Analyzing Goal Setting and Attainment as Skills Associated with Self-Determination for
Students with Disabilities

BY

© 2019

Kathryn M. Burke
M.Ed., Lehigh University, 2011
B.A., Lehigh University, 2009

Submitted to the graduate degree program in Special Education and the Graduate Faculty of the
University of Kansas in partial fulfillment of the requirements for the degree of Doctor of
Philosophy.

_____

Chairperson: Karrie A. Shogren, Ph.D.

_____

Brian A. Boyd, Ph.D.

_____

Evan E. Dean, Ph.D.

_____

Jennifer A. Kurth, Ph.D.

_____

Michael L. Wehmeyer, Ph.D.

Date Defended: July 11, 2019

The Dissertation Committee for Kathryn M. Burke
certifies that this is the approved version of the following dissertation:

Analyzing Goal Setting and Attainment as Skills Associated with Self-Determination for
Students with Disabilities

_____

Chairperson: Karrie A. Shogren, Ph.D.

Date Approved: July 11, 2019

Abstract

This dissertation consists of five chapters. Chapter 1 provides an overview of the construct of self-determination and its essential characteristics (i.e., volitional action, agentic action, and action-control beliefs) and an introduction to the role of goal setting and attainment in promoting self-determination for students with disabilities. This chapter also introduces the research questions addressed in this dissertation. Chapter 2 provides a map of the literature on how the essential characteristics of self-determined action have been defined and operationalized in the literature. Findings show volitional and agentic action have been consistently defined and described across disciplines, but limited research has addressed action-control beliefs. Gaps in the knowledge base relate to how the essential characteristics collectively relate to and characterize self-determined action and exploration of these characteristics from a life course perspective and when considering disability, diversity, and support needs. Building upon the broader exploration of the essential characteristics of self-determination in Chapter 2, Chapter 3 focuses on goal setting, a skill associated with self-determination. This chapter presents an analysis of the types of goals set by transition-age students with intellectual disability supported by teachers to use an evidence-based practice to promote self-determination, the *Self-Determined Learning Model of Instruction* (SDLMI). Findings reflect students' desire to plan for multiple aspects of their lives in the adult world and the criticality of examining teacher expectations and how they relate to instruction and supports for students engaging in the goal-setting process. Chapter 4 examines how the overall type of goals transition-age students with intellectual disability set using the SDLMI along with students' personal factors (i.e., age, gender, race/ethnicity, and level of support needs) predict goal attainment. The findings suggest the positive impact on goal attainment of setting goals across multiple areas within a school year.

Students with extensive support needs had significantly lower levels of goal attainment than their peers who had less intense support needs, suggesting the need for ongoing work to consider how to support students with extensive support needs with goal setting and goal attainment. Lastly, Chapter 5 provides a final discussion of overall findings and directions for future research and practice.

Acknowledgments

I am thankful to the many wonderful people in my life, professionally and personally, who contributed to my doctoral journey. My first acknowledgement is to my advisor, Dr. Karrie Shogren. Your passion, knowledge, work ethic, and contributions to the field serve as a tremendous example, and I am forever grateful for the mentorship and support you provided throughout this program. Thank you especially for your countless hours of guidance with this dissertation.

I am appreciative of the many other professionals I have had the fortune of working with and learning from over the last four years. Please know you each impacted my development as a scholar, teacher educator, and person in unique and meaningful ways. In particular, I would like to acknowledge the time and efforts of my committee, Dr. Brian Boyd, Dr. Evan Dean, Dr. Jennifer Kurth, and Dr. Michael Wehmeyer. Additional thanks are owed to my former students and teaching colleagues in Pennsylvania. I think of you often and am driven in my work because of your lasting influence. I would also like to thank the incredible students and teachers in Rhode Island who made this research possible.

To my friends, old and new – you each make my life better and brighter. Thank you. And especially, to my cohort – you are ten remarkable women for whom I have enormous admiration and respect. I look forward to our lifelong friendship and seeing you continue to make a difference in the field. Lastly, I extend my sincerest gratitude to my family. To my parents, siblings, nephews, and many other dear family members, you are my world. Thank you for your love, support, and encouragement every step of the way.

Table of Contents

List of Figures

List of Tables

Chapter 1: Introduction

In the lives of adolescents with disabilities, self-determination – defined by acting or causing things to happen in one's life – is critical for a successful transition from high school to postsecondary education, employment, and community life. In fact, researchers have found that one's self-determination status upon exiting high school and entering the adult world is a direct predictor of post-school education, employment, and community participation (Shogren & Shaw, 2016; Shogren, Shaw, & Little, 2016; Shogren, Wehmeyer, Palmer, Rifenbark, & Little, 2015; Test et al., 2009). Furthermore, students with disabilities who are more self-determined while they are in school attain education-related goals at higher rates (Lee, Wehmeyer, Palmer, Soukup, & Little, 2008; Shogren, Palmer, Wehmeyer, Williams-Diehm, & Little, 2012). Setting and working toward goals is critical to self-determined action, and promoting the development of the skills to sustain goal-directed actions that enable goal attainment is important for students with disabilities, particularly during the transition from school to adulthood (e.g., Shogren, Burke, Anderson, et al., 2018; Shogren, Burke, Antosh, et al., 2018). Given the significant relationship between self-determination and education, employment, and community participation outcomes, the focus of this dissertation is on examining self-determined action, specifically the role of goal setting and attainment in promoting self-determination for students with disabilities. The purpose is to (a) examine how the essential characteristics of self-determination (volitional action, agentic action, and action-control beliefs) have been theorized and examined in research with people with and without disabilities, (b) analyze the types of goals transition-age students with intellectual disability set as part of an intervention to promote self-determination, the *Self-Determined Learning Model of Instruction* (SDLMI; Shogren, Raley, Burke, & Wehmeyer, 2018; Wehmeyer, Palmer, Agran, Mithaug, & Martin, 2000), and (c)

analyze how transition-related goal attainment is predicted by types of goals and personal factors (i.e., students' age, gender, race/ethnicity, and level of support needs).

The research activities undertaken in this dissertation are guided by Causal Agency Theory, a theoretical framework that describes how self-determination develops across the life course in people with and without disabilities (Shogren, Wehmeyer, Palmer, Forber-Pratt, et al., 2015). Causal Agency Theory defines self-determination as a

> …dispositional characteristic manifested as acting as the causal agent in one's life. Self-determined people (i.e., causal agents) act in service to freely chosen goals. Self-determined actions function to enable a person to be the causal agent is his or her life. (p. 258)

Causal Agency Theory represents a shift from previous theoretical conceptualizations, such as the functional model of self-determination (Wehmeyer, 1992), and movement "toward a more action-oriented focus" (Shogren, Wehmeyer, Palmer, Forber-Pratt, et al., 2015, p. 252). As Shogren and colleagues state,

> Causal agency implies more, however, than just causing action; it implies that the individual acts with an eye toward causing an effect to accomplish a specific end or to cause or create change. Self-determined actions enable a person to act as a causal agent. (p. 258)

Self-Determination and its Essential Characteristics

To operationalize the focus on self-determined action in Causal Agency Theory, three essential characteristics are used to define self-determined action. The three essential characteristics of self-determined action are volitional action, agentic action, and action-control beliefs, and each essential characteristic is further defined by component elements that enable the

expression of these characteristics (see Figure 1; Shogren, Wehmeyer, Palmer, Forber-Pratt, et al., 2015). Volitional actions are defined by a person making conscious choices based upon their preferences, interests, and needs; these actions are self-initiated and function to enable a person to act autonomously. People engaging in volitional action use skills such as choice making, decision making, goal setting, problem solving, and planning. The second essential characteristic, agentic action, is defined by self-directed and self-regulated actions and involves pathways thinking (i.e., the identification of alternative pathways to achieve a goal); these actions function to enable a person to advance toward self-selected goals and respond to opportunities and barriers in their environment. Skills associated with agentic action are self-management, goal attainment, problem solving, and self-advocacy. Lastly, action-control beliefs are the sense of empowerment and motivation people have about their ability to achieve freely chosen goals; these beliefs incorporate control-expectancy, psychological empowerment, and self-realization.

Causal Agency Theory proposes that volitional action, agentic action, and action-control beliefs are dispositional characteristics that develop over time as a person acquires related abilities through opportunities to engage in self-determined action. As such, it is valuable to have a psychological assessment that can assess change in these characteristics over time. The *Self-Determination Inventory: Student Report* (SDI:SR; Shogren & Wehmeyer, 2016) is a recently validated measure of self-determination aligned with Causal Agency Theory, which includes 21 items measuring the essential characteristics of volitional action, agentic action, and action-control beliefs (Shogren, Little, et al., 2018). Completion of the SDI:SR leads to scores representing overall self-determination and each essential characteristic. The SDI:SR can be utilized as an outcome measure as well as provide guidance for a practitioner to decide how to

approach instruction and provide support to enable a student to enhance their self-determination. As such, fully understanding how each of these characteristics are represented in theory and research is a critical foundation for augmenting future research and practice, and thus Chapter 2 is a review of the literature to further explore volitional action, agentic action, and action-control beliefs.

Chapter 2 will map the literature on volitional action, agentic action, and action-control beliefs to characterize current knowledge on each essential characteristic, including how each characteristic is defined and operationalized within the literature, to serve as the basis for recommendations to the field for utilizing what is known about the essential characteristics of self-determination and expanding upon it in future research. Understanding how these essential characteristics are described within the literature will inform analyses of goal setting (a skill associated with volitional action) in Chapter 3 and goal attainment (a skill associated with agentic action) in Chapter 4, including how findings should be interpreted within the broader framing of Causal Agency Theory (Shogren, Wehmeyer, Palmer, Forber-Pratt, et al., 2015). Chapter 2 includes a systematic review of the literature on theory and intervention with regard to volitional action, agentic action, and action-control beliefs (see Figure 1). Each of these characteristics defines self-determination as a construct, and thus a map of the literature will serve to enhance both research and practice as a foundation of the current knowledge base. This map of the literature will (a) identify how these characteristics have been theorized and examined in research with people with and without disabilities prior to and since the introduction of Causal Agency Theory, (b) discern any significant gaps in the knowledge base, and (c) serve as the basis for recommendations to the field for utilizing what is known about the essential characteristics of self-determination and expanding upon it in future research.

Goal Setting and Attainment

After examining the essential characteristics of self-determination action to enhance the knowledge base in Chapter 2, the focus in Chapters 3 and 4 is on specific abilities associated with self-determination – goal setting and attainment. Goal-directed actions are essential to self-determination, as described in Causal Agency Theory (Shogren, Wehmeyer, Palmer, Forber-Pratt, et al., 2015). Goal setting and attainment are particularly critical skills in the lives of young people with disabilities preparing for the future. Goal setting is the process through which a person creates a target or plan for something they want to accomplish or achieve (Sands & Doll, 2000). Goal attainment is less well defined, but is viewed as progress toward a goal, with the potential for varying levels of achievement (Kiresuk, Smith, & Cardillo, 1994). As Shogren, Wehmeyer, Palmer, Forber-Pratt, et al. (2015) describe, the skills associated with self-determination, such as goal setting and attainment, "enable the expression of the essential characteristics" (p. 259). Goal setting and attainment are frequently embedded in self-determination interventions, such as the *Self-Determined Learning Model of Instruction* (SDLMI; Shogren, Raley, et al., 2018; Wehmeyer et al., 2000). The SDLMI is an evidence-based practice for enhancing self-determination and postschool outcomes for transition-age students with disabilities (National Technical Assistance Center on Transition, 2017). In this model of instruction, trained facilitators (e.g., teachers) teach students self-regulated problem-solving skills that can be applied to setting and going after goals. While goal setting is central to the model, there is limited research on the content of the goals that students are supported to set using the SDLMI and how the content of the goals may impact goal attainment, particularly during transition planning.

As such, the purpose of Chapter 3 is to analyze the goals ($n = 1,546$) set by adolescents with disabilities using the SDLMI over a three-year period in a specific context (i.e., a state-wide effort to enhance the transition to integrated employment for students with intellectual disability exiting high school) to inform future research and practice. The State of Rhode Island has been engaged in efforts to enhance transition outcomes for youth with intellectual and developmental disabilities as part of a Consent Decree entered into by the state with the U.S. Department of Justice to address "unnecessary over-reliance upon segregated sheltered workshops and facility-based day programs" for adults with disabilities (United States District Court of Rhode Island, 2014). One of the target populations in the decree was transition-age students with intellectual disability, with an emphasis on the need to enhance transition services and supports to lead to postschool integrated employment outcomes. Given the established relationship between enhanced self-determination while youth are in school and postschool integrated employment outcomes (Shogren, Wehmeyer, Palmer, Rifenbark, et al., 2015), a target was established to train teachers across the state to use the SDLMI to enable students with intellectual disability to set their own goals, develop action plans to work toward those goals, and self-monitor and evaluate their progress toward their goals. Multiple analyses have been conducted with data from the project, including the impact of the SDLMI on self-determination and goal attainment (Shogren, Burke, Antosh, et al., 2018), the differential impact of two interventions to promote self-determination on self-determination and goal attainment after one year (Shogren, Burke, Anderson, et al., 2018) and over multiple years (Shogren, Hicks, et al., in press), teacher perceptions of their ability to implement the SDLMI with fidelity and the impact of these perceptions on student self-determination outcomes (Shogren, Burke, et al., in press), and the process of state-wide implementation of the SDLMI (Burke et al., 2019). While these analyses

have shown the positive impact of the SDLMI on self-determination and goal attainment, the actual goals students chose to set while their teachers supported them using the SDLMI have yet to be analyzed. Examining and categorizing these goals by focus area (e.g., academic, vocational education and employment, social and relationships) will inform future research on students' goal interests during transition planning. Furthermore, it may provide additional guidance for the individualized instruction and supports teachers provide when implementing the SDLMI as part of the transition planning process, based on the interests and preferred goal areas of students.

Building upon the analysis of the types of goals students set when supported by their teachers to use the SDLMI in Chapter 3, the purpose of Chapter 4 is to analyze how goal attainment is predicted by types of goals and personal factors (i.e., age, gender, race/ethnicity, and level of support needs) for transition-age youth with intellectual disability. Teachers reported information on students' attainment of goals set through the SDLMI using *Goal Attainment Scaling* (GAS; Kiresuk et al., 1994), in which goal outcomes are individually determined and set on a five-point scale (i.e., -2 is *much less than expected*, -1 is *somewhat less than expected*, 0 is *expected*, +1 is *somewhat more than expected*, and +2 is *much more than expected*). Previous analyses of goal attainment related to this project have addressed the relationship between goal attainment and self-determination (Shogren, Burke, Anderson, et al., 2018; Shogren, Burke, Antosh, et al., 2018), but the relationship between goal attainment and types of goals (e.g., academic, vocational education and employment, social and relationships) and student personal factors (i.e., age, gender, race/ethnicity, and level of support needs) has not been previously examined. Therefore, it is valuable to examine how personal factors and types of goals students set are related to goal attainment in an effort to continue enhancing interventions to promote self-determination for diverse populations, given that existing research suggests that students' self-

determination and potentially goal attainment may be influenced by both type of goals set (i.e., the focus of the goal; e.g., Kleinert, Harrison, Mills, Dueppen, & Trailor, 2014) and personal factors (e.g., age, gender, race/ethnicity, level of support needs; Shogren, 2011; Wehmeyer et al., 2011).

Purpose

Given the importance of self-determination to youth with disabilities and the role of goal setting and attainment in driving self-determined action, the focus of this dissertation is (a) to examine how the essential characteristics of self-determination (volitional action, agentic action, and action-control beliefs) have been defined and operationalized across disciplines and fields and with and without a focus on disability, (b) to understand the goals transition-age students with intellectual disability choose to set while their teachers support them using the SDLMI, and (c) to examine how the types of goals transition-age students with intellectual disability set using the SDLMI along with their personal factors (i.e., age, gender, race/ethnicity, level of support needs) predict goal attainment. In Chapters 2, 3, and 4, respectively, the following research questions are addressed:

1. How are the essential characteristics of self-determination (i.e., volitional action, agentic action, and action-control beliefs) defined, described, and operationalized in the literature?

2. What types of goals do transition-age students with intellectual disability set when supported by their teachers to use the SDLMI to enhance postschool outcomes?

   a. How many students had goals across areas (i.e., academics, vocational education and employment, postsecondary education, home living, social and relationships,

community access, transportation, finances, leisure and recreation, communication) and/or multiple goals in the same area?

b. Within goal areas, what subtopics are represented (e.g., within academic goals, subtopics may include content mastery, class participation and engagement, or study skills)?

c. How many goals incorporated skills associated with self-determination that are taught using the SDLMI (e.g., choice making, decision making, problem solving)?

3. To what degree do type of goals set using the SDLMI and personal factors (i.e., age, gender, race/ethnicity, and level of support needs) predict goal attainment for transition-age youth with intellectual disability?

References

Burke, K. M., Shogren, K. A., Raley, S. K., Wehmeyer, M. L., Antosh, A. A., & LaPlante, T. (2019). Implementing evidence-based practices to promote self-determination: Lessons learned from a state-wide implementation of the Self-Determined Learning Model of Instruction. *Education and Training in Autism and Developmental Disabilities, 54*, 18-29.

Kiresuk, T. J., Smith, A., & Cardillo, J. (1994). *Goal attainment scaling: Applications, theory, and measurement*. Hillsdale, NJ: Lawrence Erlbaum.

Kleinert, J. O., Harrison, E., Mills, K. R., Dueppen, B. M., & Trailor, A. M. (2014). Self-determined goal selection and planning by students with disabilities across grade bands and disability categories. *Education and Training in Mental Retardation and Developmental Disabilities, 49*, 464-477.

Lee, S., 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*, 91-107. doi:10.1177/0022466907312354

National Technical Assistance Center on Transition. (2017). *Effective practices and predictors matrix*. Charlotte, NC: Author.

Sands, D. J., & Doll, B. (2000). *Teaching goal setting and decision making to students with developmental disabilities: Innovations research to practice series*. Washington, DC: American Association on Mental Retardation.

Shogren, K. A. (2011). Culture and self-determination: A synthesis of the literature and directions for future research and practice. *Career Development for Exceptional Individuals, 34*, 115-127. doi:10.1177/0885728811398271

Shogren, K. A., Burke, K. M., Anderson, M. H., Antosh, A. A., LaPlante, T., & Hicks, T. (in press). Examining the relationship between teacher perceptions of implementation of the SDLMI and student self-determination outcomes. *Career Development and Transition for Exceptional Individuals*.

Shogren, K. A., Burke, K. M., Anderson, M. H., Antosh, A. A., Wehmeyer, M. L., LaPlante, T., & Shaw, L. A. (2018). Evaluating the differential impact of interventions to promote self-determination and goal attainment for transition-age youth with intellectual disability. *Research and Practice for Persons with Severe Disabilities, 43*, 165-180. doi:10.1177/1540796918779775

Shogren, K. A., Burke, K. M., Antosh, A. A., Wehmeyer, M. L., LaPlante, T., Shaw, L. A., & Raley, S. K. (2018). Impact of the Self-Determined Learning Model of Instruction on self-determination and goal attainment in adolescents with intellectual disability. *Journal of Disability Policy Studies, 30,* 22-34. doi:10.1177/1044207318792178

Shogren, K. A., Hicks, T., Burke, K. M., Antosh, A. A., LaPlante, T., & Anderson, M. H. (in press). Examining the impact of the SDLMI and Whose Future Is It? over a two-year period with students with intellectual disability. *American Journal on Intellectual and Developmental Disabilities*.

Shogren, K. A., Little, T. D., Grandfield, E., Raley, S. K., Wehmeyer, M. L., Lang, K. M., & Shaw, L. A. (2018). The Self-Determination Inventory-Student Report: Confirming the factor structure of a new measure. *Assessment for Effective Intervention*, Advance online publication. doi:10.1177/1534508418788168

Shogren, K. A., Palmer, S. B., Wehmeyer, M. L., Williams-Diehm, K., & Little, T. D. (2012). Effect of intervention with the Self-Determined Learning Model of Instruction on access

and goal attainment. *Remedial and Special Education, 33*, 320-330.

doi:10.1177/0741932511410072

Shogren, K. A., Raley, S. K., Burke, K. M., & Wehmeyer, M. L. (2018). *The Self-Determined Learning Model of Instruction: Teacher's guide*. Lawrence, KS: Kansas University Center on Developmental Disabilities.

Shogren, K. A., & Shaw, L. A. (2016). The role of autonomy, self-realization, and psychological empowerment in predicting early adulthood outcomes for youth with disabilities. *Remedial and Special Education, 37*, 55-62. doi:10.1177/0741932515585003

Shogren, K. A., Shaw, L. A., & Little, T. D. (2016). Measuring the early adulthood outcomes of young adults with disabilities: Developing constructs using NLTS2 data. *Exceptionality, 24*, 45-61. doi:10.1080/09362835.2015.1064416

Shogren, K. A., & Wehmeyer, M. L. (2016). *Self-Determination Inventory: Student Report*. Lawrence, KS: Kansas University Center on Developmental Disabilities.

Shogren, K. A., Wehmeyer, M. L., Palmer, S. B., Forber-Pratt, A. J., Little, T. J., & Lopez, S. (2015). Causal agency theory: Reconceptualizing a functional model of self-determination. *Education and Training in Autism and Developmental Disabilities, 50*, 251-263.

Shogren, K. A., Wehmeyer, M. L., Palmer, S. B., Rifenbark, G. G., & Little, T. D. (2015). Relationships between self-determination and postschool outcomes for youth with disabilities. *The Journal of Special Education, 48*, 256-267. doi:10.1177/0022466913489733

Test, D. W., Mazzotti, V., Mustian, A., Fowler, C., Kortering, L., & Kohler, P. (2009). Evidence-based secondary transition predictors for improving postschool outcomes for students

with disabilities. *Career Development for Exceptional Individuals, 32*, 160-181.
doi:10.1177/0885728809346960

United States of America v. State of Rhode Island, Consent Decree, Case No. CA14-175 C.F.R.
(2014).

Wehmeyer, M. L. (1992). Self-determination and the education of students with mental
retardation. *Education and Training in Mental Retardation, 27*, 302-314.

Wehmeyer, M. L., Abery, B. H., Zhang, D., Ward, K., Willis, D., Hossain, W. A., & … Walker,
H. M. (2011). Personal self-determination and moderating variables that impact efforts to
promote self-determination. *Exceptionality, 19*, 19-30.
doi:10.1080/09362835.2011.537225

Wehmeyer, M. L., Palmer, S. B., Agran, M., Mithaug, D. E., & Martin, J. E. (2000). Promoting
causal agency: The Self-Determined Learning Model of Instruction. *Exceptional
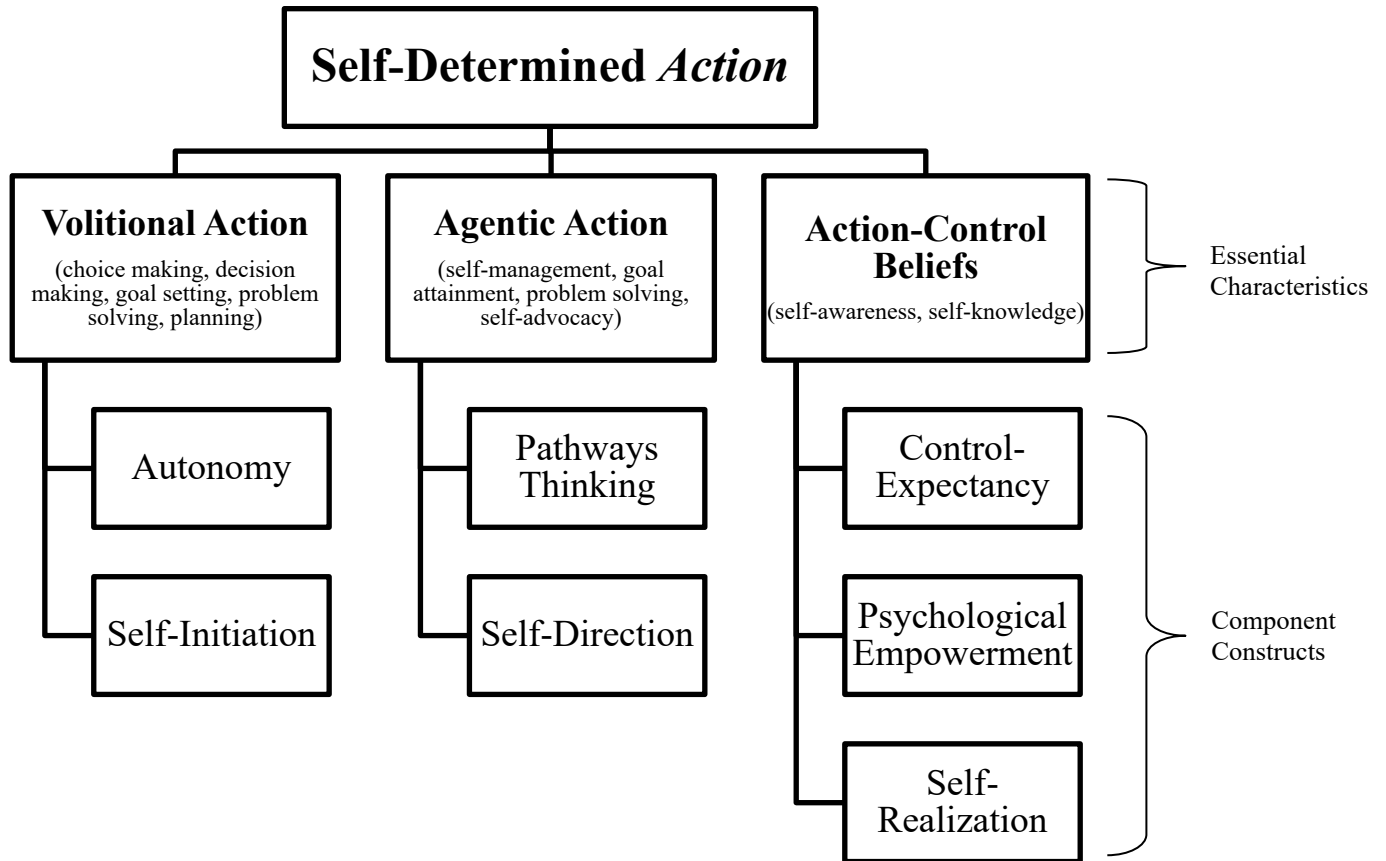Children, 66*, 439-453. doi:10.1177/001440290006600401

Figure 1. Self-determined action framework.

Reprinted with permission from Shogren, Raley, et al. (2018).

Chapter 2: Mapping the Literature on the Essential Characteristics of Self-Determination

Prior to 1990, when the U.S. Department of Education Programs Office of Special Education and Rehabilitative Services (OSERS) began an initiative to fund projects to develop frameworks, interventions, and assessments to promote self-determination in transition planning, there were only two references in the literature to self-determination in relation to students with disabilities (Shogren et al., 2015). The references prior to 1990 discussed the human rights of people with intellectual disability to decision-making and active involvement in their lives (Nirje, 1972) and the importance of internal motivation for students with learning disabilities (linked to Self-Determination Theory; Deci & Chandler, 1986). In January 1989, the first National Conference on Self-Determination was held, marking a key milestone in a self-determination initiative led by OSERS (Ward, 2005). Shortly thereafter, self-determination was first operationalized in the disability field by Wehmeyer (1992), who defined self-determination as "the attitudes and abilities required to act as the primary causal agent in one's life and to make choices regarding one's actions free from undue external influence or interference" (p. 305), in what came to be known as the functional model of self-determination.

