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Exploring Personal and Environmental Characteristics that Predict Self-Determination

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Abstract

This study examined the degree to which nine personal characteristics (age, gender, disability, and need for educational support) and environment conditions (hours in academic classes with general education peers, hours in non-academic classes with age-peers, attendance at the most recent IEP meeting, transition goal for the future on the IEP, and experience with setting goals for the future) predicted student's relative level of self-determination.   Age, disability label, hours in academic classes with general education peers, and goal setting experience were significant predictors, accounting for 22% of the variance in self-determination scores. Implications for future research and practice are discussed.

Exploring Personal and Environmental Predictors of Self-Determination

Promoting the self-determination of students with disabilities is recognized as best practice in special education and transition services (Wehman, 2012). Self-determination is a valued outcome of secondary education (Alwell & Cobb, 2006; Wehmeyer et al., 2012) as well as a predictor of positive post-school outcomes, including employment and independent living (Wehmeyer & Palmer, 2003; Wehmeyer & Schwartz, 1997). Over the past two decades, a number of instructional strategies and curricula have been developed to teach skills associated with self-determined behavior (Algozzine, Browder, Karvonen, Test, & Wood, 2001; Cobb, Lehmann, Newman-Gonchar, & Alwell, 2009). More recently, attention has been directed to individual and ecological predictors that impact self-determination (Y. Lee et al., 2010; Shogren, 2006). Understanding individual and ecological predictors of self-determined behavior promotes a greater understanding of personal characteristics and environmental conditions that influence self-determination as well as factors that should be considered in the design and implementation of interventions to promote the development of skills associated with self-determination.

Theories of self-determination acknowledge the importance of both personal characteristics and environmental conditions. The functional theory of self-determination (Wehmeyer, 1999, 2003) states that (a) individual *capacity*, influenced by learning and development; (b) *opportunity*, influenced by environments and experiences; and (c) *supports and accommodations* impact the emergence of self-determination (Wehmeyer, 1999). Thus, instruction to promote skills associated with self-determination is only one factor that potentially influences the development of student self-determination.   A diverse array of personal characteristics and environmental conditions also has an impact. Understanding these characteristics and conditions is necessary to develop appropriate supports and accommodations

that are facilitative of self-determination. Further, knowledge of the personal and environmental factors that influence self-determination must be considered to individualize the design and implementation of interventions to support self-determination.

With regard to personal characteristics, research has identified several characteristics that are related to student's relative level of self-determination. For example, research has consistently shown a relationship between self-determination and intellectual functioning, with individuals with lower levels of intellectual functioning reporting lower levels of self-determination (Shogren, 2006; Wehmeyer et al., 2012). However, other research has suggested that intellectual functioning may interact with environmental conditions, such as a lack of opportunities for choice and control (Wehmeyer & Garner, 2003) and that all individuals, regardless of intellectual functioning, can develop self-determination, particularly when appropriate supports are provided. Research has also suggested that gender has an influence on self-determination, although this difference has varied across cultural contexts. For example, Shogren et al. (2006) found that females with disabilities in a sample from the United States reported higher levels of self-determination while Nota, Ferrari, Soresi and Wehmeyer (2007), in a sample of Italian adolescents with disabilities, found males reported higher levels of self-determination. As might be expected given the developmental nature of self-determination, researchers have also linked age (Y. Lee et al., 2010) with self-determination, with increased levels of self-determination developing with increased age. More research is need on personal characteristics, particularly discerning the impact of disability label, gender, age, and the interaction of these variables with environmental conditions in predicting relative levels of self-determination.

With regard to environmental conditions, a small but growing body of research has explored factors related to classroom and instructional variables. For example, researchers have explored the relationship between self-determination, inclusion, and access to the general education curriculum (S. H. Lee, Wehmeyer, Palmer, Soukup, & Little, 2008; Shogren, Palmer, Wehmeyer, Williams-Diehm, & Little, in press; Shogren et al., 2007; Zhang, 2001). Again, however, findings have been mixed, early research Zhang (2001) found that students with intellectual disability had more opportunities to engage in self-determined behavior in resource rooms than in general education classrooms. However, more recent research has suggested a positive impact of inclusive experiences (Shogren et al., 2007) and a relationship between self-determination and access to the general education curriculum (S.H Lee et al., 2008; Shogren et al., in press). Research has also suggested that variables related to engagement in activities related to the transition planning process can influence self-determination. For example, researchers have found a positive relationship between feeling empowered in transition planning (Shogren et al., 2007) and receiving instruction on directing transition planning (Y. Lee et al., 2010) and self-determination.

