Spring 2017

The Self-Determined Learning Model of Instruction and Latino Students with Learning Disabilities

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The Self-Determined Learning Model of Instruction and Latino Students with Learning Disabilities

Jeanne Leone

Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of Master of Arts in Education

California State University, Monterey Bay

May 2017

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The Self-Determined Learning Model of Instruction and
Latino Students with Learning Disabilities
Jeanne Leone

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Abstract

According to the U.S. Bureau of Labor Statistics, high school graduates with a diploma are more likely to secure a job and earn more income over their lifetime than non-graduates. Latinos have the largest racial/ethnic population of adults aged 25 and older with high school non-completion. This quasi-experimental quantitative research study was conducted for four weeks, with 30 Latino high school students with learning disabilities, in a low socioeconomic school district. In addition to typical instruction, the treatment group received the Self-Determined Learning Model of Instruction (SDLMI), and set goals utilizing the Goal Attainment Scaling Model (GAS). The control group received typical instruction. The Arc’s Self-Determination Scale (SDS) was implemented pre and post with both groups to determine if the SDLMI improved student level of self-determination. Independent and paired samples t-tests were conducted to determine if there were statistically significant differences between the means of both groups on the SDS. The results indicated that the SDLMI and goal-setting did not significantly increase Latino students with LD’s level of self-determination. Some improvements were noted in the results and in on-task behaviors with the treatment group. Suggested future research includes: shorter survey, questions accessible to ELL students, and increased time for goal-setting.

Keywords: self-determination, Latino students, learning disability
Acknowledgements

This thesis is dedicated with gratitude to my family: Arabella, Benjamen, Angelica, and Mary Ann Goethals. I am also grateful for the support of my professors at California State University, Monterey Bay. Finally, I would like to thank my students for their participation in my research.
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**Literature Review**

According to the U.S. Bureau of Labor Statistics, high school graduates with a diploma are more likely to secure a job and earn more income over their lifetime than non-graduates (U.S. Bureau of Labor Statistics [BLS], 2015b). Yet, students with disabilities are less likely to graduate with a diploma when compared to their peers without disabilities (BLS, 2015a). Since students with Learning Disabilities (LD) are the largest disability category in education today, finding successful strategies to support their determination to succeed academically could ultimately increase the graduation rate for all students with disabilities (National Center for Educational Statistics [NCES], 2016a). Furthermore, Hispanic students, including Latino students from Mexico, or first generation American born Mexican–American students, are the largest growing racial/ethnic population in today’s public schools; and, they have the largest racial/ethnic population of adults aged 25 and older with high school non-completion (NCES, 2016b; NCES 2016c). Research has shown that teaching strategies such as the Self-Determined Learning Model of Instruction (SDLMI; Wehmeyer et al., 2009) and goal-setting can improve a student’s level of self-determination (Wehmeyer et al., 2000, 2012). When a student has more self-determination they can set goals, complete tasks, and earn a high school diploma which has long-term implications for the rest of their lives.

**Self Determination Theory**

Self-determination theory focuses on motivation and what motivates people to be extrinsically and intrinsically motivated (SDT; Deci & Ryan, 2000; Ryan & Deci, 2008). Extrinsic motivation requires external reinforcement to motivate task completion; whereas
intrinsic motivation means a person is motivated to complete a task simply out of interest or for growth purposes (Deci & Ryan, 2000). Deci and Ryan (2000; Ryan & Deci, 2008) theorized that people with an internal locus of control (i.e., believing that one can influence outcomes), are more intrinsically motivated and self-determined (i.e., will complete a task regardless of difficulty) than people with an external locus of control (i.e., blaming outside forces for everything). In other words, people must have autonomy (i.e., control over one's thoughts and actions) in order to feel intrinsically motivated because, if people feel controlled, or coerced, they will have a lowered feeling of well-being, and be non-self-determined (Deci & Ryan, 2000; Ryan & Deci, 2008). Students that are intrinsically motivated do not require external reinforcement to improve, and are more likely to complete tasks and improve academics regardless of external circumstances. Furthermore, Ryan and Deci (2008) found that extrinsic rewards decreased intrinsic motivation. In addition to autonomy, Ryan and Deci (2008) posited that satisfying the basic needs of competence (i.e., feeling like your actions are effective) and relatedness (i.e., having a sense of belonging) are required components of SDT. The need for competence is best satisfied when challenges are present, and successfully navigated. Relatedness can be satisfied when societal values are internalized, which creates connection between members of a societal group through common values. Research (Deci & Ryan, 2000; Ryan & Deci, 2008) has demonstrated that people will pursue goals and relationships that support the satisfaction of the basic psychological needs of autonomy, competence, and relatedness. Thus, establishing goals that students are motivated to pursue will lead to increased goal or task completion, and eventual academic success.