Building upon the functional model of self-determination, essential characteristics of self-determined behavior were introduced by Wehmeyer, Kelchner, and Richards (1996) based on a series of discriminant function analyses. The identified essential characteristics were autonomous functioning, self-regulation, psychological empowerment, and self-realization, the domains measured in The Arc's Self-Determination Scale (Wehmeyer & Kelchner, 1995). In 2005, Wehmeyer proposed a change to the definition of self-determination based upon ongoing misunderstandings of self-determination, especially with regard to people with more significant support needs. In this definition, he emphasized the importance of volitional action and proposed

that self-determination "refers to volitional actions that enable one to act as the primary causal agent in one's life and to maintain or improve one's quality of life" (p. 117).

In 2015, Shogren et al. incorporated aspects of this original framework to conceptualize Causal Agency Theory as an extension and revision to Wehmeyer's (1992) functional model of self-determination. In describing the rationale for reconceptualizing the construct of self-determination, Shogren et al. (2015) highlighted the complexity of the self-determination construct and the impact of research, context, and continuous evolution in how we understand human action. Specifically, Shogren et al. cited the emergence of positive psychology, the shift to a strengths-based understanding of disability, and changes to the context in which supports for people with disabilities are delivered as key factors. Within Causal Agency Theory, self-determination is defined as a

> …dispositional characteristic manifested as acting as the causal agent in one's life. Self-determined people (i.e., causal agents) act in service to freely chosen goals. Self-determined actions function to enable a person to be the causal agent is his or her life. (p. 258)

This reconceptualized understanding of self-determination now includes three essential characteristics, volitional action, agentic action, and action-control beliefs, which are described in more detail in the following section.

Shogren et al. (2015) trace the use of the term self-determination as a personal characteristic to the philosophical doctrine of determinism, specifically that all action is in some way "caused". They elaborate,

> Causal agency implies more, however, than just causing action; it implies that the individual acts with an eye toward causing an effect to accomplish a specific end or to

cause or create change. Self-determined actions enable a person to act as a causal agent.

(p. 258)

The essential characteristics of self-determined action (volitional action, agentic action, and action-control beliefs) refer to "the function the action serves for the individual; that is, whether the action enabled the person to act as a causal agent" (p. 258). When a person acts volitionally, they self-initiate action and make conscious choices based upon their preferences, interests, and needs, acting autonomously. Skills associated with volitional action include choice making, decision making, goal setting, problem solving, and planning. The function of agentic action is to enable a person to advance toward self-selected goals and respond to opportunities and barriers in their environment. A causal agent is self-directed and self-regulated and identifies pathways that result in a desired end or cause/create change. Self-management, self-advocacy, goal attainment, and problem solving are skills associated with agentic action. Action-control beliefs involve the sense of personal empowerment an individual relies upon to act with self-awareness and self-knowledge in service of a goal. As such, self-awareness and self-knowledge are the primary skills associated with action-control beliefs.

Building upon the above definitions, the purpose of this review is to map the literature on the essential characteristics of self-determination (volitional action, agentic action, and action-control beliefs) to (a) identify how these characteristics have been theorized and examined in research with people with and without disabilities prior to and since the introduction of Causal Agency Theory, (b) discern any significant gaps in the knowledge base, and (c) serve as the basis for recommendations to the field for utilizing what is known about the essential characteristics of self-determination and expanding upon it in future research. While researchers have conducted reviews of interventions to promote self-determination for students with and without disabilities

(e.g., Algozzine, Browder, Karvonen, Test, & Wood, 2001; Burke et al., 2018) as well as the construct of self-determination in relation to culturally and linguistically diverse learners (Shogren, 2011) and early childhood education (Palmer et al., 2013), no reviews to date have explored how the essential characteristics of self-determination as defined by Causal Agency Theory are represented in the literature. Given the relative newness of the re-conceptualization of self-determined actions in Causal Agency Theory and the focus on describing how self-determination develops across the life course in people with and without disabilities, it is worthwhile to explore how the essential characteristics of self-determined action (volitional action, agentic action, and action-control beliefs) have been defined and operationalized across disciplines and fields and with and without a focus on disability. The following research question is addressed: How are the essential characteristics of self-determination (i.e., volitional action, agentic action, and action-control beliefs) defined, described, and operationalized in the literature?

Method

Inclusion Criteria

There were two criteria for the inclusion of studies in this review. First, studies had to be published in an English-language, peer-reviewed journal from 1988 to 2018. As described previously, 1988 marks the beginning of an OSERS self-determination initiative. In order to include literature leading up to the first National Conference on Self-Determination in early 1989 (Ward, 2005), 1988 was selected as the beginning year for the publication date range. Secondly, the article had to include one or more of the essential characteristics of self-determination (i.e., "volitional action", "agentic action", and/or "action-control belief"; Shogren et al., 2015).

Search Procedures

A systematic search process was used to identify all peer-reviewed articles meeting the inclusion criteria. The first step was to conduct a search in two leading social sciences databases, ERIC and PsycINFO, for peer-reviewed articles published between 1988 and 2018. In each database, individual searches were performed for the terms "volitional action", "agentic action", and "action-control belief". The search of ERIC yielded nine articles, and the search of PsycINFO yielded 47 articles. These results were combined, and duplicates were removed ($n = 5$), resulting in a total of 51 unique articles. Next, the bibliographies of each article were examined (i.e., ancestral search) to identify articles meeting inclusion criteria that did not appear in the electronic search. This yielded two additional articles (Lopez, 1999; Sannino, 2015), for a total of 53 articles. After a full review of each article to confirm it met inclusion criteria, four articles were identified that did not include terminology for at least one of the essential characteristics (i.e., "volitional action", "agentic action", and "action-control belief") despite having been identified in the search, and these articles were removed. Thus, the final count was 49 articles. A graduate student with expertise in self-determination and disability replicated the search procedures and verified no articles were missed during the search.

Article Coding

Once the search procedures were complete, a content analysis of the included articles was conducted. Articles were reviewed and categorized by the field and outlets where they were published and then coded for how the essential characteristics were integrated in the article. Specifically, articles were coded based upon whether or not the essential characteristic was expanded upon or simply used within the text without additional focus. When there was expansion, articles were coded in one or more of the following areas: (1) definition (i.e., states meaning or essential nature), (2) description (i.e., depicts or portrays in detail), (3)

operationalization (i.e., explains in observable and/or measurable way), and (4) case studies or research examples (i.e., specific instances). Other elements recorded for all articles included type of study (i.e., descriptive, correlational, experimental/quasi-experimental, literature review, theoretical), methods when applicable (i.e., sample, study design, procedures), and key findings (i.e., outcomes) or points (in the case of theoretical articles). Lastly, definitions, descriptions, operationalizations, and case studies/research examples were documented and compared for each essential characteristic to identify similarities, differences, and gaps in knowledge.

Interrater Reliability

A second reviewer coded a randomly selected sample of the total articles (27%; $n = 13$) to establish reliability in coding decisions. The lead author trained the reviewer (a graduate student with expertise in self-determination and disability) on the codebook by reviewing criteria for each code and examples from articles not included in the randomly selected sample. Inter-rater reliability (IRR) was based on the percentage of agreement (dividing the number of agreements by the sum of the total number of coded elements, then multiplying the number by 100). Overall IRR was 93.5%. All disagreements were discussed until consensus was reached, with disagreements most common for article type, specifically whether articles were correlational or experimental/quasi-experimental ($n = 3$ disagreements).

Results

A total of 49 peer-reviewed articles published between 1998 and 2018 met inclusion criteria. The years in which the greatest number of articles were published were 2015 ($n = 6$) and 2018 ($n = 6$). No included articles were published from 1988 to 1997 or in 2000, 2001, 2008, or 2009 (see Figure 2), despite the search including these years. Articles were categorized by field, and the majority of articles were within psychology ($n = 24$; e.g., Stephens, Markus, &

Townsend, 2007), neuroscience (*n* = 12; e.g., Watanabe, Matsuo, Zha, MacAskill, & Kobayashi, 2014), and education (*n* = 8; e.g., Sachs, 2002). Remaining fields included criminology (*n* = 1; Healy, 2014), employment (*n* = 1; Cavanagh, 2012), information technology (*n* = 1; Goh, Gao, & Agarwal, 2011), medicine (*n* = 1; Kloft, Kischkel, Kathmann, & Reuter, 2011), and sociology (*n* = 1; Bell, Aggleton, & Slavin, 2018). Articles were categorized as experimental/quasi-experimental (*n* = 20), theoretical (*n* = 12), descriptive (*n* = 9), correlational (*n* = 7), and literature review (*n* = 1). The sections below include descriptions of articles organized by the three essential characteristics of self-determined action and type of use (definition, description, operationalization, case studies/research examples, used within text but not expanded upon). Table 1 provides the complete list of articles by essential characteristics and type of use.

Use of Essential Characteristics Across Articles

Of the 49 articles that met inclusion criteria for this review, 47 included only one of the three essential characteristics (i.e., either volitional action, agentic action, or action-control beliefs; e.g., Marshall, Gentsch, & Schütz-Bosbach, 2018; Obhi, Swiderski, & Farquhar, 2013), while two articles addressed all three essential characteristics (Mumbardó-Adam, Guàrdia-Olmos, Giné, Raley, & Shogren, 2018; Shogren et al., 2015). Causal Agency Theory (Shogren et al., 2015), upon which this review is based, was included as one of the 49 articles, and thus is used as the starting point for results for each essential characteristic. The other study to address all three essential characteristics was a psychometric analysis of a measure of self-determination, the *Self-Determination Inventory: Student Report*, that used the definitions of volitional action, agentic action, and action-control beliefs from Causal Agency Theory (Mumbardó-Adam et al., 2018). In discussing the essential characteristics, 12 articles addressed the topic of disability or health-related issues (specifically, anxiety, human immunodeficiency disorder [HIV],

schizophrenia, tic disorders, Parkinson's disease, obsessive-compulsive disorder [OCD], and seizure disorders) in some capacity (e.g., Ferrazzoli et al., 2018; Obhi et al., 2013).

Volitional action. Volitional action was the essential characteristic addressed in the greatest number of articles ($n = 31$). Of these articles, 13 included the term "volitional action", but did not expand upon it within the text (e.g., Scheiter, Gerjets, & Heise, 2014). The remaining 19 articles expanded upon the term in one or more ways. The function of volitional action, as described in Causal Agency Theory, is to "enable a person to act autonomously (i.e., engage in self-governed action)" (Shogren et al., 2015, p. 259). The person initiates and activates their causal capabilities, meaning the capacity to make something happen in their own life.

Definitions. Two articles provided a definition for volitional action in addition to the definition in Causal Agency Theory described above (also used by Mumbardó et al., 2018). Parkinson, Garfinkel, Critchley, Dienes, and Seth (2017) and Pierson and Trout (2017) each provided unique definitions of volitional action. Parkinson et al. (2017) defined volitional action and self-control (jointly) as "feelings of acting according to one's own intentions and being in control of one's own actions" (p. 252), while Pierson and Trout (2017), in an exploration of consciousness and volition, defined volitional action as "non-deterministic, non-algorithmic, non-automatic, non-random action that is freely-willed in the 'libertarian' sense" (p. 62).

Descriptions. Volitional action was described in 17 articles, with Shogren et al. (2015) emphasizing the role of intentionality. Multiple articles described volitional action with an emphasis on self-motivation and self-control (Kazén, Kuhl, & Leicht, 2015; Koole & Fockenberg, 2011; Koole & Jostmann, 2004; Sannino, 2015, 2016; Wojdylo, Baumann, & Kuhl, 2017). Such articles cited Vygotsky's theories on human beings' ability to control their actions and external circumstances and Kuhl's self-regulation theory (1992). For example, Wojdylo et

al. (2017) tested assumptions about the association of work craving (i.e., work addiction) and work engagement with two basic modes of volition (described as self-regulation and self-control; volition was not defined) and psychological distress in an effort to contribute to understandings of workaholism. Their findings showed work craving was associated with low self-regulation but high self-control (in addition to an association with psychological distress symptoms). They provided implications for future research based upon work craving and this "one-sided volitional action control (excessive self-control and deficient self-regulation)" (p. 13). In contrast, volitional action was described in another subset of articles as the experience of being in control of one's physical actions or movements (e.g., Pontius, 2003, 2004), as distinguished from automatic body movement (e.g., Takakura, Nishijo, Ishikawa, & Shojaku, 2015) or stimulus-driven behavior (e.g., Bender et al., 2013). For example, volitional action was described within articles in the field of neuroscience as internally driven in contrast to automatic, or sensory driven, action (Watanabe, Matsuo, Zha, Munoz, & Kobayashi, 2013).

Operationalizations. Within Causal Agency Theory, Shogren et al. (2015) operationalized volitional actions as "conscious choices based upon one's preferences" (p. 258). No other articles operationalized volitional action.

Case studies/research examples. Lastly, five articles addressed volitional action in either a case study or a research example. To highlight one example of volitional action within psychology, Sannino (2015, 2016) described "waiting" experiments to compare the reactions of individuals and collectives (i.e., groups). In the experiments, a researcher escorted either the individual or group to a room, told them the experiment would start soon, and left. Researchers then watched the participant(s) through a mirror wall and video camera, not interrupting the participants until thirty minutes had elapsed (or if one or more of the participants left sooner).

Individuals displayed stronger volitional orientations than groups, with group participants appearing constrained by the situation and primarily choosing to "just stay in the room" (p. 171). Examples of volitional action included, "For instance, a participant's seemingly passive stay in the room would turn out to involve going through the contents of her forthcoming presentation in a seminar. After revising her presentation, she would have left the room" (p. 159).

Examples of volitional action in the physical domain were also present, as in a case study of an adult male with epilepsy undergoing invasive electrical cortical stimulation (Wiest, Lurger, & Baumgartner, 2012). Wiest et al. (2012) described the most significant finding as the patient's perception of an externally triggered movement as initiated by himself (i.e., volitional action). They attributed this error to the need for causality, particularly given the ambiguous contextual situation. A basic human experience, as seen here, is the feeling of generating one's own actions. In this case, when the patient's motor system produced a movement from outside inputs, his consciousness was informed of the movement, and he perceived the movement as freely chosen or volitional.

Agentic action. Eighteen articles included the term "agentic action". Within this subset, eight articles used agentic action in the text without expanding upon it (e.g., Bell et al., 2018).

Definitions. Agentic action was defined within Causal Agency Theory as self-directed action in service of a goal (Shogren et al., 2015), and it was defined similarly as goal-directed action by Billett and Pavlova (2005), Campbell and O'Meara (2014), Mumbardó-Adam et al. (2018), and Richardson (2011). For example, Campbell and O'Meara (2014) defined agentic action as "strategic and intentional behavior toward one's goals" (p. 56) and examined factors influencing faculty agency in academia. Results showed the agentic perspective of faculty had a strong, positive relationship with their agentic action, while professional development for faculty

had a moderate negative relationship with agentic action. Other examples of articles defining agentic action included Billett and Pavlova (2005), who explored individual identity, subjectivity, and agency in the working lives of five adults, with results suggesting agentic action (i.e., construction of and action toward goals) was directed and remade through interdependence with work. Similarly, Billett and Somerville (2004) examined the transformation of identity and learning in the working lives of adults, observing how participants engaged in agentic action to transform work practices inconsistent with their values and beliefs. Overall, no articles differed significantly from the definition of agentic action proposed in Causal Agency Theory.

   Descriptions. As outlined in Causal Agency Theory, agentic action serves the function of "enabling a person to make progress toward freely chosen goals and to respond to opportunities and challenges in their environments" (Shogren et al., 2015, p. 259). The person uses their agentic capabilities (i.e., the capacity to direct action to achieve a desired outcome). Nine articles in addition to Causal Agency Theory included descriptions of agentic action, several of which expanded upon the description by focusing on identity. For instance, Billett and Somerville (2004), introduced previously, described the role of identity and the individual in agentic action, stating, "Individuals' identity and subjectivities shape the agentic action and intentionality that constitute the self" (p. 315). Cavanagh (2012) also addressed agentic action and identity, reporting findings on learning in the workplace for female employees, specifically how women find self-identity through agentic actions. Healy (2014) examined the role of agentic action for men under probation supervision following criminal convictions in Ireland, finding that agentic actions varied across participants, related to their ability to imagine a credible future as they shifted from an identify of "offender" to "ex-offender".

Within Causal Agency Theory, pathways thinking (i.e., identifying ways to create change or reach a specific end) was emphasized as a critical component of agentic action, particularly as one responds to opportunities and challenges in their environments (Shogren et al., 2015). While pathways thinking as a term was not used in other articles, there were similar descriptions of the process of agentic action in service of a goal. For instance, Karwowski and Beghetto (2018) explored a theoretical model of creative behavior, and they described the movement from creative potential to creative behavior as agentic action. They emphasized that creative behavior is not simply the outcome of creative potential – one must value creativity and have the confidence to take action. The authors highlighted the process involved in agentic action, and much like earlier articles which defined agentic action, they underscored the role of identity.

Operationalizations. In addition to the description and operationalization of agentic action and the associated self-regulation, self-direction, and pathways thinking in Causal Agency Theory (Shogren et al., 2015), two articles operationalized agentic action with specific or observable details. Campbell and O'Meara (2014), in an analysis of the relationship between academic department factors and faculty agency, operationalized agentic action in five survey items as part of a larger measure. For example, "I have taken strategic steps toward creating a satisfactory work-life balance." Stephens et al. (2007) examined how differing social class contexts (i.e., middle class, working class) shape action, focusing on "choice as a prototypically agentic action" (p. 815). Across five studies, participants' choices were measured, along with their responses to the choices of others. The findings supported theories that people in working-class contexts do not focus on "distinction" from others while those in middle-class contexts do.

Case studies/research examples. Agentic action was expanded upon within a case study or research example in four articles. Shogren et al. (2015) described how youth learn to engage

in agentic action through goal setting and attainment instruction, while Goh et al. (2011), Billett and Somerville (2004), and Richardson (2012) provided examples of agentic action in the workplace. For example, Goh et al. (2011) detailed agentic actions by hospital leadership, as they advocated for proper use of technology systems and worked to educate other providers.

Action-control beliefs. Only four articles addressed action-control beliefs (Lopez, 1999; Mumbardó-Adam et al., 2018; Sachs, 2002; Shogren et al., 2015). All four articles either defined, described, and/or operationalized the term, with no articles including case studies or research examples.

Definitions. Three articles provided a definition for action-control beliefs. As described in the Introduction, action-control beliefs were defined in Causal Agency Theory as a sense of personal empowerment in self-determined people, in which "they believe they have what it takes to achieve freely chosen goals" (p. 259), and Mumbardó-Adam et al. (2018) also used this definition. Lopez (1999) defined action-control beliefs based on action-control theory as three interrelated belief systems (means-ends beliefs, agency beliefs, and control expectancy – expanded upon subsequently) that produce intentional goal-directed behavior.

Descriptions. The same three articles described three types of action-control beliefs: control expectancy, capacity beliefs (i.e., agency beliefs), and causality beliefs (i.e., means-ends beliefs; Lopez, 1999; Mumbardó-Adam et al., 2018; Shogren et al., 2015). Control expectancy is the belief that one can successfully obtain one's goal, or the link between the self and the goal. Capacity beliefs are the link between the self and the means for achieving the goal (i.e., personal appraisals about the degree to which one has and/or can utilize the means to attain their goal), and causality beliefs are beliefs about the degree to which actions will lead to goal attainment (i.e., the utility or usefulness of a given action for goal attainment).

Operationalizations. Three of the four articles that included action-control beliefs operationalized the term. Shogren et al. (2015) presented "I" statements for each type of action-control beliefs, such as "When I want to do ___, I can" for control expectancy (p. 259). In assessing action-control beliefs related to academic goals, intrinsic motivation and test anxiety, and academic performance, Lopez (1999) described agency subscales used, including effort, ability, and luck. Relatedly, Sachs (2002) operationalized action-control beliefs as ability, effort, luck, and control expectancies in a proposed path model with students' attitude to writing a thesis and academic orientation (i.e., academic experience and learning approach).

Discussion

The purpose of this study was to map the literature on the essential characteristics of self-determined action (volitional action, agentic action, and action-control beliefs) as outlined in Causal Agency Theory (Shogren et al., 2015). Causal Agency Theory proposes volitional action, agentic action, and action-control beliefs collectively as the essential characteristics of self-determined action, functioning to enable a person to act as a causal agent. Overall, the characterizations of volitional action, agentic action, and action-control beliefs in Causal Agency Theory are consistent with how they are described within the broader literature, although there were some elements of variation that should be noted (e.g., the emphasis on self-control within descriptions of volitional action; Parkinson et al., 2017). Perhaps the most significant finding of this review is that each essential characteristic – volitional action, agentic action, and action-control beliefs – was primarily examined in isolation, apart from papers that introduced or adopted Causal Agency Theory. Additionally, the review suggests that these terms – even when used in isolation – are relatively new to the field as the first article that used any of the terms was published in 1998 (no articles identified in this review were published between 1988 and 1997).

Therefore, given the newness of the use of the terms generally and the relative newness of the introduction of Causal Agency Theory, it is not entirely surprising that volitional action, agentic action, and action-control beliefs rarely have been presented or examined within this larger model to date, and in fact, Causal Agency Theory may represent the first steps in considering these constructs collectively.

Despite the newness of the use of these terms, the findings provide important insight into how each of these constructs have been examined in research over the last twenty years. Results showed an increase in the number of articles that addressed essential characteristics of self-determined action over the span of the review (1988 to 2018), with the greatest number of articles in 2015 and 2018, respectively (see Figure 2). This trend may indicate a growing recognition across disciplines of the significance of volitional action, agentic action, and action-control beliefs. And as each characteristic is explored in greater depth, the links between them (as theorized in Causal Agency Theory) may garner more attention within the literature. But while there were general themes in similarities in how volitional action, agentic action, and action-control beliefs have been described in the literature and in Causal Agency Theory, there were also differences and specific gaps in existing knowledge that hold implications for future research and practice. These themes and related implications are highlighted in the sections below.

Themes and Implications Within Each Essential Characteristic

Volitional action. Looking at how volitional action was represented in the literature, one theme that emerged was the notion of control. Causal Agency Theory states,

Self-determined action does not imply control over events or outcomes. Instead it refers

to the degree to which action is self-caused; that is the degree to which behavior is

volitional and agentic, driven by beliefs about the relationships between actions (or

means) and ends. (p. 258)

However, volitional action was described with an emphasis on control (specifically, self-control)

in several articles within this review. Parkinson et al. (2017) defined volitional action and self-

control (jointly) as "feelings of acting according to one's own intentions and being in control of

one's own actions" (p. 252). Other articles referenced Vygotsky's theories on human beings'

ability to control their actions and external circumstances and Kuhl's self-regulation theory

(1992). In a subset of articles focused on cognition, volitional action was described as the

experience of being in control of one's physical actions (e.g., Pontius, 2003, 2004). Disability

theorists have argued that it can be problematic to define self-determination as control over one's

life, drawing a distinction between controlling and causing things to happen. In 2005, Wehmeyer

addressed definitional issues related to self-determination and control (specifically, the

misinterpretation that self-determination is synonymous with personal control) and argued that

equating volitional action or self-determination with control was inhibiting progress in research

and practice to promote self-determination for people with more significant support needs. In

fact, this issue is problematic at a broader level and can be connected to cross-cultural work on

the need for unifying theory on self-determination that accounts for differences in how self-

determination is expressed across cultural identities and promoting self-determination in practice

in culturally appropriate ways (Deci, Ryan, Gagné, Leone, & Kornazheva, 2001; Ryan & Deci,

2003; Shogren, 2011).

Based on focus groups with culturally and linguistically diverse students with disabilities

on perceptions of self-determination, Leake and Boone (2007) identified one of the themes as

challenges that emerged between notions of independence (often equated with self-control)

versus interdependence, particularly within family structures that emphasize interdependence. The complexities of understanding and describing control, independence, and interdependence are evident therefore not only within disability but also within diverse communities, further highlighting issues that potentially arise from defining volitional action as control, rather than as causal actions. Essentially, scholars in disability and diversity argue that actions can still be volitional even when decisions are made to recruit supports (Blanck & Martinis, 2015) or to engage in familial or community decision-making (Shogren, 2011), even if they may not reflect the self-control reflected in some of the theoretical perspectives.

This finding may also be influenced by differences in terminology across fields. For example, while Parkinson et al. (2017) focused on self-control and volitional action, they also highlighted the importance of "feelings of acting according to one's own intentions," which could be consistent with controlling one's actions, or collaborating others or needed supports if this is in accordance with one's intentions to achieve a goal. Thus, it may be that in some literature control is used to convey causal action, similar to the description of volitional action in Causal Agency Theory (e.g., Parkinson et al., 2017). In contrast, when control refers to the capacity to self-control one's physical actions (e.g., balance control; Takakura et al., 2015) in fields such as neuroscience, it differs more significantly from volitional action and associated skills described in Causal Agency Theory (i.e., choice making, decision making, goal setting, problem solving, planning). However, when the term control was used to describe volitional actions with regard to physical movements or actions (e.g., Takakura et al., 2015), the focus was still more strongly placed on volition, which could potentially be aligned with supports (e.g., assistive technology) to promote self-caused actions. In sum, differences in understanding of volitional action across existing research seemingly center on the role of control, how it is

defined and operationalized, and what is meant by the term in relation to volitional action. Thus, ongoing work is needed to promote multidisciplinary examinations of the meaning of volitional action and control and how this can be applied to all people, including those with significant support needs or who may adopt a communal approach to decision making, but still retain agency in that process.

      Agentic action. A theme that emerged from the literature on agentic action was the presence of differences in terminology, specifically related to identity and self-directed action. For example, Billett and Somerville (2004) examined identity and learning in the working lives of adults, noting how participants engaged in agentic action to transform work practices inconsistent with their values and beliefs. They stated, "individuals' identity and subjectivities shape the agentic action and intentionality that constitute the self" (p. 315). Interestingly, while the term "identity" is not used specifically within Causal Agency Theory, there is a focus on making choices based on one's preferences (intentionality) and working toward one's freely chosen goals (Shogren et al., 2015). Notably, identity and self-determination have been addressed in other research (e.g., Luyckx, Vansteenkiste, Goosens, & Duriez, 2009; Ryan & Deci, 2003). Identity has been linked to the three basic psychological needs proposed in Self-Determination Theory (Deci & Ryan, 2002) – competence, autonomy, and relatedness – with evidence from Luyckx et al. (2009) suggesting the strength of adolescents' personal identity formulation is positively related to basic needs satisfaction. Overall, these findings indicate that while terminology differed across the literature base, interconnected concepts (i.e., identity and intentionality) were represented. Exploring how these concepts align across the literature is a direction for future research.

Action-control beliefs. Less information on potential nuances in characterizations of action-control beliefs can be gleaned from the literature, given that only three articles in addition to the paper on Causal Agency Theory addressed this term. It should be noted, however, that all four articles addressed action control beliefs in education contexts, which may point to adolescence as a critical development period for action-control beliefs (Wehmeyer & Shogren, 2017). This finding relates to implications addressing how self-determination is understood from a life course perspective, discussed within overall themes below.

Overall Themes and Implications Across Essential Characteristics

In considering how the essential characteristics of self-determination were presented in the literature overall, three themes emerged: (a) a lack of integration of the terms (i.e., not linked), (b) little attention to disability and broader issues related to the inclusion of diverse communities in theory and practice, and (c) an emphasis on research and theory related to adults, as opposed to a life course perspective.

In terms of the first theme, the use of identity in the literature on agentic action described above may provide the best representation of this overall theme. Within Causal Agency Theory, identity is infused across all three essential characteristics – related to one's conscious choices based upon preferences in volitional action, self-regulation and self-direction in agentic action, and one's self-awareness and self-knowledge in action-control beliefs. In this way, conceptualizing volitional action, agentic action, and action-control beliefs collectively as characteristics of self-determined action may provide a richer view of each concept than when examined in isolation. In order to continue to enhance understanding of self-determined actions for all people, more research is needed that specifically explores volitional action, agentic action, and action-control beliefs collectively as the essential characteristics of self-determined action

rather than in isolation, exploring how they influence each other and grow in similar or different ways over time and development. New research is particularly warranted because of changes to the understanding of how people become self-determined in Causal Agency Theory, particularly in light of advances in positive psychology and a strengths-based approach to disability that shaped the definitions of these characteristics (Shogren et al., 2015). This shift in thinking has evolved over time, in part prompted by misconceptions about the construct of self-determination, particularly in relation to people with more significant support needs. In order to generate practice-based solutions that lead to enhanced outcomes related to self-determination for all people, it is critical to advance theory on the construct comprehensively through interdisciplinary work across the life course. Thus far, the majority of work has been siloed within disciplines (e.g., psychology, neuroscience, education), and given the significant importance of considering context (e.g., supports, opportunities, threats, impediments; Shogren et al., 2015) and culture (Ryan & Deci, 2003; Shogren, 2011), interdisciplinary work that collectively examines the essential characteristics of self-determination action is critical.

The second overall theme relates to the attention directed to disability and broader issues of inclusion and promoting self-determination for all people. Of the 49 articles in this review, only 12 addressed the topic of disability or health-related issues in some capacity, which is surprising given the significant attention that has been paid to the construct over the last three decades in the field. However, as noted previously, Causal Agency Theory, in which volitional action, agentic action, and action-control beliefs were conceptualized as collectively characterizing self-determined actions for people with and without disabilities, is relatively new. Continuing to explore how the essential characteristics of self-determined actions function to enable people with and without disabilities to act as causal agents in their lives across a variety

of contexts represents a direction for future research, as it will provide a base to consider supports, opportunities, and barriers, given the contextual variance described in Causal Agency Theory (Shogren et al., 2015). As an example, enhancing understanding of how adults with and without disabilities engage in self-determined actions in the workplace (as opposed to the focus on only adults without disabilities in the literature described above), at home, and in the community is necessary to understand the relevant supports, opportunities, and barriers.

The third and final overall theme highlights the need for a life course approach in examining self-determined actions. The majority of articles focused on volitional action and agentic action within the context of the adult world only (e.g., the workplace) rather than from a life course perspective. In contrast, all four articles addressing action-control beliefs focused only on students and an education context. Causal Agency Theory places significant emphasis on the development of self-determination across the life course, beginning in early childhood and continuing through adolescence and adulthood (Shogren et al., 2015; Wehmeyer, Shogren, Little, & Lopez, 2017). More research on volitional action, agentic action, and action-control beliefs as the essential characteristics of self-determined action is needed both across the life course and across contexts. Researchers note the critical importance of developing foundational skills beginning in early childhood (Doll, Sands, Wehmeyer, & Palmer, 1996; Palmer, 2010; Palmer, Wehmeyer, & Shogren, 2017; Wehmeyer & Palmer, 2000) and continuing to support development during adolescence (Wehmeyer & Shogren, 2017) and through adulthood (McCallion & Ferretti, 2017). To better understand how to provide supports across the life course, it is critical to consider the essential characteristics of self-determined action from a developmental perspective and to begin to explore if the essential characteristics may develop

differently across stages of the life course or are differentially impacted by contextual factors at different life stages.

Limitations

There are several limitations that should be noted when interpreting the results of this review and considering directions for future research. As described previously, the designated search terms used to identify articles were "volitional action", "agentic action", and "action-control belief", and the specificity of these search terms represents a limitation. A decision was made not to use variations of these terms (e.g., "volition", "agency", "action-control") given broad, global usage of these terms unrelated to self-determination, which was outside the scope of this review. Similarly, related terms such as "causal agency" or "self-determination" were not used because the explicit focus within this review was on volitional action, agentic action, and action-control beliefs, given the introduction of these terms in Causal Agency Theory. Further, constructs used to define the essential characteristics (e.g., pathways thinking, autonomy, control expectancy) were not explicitly searched. Thus, it is possible articles which did address the essential characteristics or some aspect of it did not appear in the search, and thus future researchers may consider conducting a broader review with expanded search terms. The time frame of this review also represents a limitation, given the recent introduction of Causal Agency Theory in 2015. While it is not expected many articles would use this framework in the short timespan since Causal Agency Theory was introduced and the present review was conducted, this review provides important information on the relative newness of all of the terms and their use in the field, as well as the lack of previous integration of the terms in describing self-determined actions prior to the introduction of Causal Agency Theory.

Conclusion

Overall, this review of the literature on the essential characteristics of self-determined action (volitional action, agentic action, and action-control beliefs) shows volitional and agentic action have been consistently defined and described across disciplines over the last two decades, although less attention has been paid to action-control beliefs within the literature. Notably, Causal Agency Theory appears to represent the first steps in collectively characterizing volitional action, agentic action, and action-control beliefs as related to self-determined action. Several significant gaps in the knowledge base emerged, particularly a lack of research on how the essential characteristics collectively relate to and characterize self-determined action, as well as limited exploration of these characteristics from a life course perspective and when considering disability, diversity, and support needs, particularly related to distinctions between self-control and self-caused actions. Future research is needed to examine understandings of self-determination across contexts and populations within the framework of Causal Agency Theory, given the critical importance of self-determination in the lives of people with and without disabilities and the increasing need for unifying theories that promote multidisciplinary work that can be used to create positive outcomes for all people in society across the life course.

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. doi:10.3102/00346543071002219

Ansari, T. L., & Derakshan, N. (2010). Anxiety impairs inhibitory control but not volitional

    action control. *Cognition and Emotion, 24*, 241-254. doi:10.1080/02699930903381531

Bell, S., Aggleton, P., & Slavin, S. (2018). Negotiating trust and struggling for control: Everyday

    narratives of unwanted disclosure of HIV status among people with HIV in Australia.

    Health Sociology Review, 27, 1-14. doi:10.1080/14461242.2016.1271282

Bender, J., Reuter, B., Möllers, D., Kaufmann, C., Gallinat, J., & Kathmann, N. (2013). Neural

    correlates of impaired volitional action control in schizophrenia patients.

    Psychophysiology, 50, 872-884. doi:10.1111/psyp.12060

Billett, S., & Pavlova, M. (2005). Learning through working life: Self and individuals' agentic

    action. *International Journal of Lifelong Education, 24*, 195-211.

    doi:10.1080/02601370500134891

Billett, S., & Somerville, M. (2004). Transformations at work: Identity and learning. *Studies in*

    Continuing Education, 26, 309-326. doi:10.1080/158037042000225272

Blanck, P., & Martinis, J. G. (2015). "The right to make choices": The National Resource Center

    for Supported Decision-Making. *Inclusion, 3*, 24-33. doi:10.1352/2326-6988-3.1.24

Blunt, A., & Pychyl, T. A. (1998). Volitional action and inaction in the lives of undergraduate

    students: State orientation, procrastination and proness to boredom. *Personality and*

    Individual Differences, 24, 837-846. doi:10.1016/S0191-8869(98)00018-X

Brew, A., Boud, D., Lucas, L., & Crawford, K. (2013). Reflexive deliberation in international research collaboration: Minimising risk and maximising opportunity. *Higher Education, 66*, 93-104. doi:10.1007/s10734-012-9592-6

Burke, K. M., Raley, S. K., Shogren, K. A., Hagiwara, M., Mumbardó Adam, C., Uyanik, H., & Behrens, S. (2018). A meta-analysis of interventions to promote self-determination for students with disabilities. *Remedial and Special Education*. Advance online publication. doi:10.1177/0741932518802274

Campbell, C., & O'Meara, K. (2014). Faculty agency: Departmental contexts that matter in faculty careers. *Research in Higher Education, 55*, 49-74. doi:10.1007/s11162-013-9303-x

Cavanagh, J. M. (2012). Auxiliary women workers in the legal sector: Traversing subjectivities and 'self' to learn through work. *Journal of Vocational Education and Training, 64*, 245-259. doi:10.1080/13636820.2012.691531

Chen, K. K. (2015). Prosumption: From parasitic to prefigurative. *The Sociological Quarterly, 56*, 446-459. doi:10.1111/tsq.12103

Deci, E. L., & Chandler, C. L. (1986). The importance of motivation for the future of the LD field. *Journal of Disability Studies, 19*, 587-594. doi:10.1177/002221948601901003

Deci, E. L., & Ryan, R. M. (Eds.). (2002). *Handbook of self-determination research*. Rochester, NY: University of Rochester Press.

Deci, E. L., Ryan, R. M., Gagné, M., Leone, D. R., & Kornazheva, B. P. (2001). Need satisfaction, motivation, and well-being in the work organizations of a former eastern bloc country: A cross-cultural study of self-determination. *Personality and Social Psychology Bulletin, 27*, 930-942. doi:10.1177/0146167201278002

Doll, B., Sands, D. J., Wehmeyer, M. L., & Palmer, S. B. (1996). Promoting the development of self-determined behavior. In D. J. Sands & M. L. Wehmeyer (Eds.), *Self-determination across the life-span* (pp. 65-90). Baltimore, MD: Paul H. Brookes Publishing.

Drewery, W. (1998). Unemployment: What kind of problem is it? *Journal of Community and Applied Social Psychology, 8*, 101-118. doi:10.1002/(sici)1099-1298(199803/04)8:2<101::aid-casp461>3.0.co;2-c

Dulany, D. E. (2003). Strategies for putting consciousness in its place. *Journal of Consciousness Studies, 10*, 33-43.

Ferrazzoli, D., Ortelli, P., Madeo, G., Giladi, N., Petzinger, G. M., & Frazzitta, G. (2018). Basal ganglia and beyond: The interplay between motor and cognitive aspects in Parkinson's disease rehabilitation. *Neuroscience & Biobehavioral Reviews, 90*, 294-308. doi:10.1016/j.neubiorev.2018.05.007

Ganos, C., Asmuss, L., Bongert, J., Brandt, V., Münchau, A., & Haggard, P. (2015). Volitional action as perceptual detection: Predictors of conscious intention in adolescents with tic disorders. *Cortex, 64*, 47-54. doi:10.1016/j.cortex.2014.09.016

Goh, J. M., Gao, G., & Agarwal, R. (2011). Evolving work routines: Adaptive routinization of information technology in healthcare. *Information Systems Research, 22*, 565-585. doi:10.1287/isre.1110.0365

Healy, D. (2014). Becoming a desister: Exploring the role of agency, coping and imagination in the construction of a new self. *The British Journal of Criminology, 54*, 873-891. doi:10.1093/bjc/azu048

Karwowski, M., & Beghetto, R. A. (2018). Creative behavior as agentic action. *Psychology of Aesthetics, Creativity, and the Arts*. doi:10.1037/aca0000190

Kazén, M., Kuhl, J., & Leicht, E.-M. (2015). When the going gets tough…: Self-motivation is associated with invigoration and fun. *Psychological Research, 79*, 1064-1076. doi:10.1007/s00426-014-0631-z

Kieffaber, P. D., Hershaw, J., Sredl, J., & West, R. (2016). Electrophysiological correlates of error initiation and response correction. *NeuroImage, 128*, 158-166. doi:10.1016/j.neuroimage.2015.12.046

Kloft, L., Kischkel, E., Kathmann, N., & Reuter, B. (2011). Evidence for a deficit in volitional action generation in patients with obsessive-compulsive disorder. *Psychophysiology, 48*, 755-761. doi:10.1111/j.1469-8986.2010.01138.x

Koole, S. L., & Coenen, L. H. M. (2007). Implicit self and affect regulation: Effects of action orientation and subliminal self priming in an affective priming task. *Self and Identity, 6*, 118-136. doi:10.1080/15298860601118835

Koole, S. L., & Fockenberg, D. A. (2011). Implicit emotion regulation under demanding conditions: The moderating role of action versus state orientation. *Cognition and Emotion, 25*, 440-452. doi:10.1080/02699931.2010.544891

Koole, S. L., & Jostmann, N. B. (2004). Getting a grip on your feelings: Effects of action orientation and external demands on intuitive affect regulation. *Journal of Personality and Social Psychology, 87*, 974-990. doi:10.1037/0022-3514.87.6.974

Kuhl, J. (1992). A theory of self-regulation: Action versus state orientation, self-discrimination, and some applications. *Applied Psychology, 41*, 97-129. doi:10.1111/j.1464-0597.1992.tb00688.x

Larkin, M., & Griffiths, M. D. (2004). Dangerous sports and recreational drug-use: Rationalizing and contextualizing risk. *Journal of Community and Applied Social Psychology, 14*, 215-232. doi:10.1002/casp.770

Leake, D., & Boone, R. (2007). Multicultural perspectives on self-determination from youth, parent, and teacher focus groups. *Career Development for Exceptional Individuals, 30*, 104-115. doi:10.1177/08857288070300020101

Lopez, D. F. (1999). Social cognitive influences on self-regulated learning: The impact of action-control beliefs and academic goals on achievement-related outcomes. *Learning and Individual Differences, 11*, 301-319. doi:10.1016/s1041-6080(99)80005-3

Luyckx, K., Vansteenkiste, M., Goosens, L., & Duriez, B. (2009). Basic need satisfaction and identity formation: Bridging self-determination theory and process-oriented identity research. *Journal of Counseling Psychology, 56*, 276-288. doi:10.1037/a0015349

Marshall, A. C., Gentsch, A., & Schütz-Bosbach, S. (2018). The interaction between interoceptive and action states within a framework of predictive coding. *Frontiers in Psychology, 9*, 1-14. doi:10.3389/fpsyg.2018.00180

McCallion, P., & Ferretti, L. A. (2017). Understanding, supporting, and safeguarding self-determination as we age. In M. L. Wehmeyer, K. A. Shogren, T. D. Little, & S. J. Lopez (Eds.), *Development of self-determination through the life-course* (pp. 145-158). The Netherlands: Springer.

Mumbardó-Adam, C., Guàrdia-Olmos, J., Giné, C., Raley, S. K., & Shogren, K. A. (2018). The Spanish version of the Self-Determination Inventory Student Report: Application of item response theory to self-determination measurement. *Journal of Intellectual Disability Research, 62*, 303-311. doi:10.1111/jir.12466

Nirje, B. (1972). The right to self-determination. In W. Wolfensberger (Ed.), *Normalization: The principle of normalization* (pp. 176-200). Toronto: National Institute on Mental Retardation.

Obhi, S. S., Swiderski, K. M., & Farquhar, R. (2013). Activating memories of depression alters the experience of voluntary action. *Experimental Brain Research, 229*, 497-506. doi:10.1007/s00221-012-3372-5

Palmer, S. B. (2010). Self-determination - A life-span perspective. *Focus on Exceptional Children, 42*, 1-16.

Palmer, S. B., Summers, J. A., Brotherson, M. J., Erwin, E. J., Maude, S. P., Stroup-Rentier, V., . . . Haines, S. J. (2013). Foundations for self-determination in early childhood: An inclusive model for children with disabilities. *Topics in Early Childhood Special Education, 33*, 38-47. doi:10.1177/0271121412445288

Palmer, S. B., Wehmeyer, M. L., & Shogren, K. A. (2017). The development of self-determination during childhood. In M. L. Wehmeyer, K. A. Shogren, T. D. Little, & S. J. Lopez (Eds.), *Development of self-determination through the life-course* (pp. 71-88). The Netherlands: Springer.

Parkinson, J., Garfinkel, S., Critchley, H., Dienes, Z., & Seth, A. K. (2017). Don't make me angry, you wouldn't like me when I'm angry: Volitional choices to act or inhibit are modulated by subliminal perception of emotional faces. *Cognitive, Affective, and Behavioral Neuroscience, 17*, 252-268. doi:10.3758/s13415-016-0477-5

Pierson, L. M., & Trout, M. (2017). What is consciousness for? *New Ideas in Psychology, 47*, 62-71. doi:10.1016/j.newideapsych.2017.05.004

Pontius, A. A. (2003). From volitional action to automatized homicide: Changing levels of self and consciousness during partial limbic seizures. *Aggression and Violent Behavior, 8*, 547-561. doi:10.1016/S1359-1789(02)00099-X

Pontius, A. A. (2004). Violence in schizophrenia versus limbic psychotic trigger reaction: Prefrontal aspects of volitional action. *Aggression and Violent Behavior, 9*, 503-521. doi:10.1016/S1359-1789(03)00046-6

Reuter, B., Jäger, M., Bottlender, R., & Kathmann, N. (2007). Impaired action control in schizophrenia: The role of volitional saccade initiation. *Neuropsychologia, 45*, 1840-1848. doi:10.1016/j.neuropsychologia.2006.12.006

Richardson, M. S. (2011). Counseling for work and relationship. *The Counseling Psychologist, 40*, 190-242. doi:10.1177/0011000011406452

Ryan, R. M., & Deci, E. L. (2003). On assimilating identities to the self: A self-determination theory perspective on internalization and integrity within cultures. In M. R. Leary & J. P. Tangney (Eds.), *Handbook of self and identity* (pp. 253–272). New York, NY: Guilford.

Sachs, J. (2002). A path model for students' attitude to writing a thesis. *Scandinavian Journal of Educational Research, 46*, 99-108. doi:10.1080/00313830120115633

Sannino, A. (2015). The principle of double stimulation: A path to volitional action. *Learning, Culture and Social Interaction, 6*, 1-15. doi:10.1016/j.lcsi.2015.01.001

Sannino, A. (2016). Double stimulation in the waiting experiment with collectives: Testing a Vygotskian model of the emergence of volitional action. *Integrative Psychological and Behavioral Science, 50*, 142-173. doi:10.1007/s12124-015-9324-4

Scheiter, K., Gerjets, P., & Heise, E. (2014). Distraction during learning with hypermedia: Difficult tasks help to keep task goals on track. *Frontiers in Psychology, 5*, 1-12. doi:10.3389/fpsyg.2014.00268

Shanahan, M. J., & Pychyl, T. A. (2007). An ego identity perspective on volitional action: Identity status, agency, and procrastination. *Personality and Individual Differences, 43*, 901-911. doi:10.1016/j.paid.2007.02.013

Shogren, K. A. (2011). Culture and self-determination: A synthesis of the literature and directions for future research and practice. *Career Development for Exceptional Individuals, 34*, 115-127. doi:10.1177/0885728811398271

Shogren, K. A., Wehmeyer, M. L., Palmer, S. B., Forber-Pratt, A. J., Little, T. J., & Lopez, S. (2015). Causal agency theory: Reconceptualizing a functional model of self-determination. *Education and Training in Autism and Developmental Disabilities, 50*, 251-263.

Stephens, N. M., Markus, H. R., & Townsend, S. S. M. (2007). Choice as an act of meaning: The case of social class. *Journal of Personality and Social Psychology, 93*, 814-830. doi:10.1037/0022-3514.93.5.814

Takakura, H., Nishijo, H., Ishikawa, A., & Shojaku, H. (2015). Cerebral hemodynamic responses during dynamic posturography: Analysis with a multichannel near-infrared spectroscopy system. *Frontiers in Human Neuroscience, 9*, 1-15. doi:10.3389/fnhum.2015.00620

Ward, M. J. (2005). An historical perspective of self-determination in special education: Accomplishments and challenges. *Research and Practice for Persons with Severe Disabilities, 30*, 108-112. doi:10.2511/rpsd.30.3.108

Watanabe, M., Matsuo, Y., Zha, L., MacAskill, M. R., & Kobayashi, Y. (2014). Fixational

saccades alter the gap effect. *European Journal of Neuroscience, 39*, 2098-2106.

doi:10.1111/ejn.12566

Watanabe, M., Matsuo, Y., Zha, L., Munoz, D. P., & Kobayashi, Y. (2013). Fixational saccades

reflect volitional action preparation. *Journal of Neurophysiology, 110*, 522-535.

doi:10.1152/jn.01096.2012

Watanabe, M., & Munoz, D. P. (2010). Presetting basal ganglia for volitional actions. *The

Journal of Neuroscience, 30*, 10144-10157. doi:10.1523/JNEUROSCI.1738-10.2010

Wehmeyer, M. L. (1992). Self-determination and the education of students with mental

retardation. *Education and Training in Mental Retardation, 27*, 302-314.

Wehmeyer, M. L. (2005). Self-determination and individuals with severe disabilities:

Reexamining meanings and misinterpretations. *Research and Practice in Severe

Disabilities, 30*, 113-120. doi:10.2511/rpsd.30.3.113

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

The Arc National Headquarters.

Wehmeyer, M. L., Kelchner, K., & Richards, S. (1996). Essential characteristics of self-

determined behavior in individuals with mental retardation. *American Journal on Mental

Retardation, 100*, 632-642.

Wehmeyer, M. L., & Palmer, S. B. (2000). Promoting the acquisition and development of self-

determination in young children with disabilities. *Early Education and Development, 11*,

465-481. doi:10.1207/s15566935eed1104_6

Wehmeyer, M. L., & Shogren, K. A. (2017). The development of self-determination during

adolescence. In M. L. Wehmeyer, K. A. Shogren, T. D. Little, & S. J. Lopez (Eds.),

Development of self-determination through the life-course (pp. 89-98). New York, NY: Springer.

Wehmeyer, M. L., Shogren, K. A., Little, T. D., & Lopez, S. J. (Eds.). (2017). *Development of self-determination through the life-course*. New York, NY: Springer.

Wiest, G., Lurger, S., & Baumgartner, C. (2012). Free will, agency, and the synthetic function of the ego: An investigation using cortical stimulation. *Neuropsychoalysis, 14*, 135-140. doi:10.1080/15294145.2012.10773697

Winslade, J. (2006). Mediation with a focus on discursive positioning. *Conflict Resolution Quarterly, 23*, 501-515. doi:10.1002/crq.152

Wojdylo, K., Baumann, N., & Kuhl, J. (2017). The firepower of work craving: When self-control is burning under the rubble of self-regulation. *PLoS ONE, 12*, e0169729. doi:10.1371/journal.pone.0169729

Yanchar, S. C. (2018). Agency, world, and the ontological ground of possibility. *Journal of Theoretical and Philisophical Psychology, 38*, 1-14. doi:10.1037/teo0000068

Table 1

Articles Addressing the Essential Characteristics of Self-Determined Action

Reference	Field	Article Type	Volitional Action Use (*if present*)	Agentic Action Use (*if present*)	Action-Control Beliefs Use (*if present*)
Ansari and Derakshan (2010)	Psychology	Experimental/ Quasi-Experimental	Used in text without additional details	N/A	N/A
Bell et al. (2018)	Sociology	Descriptive	N/A	Used in text without additional details	N/A
Bender et al. (2013)	Neuroscience	Experimental/ Quasi-Experimental	Described	N/A	N/A
Billett and Pavlova (2005)	Education	Descriptive	N/A	Defined; described	N/A
Billett and Somerville (2004)	Education	Descriptive	N/A	Described; case study/research example	N/A
Blunt and Pychyl (1998)	Psychology	Correlational	Used in text without additional details	N/A	N/A
Brew, Boud, Lucas, and Crawford (2013)	Education	Theoretical	N/A	Used in text without additional details	N/A
Campbell and O'Meara (2014)	Education	Correlational	N/A	Defined; described; operationalized	N/A
Cavanagh (2012)	Employment	Descriptive	N/A	Described	N/A
Chen (2015)	Psychology	Theoretical	N/A	Used in text without additional details	N/A
Drewery (1998)	Psychology	Descriptive	N/A	Used in text without additional details	N/A

Study	Discipline	Research Type			
Dulany (2003)	Psychology	Theoretical	Used in text without additional details	N/A	N/A
Ferrazzoli et al. (2018)	Neuroscience	Literature Review	Used in text without additional details	N/A	N/A
Ganos et al. (2015)	Neuroscience	Experimental/Quasi-Experimental	Described	N/A	N/A
Goh et al. (2011)	Information Technology	Descriptive	N/A	Described; case study/research example	N/A
Healy (2014)	Criminology	Descriptive	N/A	Described	N/A
Karwowski and Beghetto (2018)	Psychology	Experimental/Quasi-Experimental	N/A	Described	N/A
Kazén et al. (2015)	Psychology	Experimental/Quasi-Experimental	Described	N/A	N/A
Kieffaber, Hershaw, Sredl, and West (2016)	Neuroscience	Experimental/Quasi-Experimental	Used in text without additional details	N/A	N/A
Kloft et al. (2011)	Medicine	Experimental/Quasi-Experimental	Described	N/A	N/A
Koole and Coenen (2007)	Psychology	Experimental/Quasi-Experimental	Used in text without additional details	N/A	N/A
Koole and Fockenberg (2011)	Psychology	Experimental/Quasi-Experimental	Described	N/A	N/A
Koole and Jostmann (2004)	Psychology	Experimental/Quasi-Experimental	Described	N/A	N/A
Larkin and Griffiths (2004)	Psychology	Descriptive	Used in text without additional details	N/A	N/A
Lopez (1999)	Education	Correlational	N/A	N/A	Defined; described; operationalized
Marshall et al. (2018)	Psychology	Theoretical	N/A	Used in text without additional details	N/A

Study			Defined; described	Defined	Defined; described
Mumbardó-Adam et al. (2018)	Education	Correlational	Defined; described	Defined	Defined; described
Obhi et al. (2013)	Neuroscience	Experimental/Quasi-Experimental	Used in text without additional details	N/A	N/A
Parkinson et al. (2017)	Psychology	Experimental/Quasi-Experimental	Defined	N/A	N/A
Pierson and Trout (2017)	Psychology	Theoretical	Defined; described; case study/research example	N/A	N/A
Pontius (2003)	Neuroscience	Theoretical	Described	N/A	N/A
Pontius (2004)	Neuroscience	Theoretical	Described	N/A	N/A
Reuter, Jäger, Bottlender, and Kathmann (2007)	Psychology	Experimental/Quasi-Experimental	Used in text without additional details	N/A	N/A
Richardson (2011)	Psychology	Theoretical	N/A	Defined; described; operationalized	N/A
Sachs (2002)	Education	Correlational	N/A	N/A	Operationalized
Sannino (2015)	Psychology	Theoretical	Described; Case study/research example	N/A	N/A
Sannino (2016)	Psychology	Experimental/Quasi-Experimental	Described; Case study/research example	N/A	N/A
Scheiter et al. (2014)	Psychology	Experimental/Quasi-Experimental	Used in text without additional details	N/A	N/A
Shanahan and Pychyl (2007)	Psychology	Correlational	Used in text without additional details	N/A	N/A
Shogren et al. (2015)	Education	Theoretical	Defined; described; case study/research example	Defined; described; operationalized; case study/research example	Defined; described; operationalized

|				Operationalized	N/A
Stephens et al. (2007)	Psychology	Experimental/ Quasi-Experimental	N/A	Operationalized	N/A
Takakura et al. (2015)	Neuroscience	Experimental/ Quasi-Experimental	Used in text without additional details	N/A	N/A
Watanabe et al. (2013)	Neuroscience	Experimental/ Quasi-Experimental	Described	N/A	N/A
Watanabe et al. (2014)	Neuroscience	Experimental/ Quasi-Experimental	Used in text without additional details	N/A	N/A
Watanabe and Munoz (2010)	Neuroscience	Experimental/ Quasi-Experimental	Used in text without additional details	N/A	N/A
Wiest et al. (2012)	Neuroscience	Descriptive	Described; case study/research example	N/A	N/A
Winslade (2006)	Psychology	Theoretical	N/A	Used in text without additional details	N/A
Wojdylo et al. (2017)	Psychology	Correlational	Described	N/A	N/A
Yanchar (2018)	Psychology	Theoretical	N/A	Used in text without additional details	N/A

Note. N/A = not applicable.
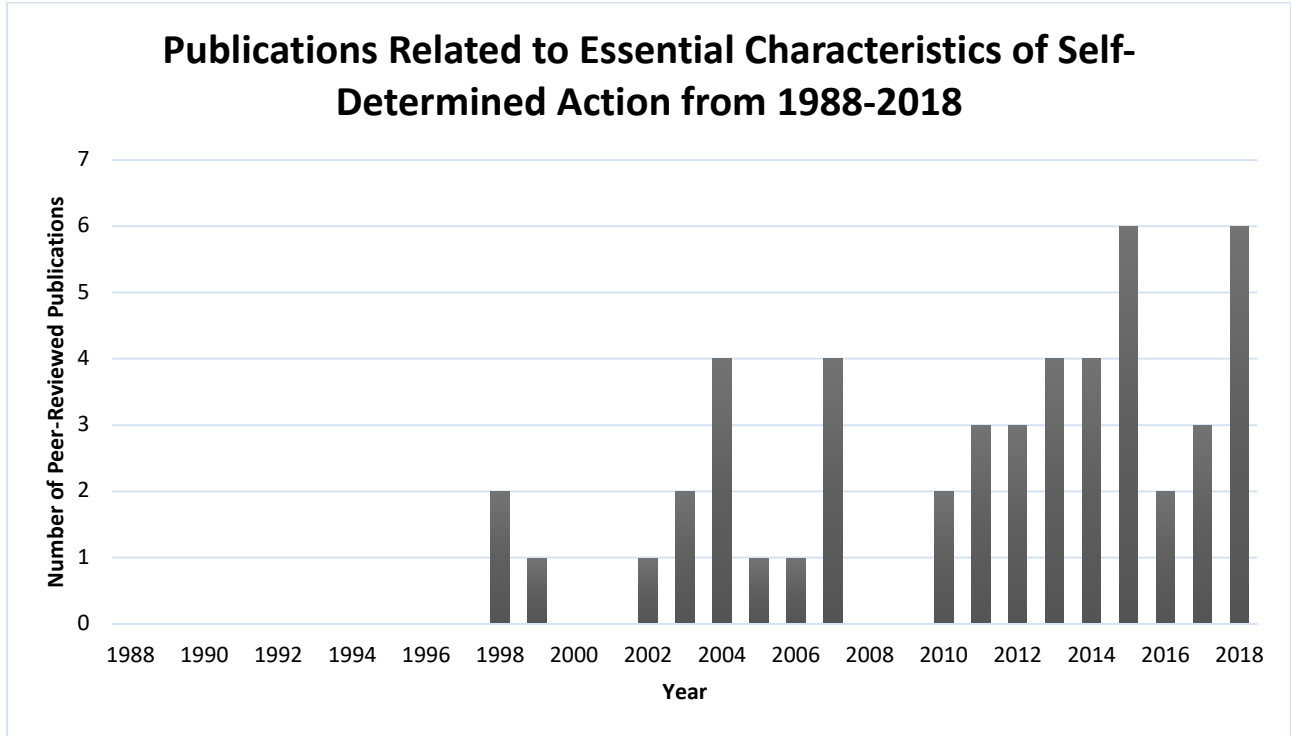
Figure 2. Publications related to essential characteristics of self-determined action from 1988 to

2018.

Chapter 3: Examining Types of Goals Set by Transition-Age Students with Intellectual

Disability

Goal setting and attainment are critical skills in the lives of young people with disabilities, especially as they prepare for the transition from school to the adult world. Goal setting is defined as the process through which a person creates a target or plan for something they want to accomplish or achieve (Sands & Doll, 2000) and is associated with volitional action, one of three essential characteristics of self-determination (Shogren, Wehmeyer, Palmer, Forber-Pratt, et al., 2015). Setting postschool goals is central to transition planning services required under the Individuals with Disabilities Education Act (IDEA) of 2004. IDEA lists a number of postschool activities to be addressed during transition planning, including postsecondary education, vocational education, integrated employment (including supported employment), continuing and adult education, adult services, independent living, and community participation. As such, goal setting is frequently embedded in self-determination interventions, such as the *Self-Determined Learning Model of Instruction*, that can be used during the transition planning process.

The *Self-Determined Learning Model of Instruction* (SDLMI; Shogren, Raley, Burke, & Wehmeyer, 2018; Wehmeyer, Palmer, Agran, Mithaug, & Martin, 2000) is a model of instruction in which trained facilitators (e.g., teachers) teach students self-regulated problem-solving skills that can be applied to setting and going after goals. The SDLMI is comprised of three distinct phases – *Phase 1: Set a goal, Phase 2: Take action, Phase 3: Adjust goal or plan* (see Figure 3; Shogren, Raley, et al., 2018). Teachers provide instruction and supports to enable students to answer four *Student Questions* per phase that guide them through a self-regulated problem-solving process (for a total of 12 Student Questions in the model) that is repeated over

time. *Teacher Objectives* are linked to each Student Question and serve as a roadmap for what teachers want to achieve in supporting students to respond to questions. Teachers provide direct instruction on skills associated with self-determination (i.e., choice making, decision making, goal setting and attainment, planning, problem solving, self-advocacy, self-awareness, self-knowledge, and self-management; Shogren, Wehmeyer, Palmer, Forber-Pratt, et al., 2015) through *Educational Supports* that correspond to each Student Question. Students typically work through the model one to two times over the course of an academic semester and can set and work to attain multiple goals (typically between 2 and 4 goals) over the course of a school year, creating multiple opportunities to learn and practice the self-determination abilities targeted.

The SDLMI has been established as an evidence-based practice for enhancing self-determination and postschool outcomes for transition-age students with disabilities (National Technical Assistance Center on Transition, 2017). In a review of the literature, Hagiwara, Shogren, and Leko (2017) found 21 research studies, including single-subject, quasi-experimental, and large-scale, randomized controlled trial studies, have been conducted using the SDLMI. Such research has provided evidence of the impact of the model on goal attainment (e.g., Shogren, Palmer, Wehmeyer, Williams-Diehm, & Little, 2012) and overall self-determination (e.g., Wehmeyer et al., 2012). However, despite the centrality of goal setting to the model (e.g., students are supported to set a goal at the end of Phase 1 of SDLMI instruction), few studies have specifically analyzed the content of the goals that students are supported to set using the SDLMI and how the content of the goals may impact goal attainment (which is evaluated during Phase 3 of the SDLMI), particularly during transition planning.

Given the centrality of goal setting to the SDLMI, better understanding the content of the goals set by students using the SDLMI could advance training and implementation supports for

SDLMI facilitators. Content experts have begun to develop materials to support teachers and other facilitators with implementing the SDLMI across contexts, such as in inclusive, whole-class settings (Shogren, Raley, & Burke, 2019), with students with complex communication needs (Shogren, Burke, & Raley, 2019b), and during the transition planning process (Shogren, Burke, & Raley, 2019a). Such materials and related trainings can be enhanced based on knowledge of the content of goals transition-age students with disabilities choose to set using the SDLMI and also can be used to enhance the SDLMI coaching process for teachers (Hagiwara, Shogren, Lane, Raley, & Smith, in press) by providing coaches with strategies to promote high expectations for goal content and to identify areas that may be overemphasized or underemphasized by teachers in the goal setting process.

Relatedly, there is a need for research on the degree to which skills associated with self-determination are included within goals students are supported to set using the SDLMI and how this may impact goal attainment, given research on the positive impact of promoting both overall self-determination and specific associated skills (Algozzine, Browder, Karvonen, Test, & Wood, 2001; Burke et al., 2018). Key terms used by teachers in instruction throughout the SDLMI problem-solving process – goal, problem, plan, evaluate – relate to the skills associated with self-determination described previously (Shogren, Raley, et al., 2018). Skills associated with self-determination have been described as "component elements of self-determined action that enable the expression of the essential characteristics" (Shogren, Wehmeyer, Palmer, Forber-Pratt, et al., 2015, p. 260), and thus the degree to which teachers' supports for students focus on skills associated with self-determination (as represented in their goals) is important to understand and could also enhance future implementation supports.

Purpose of the Study

The purpose of this study, therefore, was to analyze the goals set by students using the SDLMI in a specific context (i.e., a state-wide effort to enhance the transition to integrated employment for students with intellectual disability exiting high school) to inform future research and practice. In 2015, special education teachers across the state of Rhode Island (RI) began implementing the SDLMI. This was precipitated by the state entering into a Consent Decree with the U.S. Department of Justice in 2014 due to "unnecessary over-reliance upon segregated sheltered workshops and facility-based day programs" for adults with intellectual disability (United States District Court of Rhode Island, 2014b). Recognizing the role of transition in shaping postschool outcomes, the state began enhancing transition planning supports for teachers and schools. One component of change efforts was promoting student self-determination through the SDLMI by providing teachers with standardized training and ongoing supports for implementation. Evidence from three years of implementation has shown the positive impact of the SDLMI on self-determination and goal attainment for students with intellectual disability (Shogren, Burke, Anderson, et al., 2018; Shogren, Burke, Antosh, et al., 2018; Shogren, Hicks, et al., in press).

The focus in RI was for teachers to implement the SDLMI to support students to set goals related to the transition to employment (e.g., career exploration, developing specific job-related skills, identifying job or internship opportunities), but the SDLMI can be used to target goals across many areas (e.g., academics, postsecondary education, home living, social and relationships, community access, transportation, finances, leisure and recreation, communication) based on students' interests and preferences. SDLMI implementation protocols promote flexibility, particularly when initially using the model, in supporting students to set goals that are of interest to them, as it is hypothesized that the abilities learned with any goal can

then be generalized to other goal areas (e.g., employment). However, as noted, research has never fully explored the types of goals that students typically set when supported to use the SDLMI to know the range of goals that are set. Understanding the goals students choose to set while their teachers support them using the SDLMI will inform future research on students' goal interests during transition planning. It also may provide additional guidance for how teachers can enhance individualized instruction and supports based on the interests and preferred goal areas of students with intellectual disability when implementing the SDLMI as part of the transition planning process. The following research question and sub-questions are addressed:

1. What types of goals do transition-age students with intellectual disability set when supported by their teachers to use the SDLMI to enhance postschool outcomes?

   a. How many students had goals across areas (i.e., academics, vocational education and employment, postsecondary education, home living, social and relationships, community access, transportation, finances, leisure and recreation, communication) and/or multiple goals in the same area?

   b. Within goal areas, what subtopics are represented (e.g., within academic goals, subtopics may include content mastery, class participation and engagement, or study skills)?

   c. How many goals incorporated skills associated with self-determination that are taught using the SDLMI (e.g., choice making, decision making, problem solving)?

Method

Sample

This analysis includes 1,546 goals set by transition-age students in Rhode Island (RI) with an educational classification of intellectual disability. It is part of a series of studies on the

impact of the SDLMI for transition-age students with intellectual disability in RI (Burke, Shogren, Raley, et al., 2019; Shogren, Burke, et al., in press; Shogren, Burke, Anderson, et al., 2018; Shogren, Burke, Antosh, et al., 2018; Shogren, Hicks, et al., in press). In prior analyses, levels of goal attainment have been examined (Shogren, Burke, Anderson, et al., 2018; Shogren, Burke, Antosh, et al., 2018), but this is the first analysis of the content of goals students were supported to set using the SDLMI.

The sample of goals analyzed here were collected over three years of project implementation (2015-2016, 2016-2017, 2017-2018). The goals were set by students during Phase 1 of the SDLMI and were then recorded by teachers on a Goal Attainment Scaling (GAS) form that was part of standardized outcome data collection procedures. After recording the student goal on the GAS form, teachers then created a GAS rubric that was later used to provide ratings of goal attainment from the teacher's perspective. In the present analysis, however, we focused only on the goal set by students and recorded by teachers on the GAS form, not ratings of attainment.

Teachers recorded student goals on the GAS form for 161 students in the 2015-16 school year, 268 students in the 2016-17 school year, and 238 students in the 2017-18 school year. Available student demographics for each year are provided in Table 2. Our primary focus in the present analysis was the 1,546 goals set by students and recorded by teachers, collapsed over time and across students. We did, however, examine if, in a given year, students (a) set multiple types of goals and/or (b) repeated the same goal, which is encouraged under SDLMI implementation protocols if students did not achieve the level of goal attainment they targeted. However, we did not explore the nesting of goals within students over the three years of the project. This was primarily because of issues with merging collected data over the three years

because of the rapid implementation in response to the Consent Decree (e.g., we could not link student level data from 2015-2016 with later years of implementation; see Limitations). While future research is needed on longitudinal change in the types of goals set by students being supported using the SDLMI, this initial work on the overall types of goals set by students will help guide this work.

Procedures

Intervention. The SDLMI was implemented by trained special education teachers over the three years with support from content experts (e.g., coaching, ongoing implementation material distribution; see Shogren, Burke, et al., in press; Shogren, Burke, Anderson, et al., 2018; Shogren, Burke, Antosh, et al., 2018; Shogren, Hicks, et al., in press). The target was for teachers to support students to set two to three individualized learning goals related to transition and employment outcomes each year using the SDLMI. With instruction and supports from teachers, students worked through the three phases of the SDLMI (see Figure 3) repeatedly within each year to set a goal, create and implement an action plan, and evaluate progress toward their goals. When students did not feel they had attained their goal at the end of Phase 3, they had the option to continue to work through refining their goal and action plan during the next cycle of the SDLMI or to decide to target a new goal or goal type. Teachers instructed students using the SDLMI approximately twice per week (e.g., during designated transition planning periods), with the amount of time per lesson/activities varying by student and classroom needs. Teachers also embedded opportunities for students to practice skills associated with self-determination (i.e., choice making, decision making, goal setting and attainment, planning, problem solving, self-advocacy, self-awareness, self-knowledge, and self-management; Shogren, Wehmeyer, Palmer, Forber-Pratt, et al., 2015) related to their goal in natural contexts throughout the school day.

More information on SDLMI implementation is available in Shogren, Raley, et al. (2018) and at self-determination.org.

   Student goals. As described, the goals used for analysis were extracted from Goal Attainment Scaling forms (GAS; Kiresuk, Smith, & Cardillo, 1994). GAS is a measure of goal attainment, originally used in counseling and clinical settings (Kiresuk & Sherman, 1968) and extended to educational contexts (Carr, 1979). In this project, GAS rubrics were created by teachers. The first step in teacher creation of the GAS form was to record the student's self-set goal from Phase 1, Student Question 4 of the SDLMI. Teachers then established a five-point rating scale to quantify level of attainment (e.g., number of opportunities correct, engagement in activity) specific to each student's goal. Then, after the student completed Phase 3 of the SDLMI, the teacher came back and recorded the level of attainment on the scale previously specified. We noted, after extracting the data on student goals as recorded by teachers on the GAS form, that while the majority of teachers recorded goals from the student perspective (e.g., "I will…"; $n = 918$ goals, 59.4%), as would be expected based on SDLMI instruction, other teachers worded goals from the teacher perspective (e.g., "The student will…"; $n = 381$ goals, 24.6%). Additionally, a subset of teachers recorded only the goal action (e.g., "to complete a job application"; $n = 247$ goals, 16.0%) without either a student (e.g., "I") or teacher (e.g., "the student") perspective. Because we did not provide concrete instructions on recording the goal on the GAS form, it is possible that some teachers reworded goals to be more consistent with Individualized Education Program (IEP) goals and to support themselves to objectively establish a GAS rating scale. The implications of how goals were recorded is further discussed later in the paper, particularly as the central focus of the SDLMI is students taking agency over the goal setting process, and it is possible that the goals worded from the teacher perspective reflect high

levels of teacher involvement in writing student goals, even when trained to use the SDLMI to promote student self-direction.

      Data analysis. To address the research question on the types of goals set by transition-age students with intellectual disability using the SDLMI with instruction and supports from teachers, a directed approach to content analysis with both inductive and deductive category development was utilized (Hsieh & Shannon, 2005). The first step was to review all 1,546 goals to develop initial codes for the types of goals (e.g., academic, employment, higher education, social) with corresponding criteria (e.g., goals categorized as academic address classwork, grades, or academic skills such as study habits or class participation) based on prior research on transition-related content areas for students with disabilities (Bouck, 2009; Patton, Cronin, & Jairrels, 1997). Then, each goal was reviewed and categorized in a primary goal area, and subcategories were developed within each primary goal area based on content and finalized after all goals were reviewed, consistent with the inductive approach to category development (Kondracki, Wellman, & Armundson, 2002). The final codebook included 10 primary goal area categories and associated subcategories (1) academics (included goals related to specific academic content areas, general academic skills, or school behavior), (2) vocational education and employment (included goals related to career exploration and current/future employment), (3) postsecondary education (included goals related to exploring, attending, or preparing to attend postsecondary education), (4) home living (included goals related to daily living and self-care and not primarily addressing one of the other goal areas), (5) social and relationships (included interactions, activities, or relationships with others), (6) community access (included goals related to activities or tasks in the community – i.e., outside of school, employment, or home), (7) transportation (included goals related to driving, taking the bus, biking, taking the

train, or other modes of transportation and related safety elements), (8) finances (included goals related to personal finances such as banking, currency, and budgeting), (9) leisure and recreation (included activities engaged in for personal enjoyment and not related to academics or employment; also not focused on engaging with others – i.e., social and relationships [goal category 5]), and (10) communication (included goals which specifically addressed skill-based aspects of communication, as opposed to relationship-building, and did not address academics or employment). Table 3 shows all goal categories and subcategories with example goals.

Once all goals were coded based on category and subcategory, the number of students who selected multiple goals within the same focus area during a school year (e.g., three goals focused on interpersonal skills and relationships), the number of students who selected goals across more than one focus area during a school year (e.g., one goal focused on academic skills and one goal focused on employment skills), and the number of students with a goal repeated during a school year were identified. Each goal was also coded ('0' for no, '1' for yes) for whether it addressed skills associated with self-determination (choice making, decision making, problem solving, goal setting and attainment, planning, self-management, self-advocacy, self-awareness, and self-knowledge) based on a set of keywords for each skill to determine if it was addressed in the goal.

Inter-rater reliability. A graduate student with expertise in special education and transition was trained by the primary researcher on the codebook with an introduction to all codes and definitions with examples from goals in the sample not designated for inter-rater reliability (IRR). The graduate student practiced coding goals until ≥90% agreement with the primary researcher was reached. Following training, the graduate student coded 389 of the 1,546 goals (25.2%) with criteria of ≥ 90% agreement. Given the large size of the sample, the primary

researcher reviewed the graduate student's coding each time they completed coding for approximately 30 goals. Then the primary researcher reviewed any coding disagreements with the graduate student and discussed the items to reach consensus before moving on to the next set. IRR was calculated based on the percentage of agreement across all ratings (dividing the number of agreements by the sum of the total number of ratings, then multiplying the number by 100). IRR was 97.3%.

Results

Primary Goal Categories and Subcategories

There were a total of 1,546 goals across the three years of SDLMI implementation (318 goals in 2015-16, 649 goals in 2016-17, and 579 goals in 2017-18). Students in 2015-16 set an average of 2.0 goals in the school year, while students in 2016-17 and 2017-18 set an average of 2.4 goals per school year. Primary goal categories in order of frequency were home living ($n = 386$; 25.0%), vocational education and employment ($n = 316$; 20.4%), academics ($n = 277$; 17.9%), leisure and recreation ($n = 227$; 14.7%), communication ($n = 100$; 6.5%), transportation ($n = 94$; 6.1%), social and relationships ($n = 74$; 4.8%), finances ($n = 36$; 2.3%), community access ($n = 33$; 2.1%), and postsecondary education ($n = 3$; 0.2%). Table 3 provides information on the number of goals per category within each school year and examples of goals for all subcategories. Across years, almost half of students ($n = 315$; 47.2%) had goals across multiple categories within a given school year, and 164 total students (24.6%) had repeated goals (i.e., the same goal more than once) within a school year.

Home living. There were 386 goals in the area of home living, representing 25.0% of all goals in the sample. The most common subcategory for home living goals was cooking and baking ($n = 170$). Following a recipe was often the focus of cooking and baking goals, such as

"given a visual recipe and staff supervision to ensure safety, the student will make brownies completing 15/19 steps independently." Goals focused specifically on nutrition ($n = 34$) were coded separately from cooking and baking and most commonly addressed making healthy choices in the school cafeteria. Other frequent goal topics within home living included knowledge of personal information (e.g., learning phone number or home address; $n = 62$), hygiene and self-care (e.g., washing face, brushing teeth; $n = 37$), and motor skills (e.g., feeding oneself, walking or using a wheelchair, using an alarm clock; $n = 35$).

Vocational education and employment. Vocational education and employment goals ($n = 316$) comprised 20.4% of all goals in the sample. The most common subcategory was career exploration ($n = 62$), in which many students focused on researching jobs or careers online or by talking to people in specific fields and showing what they learned by creating "brochures" or a list of describing words. Vocational education and employment goals also frequently addressed both job-specific skills ($n = 60$) and non-specific job skills ($n = 56$). Goals were coded as job-specific if they referenced a particular job (e.g., "the student will work as a retail store greeter and engage people/customers in a welcoming manner appropriate to her job description") and as non-specific if they described learning job skills in general terms (e.g., "the student will complete tasks at his work/job experience with three verbal prompts on average from his job coach"). Additionally, some vocational education and employment goals focused specifically on activities in the classroom or school, such as classroom jobs and chores ($n = 34$) and in-school job experiences (outside the student's own classroom; $n = 33$).

Academics. There were 277 goals in the area of academics, making up 17.9% of all goals in the sample. Notably, the two most common academic subcategories were not academic content-specific, but rather focused on general academic skills ($n = 84$) such as completing

classwork and homework and studying, and school behavior (*n* = 74) such as following directions and class rules. The remaining subcategories addressed specific academic content areas, including writing (*n* = 31), reading (*n* = 30), math (*n* = 29), science (*n* = 19), and other class-specific content (e.g., Art, Physical Education, Spanish; *n* = 10).

Leisure and recreation. The leisure and recreation category included 227 goals (14.7%). Leisure and recreation goals were spread relatively evenly across subcategories, with goals most often related to trips, outings, and non-specified leisure activities (*n* = 60). Such goals generally targeted a planning an activity such as "plan a trip to the movies." The second and third most common subcategories were sports and physical activities (e.g., basketball, soccer, catch; *n* = 54) and arts (e.g., film-making, drawing, photography, knitting; *n* = 49).

Communication. A total of 100 goals focused on communication, representing 6.5% of all goals in the sample. Half of communication goals were classified as expressing wants and needs and making requests (*n* = 50). Goals in this subcategory included a variety of communication methods, including oral communication, sign language, gesturing, and using an augmentative and alternative communication (AAC) device. An example is "the student will request attention from staff or peers by appropriately tapping their shoulder or using the picture exchange communication system." Remaining subcategories were general speech and language skills (*n* = 20), email (*n* = 15), conversation skills (*n* = 9), and phone skills (*n* = 6).

Transportation. Ninety-four goals (6.1%) were categorized as transportation-related. Almost half of transportation goals addressed driving (*n* = 45), with most driving goals targeting obtaining a driver's license. Other transportation subcategories included taking the bus (e.g., reading the schedule, following the correct route; *n* = 25) and general transportation knowledge (e.g., identifying safety signs in the community; *n* = 21).

Social and relationships. There were 74 goals in the area of social and relationships, comprising 4.8% of all goals. Social and relationship goals were most frequently related to activities with others ($n = 33$) – for example, "I want to play UNO with my friends." Goals were also focused on meeting new people ($n = 21$), often joining activities to meet this purpose (e.g., "I want to become more involved in student activities and meet new friends").

Finances. Finance-related goals ($n = 36$) represented 2.3% of all goals. Many finance goals addressed identifying and counting currency ($n = 19$; e.g., "I want to improve on counting dollar amounts larger than $20 and change amounts that include nickels and dimes"). Remaining subcategories included writing checks or balancing a checkbook ($n = 11$), budgeting ($n = 5$), and completing tax forms ($n = 1$).

Community access. Community access goals ($n = 33$) represented 2.1% of all goals and had only three subcategories: making purchases ($n = 26$), adult services ($n = 4$), and making appointments ($n = 3$). Goals about making purchases included both goals about typical in-store purchases (e.g., "the student will improve her ability to determine the next dollar amount when making a purchase") and also ordering and paying for items at a restaurant (e.g., "I want to order and purchase a bagel independently").

Postsecondary education. Postsecondary education was the least common goal category, with only three goals (0.2%). There were two subcategories: exploring postsecondary education options (i.e., researching, visiting; $n = 2$) and completing applications ($n = 1$).

Skills Associated with Self-Determination

Table 4 shows examples of goals for all skills associated with self-determination. The most common skills associated with self-determination present in goals in the sample were choice making ($n = 85$; 5.5%), self-advocacy ($n = 68$; 4.4%), planning *($n = 58$; 3.8%)*, and

decision making (*n* = 52; 3.4%). While no goals specifically addressed goal setting and attainment as the student's objective, this finding is not necessarily unexpected given that students were already actively engaged in a goal setting and attainment process using the SDLMI.

Discussion

The purpose of this study was to examine and describe the types of goals transition-age students with intellectual disability set as part of statewide implementation of the *Self-Determined Learning Model of Instruction* (SDLMI; Shogren, Raley, et al., 2018; Wehmeyer et al., 2000). Researchers have previously documented increases in overall self-determination and goal attainment for participating students (Shogren, Burke, Anderson, et al., 2018; Shogren, Burke, Antosh, et al., 2018; Shogren, Hicks, et al., in press), and the focus of the present study was to analyze the types of goals set by students as part of this process. The Individuals with Disabilities Education Act (IDEA) of 2004 emphasizes the importance of setting postschool goals. Examining transition-related goals set by students using the SDLMI provides the potential to understand more broadly (a) students' goal interests and (b) how goals may be shaped by instruction and supports from teachers using the SDLMI.

Results of the present analysis showed several key trends in the goals set by students using the SDLMI with instruction from their teachers. First, despite the primary focus in RI on promoting postschool integrated employment, students' goals were spread across goal areas, likely reflecting the diversity of interests of high school students as well as how teachers may have shaped their instruction to align with and even expand students' interests in thinking about the many components of their postschool lives – such as living arrangements, employment, leisure and recreation, and relationships. However, as described previously, how goals were

worded by teachers as they transferred students' goals to the GAS form may suggest that some teachers were significantly shaping and perhaps even directing the goal setting process, which differs from the intent of the SDLMI model and its focus on shifting goal-setting from teacher-directed to student-directed (Shogren, Raley, et al., 2018). While some teachers recorded goals set in Phase 1 of the SDLMI from the student perspective (e.g., "I will…"; $n = 918$ goals, 59.4%) as would be expected, other teachers worded goals from their own perspective (e.g., "The student will…"; $n = 381$ goals, 24.6%). This was an unexpected finding. This rewording alone does not necessarily indicate the goal setting was more teacher-directed than student-directed, as teachers were not provided with specific instructions on recording the goal on the GAS form, and they may have been wording the goal in a way that simplified the GAS rubric writing process or aligned with their understanding of ways to write goals (for example, how they learned to write goals for Individualized Education Programs [IEPs]).

However, the language used in some goals (even some written from the student's perspective) reflected a strongly teacher-directed approach, such as "the student will complete tasks at his work/job experience with three verbal prompts on average from his job coach." It seems unlikely that students would write this goal for themselves, without significant influence from a teacher or other supporter particularly during Phase 1 of the SDLMI. Phase 2, Take Action, focuses on developing an action plan and involves creating self-management and prompting systems when students learn to get more specific in the steps they will take to reach their goals. