results in correlations on the split half assessment of .95 (Wolman et al., 1994).

Validity of the AIR-SDS

The validity of the AIR-SDS scale was assessed by examining the three areas to be tested: (1) capacity-opportunity, (2) home-school, and (3) ability-perception with Chrohbach’s alpha test. Chronbach’s alpha is a coefficient of internal consistency and use used as an estimate of the reliability of psychometric tests.

The ASDA

For the current research study, the second instrument was the Adolescent Self-Determination Assessment-Short Form (ASDA) (Wehmeyer, Little, Lopez, & Shogren, 2012) (Appendix C), a modified, shortened version of the ARC’s Self-Determination Scale. This assessment was established, field-tested, and validated for use with individuals with cognitive, developmental, and other disabilities. The Scale was also designed and pilot-tested for group or individual administration and can be given orally, with the administrator reading each item to the group or individual. If an individual has difficulty writing answers, the responses are allowed to be transcribed.

The Adolescent Self-Determination Assessment-Short Form (ASDA) is a 28-item scale providing information on each of the 4 essential characteristics of self-determination as suggested by Wehmeyer (1996, 1998), autonomy, self-regulation, psychological empowerment, and self-realization. The ASDA showed strong psychometric properties when field-tested with a
Wehmeyer et al. (2005) evaluated the psychometric properties of the ASDA and found the factor structure of the measure largely replicated that of The Arc’s Self-Determination Scale (Wehmeyer & Kelchner, 1995) the original measure and was consistent with the theoretical framework of the original scale. Cronbach’s alpha values for the ASDA were .87 for students with cognitive disabilities (Shogren et al., 2006).

**Goal Attainment Scaling**

GAS procedures promote and support learner success through setting individual goals based on realistic expected learning outcomes, defining expected learning outcomes based on individual learner needs, learner history, and services being received, and providing ongoing feedback to learners and teachers. The GAS provides benefits of (a) motivating continued learning, (b) monitoring improvement, (c) permitting decision-making points, and (d) fostering interdependence leading to independence.

To determine the degree to which the students met their goals, the researcher used the goal attainment scaling (GAS) process (Appendices A and B). The GAS process is a student and teacher focused way of providing students and teachers help in decision making and skill development. The GAS gives students multiple opportunities to participate in goal progress evaluation. Goal Attainment Scaling was first designed by Kiresuk and Sherman in 1968 and has been used and adapted for a variety of settings and placements with various individuals. GAS procedures involve establishing specific goals and identifying a range of outcomes and/or behaviors to demonstrate progress toward meeting specific goals. GAS has been used to track and measure goal attainment and to determine program effectiveness (Kiresuk, Smith, & Cardillo, 1994). The GAS process has been used in the field of Special Education (Carr, 1979).
and involves two individuals mutually establishing goals and working together to create criterion related to various outcomes or behaviors demonstrating progress toward goal attainment.

GAS is used to measure goal attainment and to determine program effectiveness (Kiresuk, Smith, & Cardillo, 1994), such as the effectiveness of the SDLMI with DHH participants in this study. Once the student identifies a goal and is working through the first phase of the SDLMI, the teacher and researcher met to identify five possible goal outcomes using a 5 point continuum ranging from the most unfavorable possible outcome to most favorable possible outcome. Goal outcomes are carefully and individually determined and are described in clearly stated and specific, measurable terms (Ottenbacher & Cusick, 1993; Becker et al., 2000). Participant bias is permissible in GAS because interpretations and expectations of progress on goal attainment are highly related to expected outcomes, established by participants (Schlosser, 2004).

Goal scaling values. Each point on the five point scale is assigned a value, beginning with -2 for the least favorable outcome, -1 for the less favorable outcome, 0 points for acceptable outcomes, +1 for favorable outcomes, and +2 for the most favorable outcome. Various descriptions can be used in the outcomes portion of the GAS.

Obtaining a GAS Score

Goal outcomes are individually decided by the student, but are still objective, measurable, and/or observable. When expected behaviors are determined by student and teacher, they are placed on the five point scale ranging from better than expected to worse than expected. The teacher conferences with the student about the scale, clarifying better, worse, and expected possible outcomes and simultaneously addresses alternative behaviors, clarifies expectations, and provides ample feedback about the importance of working toward specific outcomes (Carr,
A numerical scoring system has been developed, however it will not appear on scoring sheets to be used by teachers for this study to circumvent teacher avoidance and/or hesitation to give unrealistically high or low scores.

Teachers rate progress on the goal and the GAS scores are adapted to standardized T-scores, with a mean of 50 and a standard deviation of 10 (Kiresuk, Smith, & Cardillo, 1994). Adaptation of raw scores to standard scores permits comparison of goal areas “…across subjects independent of the particular goal area (Wehmeyer, Palmer, Agran, Mithaug, & Martin (2000).” To interpret scores from the GAS, “…the converted mean T-score value of 50 represents an acceptable outcome, where an ‘acceptable’ outcome means that students learned the goal or skills to the level expected by the teacher (Wehmeyer et al, 2000).” Standardized scores 40 or below mean the student did not achieve a successful level of goal attainment and scores 60 and higher mean the student exceeded teacher expectations for attainment of the specified goal. Examples of goals from each category and goal type (control or experimental) to highlight goals students selected to work on are found in Table 24.

**Social Validity**

A threat to validity in educational interventions is that the outcomes may not be of the most practical relevance to key participants in the intervention (Wolf & Savickas, 1978). To address this issue, a survey was administered to students and teachers post-study to determine what they thought of the teaching model and if the model had a positive effect on their learning. The student survey (Appendix G) has five statements to which the student answered on a three point scale consisting of three choices, (1) Yes, (2) Maybe, or (3) No.

The teacher survey (Appendix F) contains 8 questions answered by a six point Likert scale and were administered at the conclusion of the study period. A total of 3 open ended
questions are also included in the survey: (1) what was the most helpful or beneficial element of the SDLMI, (2) what was the least helpful/beneficial element of the SDLMI, and (3) what are suggestions for changing/improving training using the SDLMI in future studies with DHH students and teachers.

**Procedure**

Participants were composed of middle school and high school students at three public schools. Teachers completed a survey regarding the communication skills and mode of each participant using the Gallaudet Rating Scale. All participants were administered two pre-tests to assess levels of self-determination: The Adolescent Self-Determination Assessment-Short Form (ASDA) and the AIR Self-Determination Scale (AIR-SDS) at study entry. Participating teachers and students then worked together to mutually establish 2 communication goals potentially attainable in six weeks, but goals were measured at the fourth week of the study at each site. One goal was randomly selected as the experimental goal to be addressed with the benefit of the intervention while the other goal served as the control goal and was not addressed using the SDLMI. In this sense, each student also served as his or her own control.

All participants were re-assessed with the same two measures of self-determination at the end of each four week intervention period using the ASDA and the AIR Self-Determination Scale for a total of three testing instances. One additional measure was conducted post-intervention only, Goal Attainment Scaling (GAS). Upon completion of the instructional period (after SDLMI implementation), participating teachers selected the outcome best describing each student’s progress on the two communication goals.
Design and Procedures

Participants were recruited to participate in a five to six week study at each site examining the impact of the SDLMI on goal attainment and self-determination at each campus. During the first phase of the study, the Group 1 teacher received instruction using the SDLMI and the other two groups followed the pre-established procedures and routines by their teachers. Parental notification letters were sent home with each potential student participant. After a waiting period of three days without parental objection, the researcher began the assenting process with each potential student participant. Informed consent was obtained from each teacher participant. Middle school and high school students and teachers who provided signed consent and assent forms to participate were included in this study.

SDLMI Training for Teachers

A 65-minute training session was provided to participating teachers by the researcher in for the SDLMI application and for Goal Attainment Scaling (GAS) procedures. The training addressed (a) the relationship between self-determination and goal attainment, (b) the importance of teacher involvement for middle and high school DHH students, (c) an introduction to and an overview of the SDLMI, (d) instructional strategies for use in the teacher-involved SDLMI goals, and, (e) how to prepare students for the teaching model via a PowerPoint presentation. Teacher 1 was trained by the researcher first followed by Teachers 2 and 3 trained together. During the training teachers were provided with laminated flowcharts of the steps in the SDLMI, teacher objectives and educational supports for each phase of the SDLMI, and student objectives for each phase of the SDLMI. Teachers were later provided with goal progress documentation forms and final goal rating forms after goals had been selected and randomly assigned as experimental or control goals.
Goal Selection

Teachers informally conferenced with students to explain the SDLMI procedures individually at the high school level and as a group at the middle school level and then began using the model to instruct students. Students selected two goals in the area of communication able to be monitored and measured in the school setting. One goal was addressed using the SDLMI while the other goal served as a control was not addressed using the SDLMI. At the end of the intervention period, attained performance on each control and experimental goal objectives were determined using the Goal Attainment Scaling (GAS) process.

Intervention

The intervention in this study is the Self-Determined Learning Model of Instruction (SDLMI). The SDLMI includes five nondirective interviews between student and teacher: (1) finding an initial problem and making an initial problem statement through discussion, (2) the teacher encouraging the student to express feelings, views, and exploring the identified problem, (3) the teacher helping the student to develop insight into the problem, (4) the teacher leading the student to a planning and decision making approach to solving the problem, and (5) the student and teacher discussing actions taken to solve the problem and planning more actions toward solving the problem, if needed.

SDLMI Overview

Implementation of the SDLMI includes a three step instructional process; Phase One, Set a Goal, Phase 2, Take Action, and Phase 3, Adjust Goal or Plan. Each step of the process sets forth a problem for the student to solve.
### The 12 Questions Used in the SDLMI Implementation Phase

<table>
<thead>
<tr>
<th>Step</th>
<th>Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td>• What do I want to learn in this class/area?</td>
</tr>
<tr>
<td><strong>Set a goal</strong></td>
<td>• What do I know about it now?</td>
</tr>
<tr>
<td></td>
<td>• What must change for me to learn in this class/area what I don’t know?</td>
</tr>
<tr>
<td></td>
<td>• What can I do to make this happen?</td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td>• What can I do to learn what I don’t know?</td>
</tr>
<tr>
<td><strong>Take action</strong></td>
<td>• What could keep me from taking action?</td>
</tr>
<tr>
<td></td>
<td>• What can I do to remove these barriers?</td>
</tr>
<tr>
<td></td>
<td>• When will I take action?</td>
</tr>
<tr>
<td><strong>Step 3</strong></td>
<td>• What action have I taken?</td>
</tr>
<tr>
<td><strong>Adjust the goal and plan</strong></td>
<td>• What barriers have been removed?</td>
</tr>
<tr>
<td></td>
<td>• What has changed about what I don’t know?</td>
</tr>
<tr>
<td></td>
<td>• Do I know what I want to know?</td>
</tr>
</tbody>
</table>

The student solves his or her problem by asking and answering a four specific Student Questions. The Student Questions are designed to guide the student through the problem solving process in each instructional phase. After completion of one phase, the student is led to the next phase. Additionally, each question is tied to a set of Teacher Objectives and Educational Supports teachers can use to help guide students toward self-directed learning.

**Educational Supports**

Phase 1 Educational Supports include instruction in: student self-assessment of interests, abilities, instructional needs awareness training, choice-making instruction, problem-solving instruction, decision-making instruction, and goal setting instruction. Phase 2 Educational Supports include instruction in: self-scheduling, self-instruction, antecedent cue regulation, choice-making instruction, goal-attainment strategies, problem-solving instruction, decision-making instruction, self-advocacy and assertiveness training, and communication skills training. Phase 3 Educational Supports include instruction in: self-evaluation strategies, choice-making
instruction, goal-setting instruction, problem-solving instruction, decision-making instruction, self-reinforcement strategies, self-recording strategies and self-monitoring. Uses of Educational Supports are dependent upon the needs of each individual student.

**Teacher Objectives**

Phase 1 Teacher Objectives include: enabling students to identify specific strengths and instructional need, enabling students to communicate preferences interests, beliefs and values, teaching students to prioritize their needs, enabling students to identify their current status in relation to the instructional need, assisting students to gather information about and barriers in their environments, enabling students to decide if action will be focused toward capacity building, modifying the environment or both. Teachers are also supporting students to choose a need to address from the prioritized list and teaching students to state a goal and identify criteria for achieving their goal.

Phase 2 Teacher Objectives include: enabling student to determine plan of action to bridge gap between self-evaluated current status and self-identified goal status, collaborating with student to identify most appropriate instructional strategies, teaching student needed student-directed learning strategies, supporting student to implement student-directed learning strategies, providing mutually agreed upon teacher-directed instruction, enabling student to determine schedule for action plan, enabling student to implement their action plan, and enabling student to self-monitor progress.

Phase 3 Teacher Objectives include: instruction in self-evaluation strategies, choice-making instruction, and goal-setting instruction. problem-solving instruction decision-making instruction, self-reinforcement strategies, self-recording strategies, self-monitoring, enabling student to self-evaluate progress toward goal achievement,
collaborating with student to compare progress with desired outcomes, supporting student to re-evaluate goal if progress is insufficient, assisting student to decide if goal remains the same or changes, collaborating with student to identify if action plan is adequate or inadequate given revised or retained goal, assisting student to change action plan if necessary, enabling student to decide if progress is adequate, inadequate or if goal has been achieved. Uses of Teacher Supports are dependent upon the needs of each individual student.

In each instructional step, the student serves as the primary causal agent for making choices, decisions, and taking action. In this investigation, Teacher 3 met with students on an individual basis as some students had to be pulled from mainstream classes at different times and on different days. Teacher 3 tracked progress weekly by checking in with each student to inquire about their progress, sometimes with the assistance of the researcher. Teacher 2 met with students on an individual basis and tracked progress weekly by checking in with each student to inquire about their progress and then reported to the researcher. Teacher 3 followed the same procedures as Teacher 2. The researcher contacted each teacher weekly to provide reminders to ask students about their progress and to ensure each teacher felt confident throughout the intervention period.

All teachers met with each student to complete the steps in the SDLMI. Phase 3 of the SDLMI is used if students are not making any progress toward goals. This phase is only used to adjust a goal or plan. After Phase 3 is completed, then Phases 1 and 2 are initiated again to set a new goal. A total of two students needed this course of action. Students worked with their teacher to develop a new goal using the SDLMI and then the new goal was tracked for an additional four weeks.
Fidelity of Implementation of the SDLMI

Accuracy of implementation of the SDLMI by teachers was documented to assure reliable and valid results in this study. Teachers were monitored to ensure the SDLMI was used consistently and accurately with students.

Five essential elements to fidelity of intervention implementation were monitored: (1) adherence, (2) exposure, (3) quality of delivery, (4) program specificity, and (5) student responsiveness (Mellard, 2010). Adherence consisted of how well the teacher followed the teaching model, and how true to the intervention procedures the teacher was. Exposure is how often the student receives the intervention and for how long and the duration of intervention sessions. Quality of delivery is related to the quality with which the teacher delivered and implemented the SDLMI. Program specificity is the teacher avoiding contamination or pollution from other curriculums or interventions. Finally, student responsiveness is how engaged the student is during the intervention delivery (Mellard, McKnight, & Jordan, 2010). All five elements were addressed in this study by use of anecdotal logs of intervention implementation frequency and duration from teachers and observations of intervention by the researcher.

Teachers were asked to keep logs of which student question and/or teacher objective addressed the days of the week the SDLMI was used, and the approximate time spent on the SDLMI. This log was made by the researcher. Teachers were also asked to document what types of educational supports and teacher objectives were used with each student during each phase of the SDLMI and what answers students provided for each question asked in each phase of the SDLMI. These forms are a part of the SDLMI.

Three additional types of fidelity of implementation were used in this study. Context fidelity, compliance fidelity, and competence fidelity were implemented throughout the duration
of the intervention study. Context fidelity consists of making sure the necessary antecedent conditions are in place to facilitate high level performance. To address context fidelity, all teachers of the deaf were trained at their respective school sites from the lead researcher on how to accurately use the SDLMI. Teacher 1 was trained alone with the researcher and Teachers 2 and 3 were trained at the same time.

Compliance fidelity involves ensuring the essential elements of the intervention and the implementation by teachers of the deaf are clearly and succinctly communicated. Compliance fidelity was addressed by the researcher by providing teachers with training and regular information and ongoing support via email, text, and/or phone calls about the SDLMI procedures.

Competence fidelity (Appendix H), the level to which the teachers are implementing the essential elements of the SDLMI, was addressed by asking teachers to fill out daily anecdotal logs of their progress with the SDLMI, documenting the date the intervention was used, with whom the intervention was used, and approximate duration of time spent on the intervention for each day of implementation.

Although a majority of teachers at all sites reported they were true to SDLMI procedures and implementation, the classroom observations by the researcher helped to (a) strengthen confidence about treatment fidelity across teachers and sites and (b) provided additional qualitative data about how teacher characteristics related to SDLMI implementation. The researcher observed Teacher 1 working with all student participants at least once during intervention delivery. The researcher relied upon logs and records from Teacher 2 and 3 for fidelity of intervention along with consistent communication with both teachers up to three times a week during the intervention period.
Goal Attainment Scaling and the Current Study

In this study, goals were agreed upon by both the teacher and the student. In this study teachers were asked to guide students in selecting a goal potentially attainable in six weeks but actual scaling occurred in the fourth week. When the student and teacher identify the experimental and control goals and were working on phase one of the SDLMI, the teacher met with the lead researcher to identify up to five possibilities of goal outcome options. After completing the SDLMI instructional phases, teachers chose the outcome best relaying the student’s level of progress on the specific goals at the conclusion of week four of the study.

Goal Progress Monitoring

After goal scaling was completed, teachers were provided goal monitoring forms for all experimental goals for participating students. Once a week teachers met briefly with students to discuss progress on the experimental goal and filled out the goal progress form. When appropriate, if goal progress was inadequate, teachers worked with students to alter the existing goal or author another goal.

Statistical Analyses

Goal Attainment Measurement

Raw GAS scores were changed to standardized T-scores (Kiresuk, Smith, & Cardillo, 1994) using a raw-score conversion key (Cardillo, 1994). The T-scores have a mean of 50 and a standard deviation of 10. A t test was conducted to compare the means of goal attainment scores with experimental goals to the control goals with equal variances not assumed. Analysis of the goals also used qualitative analysis methods.
Self-Determination Analyses

Analyses were conducted with measures assessed at three points in time using the American Institutes for Research Self-Determination Scale (AIR-SDS) and The Adolescent Self-Determination Assessment - Short Version (ASDA) to measure self-determination, the differences in mean scores between and across the three assessment periods on the AIR Self-Determination Scale (AIR-SDS) and the Adolescent Self-Determination Assessment-Short Version (ASDA) were analyzed. Statistical analysis consisted of using two repeated measures ANOVA using the Statistical Package for the Social Sciences (SPSS) most recent version to compare levels of self-determination based on change scores on the AIR-SDS and the ASDA before intervention, after intervention, and for a maintenance period for each group. The ANOVA analyses consisted of a 2 way ANOVA between subjects for groups and one ANOVA within subjects with three levels of time for each time the two assessments were administered to students. This analysis permits for investigation of change scores on the assessments over time.
CHAPTER 4

RESULTS

The purpose of this study was to examine the effects of a specific teaching model, The Self-Determined Learning Model of Instruction (SDLMI) on the self-determination and goal attainment of middle school and high school deaf and hard-of-hearing (DHH). A total of three teachers and 22 students at three public schools in the Southwest United States participated in the study. From school site 1, a total of 1 teacher and 14 high school students participated in the study. From school site 2, a total of 1 teacher and 6 middle school students participated in the study. School Site 3 had 1 teacher and 2 high school students. Site 1 constituted Group 1 while Sites 2 and 3 constituted Group 2.

The design of this study is a switching replication design. Group 1 received the intervention for the first 4 weeks while Group 2 received the intervention during the second 4 weeks. All students were tested at three points in time using the same two measures of self-determination. Teachers were instructed how to use the SDLMI by the researcher and each teacher and student set two communication goals; one goal served as the experimental goal while the other was the control goal. For the experimental goals the teacher and students used the SDLMI to establish, set, and monitor the goal. The control group of goals was not addressed using the SDLMI. At the end of the four week intervention, all teachers used Goal Attainment Scaling (GAS) procedures to document and rate student progress on goal attainment. In this chapter the results of the study are reported including a) reliability of the self-determination measures, b) the results related to each research question regarding changes in self-determination, and c) results related to goal attainment of experimental and control goals.
Self-Determination Measures

The American Institutes for Research Self-Determination Scale (AIR-SDS) was used to measure self-determination. The AIR-SDS produces a profile of the student's level of self-determination, identifies areas of strength and areas needing improvement, and identifies specific educational goals that can be incorporated into an Individualized Education Program (IEP). The AIR-SDS measures two broad self-determination components: capacity and opportunity. Capacity refers to students’ knowledge, abilities, and perceptions which enable them to be self-determined. Opportunity refers to students’ chances to use their knowledge and abilities. The AIR-SDS has three capacity sections: ability, knowledge and perceptions and two opportunity sections: opportunity at school and opportunity at home. Within each section are items focusing on thinking, doing, and adjusting. The subscales of the AIR-SDS are: Things I Do, How I Feel, What Happens at School, and What Happens at Home.

The Adolescent Self-Determination Assessment-Short Version (ASDA, Wehmeyer & Lopez, 2003) was used to measure self-determination. The ASDA was developed to provide reliable and valid measures for all adolescents with and without an intellectual disability. Chronbach’s Alpha was computed as a measure of internal consistency. In general, a Cronbach’s alpha of at least .7 is the criterion used to establish an acceptable level of reliability. However, the recommended minimum Cronbach’s alpha for exploratory studies is .6 (Nunnally, 1978). The ASDA subscales are: Autonomy, Self-Regulation, Psychological Empowerment, and Self-Realization.

Sample Reliability for Self-Determination Measures

Reliability was calculated separately for each self-determination measure on two groups of students within the study: a) students who are deaf or hard-of-hearing (DHH) and b) students
who are DHH and have one or more additional disabilities. The AIR-SDS shows to be a reliable measure (Table 8) for this group of DHH students and for DHH students with additional disabilities in this study, both for overall self-determination and for all subscales of the assessment. For the entire sample, the AIR-SDS shows to have high levels of reliability for overall self-determination and all subscales of the assessment.

Table 8

<table>
<thead>
<tr>
<th>AIR-SDS Subscale</th>
<th>DHH only n = 5</th>
<th>DHH and additional disability n = 17</th>
<th>Total Sample of Students n = 22</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>.910</td>
<td>.911</td>
<td>.869</td>
</tr>
<tr>
<td>Things I Do</td>
<td>.819</td>
<td>.636</td>
<td>.856</td>
</tr>
<tr>
<td>How I Feel</td>
<td>.877</td>
<td>.605</td>
<td>.855</td>
</tr>
<tr>
<td>What Happens at School</td>
<td>.686</td>
<td>.786</td>
<td>.850</td>
</tr>
<tr>
<td>What Happens at Home</td>
<td>.766</td>
<td>.873</td>
<td>.858</td>
</tr>
</tbody>
</table>

*Note. n = sample size. DHH refers to deaf or hard-of-hearing, Chronbach’s alpha acceptable levels between .600-.800.*

The ASDA is a reliable measure for the DHH students in this sample (Table 9) but is less reliable than the AIR-SDS.
Table 9

<table>
<thead>
<tr>
<th>ASDA subscale</th>
<th>DHH only $n = 5$</th>
<th>DHH and additional disability $n = 17$</th>
<th>Total Sample of Students $n = 22$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>.798</td>
<td>.714</td>
<td>.875</td>
</tr>
<tr>
<td>Autonomy</td>
<td>.767</td>
<td>.724</td>
<td>.864</td>
</tr>
<tr>
<td>Self-Regulation</td>
<td>.182</td>
<td>.637</td>
<td>.870</td>
</tr>
<tr>
<td>Psychological</td>
<td>.851</td>
<td>.487</td>
<td>.870</td>
</tr>
<tr>
<td>Empowerment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-Realization</td>
<td>.481</td>
<td>.534</td>
<td>.872</td>
</tr>
</tbody>
</table>

Note: $n =$ sample size. DHH refers to deaf or hard-of-hearing, Chronbach’s alpha acceptable levels between .600-.800.

Table 9 shows the sample internal reliability for the ASDA. The ASDA has good internal reliability for this sample of DHH students with and without additional disabilities however internal reliability for the Self-Regulation and Self-Realization subscales for DHH only students are the least reliable. The Psychological Empowerment and Self-Realization subscales have the lowest internal reliability for DHH students with additional disabilities. For the entire sample, the ASDA shows to have high levels of reliability overall and for all four subscales of the assessment.

**Intervention Results**

Descriptive statistics and statistical analyses were used to address the research questions.

The three main questions of this investigation were:

1. How self-determined are the participating DHH students in this investigation?
2. Is there a difference in self-determination levels between students who received instruction using the Self-Determined Learning Model of Instruction and students who did not receive this intervention?
3. Is there a difference in goal attainment between students who received instruction using the Self Determined Learning Model of Instruction and students who did not receive this intervention?

To answer the first research question regarding the extent of self-determination, the means and standard deviations for both assessments across three administration times were analyzed.

**Self-Determination Results**

**Overall Mean Scores on the AIR-SDS.** Table 10 displays the means and standard deviations of the scores on the AIR-SDS across Time and Group. Both groups scored similarly at assessment Time 1 (no intervention). Group 1 had a slight decrease in mean score after Time 2 (intervention) and an increase at Time 3 (maintenance). Group 2 decreased between Time 1 (pre intervention) and Time 2 (no intervention) but increased at Time 3 (post intervention). There was no significant main effect of Time or Group on the overall scores and no significant interaction effect between Time and Group on the overall scores on the AIR-SDS.

**Things I Do Subscale.** Table 11 displays the means and standard deviations of the Things I Do subscale scores on the AIR-SDS across Time and Group. Both groups scored very similar at assessment Time 1 (no intervention). Group 1 showed no change on mean scores of this subscale before and after the intervention. During the maintenance phase, a slight gain is seen. In the eight week intervention period the group as a whole did make gains on this subscale. Group 2 shows a slight decrease in performance between Time 1 and Time 2 and a slight increase between Time 2 and Time 3.

Table 12 displays the means and standard deviations of the How I Feel subscale scores on the AIR-SDS across time and group. Both groups scored similarly at Time 1 (pre-intervention).
Group 1 slightly decreased between Time 1 (pre-intervention) and Time 2 (post-intervention) but made a slight increase between Time 2 (post-intervention) and Time 3 (maintenance) while Group 2 made small increases over the three assessment times.

Table 13 displays the means and standard deviations of the What Happens at Home subscale scores on the AIR-SDS across time and group. Group 1 made small, but consistent gains between Time 1 (pre intervention, Time 2 (post intervention), and Time 3 (maintenance). Group 2 showed a small decrease in performance between Time 1 and Time 2 (pre intervention) but after Time 3 (post-intervention) they made a slight gain.

Table 14 displays the means and standard deviations of the What Happens at School subscale scores on the AIR-SDS across time and group. Group 1 shows a small decrease in performance after the intervention at Time 2 but in the maintenance phase at Time 3 they made a slight gain. Between assessment Times 1 and 2 (no intervention), Group 2 decreased in scores but made a small gain Time 3 (post intervention).

Table 15 displays the means and standard deviations of the Capacity to Self-Determine section scores on the AIR-SDS across Time and Group. Group 1 consistently dropped in performance between Time 1 (pre-intervention) and Time 2 (post intervention) but shows a slight gain Time 3 (maintenance). Group 2 consistently increased in performance over all three times.

Table 16 displays the means and standard deviations of the Opportunity to Self-Determine scores on the AIR-SDS across time and group. Group 1 shows a slight increase in opportunity to self-determine while Group 2 shows a slight decrease between Time 1 (pre-intervention) and Time 2 (no intervention) and a slight gain at Time 3 (post intervention) although the Time 3 score is the exact same score as Time 1 (pre-intervention).
Table 17 displays the means and standard deviations of the percentage of student self-determination on the AIR-SDS across Time and Group. Group 1 decreased their overall percentage of self-determination between Time 1 and Time 2 (post intervention), but made a slight gain at Time 3 (maintenance phase). Group 2 had a slight decrease between Times 1 (pre-intervention) and 2 (pre-intervention) but shows a slight gain Time 3 (post intervention).

<table>
<thead>
<tr>
<th>Time</th>
<th>Group 1</th>
<th>Group 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n=13</td>
<td>n=8</td>
</tr>
<tr>
<td>Time 1</td>
<td>M=87.70</td>
<td>M=86.75</td>
</tr>
<tr>
<td>Time 2</td>
<td>M=84.62</td>
<td>M=84.75</td>
</tr>
<tr>
<td>Time 3</td>
<td>M=90.15</td>
<td>M=91.63</td>
</tr>
</tbody>
</table>

Note: n= Sample Size. M = Mean. SD = Standard Deviation. Maximum possible score = 120.

**Table 10**

*Overall Mean Scores on the AIR-SDS across Time and Group*

<table>
<thead>
<tr>
<th>Time</th>
<th>Group 1</th>
<th>Group 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n=13</td>
<td>n=8</td>
</tr>
<tr>
<td>Time 1</td>
<td>M=21.00</td>
<td>M=20.88</td>
</tr>
<tr>
<td>Time 2</td>
<td>M=21.00</td>
<td>M=20.75</td>
</tr>
<tr>
<td>Time 3</td>
<td>M=22.92</td>
<td>M=22.50</td>
</tr>
</tbody>
</table>

Note: n= Sample Size. M= Mean. SD = Standard Deviation. Maximum possible score = 30.

**Table 11**

*Overall Mean Scores on the AIR-SDS across Time and Group on the Things I Do Subscale*

<table>
<thead>
<tr>
<th>Time</th>
<th>Group 1</th>
<th>Group 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n=13</td>
<td>n=8</td>
</tr>
<tr>
<td>Time 1</td>
<td>M=22.85</td>
<td>M=20.38</td>
</tr>
<tr>
<td>Time 2</td>
<td>M=21.23</td>
<td>M=22.63</td>
</tr>
<tr>
<td>Time 3</td>
<td>M=22.54</td>
<td>M=23.37</td>
</tr>
</tbody>
</table>

Note: n= Sample Size. M = Mean. SD = Standard Deviation. Maximum possible score = 30.

**Table 12**

*Overall Mean Scores on the AIR-SDS across Time and Group on the How I Feel Subscale*

<table>
<thead>
<tr>
<th>Time</th>
<th>Group 1</th>
<th>Group 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n=13</td>
<td>n=8</td>
</tr>
<tr>
<td>Time 1</td>
<td>M=22.00</td>
<td>M=24.25</td>
</tr>
<tr>
<td>Time 2</td>
<td>M=22.15</td>
<td>M=22.63</td>
</tr>
<tr>
<td>Time 3</td>
<td>M=23.38</td>
<td>M=24.38</td>
</tr>
</tbody>
</table>

Note: n= Sample Size. M = Mean. SD = Standard Deviation. Maximum possible score = 30.
Table 14

*Overall Mean Scores on the AIR-SDS across Time and Group on the What Happens at School Subscale*

<table>
<thead>
<tr>
<th></th>
<th>Time 1</th>
<th>Time 2</th>
<th>Time 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Group 1</td>
<td>13</td>
<td>20.54</td>
<td>4.43</td>
</tr>
<tr>
<td>Group 2</td>
<td>8</td>
<td>21.25</td>
<td>4.06</td>
</tr>
</tbody>
</table>


Table 15

*Overall Mean Scores on the AIR-SDS across Time and Group on Capacity to Self-Determine*

<table>
<thead>
<tr>
<th></th>
<th>Time 1</th>
<th>Time 2</th>
<th>Time 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Group 1</td>
<td>13</td>
<td>43.92</td>
<td>7.78</td>
</tr>
<tr>
<td>Group 2</td>
<td>8</td>
<td>41.14</td>
<td>8.05</td>
</tr>
</tbody>
</table>


Table 16

*Overall Mean Scores on the AIR-SDS across Time and Group on Opportunity to Self-Determine*

<table>
<thead>
<tr>
<th></th>
<th>Time 1</th>
<th>Time 2</th>
<th>Time 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Group 1</td>
<td>13</td>
<td>42.77</td>
<td>10.04</td>
</tr>
<tr>
<td>Group 2</td>
<td>8</td>
<td>44.57</td>
<td>6.29</td>
</tr>
</tbody>
</table>


Table 17

*Overall Percentage of Self-Determination across Time and Group on the AIR-SDS*

<table>
<thead>
<tr>
<th></th>
<th>Time 1</th>
<th>Time 2</th>
<th>Time 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Group 1</td>
<td>13</td>
<td>72.00</td>
<td>13.36</td>
</tr>
<tr>
<td>Group 2</td>
<td>8</td>
<td>72.13</td>
<td>10.18</td>
</tr>
</tbody>
</table>


**ASDA Results**

Table 18 displays the means and standard deviations on the overall performance on the ASDA. Group 1 showed a slight decrease between Time 1 and Time 2 (intervention) followed by a slight increase between Time 2 and Time 3 (maintenance). Group 2 showed a slight decrease between Time 1 and Time 2 (pre-intervention) and a small increase between Time 2 and Time 3 (intervention).
Table 19 displays the means and standard deviations of the Autonomy subscale scores on the ASDA across Time and Group. Group 1 made small but consistent gains over time. Group 2 made a slight gain between Time 1 and Time 2 (pre intervention), but remained the same between Time 2 and Time 3 (post intervention).

Table 20 displays the means and standard deviations of the Self-Regulation subsection scores on the ASDA across Time and Group. Group 1 dropped slightly between Time 1 and Time 2 (post intervention), but increased a miniscule amount at Time 3 (maintenance). Group 2 showed a slight decline between Time 1 and Time 2 (no intervention) and scored exactly the same between Times 2 and 3 (intervention).

Table 21 displays the means and standard deviations of the Psychological Empowerment subscale scores on the ASDA across Time and Group. Group 1 showed a slight decrease in scores on this subscale Time 2 (post intervention) but scored exactly the same at Time 3 (maintenance) as Time 1 (pre intervention). Group 2 made miniscule gains across all three assessment periods, including after the intervention was delivered between Time 2 and Time 3.

Table 22 displays the means and standard deviations of the Self-Realization subsection scores on the ASDA across time and group. Group 1 showed a slight increase between Time 1 and Time 2 (intervention) but declined slightly at Time 3 (maintenance). Group 2 declined slightly between Time 1 and Time 2 (pre intervention) but made a gain Time 3 (post intervention).
Table 18

Overall Mean Scores on the ASDA across Time and Group

<table>
<thead>
<tr>
<th></th>
<th>Time 1</th>
<th></th>
<th>Time 2</th>
<th></th>
<th>Time 3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>M</td>
<td>SD</td>
<td>n</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Group 1</td>
<td>13</td>
<td>29.46</td>
<td>7.63</td>
<td>13</td>
<td>28.85</td>
<td>7.01</td>
</tr>
<tr>
<td>Group 2</td>
<td>8</td>
<td>29.25</td>
<td>4.80</td>
<td>8</td>
<td>27.50</td>
<td>5.81</td>
</tr>
</tbody>
</table>

Note: n = Sample Size. M = Mean. SD = Standard Deviation. Maximum possible score = 50.

Table 19

Overall Mean Scores on the ASDA across Time and Group on the Autonomy Subscale

<table>
<thead>
<tr>
<th></th>
<th>Time 1</th>
<th></th>
<th>Time 2</th>
<th></th>
<th>Time 3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>M</td>
<td>SD</td>
<td>n</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Group 1</td>
<td>13</td>
<td>11.77</td>
<td>4.02</td>
<td>13</td>
<td>12.77</td>
<td>4.38</td>
</tr>
<tr>
<td>Group 2</td>
<td>8</td>
<td>10.75</td>
<td>2.66</td>
<td>8</td>
<td>12.50</td>
<td>3.21</td>
</tr>
</tbody>
</table>

Note: n = Sample Size. M = Mean. SD = Standard Deviation. Maximum possible score = 21.

Table 20

Overall Mean Scores on the ASDA across Time and Group on the Self-Regulation Subscale

<table>
<thead>
<tr>
<th></th>
<th>Time 1</th>
<th></th>
<th>Time 2</th>
<th></th>
<th>Time 3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>M</td>
<td>SD</td>
<td>n</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Group 1</td>
<td>13</td>
<td>5.38</td>
<td>2.90</td>
<td>13</td>
<td>4.08</td>
<td>3.77</td>
</tr>
<tr>
<td>Group 2</td>
<td>8</td>
<td>6.50</td>
<td>3.02</td>
<td>8</td>
<td>4.13</td>
<td>2.53</td>
</tr>
</tbody>
</table>

Note: n = Sample size. M = Mean. SD = Standard Deviation. Maximum possible score = 15.

Table 21

Overall Mean Scores on the ASDA across Time and Group on the Psychological Empowerment Subscale

<table>
<thead>
<tr>
<th></th>
<th>Time 1</th>
<th></th>
<th>Time 2</th>
<th></th>
<th>Time 3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>M</td>
<td>SD</td>
<td>n</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Group 1</td>
<td>13</td>
<td>6.31</td>
<td>.947</td>
<td>13</td>
<td>5.85</td>
<td>1.52</td>
</tr>
<tr>
<td>Group 2</td>
<td>8</td>
<td>6.13</td>
<td>1.13</td>
<td>8</td>
<td>5.38</td>
<td>1.06</td>
</tr>
</tbody>
</table>

Note: n = Sample Size. M = Mean. SD = Standard Deviation. Maximum possible score = 7.

Table 22

Overall Mean Scores on the ASDA across Time and Group on the Self-Realization Subscale

<table>
<thead>
<tr>
<th></th>
<th>Time 1</th>
<th></th>
<th>Time 2</th>
<th></th>
<th>Time 3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>M</td>
<td>SD</td>
<td>n</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Group 1</td>
<td>13</td>
<td>6.00</td>
<td>1.29</td>
<td>13</td>
<td>6.15</td>
<td>1.28</td>
</tr>
<tr>
<td>Group 2</td>
<td>8</td>
<td>5.88</td>
<td>1.13</td>
<td>8</td>
<td>5.50</td>
<td>.93</td>
</tr>
</tbody>
</table>

Note: n = Sample Size. M = Mean. SD = Standard Deviation. Maximum possible score = 7.

To answer research question 2, a repeated measures Analysis of Variance (ANOVA) was conducted to compare the scores on self-determination assessments (ASDA and AIR-SDS)
across time and group with the expectation of detecting a significant interaction effect for time by group if the intervention was effective. Students were tested with two measures of self-determination a total of three periods in time: once before the intervention was initiated, again after the first group of students received the treatment and completed their goal tracking period of four weeks, and once more after the second group of students received the treatment and completed their goal tracking period of four weeks.

**AIR-SDS Results**

The AIR-SDS was administered a total of three times to each participant. Time 1 served as a pre-test for both groups. Time 2 served as a post-test for Group 1 and a second pre-test for Group 2 to ensure that change due to maturation or other variables had not occurred. Time 3 served as the post test for Group 2 and a maintenance test for Group 1.

**Things I Do Subscale.** A repeated measures ANOVA was used to examine the effect of time on the AIR-SDS Things I Do subscale across the two groups. The repeated measures ANOVA showed a main effect of Time (Figure 1) on the Things I Do subscale on the AIR-SDS; F (1, 19) = 3.14, p = 0.022. There was no significant main effect of Group on the subscale scores and no significant interaction effect between Time and Group on the Things I Do subscale of the AIR-SDS. Post hoc tests show the effect of the SDLMI on the AIR-SDS Things I Do subscale was statistically significant. Post hoc tests using the Bonferroni correction show statistically significant effects on the Things I Do subscale scores on the AIR-SDS between Time 1 and Time 3 (p = .022) and Time 2 and Time 3 (p = .035) of assessment administration for both groups.
Figure 1. Main effect of Time on AIR-SDS Things I Do subscale scores.

**How I Feel.** A repeated measures ANOVA was used to examine the effect of time and group on the AIR-SDS How I Feel subscale across the two groups. There were no significant main effects for Time or Group nor was there a significant interaction effect between Time and Group on the How I Feel subscale of the AIR-SDS.

**What Happens at Home.** A repeated measures ANOVA was used to examine the effect of time on the AIR-SDS What Happens at Home subscale between the two groups. There were no
significant main effects for Time or Group nor was there a significant interaction effect between
Time and Group on the What Happens at Home subscale of the AIR-SDS.

**What Happens at School.** A repeated measures ANOVA was used to examine the effect of
time on the AIR-SDS What Happens at School subscale across the two groups. There were no
significant main effects for Time or Group nor was there a significant interaction effect between
Time and Group on the What Happens at School subscale of the AIR-SDS.

**Overall Mean Scores and ANOVA on Capacity to Self-Determine.** A repeated measures
ANOVA was used to examine the effect of Time on the AIR-SDS Capacity to Self-Determine
between the two groups. The repeated measures ANOVA showed a main effect of Time (Figure
2) on the Capacity to Self-Determine portion of the AIR-SDS; F (1, 19) = 6.03,
\[ p = 0.024 \]. There were no significant main effects for Group nor was there a significant
interaction effect between Time and Group on Capacity to Self-Determine subscale of the AIR-
SDS. Post hoc tests show statistically significant effects on the AIR-SDS between Time 1 and
Time 3 (\( p = .024 \)) and Time 2 and Time 3 (\( p = .030 \)) for both groups.
Opportunity to Self-Determine. A repeated measures ANOVA was used to examine the effect of time on the AIR-SDS Opportunity to Self-Determine subscale between the two groups. There were no significant main effects for Time or Group nor was there a significant interaction effect between Time and Group on the Opportunity to Self-Determine portion of the AIR-SDS.

Overall Percentage of Self-Determination. A repeated measures ANOVA was used to examine the effect of time on the AIR-SDS overall percentage of self-determination between the two groups. There were no significant main effects for Time or Group nor was there a significant interaction effect between Time and Group on the Overall Percentage of Self-Determination portion of the AIR-SDS.

Figure 2. Main effect of Time on Capacity to Self-Determine subscale scores.
interaction effect between Time and Group on the overall percentage of student self-determination of the AIR-SDS.

**Overall ASDA Results**

A repeated measures ANOVA was used to examine the effect of time on the ASDA overall scores across the two groups. Means and standard deviations are presented in Table 26. Group 1 had a very small drop in performance between Time 1 (pre intervention) and Time 2 (post intervention) and a slight gain at Time 3 (maintenance). Group 2 showed a slight drop in performance between Time 1 (pre intervention) and Time 2 (pre intervention) but made a slight increase Time 3 (post intervention) to exactly the same score as Time 1 (pre intervention). There were no significant main effects for Time or Group nor was there a significant interaction effect between Time and Group on the overall scores on the ASDA.

**Autonomy Subscale.** A repeated measures ANOVA was used to examine the effect of Time on the ASDA subscale test on Autonomy across the two groups. The repeated measures ANOVA showed a main effect of Time (Figure 3) on the Autonomy subscale on the ASDA; $F (1, 19) = 7.39, p = 0.014$. There were no significant main effects for Group nor was there a significant interaction effect between Time and Group on the Autonomy subscale of the ASDA. Post hoc tests using the Bonferroni correction show a statistically significant effect between Time 1 and Time 2 ($p = .027$) and Time 1 and Time 3 ($p = .014$) of assessment administration for both groups. This may possibly be the result of maturation.
Figure 3. Main effect of Time on Autonomy subscale scores.

Self-Regulation Subscale. A repeated measures ANOVA was used to examine the effect of Time on the ASDA subscale test on Self-Regulation across the two groups.

The repeated measures ANOVA showed a main effect of Time on the scores of the Self-Regulation subscale of the ASDA, $F(1, 19) = 5.16, p = 0.035$. There was no significant main effect of group on the overall scores and no significant interaction effect between Time and Group (Figure 4) on the Self-Regulation subscale of the ASDA. Post hoc tests using the Bonferroni correction show the effect of the SDLMI on the ASDA Self-Regulation subscale was
statistically significant. Results show statistically significant effects between Time 1 and Time 2 ($p = .021$) and Time 1 and Time 3 ($p = .035$) for both groups.

Figure 4. Main effect of Time on Self-Regulation subscale scores.

**Psychological Empowerment Subscale.** A repeated measures ANOVA was used to examine the effect of Time on the ASDA subscale on Psychological Empowerment across the two groups. The repeated measures ANOVA showed a main effect of Time (Figure 5) on the Psychological Empowerment subscale on the ASDA; $F (1, 19) = 4.33, p = 0.020$. There were no significant main effects for Group nor was there a significant interaction effect between Time and Group on
the scores on Psychological Empowerment subsection of the ASDA. Post hoc tests using the Bonferroni correction show statistically significant effects between Time 1 and Time 2 ($p = .029$) and Time 2 and Time 3 ($p = .017$).

![Graph](image)

*Figure 5*. Main effect of Time on Psychological Empowerment subscale scores.

**Self-Realization Subscale.** A repeated measures ANOVA was used to examine the effect of time on the ASDA subscale test on Self-Realization between the two groups. There were no significant main effects for Time or Group nor was there a significant interaction effect between Time and Group on the scores on the Self-Realization subscale of the ASDA.
**Goal Attainment Scaling Results**

To answer the third research question, a paired-samples t-test was conducted with the entire sample of 22 students to compare the goal attainment scores of experimental goals addressed with the SDLMI and control goals not addressed with the SDLMI.

Previous studies using the SDLMI measured students’ goal attainment using the GAS procedures (Agran & Wehmeyer, 2000; Agran et al., 2001; McGlashing-Johnson et al., 2003; Palmer & Wehmeyer, 2003). The GAS requires teachers to use a checklist to determine if students have met their goals. Using Goal Attainment Scaling (GAS) ratings, a score of 50 indicates the goal was attained at an expected level. A rating of 60 indicates the goal was attained at a level somewhat higher than expected.

The GAS scores for the experimental goals across the two groups yielded a mean of 54.55 (SD =12.2). GAS scores for the control goals across the two groups yielded a mean of 51.36 (SD = 11.3). Results indicate students performed slightly better at achieving experimental goals with the benefit of the SDLMI than control goals not addressed with the SDLMI by the teacher.

There was not a significant difference in the goal attainment scores for experimental goals (M =54.55, SD =12.24) and control goals (M =51.36, SD =11.25); t(21) =.863, p = .398. The results suggest there is no significant difference in goal attainment whether or not the SDLMI is used. Each of the 22 goals was assessed weekly by students self-reporting their progress with their experimental goal. Control goals were not addressed by the teacher at any point in time. All experimental and control goals were randomly assigned to each student by the researcher.
Experimental and control goals were further grouped into categories and analyzed for differences by category. Categories included goals related to technology, behavior, initiation, self-advocacy, and academics. Technology included use of amplification or a cochlear implant. Behavior was related to doing something with more or less frequency, such as interrupting class conversations less. Initiation was related to starting communication more often with peers or teachers. Self-advocacy was communicating to others through written, signed, or spoken modes to ask questions or making requests of others such as asking people to sign. Academics was related to completing homework or class work assignments and showing, telling, or documenting completed assignments for teachers to review.

Table 23 displays experimental and control goals based on category type. The most frequently chosen experimental goal types were in the area of self-advocacy (27%) and academics (27%) followed by technology goals (23%). The most frequently selected control goals were in the area of self-advocacy (41%) and behavior (27%). Table 24 provides examples of goals from each category and by goal type (control or experimental) to illustrate the types of goals students selected to work on.

**Goal Attainment by Ethnicity.** Table 25 displays the ethnicity of student participants in relation to their levels of goal attainment. Hispanic participants (78% or \( n = 9 \)) achieved experimental goals at a higher level than control goals in comparison to their Caucasian counterparts (22% or \( n = 2 \)). Caucasian participants (57% or \( n = 4 \)) achieved control goals at a higher level than experimental goals in comparison to their Hispanic peers (43% or \( n = 6 \)). Those who achieved their experimental and control goals at the same level of attainment are Hispanic (71% or \( n = 5 \)) and Caucasian (29% or \( n = 2 \)).
**Goal attainment by Level of Hearing Loss.** Table 26 displays the level of goal attainment by hearing status. More hard-of-hearing students (63% or \( n = 5 \)) than deaf students (37% or \( n = 3 \)) attained experimental goals at a higher level than control goals, but an equal number of deaf and hard-of-hearing attained control goals at a higher level than experimental goals. Of those who attained experimental and control goals at the same level of attainment, an equal number of participants were deaf (50% or \( n = 3 \)) or hard-of-hearing (50% or \( n = 3 \)). These results show both deaf and hard-of-hearing students have the capacity and ability to attain goals regardless of level of hearing loss.

Table 23
**Experimental and Control Goals by Goal Category**

<table>
<thead>
<tr>
<th>Goal Category</th>
<th>Experimental Goals</th>
<th>Control Goals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology</td>
<td>23% (( n = 5 ))</td>
<td>0% (( n = 0 ))</td>
</tr>
<tr>
<td>Behavioral</td>
<td>14% (( n = 3 ))</td>
<td>27% (( n = 6 ))</td>
</tr>
<tr>
<td>Communication Initiation</td>
<td>14% (( n = 3 ))</td>
<td>18% (( n = 4 ))</td>
</tr>
<tr>
<td>Self-Advocacy</td>
<td>27% (( n = 6 ))</td>
<td>41% (( n = 9 ))</td>
</tr>
<tr>
<td>Academics</td>
<td>27% (( n = 6 ))</td>
<td>14% (( n = 3 ))</td>
</tr>
</tbody>
</table>

Note: Total goals = 22. \( n = \) number of students.
Table 24

*Examples of Categories and Types of Goals*

<table>
<thead>
<tr>
<th>Goal Category</th>
<th>Goal Type</th>
<th>Goal Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology</td>
<td>Experimental</td>
<td>Student will put on cochlear implant 5 days of each week during school time, except for yoga and basketball and report weekly to HI teacher in ASL.</td>
</tr>
<tr>
<td>Behavioral</td>
<td>Control</td>
<td>Student will talk slower in conversations to increase intelligibility to others.</td>
</tr>
<tr>
<td>Communication</td>
<td>Experimental</td>
<td>Student will initiate conversation with one teacher once per week and report weekly to HI teacher.</td>
</tr>
<tr>
<td>Self-Advocacy</td>
<td>Control</td>
<td>Student will ask teacher to repeat/clarify something that was said for clarification at least twice a week and report to HI teacher weekly.</td>
</tr>
<tr>
<td>Academics</td>
<td>Experimental</td>
<td>Student will follow through with homework assignments and turn them in on time, reporting progress to HI teacher weekly in spoken English.</td>
</tr>
</tbody>
</table>

*Note:* ASL = American Sign Language. HI = Hearing-Impaired.

Table 25

*Level of Goal Attainment by Ethnicity*

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Experimental level higher than control</th>
<th>Control level higher than experimental</th>
<th>Same level experimental and control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hispanic</td>
<td>78% (n = 9)</td>
<td>43% (n = 6)</td>
<td>71% (n = 5)</td>
</tr>
<tr>
<td>Caucasian</td>
<td>22% (n = 2)</td>
<td>57% (n = 4)</td>
<td>29% (n = 2)</td>
</tr>
</tbody>
</table>

*Note:* n = number of students.
Table 26

*Level of Goal Attainment by Hearing Status*

<table>
<thead>
<tr>
<th>Hearing Status</th>
<th>Experimental level higher than control</th>
<th>Control level higher than experimental</th>
<th>Experimental and control at same level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deaf</td>
<td>37% (n = 3)</td>
<td>50% (n = 3)</td>
<td>50% (n = 3)</td>
</tr>
<tr>
<td>Hard-of-Hearing</td>
<td>63% (n = 5)</td>
<td>50% (n = 3)</td>
<td>50% (n = 3)</td>
</tr>
</tbody>
</table>

Note: *n* = number of students.

**Social Validity Results**

In this study students and teachers viewed the SDLMI as useful and using the SDLMI produced generally positive feelings about their progress. Participating teachers were asked to fill out an eight item questionnaire about the intervention’s effectiveness with three additional open ended questions. Response choices included: strongly agree, agree, neutral, disagree, and strongly disagree. No teacher used the neutral, disagree, or strongly disagree options. Teachers indicated positive perceptions of the effectiveness of the SDLMI on student self-determination and goal attainment (Table 27). Overall teachers reported they felt the SDLMI worked well for their students.
Table 27
Teacher Social Validity Survey Questions

<table>
<thead>
<tr>
<th>Survey Question</th>
<th>Strongly Agree</th>
<th>Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>The target problem behaviors selected for interventions for the students are important and adequate.</td>
<td>0</td>
<td>100%</td>
</tr>
<tr>
<td>(n = 3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assessing the student’s behavior and using the assessment information to develop an intervention program is a valuable practice.</td>
<td>0</td>
<td>100%</td>
</tr>
<tr>
<td>(n = 3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Being involved in the establishing of students’ goal and working with the students was a good investment of my time.</td>
<td>0</td>
<td>100%</td>
</tr>
<tr>
<td>(n = 3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Being involved in the assessment of student goal attainment and in the development of the goal helped to make the process more practical and feasible for me to implement.</td>
<td>33.3%</td>
<td>66.7%</td>
</tr>
<tr>
<td>(n = 1)</td>
<td>(n = 2)</td>
<td></td>
</tr>
<tr>
<td>I am considering using the SDLMI procedures to understand present and future student goal attainment and self-determination.</td>
<td>0</td>
<td>100%</td>
</tr>
<tr>
<td>(n = 3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The goals the student and I mutually selected for the SDLMI are important and appropriate for my students.</td>
<td>0</td>
<td>100%</td>
</tr>
<tr>
<td>(n = 3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The intervention program involving goal attainment and self-monitoring procedures were important and adequate.</td>
<td>0</td>
<td>100%</td>
</tr>
<tr>
<td>(n = 3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-monitoring and student directed learning strategies are useful and appropriate to increase goal attainment and self-determination levels of students.</td>
<td>66.7%</td>
<td>33.3%</td>
</tr>
<tr>
<td>(n = 2)</td>
<td>(n = 1)</td>
<td></td>
</tr>
</tbody>
</table>

Note: \( n = \) Sample Size. Total \( N = 3 \). No responses for neutral, disagree, strongly disagree.

When asked what the most beneficial element of the SDLMI was, one teacher responded the provided flowchart of each phase of the SDLMI was helpful when meeting individually with students. Another teacher reported giving teachers a reason to set a goal based on something the students wanted to improve about their education. Another teacher felt the students’ experience with setting and tracking goals was of great benefit for students.
Students viewed the SDLMI as useful and using the intervention resulted in positive feelings about their students' progress (Table 28). Participating students were asked to fill out a short five question Likert scale survey regarding the effectiveness of the SDLMI.

Table 28  
*Student Social Validity Survey Questions*

<table>
<thead>
<tr>
<th>Survey Question</th>
<th>Yes</th>
<th>No</th>
<th>Maybe</th>
</tr>
</thead>
<tbody>
<tr>
<td>I liked meeting with my teacher to work together on a goal.</td>
<td>52.4%</td>
<td>4.8%</td>
<td>42.9%</td>
</tr>
<tr>
<td>(n = 11)</td>
<td>(n = 1)</td>
<td>(n = 9)</td>
<td></td>
</tr>
<tr>
<td>The program helped me learn in the classrooms and at school.</td>
<td>57.1%</td>
<td>28.6%</td>
<td>14.3%</td>
</tr>
<tr>
<td>(n = 12)</td>
<td>(n = 6)</td>
<td>(n = 3)</td>
<td></td>
</tr>
<tr>
<td>The program helped me finish a goal.</td>
<td>71.4%</td>
<td>14.3%</td>
<td>14.3%</td>
</tr>
<tr>
<td>(n = 15)</td>
<td>(n = 3)</td>
<td>(n = 3)</td>
<td></td>
</tr>
<tr>
<td>The program helped me do better in getting what I need and want at school.</td>
<td>71.4%</td>
<td>4.8%</td>
<td>23.8%</td>
</tr>
<tr>
<td>(n = 15)</td>
<td>(n = 1)</td>
<td>(n = 5)</td>
<td></td>
</tr>
<tr>
<td>I would use the program again if the teacher wants me to.</td>
<td>57.1%</td>
<td>23.8%</td>
<td>19.0%</td>
</tr>
<tr>
<td>(n = 12)</td>
<td>(n = 5)</td>
<td>(n = 4)</td>
<td></td>
</tr>
</tbody>
</table>

Note:  *n = Sample Size. Total N = 21.*

Overall, more students answered survey questions with a positive response more often than they answered with a negative response. This indicates a generally socially valid intervention for this particular sample.

**Fidelity of Implementation Results**

Various methods of data collection were used to ensure the SDLMI was implemented with accuracy and consistency. These methods of data collection are documented in Table 29.
Table 29. 
*Fidelity of Implementation Types and Methods*

<table>
<thead>
<tr>
<th></th>
<th>Training by Researcher</th>
<th>Research Observation</th>
<th>Weekly email, text, phone and/or face-to-face communication</th>
<th>Anecdotal Logs</th>
<th>Social Validity Scale</th>
<th>Checklist of SDLMI Phases and Steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adherence</td>
<td><strong>X</strong></td>
<td></td>
<td><strong>X</strong></td>
<td></td>
<td><strong>X</strong></td>
<td>X</td>
</tr>
<tr>
<td>Exposure</td>
<td><strong>X</strong></td>
<td></td>
<td><strong>X</strong></td>
<td></td>
<td><strong>X</strong></td>
<td>X</td>
</tr>
<tr>
<td>Quality of Delivery</td>
<td><strong>X</strong></td>
<td>X</td>
<td><strong>X</strong></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Program Specificity</td>
<td></td>
<td></td>
<td><strong>X</strong></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Student Responsiveness</td>
<td></td>
<td></td>
<td><strong>X</strong></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Context Fidelity</td>
<td><strong>X</strong></td>
<td></td>
<td><strong>X</strong></td>
<td></td>
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<td>X</td>
</tr>
<tr>
<td>Compliance Fidelity</td>
<td><strong>X</strong></td>
<td></td>
<td><strong>X</strong></td>
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</tr>
<tr>
<td>Competence Fidelity</td>
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<td></td>
<td><strong>X</strong></td>
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<td></td>
<td>X</td>
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<tr>
<td>Daily Intervention Integrity</td>
<td></td>
<td></td>
<td><strong>X</strong></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Component Integrity</td>
<td></td>
<td></td>
<td><strong>X</strong></td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

Adherence was addressed through direct observation by the researcher, through anecdotal logs by teachers, and by regular communication between each participating teacher and the researcher by face-to-face communication, email, text messaging, and telephone communication.

Exposure was addressed through anecdotal logs. The researcher observed Teacher 3 working with each student at least once throughout the intervention delivery and filled out
anecdotal logs of SDLMI use. The researcher helped Teacher 3 with this process since Teacher 3 had highest number of participants ($n = 15$). Teacher 1 provided anecdotal logs of frequency and duration of the phases of the SDLMI. Teacher 2 did not provide any information to ensure exposure was documented.

Quality of delivery was addressed by the researcher observing Teacher 3 delivering the intervention at least once with each student. The researcher followed along with the SDLMI steps while observing the teachers to ensure the intervention was implemented according to questions and supports in the SDLMI. The researcher communicated a minimum of one time a week with all three teachers about the process, inquired how delivery was proceeding, and was available for help if needed. The researcher did deliver Phase One of the SDLMI to Teacher 1’s students due to an emergency.

Program specificity was addressed by having teacher assurance that no other curriculums or interventions were used in conjunction or simultaneously with the delivery of the SDLMI. Therefore, program specificity was intact for this study. Finally, student responsiveness was addressed by using social validity measures to formally address intervention effectiveness with each participating student. Competence fidelity was addressed by asking teachers to fill out daily anecdotal logs of their progress with the SDLMI, documenting the date the intervention was used, with whom the intervention was used, and approximate duration of time spent on the intervention for each day of implementation. Teacher 3 was observed on a consistent basis in person by the researcher. Due to the physical distance and scheduling, Teachers 1 and 2 were observed with less frequency. All three teachers consistently adhered to the steps of the SDLMI and implemented each phase of the intervention with accuracy with students.
To address daily intervention integrity teachers self-reported and checked the days of the week they used the SDLMI with students. Daily intervention integrity was calculated by dividing the number of checkmarks by the total number of SDLMI steps documented for each day. To address component integrity the total number of checks for each phase of the SDLMI were divided by the total number of days per week the intervention occurred via teacher self-report. Overall, all three teachers had high levels of daily intervention integrity and component integrity (Table 30).

Table 30

| Daily Intervention and Component Integrity Percentages for Participating Teachers |
|-----------------------------------------------|-----------------|---------------|
| Teacher 1                                    | Teacher 2       | Teacher 3     |
| Daily Intervention Integrity                  | 91%             | 88%           | 96%           |
| Component Intervention Integrity              | 97%             | 93%           | 95%           |

Note. Phase 1 for Teacher 1 was delivered by researcher due to emergency.

The researcher observed teachers working with all student participants at least once during intervention delivery and this helped to ensure competence fidelity. During observations the researcher kept a checklist of the Educational Supports used most by teachers (Table 31). The researcher kept track of the most frequently used Educational Supports through an average across teachers following observations and an observation checklist. Note there is no standard rule of use as each support is dictated by the level and kind of need of each student.
Table 31
Three Most Frequently Used Educational Supports Used by Participating Teachers

<table>
<thead>
<tr>
<th>SDLMI Phase</th>
<th>Phase 1</th>
<th>Phase 2</th>
<th>Phase 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Set a Goal</td>
<td>Take Action</td>
<td>Adjust Goal or Plan</td>
</tr>
<tr>
<td></td>
<td>assertiveness training</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Results show a majority of students need assistance with developing skill in how to solve problems, how to make decisions, how to set goals and self-monitor/self-evaluate goal progress.

Due to physical distance between the researcher and Teachers 1 and 2, the researcher relied upon logs and records from them for fidelity of intervention along with consistent communication with both teachers up to three times a week during the intervention period. The researcher delivered the first phase of the SDLMI with teacher 1’s students due to an emergency. Therefore competence fidelity was ensured during the first phase of the SDLMI delivery but was delivered rapidly due to time constraints. Teacher 1 kept anecdotal logs of intervention time and which portion of the SDLMI was addressed for each student for the remaining three weeks of the intervention period.
CHAPTER 5
DISCUSSION

The purpose of this study was to investigate the effects of the Self-Determined Learning Model of Instruction (SDLMI) on the self-determination and goal attainment of middle school and high school deaf and hard-of-hearing (DHH) students with and without additional disabilities. Results obtained using a quasi experimental switching replication design across three separate school sites with three certified teachers of DHH students indicate little correlation between the SDLMI as an intervention and changes in levels of self-determination and communication goal attainment.

Interpretation of Results

Teachers worked with students to set two goals; one goal was addressed using the SDLMI and the other goal was not addressed with the SDLMI. Once goals were established they were tracked for a period of four weeks. At the end of the four week period teachers used Goal Attainment Scaling procedures to rate student goal progress on both goals. Students were assessed at three points in time with two measures to compare levels of self-determination before and after intervention periods.

Using descriptive statistics and repeated measures ANOVA, results indicate no statistically significant difference on self-determination before and after using the SDLMI on all but two subscales of the AIR-SDS. A repeated measures analysis of variance showed a main effect of Time on the overall scores and on the Things I Do subscale. This means while all students showed gains on self-determination, the gains could not be attributed to the intervention.

A positive outcome is the high internal reliability in the two measures of self-determination for the participants in this study. These assessments (the AIR-SDS and the ASDA)
were shown with this group of DHH students to be reliable in measuring self-determination overall along with various subscales. The AIR-SDS assessment has acceptable Chronbach’s alpha levels for DHH students and DHH students with one or more additional disabilities in this sample for the overall score and for all of the four subscales. The ASDA has acceptable Chronbach’s alpha levels for the DHH sample in this study for this overall score and for two of four subscales. The ASDA also has acceptable Chronbach’s alpha levels for DHH students with one or more additional disabilities in this sample on this assessment overall and two of the four subscales. The sample of students in this study have various degrees of hearing loss, differ in their use of amplification or cochlear implants, use differing modes of communication for receptive and expressive language purposes, and vary in age and ethnicity. Despite the heterogeneity in the study sample, the two measures of self-determination are highly reliable with this group of DHH students.

Another promising outcome of this study is the high levels of self-determination in participants before the intervention was initiated. Many students in the sample did not show significant gains on the measures of self-determination after receiving the SDLMI as an intervention, but this is likely due to many of the students in this sample already having high levels of self-determination before the intervention was delivered. Although this may have impacted the efficacy of the SDLMI used as an intervention to increase levels of self-determination, the positive aspect is finding this particular group of DHH students already displayed moderate to high levels of self-determination.

**Study Results**

1. How self-determined are the participating DHH students in this investigation?
Using the results of the two measures of self-determination at three points in time, this particular sample of DHH adolescents has high levels of self-determination as revealed by the AIR-SDS and ASDA. Results show a majority of students in this sample had high levels of self-determination before the intervention (SDLMI) was implemented.

2. Is there a difference in self-determination levels between students who received instruction using the Self-Determined Learning Model of Instruction and students who did not receive this intervention?

After data analysis, there is no indication the SDLMI resulted in significant changes in self-determination levels of this particular sample of DHH students. Changes detected cannot be attributed to the effects of the SDLMI and may be possibly due to natural maturation over time.

3. Is there a difference in goal attainment between students who received instruction using the Self-Determined Learning Model of Instruction and students who did not receive this intervention?

There is no indication the SDLMI produced a significant effect on the goal attainment of this sample of DHH students. Academic goals were achieved at the highest level of all goal categories possibly because they were related to daily tasks in multiple classes so identifying immediate goals may have been easier for students. Students were motivated to improve their performance in school and to improve their grades in classes whereas other goal areas (technology, self-advocacy, initiation of communication) might not have been as important to students aiming to improve their grades in school or may have been more abstract and therefore more difficult to generate motivation. Students may have had more frequent opportunities to work on academic goals by being in the school setting daily and this may have contributed to higher levels of goal attainment in the academic areas.
No experimental behavioral goals were achieved by students in this sample. This may be because behavior is very difficult to change and may have been too difficult to change in a short intervention time period of four weeks. Habits and behaviors that feel comfortable or have been successful in the past in attaining certain outcomes may be much more difficult to change than goals requiring smaller changes and more frequent monitoring from multiple teachers.

More hard-of-hearing students than deaf students attained experimental goals at a higher level than control goals, but an equal number of deaf and hard-of-hearing attained control goals at a higher level than experimental goals. Of those who attained experimental and control goals at the same level, an equal number of participants were deaf or hard-of-hearing. These results show both deaf and hard-of-hearing students have the capacity and ability to attain goals regardless of level of hearing loss.

**Social Validity Implications**

Positive social validity results from teachers correspond with other studies using the SDLMI (Fowler, 2007; Mazzotti et al., 2012) who concluded participants agreed or strongly agreed components of the SDLMI improved their ability to set goals and found goal setting and self-monitoring utilitarian. Educators have demonstrated the SDLMI is an effective teaching model to use with students to increase goal attainment and self-determination (Agran et al., 2000; Agran et al., 2001; Agran et al., 2005; Fowler, 2007; Mazzotti et al., 2012; McGlashing-Johnson et al., 2003; Palmer and Wehmeyer, 2003; Shogren et al., 2011) and the educators in this investigation found the SDLMI to be facilitative to student self-determination and goal attainment.
Student social validity results are consistent with other studies using the SDLMI as an intervention (Fowler, 2007; Mazzotti et al., 2012) whose participants strongly agreed or agreed the goal setting instruction taught them how to set goals and found this process useful.

**Limitations**

Several limitations of this investigation warrant discussion. First, volunteer participation from teachers was elicited. Teachers who participated in this research study may have had an attitudinal bias toward self-determination. Second, because total random sampling of participants was not able to be conducted, the effects of grade level, educational program, student mode of communication, school locations, and degree of hearing loss were not able to be controlled. Third, study participants were selected in a state in the Southwest portion of the United States and as a result, generalizations to larger or other populations of teachers and students cannot be made.

A fourth limitation of this dissertation study was the small number of both teacher and student participants. Only 22 students and three teachers participated in this study and the ratio of high school to middle school students was very unequal (six middle school students, 17 high school students). Recommended numbers required for sample sizes vary within statistical research, a solid discussion of adequate sample size in low incidence disability groups needs clarification. Successfully conducting research studies with low incidence disability populations can happen, but more discussions and agreements about statistical options for researchers engaging in research with low incidence disability populations must continue to overcome challenges associated with small sample sizes and small populations or groups of individuals.

Additionally, this intervention study did not follow a completely experimental design. Caution must be taken when attempting to make direct correlations between effects of the Self-
Determined Learning Model of Instruction (SDLMI) on goal attainment and on levels of self-determination of students who participated in this study. Although efforts were made to maintain intervention integrity among teachers through teacher training and use of a teacher integrity checklist, differences in teacher variables such as instructional styles and interactional patterns with participants could have influenced student performance.

During the study attrition of three participants occurred. One teacher and student dyad who worked together in a continuing education program was unable to continue in the study due to excessive student absences. Another student near the end of the study period asked to be removed from participation in the study.

During the goal setting procedures or Phase 1 of the SDLMI a teacher participant was called away due to an emergency. The researcher took over and implemented the first phase of the SDLMI and set the control and experimental goals with students. The teacher continued at a later date to implement the remaining phases of the SDLMI and use the educational supports to help students attain their goals.

The two measures of self-determination were recorded in American Sign Language (ASL) by a university interpreting program student and were intended to be played in each classroom at each time of assessment to ensure standardization of assessment delivery. However when the researcher began the first assessment recording using the interpreter one set of students clearly did not understand the interpreter due to the quick pace of the signing. Therefore the researcher decided to stop the recording and administer the assessment in sign language with expansions and examples in order to increase student comprehension of each assessment question. Although this produces a lack of assessment administration standardization, the main goal of the assessments was to obtain valid data and this entail ensuring students understood the
questions on the assessment. The data show both assessments of self-determination have reasonable levels of internal reliability and students understood with and without modifications to meet their diverse communication needs.

A portion of one measure of self-determination, the self-regulation subscale of the ASDA is scored subjectively by a teacher or researcher. The self-regulation subscale of the ASDA has six scenarios which tell the beginning and end of a story. Students are asked to tell what happened in the middle of the story to connect the beginning and the end using problem-solving skills, social skills, and critical thinking skills. Students read the beginning and ending for each scenario and fill in the best answer for the middle of the story to complete the entire story. Although the researcher scored all assessments following the scoring guide, answers from students are still dependent upon the judgment of the researcher because they are open ended questions and students answer to the best of their ability in written English. Producing fully comprehensible written English may have been very difficult for certain students who use ASL and as a result may have struggled with writing clearly. This may have affected the scoring of this portion of the subscale due to unclear or incoherent written responses.

Each student participant showed great difficulty in being able to coherently fill in the middle of the story to connect the beginning and ending of each scenario. This supports the conclusions of Terwogt and Rieffe (2004) who examined how deaf children use their beliefs and desires in social situations requiring negotiation compared to hearing children. They found deaf children often fail to correct another individual’s false beliefs about a social situation and they used arguments that did not provide new information to their partner. The students in this study on this particular portion of the assessment were similar in their responses to finding ways to mediate a discrepancy in a given situation (e.g. beginning: you go to your English class and
realize you don’t have your English book and you are upset because you need the book to complete your homework. Ending: you are using your English book for homework.). Most students struggled with providing a coherent middle portion to the scenario and often answered off topic, copied the question again, or failed to provide a logical rationale of how the situation was remediated.

Rieffe and Terwogt (2006) examined anger expression in deaf and hearing children when presented with anger evoking social scenarios. The deaf children were much less expressive and responded less constructively than hearing peers and their responses were blunt and lacked forethought of possible consequences to a peer relationship when being very direct in reacting. The students in this study largely support the findings of Rieffe and Terwogt (2006) when given the social problem to solve on the self-determination assessment (e.g. beginning of scenario: your friends are acting like they are mad at you and you don’t know why. Ending of scenario: you and your friends are getting along just fine now. What happened in the middle to cause you and your friends to get along?) by often giving up on the situation (I don’t need them as friends), answering off topic, copying the question again, or not elaborating thoughtfully on how the friendship was repaired. Results of this portion of the assessment reveal open responses requiring writing in English print may not be the most reliable, fair, or accurate way of gaining insight into the functioning of DHH students who may understand and communicate better in a signed language rather than in English print.

The lack of statistically significant results on the two measures of self-determination limit conclusions that can be drawn about the effects of the SDLMI on student self-determination levels with participants in this study. Global measures of self-determination may not have been sensitive enough to document changes in specific self-determined behaviors. The length of time
of the intervention period (four weeks) may not have been long enough to increase student self-determination levels. Self-determined behaviors require continuous efforts and work over a long period of time (Field et al., 1998) and may require years of daily activities to build skills. When these skills are built and sustained, teachers can then use a self-determination curriculum to expand and augment self-determined behaviors with students (Zhang et al., 2002). The effects of time on specific subscales were apparent. There was a significant effect of time on the AIR-SDS Capacity to Self-Determine and Things I Do subscales and the ASDA Autonomy, Psychological Empowerment, and Self-Regulation subscales. If the intervention had continued for a longer duration of time results may have been more significant. However, a paucity of time to carry out the intervention over an extended period due to constraints of the school year may have reduced the impact of the SDLMI.

DHH students’ abilities to engage in self-determined behavior and address communication goals could be challenged, expanded, and improved. Despite the abovementioned possible limitations, this study will add to the body of knowledge in self-determination as a social construct. Practitioners, such as teachers of the deaf, will gain knowledge and skill with teaching students self-determined behavior through use of the SDLMI. Additionally, despite the limitations, this study provides preliminary evidence the SDLMI has usefulness for promoting self-determination and increased attainment of communication goals for students with hearing loss.

**Cultural Sensitivity**

Although there is still much to learn about how self-determination is defined in culturally and linguistically diverse populations, there is a rapidly expanding body of research shaping understanding of what is known (Nota, Ferrari, Soresi, & Wehmeyer, 2007). Wehmeyer and
colleagues (2011) suggest although self-determination as volitional action, an examination of cultural perspectives and self-determination is important to augment an understanding of how to transform research into specifically designed practices and recommendations for students with disabilities in the classroom.

This study shows promise in providing preliminary proof the SDLMI can be delivered in a culturally sensitive manner. The teachers in this study were able to use the SDLMI with students of varying ethnicities, students with hearing loss and additional disabilities, students who are culturally Deaf, students who are culturally hearing, students who can be in both the Deaf and hearing worlds, female and male students, students who may or may not use technology to increase their residual hearing through hearing aids or cochlear implants, and students who use various modes of expressive and receptive communication including sign language and spoken English. The self-determination assessments were presented in various modes of communication and still show to be highly reliable for the students in this sample.

**Future Directions**

Due to the positive social validity feedback by student and teacher participants in this study, future research using the SDLMI with other DHH students and their teachers should be pursued. Future research should include more high needs students with lower levels of self-determination in order to detect changes and changes in self-determination. The self-determination assessments could be used as a screening tool to identify students with the highest need to develop self-determined behaviors.

Continued development of instruments designed to measure self-determination in DHH students who have specific linguistic and cultural differences from hearing students is needed. Current instruments have been designed and field tested with individuals who have both learning
and intellectual disabilities but continued development in establishing a psychometric instrument reliable for the measure of self-determination for DHH students might be useful. Future researchers could do a back translation of the AIR-SDS and the ASDA in written English and ASL (American Sign Language). This back translation could improve the reliability and validity of the self-determination assessments and increase their cultural and linguistic sensitivity.

Use of the SDLMI to increase self-determination and goal attainment in communication was an effective activity. However, to sufficiently judge the degree to which interventions such as the SDLMI promote self-determination and goal attainment, future interventions would need to be of adequate duration and intensity to ensure students not only attain goals, but also develop the capacity to identify what they want and need to learn in various content area subjects and how to self-advocate for fulfillment of needs.

Students with disabilities can also increase levels of self-determination but lack of conclusive evidence exists of the effects of increasing levels of self-determination and goal attainment on student progress most valued such as grades, annual state standardized tests, and IEP goals. Future research is needed to extend findings of this dissertation study to other, more standardized and mandated indicators of progress. The flexibility of the SDLMI related to setting goals and addressing self-determination individually or in a group with students makes it a viable option for teachers as there is a need to address self-determination and content skills (Wehemeyer et al., 2004). Future research should include providing students with more opportunities to use the steps in the SDLMI to provide them with more practice on setting goals with the benefit of instructional supports provided by the teacher.

This study should be replicated in a more restrictive setting, such as a self-contained classroom in a public school or at a day school and at a residential school for the deaf. DHH
students who are mainstreamed in the public school system might be more self-determined and higher functioning than DHH students in a more restrictive setting who have a higher chance of being less self-determined. Expectations are often different in public schools and in day or residential schools for the deaf. Typically, DHH students in public schools are held to the same expectations and standards as their hearing peers by teachers. Teachers at day and residential schools for the deaf do not have a comparison group with their DHH students and can potentially lose perspective about what abilities a typically developing child has vis-à-vis a DHH student who may or may not have additional disabilities in addition to language, cognitive, and processing delays. With this population there may be more room for growth and improvement using the SDLMI than with students who already have high levels of self-determination.

Also, longitudinal studies addressing long term outcomes of self-determination instruction on post school outcomes (Wehmeyer & Palmer, 2003; Wehmeyer & Schwartz, 1997) are needed to increase empirical support for justification of self-determination instruction in home and school settings.

To date few researchers have examined the relationship between interventions such as the SDLMI and goal attainment and subsequent effects on self-determination in middle school and high school students who are DHH. To adequately judge the degree to which interventions such as the SDLMI promote self-determination and goal attainment, the interventions would need to be of a longer duration and higher intensity to ensure students develop the strategies and capacity to internalize and maintain self-determined behaviors. Self-determination should also be integrated into special education and teacher of the deaf preparation programs to allow teachers to effectively and accurately use augmentations and accommodations in the classroom with students (Thoma, Baker, & Saddler, 2002).
**Goal Attainment.** The nature of using Goal Attainment Scaling (GAS) is based on student driven goals agreed upon by both student and teacher paired with a focus on concrete, observable behaviors. Desired behaviors in communication identified by GAS techniques may have helped participants to better achieve their communication goals. This possibility needs to be confirmed with further research. Additional research should be conducted related to use of GAS related to whether different age groups of DHH students are affected by GAS procedures. Use of GAS procedures with the SDLMI should be investigated with elementary school DHH students with teachers and DHH students in postsecondary education settings with job coaches or career counselors.

Finally, results suggest that teachers perceive the SDLMI to be an effective instructional tool with effective strategies and educational supports that may be applied successfully within social contexts and academic contexts in an effort to intervene with positive effects in various content areas. Because the SDLMI is infused into ongoing instruction, less time is required for implementation compared to stand alone curricula. In-service teachers need more access and exposure to strategies to teach self-determination to their students.
APPENDIX A

GOAL ATTAINMENT SCALING FORM 2013-2014

Student:  
Teacher:  
Date:  
Goal:  

<table>
<thead>
<tr>
<th>LEVEL OF ATTAINMENT</th>
<th>MEASURE 1</th>
<th>OTHER INFORMATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Much less than expected</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Somewhat less than expected</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expected Level of Outcome</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Somewhat more than expected</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Much more than expected</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Circle the level of attainment and include date when a goal has been attained or at the end of the project period)
APPENDIX B

STUDENT’S COMMUNICATION GOAL PROGRESS MONITORING FORM

Goal:

Date: Week (from __________ to __________)

➤ Please mark ◆ on your answer.

<table>
<thead>
<tr>
<th>Number of times K. signs in response to prompts and number of words s/he uses each time</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
<th>Saturday</th>
<th>Sunday</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 times</td>
<td>◆ ◆ ◆ ◆ ◆ ◆</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 times</td>
<td>◆ ◆ ◆ ◆ ◆ ◆</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 times</td>
<td>◆ ◆ ◆ ◆ ◆ ◆</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 times</td>
<td>◆ ◆ ◆ ◆ ◆ ◆</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 time</td>
<td>◆ ◆ ◆ ◆ ◆ ◆</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 times</td>
<td>◆ ◆ ◆ ◆ ◆ ◆</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Approximate Number of Words Student uses in response to prompts in conversation

<table>
<thead>
<tr>
<th>In general, how many words does Student use when s/he responds to others?</th>
<th>10-15</th>
<th>5-9</th>
<th>1-5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>◆ ◆ ◆ ◆ ◆ ◆</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>◆ ◆ ◆ ◆ ◆ ◆</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>◆ ◆ ◆ ◆ ◆ ◆</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

➤ Please connect each dot you marked to see your progress overtime at the end of week, and answer the questions:
## Adolescent Self-Determination Assessment-Short Form

Michael L. Wehmeyer  
Todd Little  
University of Kansas  

Shane J. Lopez  
Clifton Strengths Institute  

Karrie A. Shogren  
University of Illinois

| Student's name ___________________________ | Date __________________ |
| School ___________________________ | Teacher's name ______________________ |

### Section I

Directions: Check the answer on each question that BEST tells how you act in that situation. There are no right or wrong answers.

1. I plan weekend activities that I like to do.

   - I do not do even if I have the chance
   - I do sometimes when I have the chance
   - I do most of the time
   - I do every time

2. My friends and I choose activities that we want to do.

   - I do not do even if I have the chance
   - I do sometimes when I have the chance
   - I do most of the time
   - I do every time
3. I write letters, notes or talk on the phone to friends and family.

<table>
<thead>
<tr>
<th>Options</th>
<th>I do not do even if I have the chance</th>
<th>I do sometimes when I have the chance</th>
<th>I do most of the time I have the chance</th>
<th>I do every time I have the chance</th>
</tr>
</thead>
</table>

4. I go to restaurants that I like.

<table>
<thead>
<tr>
<th>Options</th>
<th>I do not do even if I have the chance</th>
<th>I do sometimes when I have the chance</th>
<th>I do most of the time I have the chance</th>
<th>I do every time I have the chance</th>
</tr>
</thead>
</table>

5. I go to movies, concerts, and dances.

<table>
<thead>
<tr>
<th>Options</th>
<th>I do not do even if I have the chance</th>
<th>I do sometimes when I have the chance</th>
<th>I do most of the time I have the chance</th>
<th>I do every time I have the chance</th>
</tr>
</thead>
</table>

6. I choose gifts to give to family and friends.

<table>
<thead>
<tr>
<th>Options</th>
<th>I do not do even if I have the chance</th>
<th>I do sometimes when I have the chance</th>
<th>I do most of the time I have the chance</th>
<th>I do every time I have the chance</th>
</tr>
</thead>
</table>
7. I decorate my own room.

☐ I do not do even if I have the chance
☐ I do sometimes when I have the chance
☐ I do most of the time I have the chance
☐ I do every time I have the chance

Section IIA

Directions: Each of the following items tell the beginning and end of a story. Your job is to tell what happened in the middle of the story, to connect the beginning and the end. Read the beginning and ending for each item, then fill in the BEST answer for the middle of the story. There are no right or wrong answers. Remember, fill in the answer that you think BEST completes the story.

8. **Beginning** -- You are meeting with your teacher and parents. You want to take a class where you can learn skills to help you work in hotel management. Your parents want you to take the Family and Child Care class. You can only take one of the classes.

   **Middle** -- __________________________________________________________
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________

   **Ending** -- The story ends with you taking a class where you will learn hotel management.

9. **Beginning** -- You hear a friend talking about a new job opening at the local book store. You love books and want a job. You decide you would like to work at the bookstore.

   **Middle** -- __________________________________________________________
   __________________________________________________________
   __________________________________________________________
Ending -- The story ends with you working at the bookstore.

10. **Beginning** -- Your friends are acting like they are mad at you. You are upset about this.

   **Middle** -- ______________________________________________________
   
   ______________________________________________________
   
   ______________________________________________________
   
   ______________________________________________________

   **Ending** -- The story ends with you and your friends getting along just fine.

11. **Beginning** -- You go to your English class one morning and discover your English book is not in your backpack. You are upset because you need that book to do your homework.

   **Middle** -- ______________________________________________________
   
   ______________________________________________________
   
   ______________________________________________________
   
   ______________________________________________________

   **Ending** -- The story ends with you using your English book for homework.

12. **Beginning** -- You are in a club at school. The club advisor announces that the club members will need to elect new officers at the next meeting. You want to be the president of the club.

   **Middle** -- ______________________________________________________
   
   ______________________________________________________
   
   ______________________________________________________
   
   ______________________________________________________

   **Ending** -- The story ends with you being elected as the club president.
13. **Beginning** -- You are at a new school and you don't know anyone. You want to have friends.

   **Middle** -- ___________________________________________________________________
   ___________________________________________________________________
   ___________________________________________________________________
   ___________________________________________________________________

   **Ending** -- The story ends with you having many friends at the new school.

---

**Section IIB**

**Directions**: The next three questions ask about your plans for the future. Again, there are no right or wrong answers. For each question, tell if you have made plans for that outcome (by checking the appropriate box) and, if so, what those plans are and how to meet them.

14. What type of transportation do you plan to use after you graduate from high school?

   - [ ] I have not planned for that yet.  
   - [x] I plan to use
     __________________________________________
     __________________________________________
     __________________________________________
     __________________________________________

   **List four things you should do to meet this goal:**
   1) __________________________________________
   2) __________________________________________
   3) __________________________________________
   4) __________________________________________

---

**Section III**
Directions: Check the answer that BEST describes you. There are no wrong answers.

15. □ I usually agree with people when they tell me I can't do something.  or  □ I tell people when I think I can do something that they tell me I can't.

16. □ Trying hard at school doesn't do me much good.  or  □ Trying hard at school will help me get a good job.

17. □ It is no use to keep trying because that won't change things.  or  □ I keep trying even after I get something wrong.

18. □ I don't know how to make friends.  or  □ I know how to make friends.

19. □ I do not make good choices.  or  □ I can make good choices.

20. □ I will have a hard time making new friends.  or  □ I will be able to make friends in new situations.

21. □ My choices will not be honored.  or  □ I will be able to make choices that are important to me.

Section IV

Directions: Tell whether each of these statements describes how you feel about yourself or not. There are no right or wrong answers. Choose the one that BEST fits you.

22. It is better to be yourself than to be popular.  □ Yes  □ No
<table>
<thead>
<tr>
<th>Statement</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>23. I am loved because I give love.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25. I like myself.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26. I know how to make up for my limitations.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>27. Other people like me.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>28. I am confident in my abilities.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Used with permission from Dr. Michael Wehmeyer
APPENDIX D AIR SELF-DETERMINATION SCALE

AIR Self-Determination Scale®

STUDENT FORM

Student’s Name ____________________________ Date ____________

School Name ____________________________ Your Grade ____________

Your Date of Birth ____________________________ Month ____________ Day ____________ Year ____________

HOW TO FILL OUT THIS FORM

Please answer these questions about how you go about getting what you want or need. This may occur at school, or after school, or it could be related to your friends, your family, or a job or hobby you have.

This is not a Test. There are no right or wrong answers. The questions will help you learn about what you do well and where you may need help.

Goal

You may not be sure what some of the words in the questions mean. For example, the word goal is used a lot. A goal is something you want to get or achieve, either now or next week or in the distant future, like when you are an adult. You can have many different kinds of goals. You could have a goal that has to do with school (like getting a good grade on a test or graduating from high school). You could have a goal of saving money to buy something (a new iPod® or new sneakers), or doing better in sports (getting on the basketball team). Each person’s goals are different because each person has different things that they want or need or that they are good at.

Plan

Another word that is used in some of the questions is plan. A plan is the way you decide to meet your goal, or the steps you need to take in order to get what you want or need. Like goals, you can have many different kinds of plans. An example of a plan to meet the goal of getting on the basketball team would be to get better by shooting more baskets at home after school, to play basketball with friends on the weekend, to listen to the coach when the team practices, and to watch the pros play basketball on TV.

The AIR Self-Determination Scale was developed by the American Institutes for Research (AIR), in collaboration with Teachers College, Columbia University, with funding from the U.S. Department of Education, Office of Special Education Programs (OSEP), under Cooperative Agreement HO23J200005

1 AIR Self-Determination Scale, Student Form
HOW TO MARK YOUR ANSWERS

EXAMPLE QUESTION:
I check for errors after completing a project.

EXAMPLE ANSWER:
Circle the number of the answer which tells what you are most like:
(Circle ONLY ONE number).

1 Never.......................student never checks for errors.
2 Almost Never...............student almost never checks for errors.
3 Sometimes................student sometimes checks for errors.
4 Almost Always...............student almost always checks for errors.
5 Always........................student always checks for errors.

REMEMBER
There are NO right or wrong answers. This will not affect your grade. So please think about each question carefully before you circle your answer.
### THINGS I DO

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Almost</th>
<th>Sometimes</th>
<th>Almost</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I know what I need, what I like, and what I'm good at.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2. I set goals to get what I want or need. I think about what I am good at when I do this.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Things I Do – Total Items 1 + 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. I figure out how to meet my goals. I make plans and decide what I should do.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4. I begin working on my plans to meet my goals as soon as possible.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Things I Do – Total Items 3 + 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. I check how I'm doing when I'm working on my plan. If I need to, I ask others what they think of how I'm doing.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6. If my plan doesn't work, I try another one to meet my goals.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Things I Do – Total Items 5 + 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

3 AIR Self Determination Scale, Student Form

Please go on to the next page ⇒
### HOW I FEEL

#### Item 1
I feel good about what I like, what I want, and what I need to do.

<table>
<thead>
<tr>
<th>Never</th>
<th>Almost Never</th>
<th>Sometimes</th>
<th>Almost Always</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Item 2
I believe that I can set goals to get what I want.

<table>
<thead>
<tr>
<th>Never</th>
<th>Almost Never</th>
<th>Sometimes</th>
<th>Almost Always</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Item 3
I like to make plans to meet my goals.

<table>
<thead>
<tr>
<th>Never</th>
<th>Almost Never</th>
<th>Sometimes</th>
<th>Almost Always</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Item 4
I like to begin working on my plans right away.

<table>
<thead>
<tr>
<th>Never</th>
<th>Almost Never</th>
<th>Sometimes</th>
<th>Almost Always</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Item 5
I like to check on how well I'm doing in meeting my goals.

<table>
<thead>
<tr>
<th>Never</th>
<th>Almost Never</th>
<th>Sometimes</th>
<th>Almost Always</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Item 6
I am willing to try another way if it helps me to meet my goals.

<table>
<thead>
<tr>
<th>Never</th>
<th>Almost Never</th>
<th>Sometimes</th>
<th>Almost Always</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

Please go on to the next page ➞

---

4 *AIR* Self Determination Scale, Student Form
### WHAT HAPPENS AT SCHOOL

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Almost Never</th>
<th>Sometimes</th>
<th>Almost Always</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. People at school listen to me when I talk about what I want, what I need, or what I'm good at.</td>
<td>![1]</td>
<td>![2]</td>
<td>![3]</td>
<td>![4]</td>
<td>![5]</td>
</tr>
<tr>
<td>2. People at school let me know that I can set my own goals to get what I want or need.</td>
<td>![1]</td>
<td>![2]</td>
<td>![3]</td>
<td>![4]</td>
<td>![5]</td>
</tr>
<tr>
<td>3. At school, I have learned how to make plans to meet my goals and to feel good about them.</td>
<td>![1]</td>
<td>![2]</td>
<td>![3]</td>
<td>![4]</td>
<td>![5]</td>
</tr>
<tr>
<td>4. People at school encourage me to start working on my plans right away.</td>
<td>![1]</td>
<td>![2]</td>
<td>![3]</td>
<td>![4]</td>
<td>![5]</td>
</tr>
<tr>
<td>5. I have someone at school who can tell me if I am meeting my goals.</td>
<td>![1]</td>
<td>![2]</td>
<td>![3]</td>
<td>![4]</td>
<td>![5]</td>
</tr>
<tr>
<td>6. People at school understand when I have to change my plan to meet my goals. They offer advice and encourage me when I'm doing this.</td>
<td>![1]</td>
<td>![2]</td>
<td>![3]</td>
<td>![4]</td>
<td>![5]</td>
</tr>
</tbody>
</table>

**What Happens at School – Total Items 1 + 2**

**What Happens at School – Total Items 3 + 4**

**What Happens at School – Total Items 5 + 6**

---

5 AIR Self Determination Scale, Student Form
### WHAT HAPPENS AT HOME

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Almost Never</th>
<th>Sometimes</th>
<th>Almost Always</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. People at home listen to me when I talk about what I want, what I need, or what I'm good at.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2. People at home let me know that I can set my own goals to get what I want or need.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3. At home, I have learned how to make plans to meet my goals and to feel good about them.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4. People at home encourage me to start working on my plans right away.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5. I have someone at home who can tell me if I am meeting my goals.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6. People at home understand when I have to change my plan to meet my goals. They offer advice and encourage me when I'm doing this.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Please go on to the next page ➤

---

6 *AIR Self Determination Scale, Student Form*
PLEASE WRITE YOUR ANSWERS TO THE FOLLOWING QUESTIONS...

Give an example of a goal you are working on.


What are you doing to reach this goal?


How well are you doing in reaching this goal?


THANK YOU!

7  AIR Self Determination Scale, Student Form
APPENDIX E
GALLAUDET FUNCTIONAL RATING SCALES

Directions for completing the Functional Rating Scale
The purpose of the Functional Rating Scale is to obtain information about the student’s typical functioning at school and at home. Please complete all three parts of the scale by circling the descriptor that best fits each area.

- When completing the Cognitive Social Scale (Part 1) indicate if you are unable to rate the student.
- When completing the Expressive and Receptive Communication scale (Part 2), rate the student separately for each form of communication: sign communication, oral communication and simultaneous (oral and sign) communication. You can rate the student as not using one of these forms of communication. If you are unfamiliar with the student’s ability to communicate through any of these means you can circle “Unable to rate”.
- When completing the Functional Hearing scale (Part 3) rate the student’s functioning when s/he is using his/her typical amplification.

Child’s Name: _______________________________ Today’s Date: ________________

Child’s Date of Birth: __________________________

Person completing form:

Name: _______________________________ Relation to child: __________________________

Please mark one box for each row that best describes the child’s functioning

**Part 1: Cognitive and Social**

<table>
<thead>
<tr>
<th></th>
<th>Functions Normally</th>
<th>Mildly limited</th>
<th>Severely limited</th>
<th>Unable to rate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Thinking/Reasoning</strong></td>
<td>Student thinks and reasons normally, plays games, solves puzzles and problems</td>
<td>Student is slow to solve age-appropriate puzzles and problems or learn new things, but may acquire these intellectual skills with instructional supports</td>
<td>Student has considerable difficulty solving age-appropriate puzzles and problems, lags far behind peers and may require individualized instruction to master even simple tasks.</td>
<td>Rater not familiar with student’s thinking/reasoning</td>
</tr>
<tr>
<td><strong>Maintaining attention to classroom tasks</strong></td>
<td>Student usually attends to classroom instruction sufficiently to learn material.</td>
<td>Student's attention in class frequently wanders, sufficient to impair instruction, but the student can master classroom tasks with some instructional support.</td>
<td>Student has extreme difficulty attending to classroom material, even for short periods of time; student may act impulsively or withdraw frequently from classroom activities.</td>
<td>Rater not familiar with student’s attention to classroom tasks</td>
</tr>
<tr>
<td><strong>Social Interaction</strong></td>
<td>Student exhibits social skills and</td>
<td>Student exhibits some inappropriate behavior</td>
<td>Student frequently exhibits inappropriate</td>
<td>Rater not familiar with student’s social</td>
</tr>
</tbody>
</table>
### Classroom Behavior

- **Behavior that are appropriate for his/her age**
- **Behavior that may include fighting, biting, hitting, screaming. However, this behavior is not disruptive enough to require frequent separation of the student from the classroom.**
- **Social behavior and is often disruptive of classroom activities. Student often needs to be separated from the class.**
- **Interaction and classroom behavior.**

### Part 2: Expressive and Receptive Communication

<table>
<thead>
<tr>
<th></th>
<th>Functions Normally</th>
<th>Mildly limited</th>
<th>Severely limited</th>
<th>Does not know</th>
<th>Unable to rate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Expressive sign (only) communication</strong></td>
<td>Student communicates in sign expressively with his/her teacher and peers fluently and easily.</td>
<td>Student has some difficulty expressing him/herself in sign. However, difficulties can be overcome by repetition and explanation.</td>
<td>Student has considerable difficulty expressing him/herself using sign.</td>
<td>Student does not know or use sign.</td>
<td>Rater not familiar with student’s expressive sign communication</td>
</tr>
<tr>
<td><strong>Receptive sign (only) communication</strong></td>
<td>Student comprehends the sign communication of others accurately and easily.</td>
<td>Student has some difficulty comprehending sign communication from others. Difficulties can be remediated by repetition and explanation.</td>
<td>Student has considerable difficulty comprehending sign communication from others.</td>
<td>Student does not know or use sign.</td>
<td>Rater not familiar with student’s receptive sign communication</td>
</tr>
<tr>
<td><strong>Expressive spoken</strong></td>
<td>Student</td>
<td>Student has some difficulty</td>
<td>Student has considerable difficulty</td>
<td>Student does not know or use sign.</td>
<td>Rater not familiar with student’s expressive sign communication</td>
</tr>
<tr>
<td>Functions Normally</td>
<td>Mildly limited</td>
<td>Severely limited</td>
<td>Does not know</td>
<td>Unable to rate</td>
<td></td>
</tr>
<tr>
<td>--------------------</td>
<td>---------------</td>
<td>-----------------</td>
<td>---------------</td>
<td>---------------</td>
<td></td>
</tr>
<tr>
<td><strong>(only) communication</strong></td>
<td>communicates in spoken language expressively with his/her teacher and peers fluently and easily.</td>
<td>difficulty expressing him/herself in spoken language. However, difficulties can be overcome by repetition and explanation.</td>
<td>considerable difficulty expressing him/herself in spoken language.</td>
<td>know or use spoken language.</td>
<td>with student’s expressive oral communication</td>
</tr>
<tr>
<td><strong>Receptive spoken (only) communication</strong></td>
<td>Student comprehends the spoken communication of others accurately and easily.</td>
<td>Student has some difficulty comprehending spoken communication from others. Difficulties can be remediated by repetition and explanation.</td>
<td>Student has considerable difficulty comprehending spoken communication from others.</td>
<td>Student does not know or use spoken language.</td>
<td>Rater not familiar with student’s receptive oral communication</td>
</tr>
<tr>
<td><strong>Expressive simultaneous (spoken and signed) communication</strong></td>
<td>Student communicates using both spoken and sign language expressively with his/her teacher and peers fluently and easily.</td>
<td>Student has some difficulty expressing him/herself using spoken and sign language. However, difficulties can be overcome by repetition and explanation.</td>
<td>Student has considerable difficulty expressing him/herself in spoken and sign language.</td>
<td>Student does not know or use spoken and sign language simultaneously.</td>
<td>Rater not familiar with student’s simultaneous expressive communication</td>
</tr>
<tr>
<td><strong>Receptive simultaneous (spoken)</strong></td>
<td>Student comprehends the simultaneous</td>
<td>Student has some difficulty comprehending</td>
<td>Student has considerable</td>
<td>Student does not know or use</td>
<td>Rater not familiar with student’s receptive simultaneous</td>
</tr>
</tbody>
</table>

---
<table>
<thead>
<tr>
<th>Functions Normally</th>
<th>Mildly limited</th>
<th>Severely limited</th>
<th>Does not know</th>
<th>Unable to rate</th>
</tr>
</thead>
</table>
| **and signed**
communication | (spoken and sign) communication of others accurately and easily. | simultaneous (spoken and sign) communication from others. Difficulties can be remediated by repetition and explanation. | difficulty comprehending simultaneous (spoken and sign) communication from others. | simultaneous (spoken and sign) communication. | communication |

### Part 3: Functional Hearing

<table>
<thead>
<tr>
<th>Functional hearing</th>
<th>Functional Normally</th>
<th>Mildly limited</th>
<th>Severely limited</th>
<th>No functional hearing</th>
<th>Unable to rate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Functional hearing</strong></td>
<td>Student has negligible difficulty in receiving auditory information.</td>
<td>Student needs frequent spoken repetitions, occasional visual or tactile communication support or both.</td>
<td>Student realizes some benefit from auditory communication although unable to function adequately without visual or tactile communication.</td>
<td>Student receives no benefit from spoken communication.</td>
<td>Rater not familiar with student’s functional hearing.</td>
</tr>
</tbody>
</table>
APPENDIX F

SOCIAL VALIDITY SCALE (TEACHER FORM)

Date: __________

This questionnaire consists of 11 items. For the first 8 items, indicate the extent to which you agree or disagree with each statement. Please circle one of the five responses to the right. The last 3 items are open ended. Please answer honestly and openly. Your feedback is extremely valuable! Thank you!

<table>
<thead>
<tr>
<th>Questions</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The target problem behaviors selected for interventions for the students are important and adequate.</td>
<td>Strongly Agree Agree Neutral Disagree Strongly Disagree</td>
</tr>
<tr>
<td>2. Assessing the student’s behavior and using the assessment information to develop an intervention program is a valuable practice.</td>
<td>Strongly Agree Agree Neutral Disagree Strongly Disagree</td>
</tr>
<tr>
<td>3. Being involved in the establishing of students' goal and working with the students was a good investment of my time.</td>
<td>Strongly Agree Agree Neutral Disagree Strongly Disagree</td>
</tr>
<tr>
<td>4. Being involved in the assessment of student goal attainment and in the development of the goal helped to make the process more practical and feasible for me to implement.</td>
<td>Strongly Agree Agree Neutral Disagree Strongly Disagree</td>
</tr>
<tr>
<td>5. I am considering using the SDLMI procedures to understand present and future student goal attainment and self-determination.</td>
<td>Strongly Agree Agree Neutral Disagree Strongly Disagree</td>
</tr>
</tbody>
</table>
6. The goals the student and I mutually selected for the SDLMI are important and appropriate for my students.

<table>
<thead>
<tr>
<th>Opinion</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
</table>

7. The intervention program involving goal attainment and self-monitoring procedures were important and adequate.

<table>
<thead>
<tr>
<th>Opinion</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
</table>

8. Self-monitoring and student directed learning strategies are useful and appropriate to increase goal attainment and self-determination levels of students.

<table>
<thead>
<tr>
<th>Opinion</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
</table>

What was the most helpful or beneficial element of the SDLMI?

What was the least helpful/beneficial part of the SDLMI?

What are a few suggestions for changing/improving training using the SDLMI in future studies with teachers of DHH students?

APPENDIX G

SOCIAL VALIDITY INTERVIEW (STUDENT FORM)

Student: __________________________                                                                               Date: __________

I have some questions to ask you. I want to know what you think about working with your teacher to set goals. There is no right or wrong answer.

Questions

1. I liked meeting with my teacher to work together on a goal.  
   Yes  Maybe  No

2. The program helped me with my teacher helped me be good in the classroom and at other locations at school.  
   Yes  Maybe  No

3. Meeting with my teacher helped me finish a goal.  
   Yes  Maybe  No

4. Working with my teacher helped me do better in getting what I need and want at school.  
   Yes  Maybe  No

5. I would enjoy meeting with my teacher again if I was given a choice.  
   Yes  Maybe  No

APPENDIX H

COMPETENCE FIDELITY CHECKLIST

Date: _______________ Teacher: ____________________ Student: _____________________ Grade: ___________

At the end of the day, calculate daily integrity by dividing the number of checkmarks by the total number of steps documented for the specific day. Component integrity calculated by dividing the number of checkmarks for each step by the total number of days per week the intervention (SDLMI) occurred.

<table>
<thead>
<tr>
<th>SDLMI Step (Ex.: Which student question or teacher objective addressed)</th>
<th>M Date:</th>
<th>TUES. Date:</th>
<th>WED. Date:</th>
<th>TH. Date:</th>
<th>FRI. Date:</th>
<th>Approximate time spent on SDLMI (in minutes)</th>
<th>Component Integrity</th>
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</thead>
<tbody>
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<tr>
<td>Daily Integrity %</td>
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<td></td>
</tr>
</tbody>
</table>
REFERENCES


Jacobs, P. G. Deafness-Specific Tactic Knowledge: A New Understanding of Mental Health, and Social and Professional Participation.