Students have increased levels of self-determination when they act as causal agents with volitional actions (Wehmeyer, 2005). Volitional action is a deliberate action or choice taken
without being influenced. For example, when a student starts and completes their homework without another person reminding them, they are taking a volitional action. Causal agent infers that the individual is a catalyst, initiating change by requesting assistance, or by initiating action (Wehmeyer, 2005; Wehmeyer, et al., 2000). Therefore, a student will increase their self-determination whether they initiate a specific volitional action, or they become a causal agent requesting assistance when they need to take action. Past research has utilized SDT and measured self-determination through the implementation of the SDLMI (Kleinert, Harrison, Mills, Dueppen, & Trailor, 2014; Wehmeyer et al., 2000; Wehmeyer et al., 2009).

**Self-Determined Learning Model of Instruction (SDLM)**

The SDLMI is an instructional model that guides students to be their own causal agents, establishing meaningful and achievable goals for success (Wehmeyer et al., 2009). The instruction has three phases: setting goals, creating goals and taking action, and evaluating goal progress. Many studies have implemented the SDLMI in combination with the Goal Attainment Scaling Model (GAS; Kiresuk, Smith, & Cardillo, 1994) to improve student self-determination (Agran, Blanchard, & Wehmeyer, 2000; Kelly & Shogren, 2014; Kleinert et al., 2014; Palmer et al., 2004; Wehmeyer et al., 2000). Once goal areas are established in phase one of the SDLMI, students utilize the GAS, a five-point scaling model, to create an individualized rubric to measure their goals. By establishing and measuring their own goals using the GAS, students are taking volitional action (i.e., creating change). They also become causal agents when they ask for strategies and support to implement their chosen goals. Both of these actions can lead to improved self-determination, goal completion, and eventual academic success.

In multiple studies, GAS scores have been standardized creating a measureable outcome of students achieving their goals (e.g., Agran et al., 2000; Wehmeyer et al., 2000). In a field-test
of the SDLMI (Wehmeyer et al., 2000; 2009), teachers found the method useful, and data indicated no significant differences between GAS scores across the disability categories of Intellectual Disability (ID), LD, and Emotional or Behavioral Disorder (EBD). In another study, Kleinert and colleagues (2014) evaluated 288 goals established using the SDLMI and GAS with 205 students. The majority of students in this study were in middle and high school (131), no ethnic data was reported, and included disabilities were: autism, LD, other health impairment, multiple disabilities, EBD, and ID. The types of goal categories found were: academic (i.e., grades), hobby/interest, communication, social, social communication (e.g., social and communication combined), post-secondary (e.g., relating to college or career), or life skill (i.e., contributes to independent functioning). Data analysis demonstrated that the SDLMI is an effective method of instruction for high school students because 71% of all goals established were achieved. Furthermore, significant relationships were found between: high school students and positive goal achievement, and academic goals and goal achievement (Kleinert et al., 2014). Goal achievement is one way to assist with student success, and measuring self-determination is another way that researchers have measured a student’s potential for successful goal achievement.

**ARC Self-Determination Scale and Self-Determination**

Research measuring self-determination frequently uses the Arc’s Self-Determination Scale (SDS; Wehmeyer & Kelchner, 1995) using the subcomponents of: autonomy, self-regulation, psychological empowerment, and self-realization (Erickson, Noonan, Zheng, & Brussow, 2015; Kleinert et al., 2014; Rodriguez & Cavendish, 2012; Seo, Wehmeyer, Palmer, & Little, 2015; Wehmeyer et al., 2000; Palmer et. al, 2004; Wehmeyer et al., 2012; Zheng et al., 2014). The four part SDS (Wehmeyer et al., 1995) contains 72-items to assist educators with
finding strengths and limitations for students with cognitive and developmental disabilities (e.g., ID and LD). In order to determine the significant relationship between the SDLMI and self-determination, Wehmeyer and colleagues (2012) conducted a two-year study with 312 students with ID and LD. Students were assigned to a treatment or control group and the SDLMI was implemented with the treatment group in year one, and in the control group in year two. Students were given the SDS at the beginning, middle, and end of the study. Some of the significant findings of this study are: SDLMI significantly improved self-determination for the treatment group (and the control group when they received treatment in year two), and students with LD had significantly greater increases in self-determination after SDLMI implementation than students with ID (Wehmeyer et al., 2012). Participants in this study were from many different ethnic backgrounds: 55% Caucasian, 22% Hispanic, 20% African-American, etc., however, the data for each of these subgroups was not disaggregated (Wehmeyer et al., 2012). It would be beneficial to evaluate the effectiveness of SDLMI and SDS in their ability to improve and measure self-determination within different ethnic groups to determine if findings are consistent with past research.

**Latino Students and Self-Determination**

The Hispanic population (which includes Latinos) has the highest percentage of high school non-completion (NCES, 2016b), therefore interventions should be targeted towards improving the academic success of this population. The literature shows that Latino students improve academic achievement when they are more self-determined (Close & Solberg, 2008). This increase in academic achievement was due to an increased level of emotional engagement when Latino students felt relatedness with their teachers or peers (Close & Solberg, 2008; Park, Holloway, Arendtsz, Bempechat, & Li 2012). Further, when students felt the classroom
environment supported their autonomy, competence, and relatedness it led to increased intrinsic motivation and greater classroom engagement (Park et al., 2012). In another study, researchers implemented the SDS to determine the difference between ethnicity, gender, and self-determination for students with disabilities (Rodriguez & Cavendish, 2012). The significant findings were: Latino students’ overall self-determination scores were significantly higher than Anglo students, and females in both the Latino and Anglo categories scored higher on the SDS (Wehmeyer et al., 1995) than their male counterparts (Rodriguez & Cavendish, 2012). Rodriguez and Cavendish (2012) mentioned that the higher self-determination scores of the Latino students may have been due to the fact that they are the dominant ethnic group in their community. The participants in this study are also from a community where Latinos are the dominant ethnic group. In order to assist Latino students with achieving increased high school completion over time, it is important to delineate if greater self-determination and goal-setting leads to greater academic achievement. Missing in the current body of research is the particular effect of the SDLMI and goal-setting on Latino students with LD. The purpose of this study is to determine the effect of the SDLMI and goal-setting on high school Latino students with LD’s level of self-determination.

**Method**

The purpose of this research study was to replicate parts of the research conducted by Wehmeyer and colleagues (2012) to determine if the SDLMI (Wehmeyer et al., 2009) with goal-setting was an effective way to increase Latino students with LD’s level of self-determination. Much of the research conducted has included Latino students; however the individual scores of Latino students with LD were not reported. Although this study was not conducted for as long of a time period, it provided information regarding the pretest and posttest levels of self-
determination for Latino students with LD, and provided an example of the effectiveness of the SDLMI and GAS (Kiresuk et al., 1994) for Latino students with LD.

Research Question

Does the Self Determined Learning Model of Instruction (SDLMI) and goal-setting increase high school students with learning disabilities’ level of self-determination (Wehmeyer & Kelchner, 1995)?

Hypothesis

Based on the most current research (Wehmeyer et al., 2012), it is hypothesized that Latino students with a LD would show increased levels of self-determination after using the SDLMI (Wehmeyer et al., 2009) instruction and GAS (Kiresuk et al., 1994) model of goal-setting.

Research Design

This research was a quasi-experimental quantitative design. There was a treatment and control group, and the study utilized a pretest and posttest to determine growth. The treatment group received regular instruction in addition to the intervention, whereas the control group received just regular instruction.

Independent variable. The independent variable was the SDLMI (Wehmeyer et al., 2009) which was designed to assist students with goal-setting. The purpose of the SDLMI was to facilitate self-directed: development, implementation, and reflection of goal-selection through three phases of instruction. Students were instructed as a whole group, and individual assistance with goal selection was also provided. The GAS (Kiresuk et al., 1994) was utilized to assist students with measuring and monitoring selected goals.
**Dependent variable.** The dependent variable was student level of self-determination. Self-determination can be achieved when subjects are causal agents (i.e., catalysts), taking volitional (i.e., deliberate) actions, and intrinsically experiencing a combination of: autonomy, competence, and relatedness (Deci & Ryan, 2000, 2008; Wehmeyer, 2005). Self-determination was measured using three of the four subscales of the SDS: autonomy, psychological empowerment, and self-realization (Wehmeyer & Kelchener, 1995). The researcher chose these three subscales based on a previous research study that found a significant correlation between self-determination and academic success for students with LD, using the same three subscales (Zheng, Erickson, Kingston, & Noonan, 2014).

**Setting & Participants**

The setting was a high school in a Central California Coast school district. The student demographics of the 2,700 students were as follows: 97% Latino, 1% White, and 1% Asian; and 90% socioeconomically disadvantaged (California Department of Education, 2013). This study included 26 Latino students primarily with LD conveniently selected because all students were enrolled in the researcher’s two support classes. The class period selected for the treatment group was purposeful because it contains juniors that are most in need of the intervention to graduate.

**Treatment group.** The treatment group was comprised of 11 students: six eleventh graders, five tenth graders; two females and nine males. All participants were Latino students with LD.

**Control group.** The control group was comprised of 15 students: three tenth graders, twelve ninth graders; five females, and ten males. All participants were Latino students with LD, except two students: one who was categorized as Other Health Impairment (OHI) due to a
diagnosis of Attention Deficit/Hyperactivity Disorder, and another with the eligibility category of Autism.

**Measures**

The measure used in this research study was the Arc’s Self-Determination Scale (SDS; Wehmeyer et al., 1995). This 72-item measure was designed for students to self-report on characteristics of self-determination: autonomy (32-items), self-regulation (8-items), psychological empowerment (15-items), and self-realization (14-items). Similar to two other studies, the researcher utilized only the following three sections: autonomy, psychological empowerment, and self-realization (Erickson et al., 2015; Zheng et al., 2014). Each section took approximately 15 minutes to complete. The researcher clarified survey questions with participants in the following way: small groups of five or less students, defined terms in survey questions, read questions aloud, clarified section instructions (see Appendix A).

**Validity.** The SDS was developed through the Office of Special Education Programs with funding by the U.S. Department of Education. Multiple forms of validity have been established: concurrent criterion-related validity, discriminative validity, factorial validity, and other forms of construct validity (Wehmeyer, 1995).

**Reliability.** Internal consistency reliability was calculated using Chronbach alpha for the entire scale, with the exception of the Self-Regulation subscale. Alpha for the Autonomy domain was .90, for the Psychological Empowerment domain was .73, and for the Self-Realization domain was .62 (Wehmeyer, 1995).

**Intervention**

The SDLMI (Wehmeyer et al., 2009) was used by the researcher to guide students through three phases of instruction: Phase 1 - goal development, Phase 2 - creating an action plan
for goal achievement, and Phase 3 - evaluating goal progress. The SDLMI contained worksheets created to guide student goal development and progress. Phase 1, 2, and 3 worksheets were filled in during whole group instruction. Each phase worksheet contained four questions, and each was instructed during different weeks. Instructor clarified each question in whole group instruction, provided examples for each question, and answered participant questions.

In Phase 1, students established a five-point rating scale utilizing the GAS (Kiresuk et al., 1994) model, to measure and monitor individual goals. The GAS rating scale was scored as follows: -2 for less than expected (i.e., baseline), -1 for less than expected, 0 expected level of outcome, +1 somewhat more than expected, +2 much more than expected. Each phase took 40 minutes to implement. The GAS goals were established in 15 minute meetings with students where goals were clarified, and a GAS goal rubric was created. Similar to the study conducted by Kelly and Shogren (2014), students took five minutes 3-5 times a week to self score their goal progress for the four week research period. They recorded daily scores of -2, -1, 0, +1, or +2 to indicate goal progress.

Procedures

At the beginning of the research period, the treatment and control groups were given the autonomy, psychological empowerment, and self-realization sections of the SDS. Following the pretest, the SDLMI and GAS goal scoring was implemented with only the treatment group over a period of 4 weeks. After the implementation of the SDLMI, the treatment and control groups took the same sections of the SDS as a posttest (Wehmeyer & Kelchner, 1995; Wehmeyer et al., 2009).
Data collection. Data were collected using the SDS as a pretest and posttest to measure participants’ level of self-determination. The treatment group was the only group receiving the SDLMI intervention (Wehmeyer & Kelchner, 1995; Wehmeyer et al., 2009).

Fidelity. In order to ensure fidelity to the intervention, an instructional aide assisted in the classroom 2 times per week observing 40% of the SDLMI instructional time. GAS goal monitoring with the treatment group was also observed by the instructional aide that assisted in the classroom. Fidelity with the SDLMI was 100% with the treatment group.

Ethical Considerations

Some of the ethical considerations with this research were related to confidentiality and time for participants. In order to address participant confidentiality, participants in both the treatment and control groups were assigned numbers (provided by the researcher) to identify all paperwork and data for each participant, rather than a name. Another ethical consideration was the time required to participate in SDLMI, goal-setting and monitoring, and SDS pre-research and post-instruction. The ethical consideration of time was addressed by taking up to 30 minutes per day (e.g., two 30 minute periods to complete phase one) to implement each phase of the instructional intervention, and five minutes three-to-five times a week to score GAS scores. Additionally, since each student worked at their own pace, if they completed their SDS, GAS goal scoring, or SDLMI worksheets early, they were allowed to return to their individual work in the intervention classroom (Kiresuk et al., 1994; Wehmeyer et al., 2009; Wehmeyer & Kelchner, 1995).

Validity threats. One of the threats to validity was student absence. When students were absent when the SDS (Wehmeyer & Kelchner, 1995) was implemented pretest or posttest, they completed the survey when they returned to school within the same week of survey
implementation. Another threat to validity was bias. Since the participants were the researcher’s students, there was a potential for the researcher to be biased in how survey questions were clarified during the implementation of the SDS, and how students were guided to create goals. This threat was addressed by having participants self-score GAS (Kiresuk et al., 1994) goals and SDS questions (Wehmeyer & Kelchner, 1995). Student apathy was the final threat to validity. Apathy (i.e., not wanting to participate) was addressed by having participants work individually with researcher to set goals and complete SDS surveys. Students were also rewarded for their participation after the study was complete, and with an edible reward when the SDS’s were completed.

**Data Analyses**

All data were entered into the Statistical Package for the Social Sciences® (SPSS®) for Windows, version 24.0.0 (SPSS, 2016). No names or identifying information was included in the data analysis. Before analyses were conducted all data were cleaned to ensure no outliers were present (Dimitrov, 2012). After cleaning the data, the final sample size was nine participants for the treatment group (one was expelled and one missed the posttest) and 14 participants for the control group (one student missed the posttest). Independent (control and treatment groups) and paired (pre test and post test) sample t-tests were conducted to determine the significant difference in self-determination between scores on the SDS (Wehmeyer & Kelchner, 1995). Further, before interpreting the analytical output, Levene’s Homogeneity of Variance was examined to see if the assumption of equivalence was violated (Levene, 1960). If Levene’s Homogeneity of Variance was not violated (i.e., the variances were equal across groups), data were interpreted for the assumption of equivalence; however, if the variances were not equal across groups the corrected output was used for interpretation.
Results

Two independent samples t-test were conducted on the whole sample \((n = 27)\) for both the pre and post assessment scores. Results for the pre-test were: Levene's Homogeneity of Variance was not violated \((p > .05)\), meaning the variance between groups was not statistically different and no correction was needed, and the t-test showed non-significant differences between the mean scores on the pre-tests between the two groups \(t(35) = .09, p > .05\) There was no significant difference between the pre test scores for both the treatment and control groups and so the two groups were comparable (see Table 1).

Results for the post-test were: Levene's Homogeneity of Variance was not violated \((p > .05)\), meaning the variance between groups was not statistically different and no correction was needed, and the t-test showed non-significant differences between the mean scores on the post-tests between the two groups \(t(21) = .44, p > .05\). There was no significant difference between the post test scores for both the treatment and control groups (see Table 1). These findings do not support the initial hypothesis that Latino students with a LD would show increased levels of self-determination after using the SDLMI (Wehmeyer et al., 2009) instruction and GAS (Kiresuk et al., 1994) model of goal-setting.

| Table 1 |

| Results of Independent Samples T-Tests |
|------|------|
|       | Mean | SD   |
| Pre Test                      |
| Treatment          | 78.56 | 17.50 |
| Control           | 79.29 | 20.24 |
| Post Test                      |
| Treatment          | 74.22 | 16.08 |
| Control           | 77.64 | 19.58 |

Note. SD = Standard Deviation.
After determining the differences between pre and post assessment scores between groups, two paired t-tests were run for both groups (i.e., treatment and control) to determine if participants mean scores from pre to post were significantly different within each group (see Table 2). Results for each group were as follows: treatment group, \( t(8) = .759, p > .05; \) control group, \( t(13) = .59, p > .05. \) There was no significant difference from pre to post test scores for both the treatment and control groups. Meaning that, implementation of the SDLMI (Wehmeyer et al., 2009) did not significantly impact the post scores of the treatment group.

Table 2

<table>
<thead>
<tr>
<th>Results of Paired T-Tests</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment Group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre</td>
<td>78.56</td>
<td>17.50</td>
</tr>
<tr>
<td>Post</td>
<td>74.22</td>
<td>16.08</td>
</tr>
<tr>
<td>Control Group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre</td>
<td>79.29</td>
<td>20.24</td>
</tr>
<tr>
<td>Post</td>
<td>77.64</td>
<td>19.59</td>
</tr>
</tbody>
</table>

*Note.* SD = Standard Deviation.

**Discussion**

The purpose of this study was to determine if the SDLMI (Wehmeyer et al., 2009) and goal-setting would increase Latino students with LD’s level of self-determination. The study included 27 Latino students with LD in either a treatment or control group, and all were given the same pre and post test to measure their level of self-determination (SDS; Wehmeyer & Kelchner, 1995). Over a four week period of time, students in the treatment group received the SDLMI, created and measured goals with the GAS scaling model, while the control group received instruction as normal. The goals that the students created were chosen by the students,
and while the researcher retained the GAS (Kiresuk et al., 1994) scoring sheets and passed them out daily, the students scored their own goals independently. After four weeks, both groups took the posttest and independent and paired t-tests were conducted to determine if statistically significant differences occurred between groups. For the participants in this study, the results indicated that the SDLMI and goal-setting did not significantly increase Latino students with LD’s level of self-determination.

The literature indicates that students will be more motivated to pursue and complete goals when they satisfy the basic psychological needs of autonomy, competence, and relatedness (Deci & Ryan, 2000, 2008). As theorized by Deci and Ryan (2000, Ryan & Deci, 2008), people are more intrinsically motivated and self-determined when they have autonomy and are not being controlled or coerced by some outside force. The participants in this study autonomously chose an area to focus on with their goal creation, and they also monitored their progress independently. Kelly and Shogren (2014) were one of the first researchers to utilize a study where students self-score their GAS (Kiresuk et al., 1994) goals. Kelly and Shogren (2014) conducted a multiple baseline across participant design where the students received SDLMI instruction and scored their on and off-task behavior using the GAS scaling model (Kiresuk et al., 1994). All four of the students in Kelly and Shogren’s study (2014) showed significant increases in on-task behavior and significant decreases in off-task behavior.

Similar to the students in Kelly and Shogren’s study (2014), the students in this study that chose goals related to attentiveness and task-completion showed an increase in on-task behaviors in class, even though they did not have a significant increase in self-determination pre to post survey as measured by the SDS (Wehmeyer & Kelchner, 1995). In addition to individual participant on-task improvements, implementing goal-setting with the SDLMI had a positive
effect on the overall on-task behaviors of all students in the treatment group. The participants were more engaged with their academics as a result of goal-setting and focusing on academic goals. However, the on-task engagement of students in the treatment group was not reflected in the results of student self-determination scores on the SDS (Wehmeyer & Kelchner, 1995), as reported in previous research.

Research studies have found that utilizing the SDLMI combined with goal-setting using the GAS scaling model increases student self-determination, and self-determined behavior (Kleinert et al., 2014; Palmer et al., 2004; Wehmeyer et al., 2000; Wehmeyer et al., 2012). However, the participants in this study did not have the same results, and their self-determination was not measurably increased as a result of the SDLMI and goal-setting. This difference may be due to a few factors related to goal selection, and length of research time. The participants in the study conducted by Wehmeyer and colleagues (2012) selected both an academic and transitional goal to work on at all times, over a longer period of time. The students in this study only selected one academic goal to work on in the four weeks of the study. Many of the questions on the SDS (Wehmeyer & Kelchner, 1995) pertain to transitional factors that would not have increased without an attempt to change behaviors through transitional goal selection. Therefore, the lack of focus on transitional goals may have affected the self-determination scores as measured on the SDS for participants in this study.

Another reason that previous research may have had different results could be related to the length of time in which the research was conducted. Wehmeyer et al. (2012) conducted his study over two years with a larger sample of participants. The participants took the SDS at the end of the first and second years, and had significantly increased their self-determination scores in each year of the study (Wehmeyer et al., 2012). Wehmeyer et al. (2012) explained that
sustained efforts utilizing the SDLMI directly impacted the increase in self-determination scores received on the SDS (Wehmeyer & Kelchner, 1995). Within the three phases of the SDLMI, students evaluate their progress with their goals and determine if they have achieved their goal, and if not, modify their approach to goal achievement (Wehmeyer et al., 2009). In this study, the students were starting to see the results of their efforts towards goal achievement when the study was completed. Therefore, a longer period of time with SDLMI, goal-setting and completion could have impacted the self-determination scores of participants on the SDS in a longer study (Wehmeyer & Kelchner, 1995; Wehmeyer et al., 2009). There were, however, some subscores within the ARC Self-Determination Scale (Wehmeyer & Kelchner, 1995) that did increase for the treatment group from pre- to post-test even though these increases were not significant.

Within the part one, “Autonomy” section of the assessment, there are two sections: 1E titled, “Acting on the basis of preferences, beliefs, interests and abilities: Post-school directions” and 1F titled, “Acting on the basis of preferences, beliefs, interests and abilities: Personal expression.” Both of these subsections increased from pre to post test for the treatment group. The increase in these scores could be due to the fact that the questions in these subsections focus on career and money (i.e., “I work or have worked to earn money”, and “I choose how to spend my personal money”), and students included in the treatment group were a little older and started working after school during the study. Additionally, the treatment group improved slightly in section three (i.e., Psychological Empowerment), and section four (i.e., Self-Realization), however the increase in scores was not significant. The increase in scores may be due to the fact that the students in the treatment group are more mature and, therefore, more comfortable agreeing with questions like, “It is better to be yourself than to be popular” or “I can make my
own decisions.” Another reason significant results were not found, even though there were some differences, may be due to the large standard deviation numbers.

Within both groups, the standard deviation numbers were larger than expected. With typical research, the expected result may be a standard deviation of 3 or less, however, the reported standard deviation numbers ranged from 16-20 within both groups. Standard deviation is a measure of how variable scores are in relation to the mean. These scores indicate a large variability in student scores which could be a result of English Language learning (i.e., ELL: students that are not fluent in English) and individual differences in ability with special education students. The students in this sample may not have been able to truly internalize the items on the survey and thus the scores on the assessments were extremely spread out around the mean. Therefore, future studies may want to include questions that are culturally relevant for students from a variety of economic and cultural backgrounds to engage them more fully in the content of the survey. Finally, the findings in this research study do not support the work of previous researchers (Kleinert et al., 2014; Palmer et al., 2004; Wehmeyer et al., 2000; Wehmeyer et al., 2012), and this could also be due to some of the limitations of the current study.

Limitations

One very important limitation of this current study is the difficulty that ELL participants had with the language of the SDS (Wehmeyer & Kelchner, 1995). In both the treatment and control groups, some of the students did not carefully consider and answer each question even with researcher support (i.e., answering in small groups, reading each question and explaining difficult language). Some of the questions were difficult to understand and challenging for the researcher to explain. For example, two of the questions that required the most clarification were number 66, “I don’t accept my own limitations” and number 70, “I know how to make up
for my limitations” (Wehmeyer & Kelchner, 1995). The students were unclear what limitations meant and had difficulty answering both questions.

In the small groups, some of the students had difficulty processing auditory explanations of the questions, and they continued to select random answers without asking for clarification. The survey contained 62 questions that the students had to answer and it took most of the students an entire 50-minute period to complete. Future studies should create a shorter survey that measures self-determination based on culturally relevant questions focused around the student school experience. Sustained interest over 62 questions can be very challenging, and ELL students may be more inclined to engage in a shorter survey with fewer questions. Another limitation of this study is related to the fact that the participants struggled with the language of the SDS (Wehmeyer & Kelchner, 1995), which led to re-implementation of the SDS pretest.

The SDS (Wehmeyer & Kelchner, 1995) took additional time to complete because the researcher chose to re-implement the survey to smaller groups of students to provide more language support for the ELL students to clarify individual survey questions. The majority of the students had difficulty with the vocabulary with many of the survey questions. The researcher realized after the first implementation of the SDS, in order to get more genuine responses, the vocabulary in the questions needed to be more clearly defined. This led to smaller group implementation of the SDS over additional week. Future research could include a researcher fluent in the primary language of the participants, and possibly a survey in the primary language of the participants. The students in the current study may have benefitted from researcher explanations in Spanish when vocabulary clarifications were required. However, if a person with the primary language is not available to conduct the survey, it is recommended that a
shorter pre and post test be created that is more accessible for ELL students. The final limitation of this current study is the length of time in which it was conducted.

This study was conducted over a shorter period of time than most of the studies reported (Wehmeyer et al., 2012; Kleinert et al., 2014). If this study had taken place over a longer period of time, self-determination may have increased in the post SDS (Wehmeyer & Kelchner, 1995). Additionally, goal-setting took longer than expected with the students after phase one of the SDLMI (Wehmeyer et al., 2009). Had the goal-selection process been faster, the students may have had more time to report their scores on individual goals, which could have led to increased self-determination scores on the SDS (Wehmeyer & Kelchner, 1995).

Additionally, as mentioned by previous researchers (Wehmeyer et al., 2000; Kleinert et al., 2014), students do not make the most effective goals the first time they are goal-setting with teacher support. Therefore, future studies should be conducted over longer periods of time where students can complete multiple goals before measuring their impact on self-determination. Previous research (Wehmeyer et al., 2000; Kleinert et al., 2014), also found that students are more successful with a greater number of completed goals. The students in this study only had time to create and track one goal. Thus, future studies should have an increased intervention time period so participants can create and track a greater number of goals, which may lead to increased self-determination scores on the SDS (Wehmeyer & Kelchner, 1995). Although, there were many limitations of the current study, these limitations could be addressed in future research.

**Future Research**

The current study has some valuable results that could inform future research studies. As previously reported, one of the most challenging factors discovered was the difficulty ELL
Latino students with LD encountered due to the number of questions and language of the SDS (Wehmeyer & Kelchner, 1995). Suggestions for future research include providing a shorter survey with questions that are more accessible to ELL students that will measure self-determination. The survey could also be provided to the students in their primary language. Additionally, it would be beneficial to have a survey that is more culturally relevant to students living in lower socioeconomic communities. As suggested by the co-teacher in the classroom with the control group, many of the questions on the survey had never been considered by students before they took the survey. For example, question number 22, “I work on school work that will improve my career chances” (Wehmeyer et al, 1995). The fact that school work is connected to career choices may never have been considered before to this sample of students. An alternative would be to use subtests or smaller portions of the included SDS (Wehmeyer & Kelchner, 1995) that specifically relate to the area of self-determination that the researcher wants to focus upon (e.g., autonomy, self-regulation, psychological empowerment, and self-realization). This current study used 62 out of the 72 survey questions similar to previous research (Erickson et al., 2015; Zheng et al., 2014). However, it is recommended that future researchers choose even smaller portions of the SDS (Wehmeyer & Kelchner, 1995) to improve Latino student engagement.

Final recommendations for future studies would be to add additional research time. Previous researchers (Kleinert et al., 2014; Wehmeyer et al., 2012) found that longer implementation of the SDLMI and goal-setting led to increased self-determination scores on the SDS (Wehmeyer & Kelchner, 1995). Even though significant results were not found within the current study, it would be valuable to determine if more time would result in an increase in self-determination for a predominantly Latino population of students with LD. It is imperative that
educators work with researchers to find ways to help improve the graduation rates of Latino students with LD, since they are the fastest growing population in education today (BLS, 2015b; NCES, 2016b).
References


Appendix A

The Arc’s Self-Determination Scale

The Arc’s Self-Determination Scale-Adolescent Version is a student self-report measure of self-determination designed primarily for use by, and normed with, adolescents with cognitive and developmental disabilities. The scale has two primary purposes:

- To provide students and educators a tool that assists them to identify student strengths and areas of support and instructional need in self-determination; and
- To provide a research tool to examine the relationship between and among self-determination and factors that promote/inhibit self-determined behavior, to evaluate the efficacy of interventions to promote self-determination, and for use with related research activities.

The scale has 72 items and is divided into four sections. Each section examines a different essential characteristic of self-determined behavior: Autonomy, Self-Regulation, Psychological Empowerment and Self-Realization. Each section has unique directions that should be read before completing the relevant items. Scoring the scale (see Procedural Guidelines for scoring directions) results in a total self-determination score and subdomain scores in each of the four essential characteristics of self-determined behavior. The Arc’s Self-Determination Scale Procedural Guidelines (http://www.peachcenter.org/education_and_training/self-determination/default.aspx) provides information for administration and scoring the measure and a discussion about the use of self-report measures in general. The scale should not be used until the administrator is thoroughly familiar with these issues.

The Arc’s Self-Determination Scale-Adolescent Version was developed by Michael Wehmeyer and Kathy Kelchner at The Arc of the United States with funding from the U.S. Department of Education, Office of Special Education Programs (OSEP), under Cooperative Agreement #H326D06012. Questions used in Section One (Autonomy) were adapted, with permission from the authors, from the Autonomous Functioning Checklist. Questions used in Section Four (Self-Realization) were adapted, with permission from the author, from the short form of the Personal Orientation Inventory. Appropriate citations for both instruments are available in The Arc’s Self-Determination Scale Procedural Guidelines. The Arc gratefully acknowledges the generosity of these researchers.
### Section One: Autonomy

#### 1A. Independence: Routine personal care and family oriented functions.

<table>
<thead>
<tr>
<th>Question</th>
<th>Never</th>
<th>Sometimes</th>
<th>Most of the time</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I make my own meals or snacks.</td>
<td>do not even if I have the chance</td>
<td>do sometimes when I have the chance</td>
<td>do most of the time I have the chance</td>
<td>do every time I have the chance</td>
</tr>
<tr>
<td>2. I care for my own clothes.</td>
<td>do not even if I have the chance</td>
<td>do sometimes when I have the chance</td>
<td>do most of the time I have the chance</td>
<td>do every time I have the chance</td>
</tr>
<tr>
<td>3. I do chores in my home.</td>
<td>do not even if I have the chance</td>
<td>do sometimes when I have the chance</td>
<td>do most of the time I have the chance</td>
<td>do every time I have the chance</td>
</tr>
<tr>
<td>4. I keep my own personal items together.</td>
<td>do not even if I have the chance</td>
<td>do sometimes when I have the chance</td>
<td>do most of the time I have the chance</td>
<td>do every time I have the chance</td>
</tr>
<tr>
<td>5. I do simple first aid or medical care for myself.</td>
<td>do not even if I have the chance</td>
<td>do sometimes when I have the chance</td>
<td>do most of the time I have the chance</td>
<td>do every time I have the chance</td>
</tr>
<tr>
<td>6. I keep good personal care and grooming.</td>
<td>do not even if I have the chance</td>
<td>do sometimes when I have the chance</td>
<td>do most of the time I have the chance</td>
<td>do every time I have the chance</td>
</tr>
</tbody>
</table>

#### 1B. Independence: Interaction with the Environment.

<table>
<thead>
<tr>
<th>Question</th>
<th>Never</th>
<th>Sometimes</th>
<th>Most of the time</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>7. I make friends with other kids my age.</td>
<td>do not even if I have the chance</td>
<td>do sometimes when I have the chance</td>
<td>do most of the time I have the chance</td>
<td>do every time I have the chance</td>
</tr>
<tr>
<td>8. I use the post office.</td>
<td>do not even if I have the chance</td>
<td>do sometimes when I have the chance</td>
<td>do most of the time I have the chance</td>
<td>do every time I have the chance</td>
</tr>
<tr>
<td>9. I keep my appointments and meetings.</td>
<td>do not even if I have the chance</td>
<td>do sometimes when I have the chance</td>
<td>do most of the time I have the chance</td>
<td>do every time I have the chance</td>
</tr>
<tr>
<td>10. I deal with sales people at stores and restaurants.</td>
<td>do not even if I have the chance</td>
<td>do sometimes when I have the chance</td>
<td>do most of the time I have the chance</td>
<td>do every time I have the chance</td>
</tr>
</tbody>
</table>