Purpose of the Study

Theories of self-determination acknowledge that a diverse array of personal characteristics and environmental conditions influence student's relative levels of self-determination. Research teams have explored diverse personal and environmental characteristics and work is needed that integrates analyses of these diverse characteristics to identify the most salient predictors of student's relative levels of self-determination. In the present study, we explore the degree to which multiple personal characteristics (age, gender, disability, and need for educational support) and environment conditions (hours in academic classes with general

education peers, hours in non-academic classes with age-peers, attendance at the most recent IEP meeting, transition goal for the future on the IEP, and experience with setting goals for the future) predicted student's relative level of self-determination.

Methods

Participants and Procedures

Study participants were 312 high school students receiving special education services under the categorical label of intellectual disability (30%) or learning disability (70%). The mean age of the participants was 16.5 ($SD = 1.40$; Range 13.5 – 21.3), and the sample was 56% male and 44% female. Participants were recruited from 38 high school campuses in 20 school districts in the Midwest and South Central United States to participate in a longitudinal project that focused on implementing strategies to promote student self-determination at the secondary level. For the purposes of these analyses, baseline data from the project were utilized. To recruit participants, special education administrators (e.g., directors of special education, transition specialists) were contacted. Interested districts identified campuses and special education teachers to participate. Teachers then identified students and parent/guardian consent forms were sent home with students.   After consent was received, teachers provided information on demographic and instructional context and activities (described below) for each student, and teachers and project staff administered a student self-report measure of self-determination (described below) to all students for whom a parent/guardian had provided consent for participation.

Instrumentation

Predictor Variables. Teachers provided information on student demographic variables and the instructional context and activities experienced by the student on a standard demographic

form provided to all teachers by the researchers. Teachers completed the forms from their

knowledge of the student and their instructional program as well as a review of the student's IEP.

For the purpose of this study, multiple individual or demographic predictors were used (age,

gender, disability label, need for educational support) as well as multiple ecological or

instructional variables (e.g., hours in academic classes with general education peers, hours with

peers without disabilities in non-academic classes, transition goal for the future, goal setting

experience, and attendance at last IEP meeting).

Specifically, teachers were asked to provide on the demographic form student's date of

birth, gender (male or female) and disability label. Teachers were also asked to rate the student's

need for educational support during the school day on a Likert-type scale ranging from 1 (*no*

support needed) to 5 (*total support needed*). Teachers were also asked, based on a review of the

IEP and their experience with the student to indicate (a) the number of hours per day that

students spent in academic classes with general education peers (1 = 0 hours; 2 = less than 1

hour; 3 = between 1 and 3 hours; 4 = between 3 and 5 hours; 5 = full day), (b) the number of

hours they spend in non-academic classes with age-peers (1 = 0 hours; 2 = less than 1 hour; 3 =

between 1 and 3 hours; 4 = between 3 and 5 hours; 5 = full day, (c) attendance at last IEP

meeting (yes or no), (d) if the student had a goal for the future (i.e., transition goal) on their IEP

(yes or no) , and (e) if, based on the teacher's work with the student, if the student had received

instruction and experience with the process of setting a personal goal for transition (1 = no

experience; 2 = some experience; 3 = proficient at setting goals).

Outcome Variable – The Arc's Self-Determination Scale. The Arc's Self-Determination

Scale (SDS, Wehmeyer & Kelchner, 1995) was used as the measure of our outcome variable,

self-determination. The SDS is a 72-item self-report measure of based on Wehmeyer's (1996)

functional theory of self-determination. A total of 148 points are available on the scale, with higher scores indicating higher levels of self-determination. An overall self-determination score, as well as subscale scores for each of the four essential characteristics of self-determined behavior: autonomy, self-regulation, psychological empowerment, and self-realization (Wehmeyer, 1996a) can be calculated. The SDS was developed and normed with 500 adolescents with cognitive disabilities (Wehmeyer, 1996b) and subsequent research (Shogren, Lopez, Wehmeyer, Little, & Pressgrove, 2006; Shogren, Wehmeyer, et al., 2006) has verified the proposed theoretical structure of The Arc's Self-Determination Scale, (i.e., four related, but distinct subscales [autonomy, self-regulation, psychological empowerment, and self-realization] that contribute to a higher-order self-determination construct).

Analyses

To examine the individual and ecological variables that best predicted student self-determination, multiple regression analyses were utilized using IBM SPSS 20. Multiple regression analyses allows researchers to explore the relationship between several predictor variables and a dependent variable. The dependent variable in our analyses was student's self-determination score on *The Arc Self-Determination Scale*, and nine predictor variables were examined: age, gender, disability, need for educational support, hours in academic classes with general education peers, hours in non-academic classes with age-peers, goal for the future, goal setting experiences, and attendance at last IEP meeting. The nine potential predictor variables were entered simultaneously into the multiple regression analysis and the stepwise method was used as a variable selection method to identify which of the nine predictors significantly contributed to self-determination outcomes.

<div align="center">

Results

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Table 2 displays relevant descriptive statistics, means and standard deviations and percentages for the predictor variables and Table 3 provides the zero-order correlations between the predictor variables and self-determination. Table 4 shows the results of the multiple regression analysis, including regression coefficients for the significant predictors, adjusted R^2, and the model fit statistics. Disability label, goal setting experience, age, and hours in academic classes with general education peers were all significant predictors of self-determination. Taken together, these variables explained 22% of the variance in self-determination scores.

Discussion

The purpose of the present study was to explore personal characteristics and environmental conditions that predict student's relative level of self-determination. Nine predictors that have been associated with self-determination in past research were examined. Four predictors explained 22% of the variance in self-determination scores.

Limitations of the Study

Prior to discussing our findings, it is necessary to acknowledge limitations of the research. First, a restricted number of variables were available to analyze as predictors. While we attempted to collect a representative array of data, we could not capture all data on personal characteristics and environmental conditions that might be related to self-determination. We also were not able to collect data on student's level of intelligence; instead we used student's primarily disability label from school records as a predictor and asked educators to make ratings of each student's educational support needs. We did not, however, have teachers complete a formal measure of support need (e.g., the Supports Intensity Scale (Thompson et al., 2004)). We relied on teacher report for a number of variables (e.g., goal setting experience) and did not verify data provided on inclusion in academic and non-academic classes, although we requested

that teachers gather this data based on their experience with the student and a review of the IEP. Finally, this sample was a convenience sample, and is not necessarily representative of the population of students with disabilities receiving services under the label of intellectual and learning disability. However, despite these limitations, we believe this data provides important information that advances our knowledge of personal characteristics and environmental conditions that predict self-determination and provides suggestions for future research.

Predictor of Self-Determination

Several personal characteristics and environmental conditions showed a relationship with self-determination, and four – two personal characteristics and two environmental conditions – were significant predictors of self-determination. As shown in Table 2, disability label was a significant predictor of self-determination with students with intellectual disability showing lower relative levels of self-determination than students with learning disabilities. Age was also a significant predictor with older students showing higher levels of self-determination. Both of these relationships are congruent with past research, but highlight the importance of further research specifically targeting personal characteristics when designing and implementing self-determination interventions.

Specifically, younger students and students with intellectual disability may need additional supports and accommodations when participating in instruction to support the development of self-determination skills. Younger students may have fewer experiences with goal setting and problem solving and may need more explicit instruction to learn to use these skills; repeated opportunities to practice these skills throughout the lifespan will be important. Given that self-determination develops over time, research on strategies to build self-determination skills and create opportunities for the expression of self-determination across the

lifespan is needed (Erwin & Brown, 2003; Shogren & Turnbull, 2006). Integrating instruction across early and middle childhood and adolescence has the potential to support the achievement of self-determination and valued adult outcomes for youth as they transition from school.

For students with intellectual disability, repeated opportunities to practice these skills and support in generalizing these skills to different environments and activities may be essential components of individualized interventions to promote self-determination for students with this disability label (Schalock et al., 2010; Wehmeyer & Mithaug, 2006). And, while teachers ratings of student's need for education support was not a significant predictor of self-determination, it was significantly negatively correlated (see Table 2) with disability label suggesting there is a relationship between need for educational support and disability label. This further highlights the importance of considering support needs when individualizing self-determination instruction. Further research is needed on how to individualize instruction and supports for students with diverse disability labels, particularly as research has consistently suggested that teachers report having limited knowledge of how to teach skills associated with self-determination and that they struggle most with understanding how to teach self-determination skills to students with more significant disabilities (Wehmeyer, Agran, & Hughes, 2000).

The lack of association between gender and self-determination in our analyses is interesting, particularly given past research that has suggested a relationship between gender and self-determination (Nota et al., 2007; Shogren, 2006). There are likely sample specific issues to the studies that need to be further researched. Examining larger, nationally representative datasets, such as data from the National Longitudinal Transition Study 2, may provide additional insight into key personal characteristics that are predictive of student's relative levels of self-determination.

Two environmental variables predicted self-determination, hours in academic classes with general education peers and goal setting experience. Interestingly, hours with peers outside of academic classes, having a goal for the future, and attendance at IEP meeting did not predict self-determination. The finding that only hours in academic classes and not hours outside academic coursework with age peers predict self-determination suggests the strong relationship between self-determination skills and the general education curriculum that other researchers have suggested (S. H. Lee et al., 2008; Shogren et al., in press). Although causal relationships cannot be inferred from our data, it may be that students who have self-determination skills are more likely to be successful in the general education curriculum or that students participating in the general education curriculum have more natural opportunities for developing self-determination skills (e.g., problem solving, goal setting, self-management). However, give the significant correlation between access and disability label (See Table 2), issues related to disability label may also influence access to the general education curriculum. Strategies to support all students, irrespective of disability label, to access the general education curriculum continues to be an area of critical research need.

The finding that goal setting experience, but not simply having a transition goal, was predictive of self-determination is congruent with the functional theory of self-determination that suggests that repeated opportunities to practice skills associated with self-determination are needed to become self-determining. Simply having a goal for the future (i.e., a transition goal on the IEP), may not be enough to become self-determining, instead it is having repeated opportunities to set goals related to transition and other domains of life (e.g., academic, social). Further, the level of student involvement in setting transition goals for the IEP varies significantly, with some research suggesting that the goals are often developed without student

input and involvement (Trainor, 2005). The finding that student attendance at their last IEP

meeting did not predict self-determination is consistent with the findings related to goal setting

experience and previous research (Y. Lee et al., 2010; Shogren, 2006) suggesting that attendance

at the meeting is not enough, instead it is opportunities to develop feelings of empowerment in

the transition process and to learn and express skills necessary to take a meaningful role in the

transition process. Unfortunately, we did not measure transition empowerment as part of this

study, but future research is needed that explores the optimal level of student involvement in goal

setting that leads to feeling empowered in the transition planning process and increased self-

determination.

Implications for Research and Practice

This study expands past research on diverse personal characteristics and environmental

conditions that impact student self-determination. Clearly student characteristics, such as

disability and age, impact self-determination and must be considered when designing and

developing interventions to promote self-determination. Consistent with the functional theory,

younger students and students with intellectual disability may different individualized supports

and accommodations than students who are older or have learning disabilities. Research is

needed to develop strategies to individualize interventions based on salient personal

characteristics to give practitioners tools they can use in practice. Further, research is needed

with larger, representative datasets to elucidate the most salient personal characteristics that

impact student self-determination. With this knowledge, researchers and practitioners can

develop and implement interventions that will have the maximal impact for students based on

their unique profile of characteristics.

Further research is also needed to advance our understanding of environmental conditions that are supportive of self-determination. A growing body of research is suggesting a relationship between self-determination and access to the general education curriculum. Work is needed to determine the nature of this relationship, and the role of exposure to age peers in addition to access to academic content. The present study found that access predicts self-determination, and other research has suggested that promoting self-determination skills promotes access (Shogren et al., in press). The nature of the relationship between these variables needs further attention, as do the characteristics of the general education curriculum (e.g., problem solving activities, peer interaction / models, challenging academic content) that are supportive of the development of self-determination. Such knowledge would provide details on environmental conditions that might interact with instruction to promote self-determination skills and lead to the most impact on student's relative level of self-determination. Similarly, the most appropriate ways to provide repeated opportunities for goal setting experiences need to be researched. Interestingly, there was not a significant correlation between goal setting experience and access, suggesting that students might be developing goal setting skills in other contexts or activities. More research is needed on where and how students best learn goal setting skills. This research will inform the work of practitioners, assisting them to more effectively support students with diverse personal characteristics and educational experiences. Ultimately, to effectively promote self-determination for students with disabilities a comprehensive understanding of personal characteristics and environmental conditions is needed to personal interventions to have maximal impact.

Table 1

Descriptive Statistics for Relevant Predictor Variables

Variable	*M (SD)*
Educational Support Need	3.4 (1.05)
Hours in Academic Classes	3.0 (1.22)
Hours in Non-Academic Classes	3.1 (0.96)
Goal Setting Experience	1.8 (0.48)

Variable	Percentage
Goal for the Future	
Yes	73%
No	27%
Attendance at Last IEP Meeting	
Yes	90%
No	10%

Table 2

Pearson Correlation Coefficients

	1	2	3	4	5	6	7	8	9	10
1. Self-Determination	1	.153*	.099	.319**	.228**	.116	.188**	-.282**	.257**	-.037
2. Age		1	-.061	-.165**	-.418**	-.197**	.132*	.129*	.102	.006
3. Gender (0='male', 1='female')			1	.116*	.085	.053	.140*	-.067	.028	.016
4. Disability (0='intellectual', 1='learning')				1	.424**	.293**	.217**	-.427**	.103	.055
5. Hours in academic classes with general education peers					1	.494**	.166**	-.414**	.044	.017
6. Hours with hours they spend in non-academic classes with age-peers						1	.216**	-.306**	.041	.103
7. Goal for the future (1='no', 2='yes')							1	-.264**	.422**	.022
8. Need for educational support								1	-.151**	.085
9. Goal setting experience									1	.048
10. Attendance at last IEP meeting (1='no', 2='yes')										1

* $p<.05$, ** $p<.01$, *** $p<.001$

Table 2.

Multiple regression coefficients (b), adjusted R^2, and model fit statistic (F)

Predictors	Unstandardized coefficients		Adjusted R^2	F
	B	Standard error		
(constant)	16.387	17.790		
Disability (0='intellectual', 1='learning')	10.288[**]	2.912		
Goal setting experience	8.846[***]	2.450	.222	15.307[***]
Age	3.057[**]	0.998		
Hours in academic classes with general education peers	3.082[**]	1.141		

** p<.01, *** p<.001

References

Algozzine, B., Browder, D., Karvonen, M., Test, D. W., & Wood, W. M. (2001). Effects of interventions to promote self-determination for individuals with disabilities. *Review of Educational Research, 71*, 219-277.

Alwell, M., & Cobb, B. (2006). A map of the intervention literature in secondary special education transition. *Career Development for Exceptional Individuals, 29*, 3-27.

Cobb, R. B., Lehmann, J., Newman-Gonchar, R., & Alwell, M. (2009). Self-determination for students with disabilities: A narrative metasynthesis. *Career Development for Exceptional Individuals, 32*(2), 108-114.

Erwin, E. J., & Brown, F. (2003). From theory to practice: A contextual framework for understanding self-determination in early childhood environments. *Infants and Young Children, 16*, 77-87.

Lee, S. H., Wehmeyer, M. L., Palmer, S. B., Soukup, J. H., & Little, T. D. (2008). Self-determination and access to the general education curriculum. *The Journal of Special Education, 42*(2), 91-107.

Lee, Y., Wehmeyer, M. L., Palmer, S. B., Williams-Diehm, K., Davies, D. K., & Stock, S. E. (2010). Examining individual and instruction-related predictors of the self-determination of students with disabilities: Multiple regression analyses. *Remedial and Special Education, 31*, 1-12.

Nota, L., Ferrari, L., Soresi, S., & Wehmeyer, M. (2007). Self-determination, social abilities and the quality of life of people with intellectual disability. *Journal of Intellectual Disability Research, 51*(11), 850-865.

Schalock, R. L., Borthwick-Duffy, S., Bradley, V., Buntix, W. H. E., Coulter, D. L., Craig, E. P.
M., . . . Yeager, M. H. (2010). *Intellectual disability: Definition, classification, and
systems of support* (11th ed.). Washington, DC: American Association on Intellectual and
Developmental Disabilities.

Shogren, K. A. (2006). *Examining the measurement of self-determination and its individual and
ecological predictors in students with disabilities* Unpublished doctoral dissertation,
University of Kansas, Lawrence.

Shogren, K. A., Lopez, S. J., Wehmeyer, M. L., Little, T. D., & Pressgrove, C. L. (2006). The
role of positive psychology constructs in predicting life satisfaction in adolescents with
and without cognitive disabilities: An exploratory study. *The Journal of Positive
Psychology, 1*, 37-52.

Shogren, K. A., Palmer, S. B., Wehmeyer, M. L., Williams-Diehm, K., & Little, T. D. (in press).
Effect of intervention with the Self-Determined Learning Model of Instruction on access
and goal attainment. *Remedial and Special Education*.

Shogren, K. A., & Turnbull, A. P. (2006). Promoting self-determination in young children with
disabilities: The critical role of families. *Infants and Young Children, 19*, 338-352.

Shogren, K. A., Wehmeyer, M. L., Palmer, S. B., Soukup, J. H., Little, T. D., Garner, N., &
Lawrence, M. (2006). Measuring self-determination: Examining the relationship between
The Arc's Self-Determination Scale and the AIR Self-Determination Scale. *Manuscript
submitted for publication*.

Shogren, K. A., Wehmeyer, M. L., Palmer, S. B., Soukup, J. H., Little, T. D., Garner, N., &
Lawrence, M. (2007). Examining individual and ecological predictors of the self-
determination of students with disabilities. *Exceptional Children, 73*, 488-509.

Thompson, J. R., Bryant, B. R., Campbell, E. M., Craig, E. P. M., Hughes, C. M., Rotholz, D. A., . . . Wehmeyer, M. L. (2004). *Supports Intensity Scale*. Washington, DC: American Association on Intellectual and Developmental Disabilities.

Trainor, A. (2005). Self-determination perceptions and behaviors of diverse students with LD during the transition planning process. *Journal of Learning Disabilities, 38*, 233-248.

Wehman, P. (2012). *Life beyond the classroom: Transition strategies for young people with disabilities* (5th ed.). Baltimore, MD: Paul H. Brookes Publishing Co.

Wehmeyer, M. L. (1996a). Self-determination as an educational outcome: Why is it important to children, youth and adults with disabilities? In D. J. Sands & M. L. Wehmeyer (Eds.), *Self-determination across the life span: Independence and choice for people with disabilities* (pp. 15-34). Baltimore, MD: Paul H. Brookes.

Wehmeyer, M. L. (1996b). Student self-report measure of self-determination for students with cognitive disabilities. *Education and Training in Mental Retardation and Developmental Disabilities, 31*, 282-293.

Wehmeyer, M. L. (1999). A functional model of self-determination: Describing development and implementing instruction. *Focus on Autism and Other Developmental Disabilities, 14*, 53-61.

Wehmeyer, M. L. (2003). A functional theory of self-determination: Model overview. In M. L. Wehmeyer, B. Abery, D. E. Mithaug & R. Stancliffe (Eds.), *Theory in self-determination: Foundations for educational practice*. Springfield, IL: Charles C. Thomas Publishing Company.

Wehmeyer, M. L., Agran, M., & Hughes, C. (2000). A national survey of teachers' promotion of self-determination and student-directed learning. *Journal of Special Education, 34*, 58-68.

Wehmeyer, M. L., & Garner, N. W. (2003). The impact of personal characteristics of people with intellectual and developmental disability on self-determination and autonomous functioning. *Journal of Applied Research in Intellectual Disabilities, 16*, 255-265.

Wehmeyer, M. L., & Kelchner, K. (1995). *The Arc's Self-Determination Scale*. Arlington, TX: The Arc National Headquarters.

Wehmeyer, M. L., & Mithaug, D. E. (2006). Self-determination, causal agency, and mental retardation. In H. Switzky (Ed.), *Current perspectives on individual differences in personality and motivation in persons with mental retardation and other developmental disabilities* (Vol. 31, pp. 37-71). San Diego, CA: Academic Press.

Wehmeyer, M. L., & Palmer, S. B. (2003). Adult outcomes for students with cognitive disabilities three-years after high school: The impact of self-determination. *Education and Training in Developmental Disabilities, 38*, 131-144.

Wehmeyer, M. L., & Schwartz, M. (1997). Self-determination and positive adult outcomes: A follow-up study of youth with mental retardation or learning disabilities. *Exceptional Children, 63*, 245-255.

Wehmeyer, M. L., Shogren, K. A., Palmer, S. B., Williams-Diehm, K., Little, T. D., & Boulton, A. (2012). Impact of the Self-Determined Learning Model of Instruction on student self-determination: A randomized-trial placebo control group study. *Exceptional Children, 78*, 135-153.

Zhang, D. (2001). Self-determination and inclusion: Are students with mild mental retardation

more self-determined in regular classrooms? *Education and Training in Mental

Retardation and Developmental Disabilities, 36*, 357-362.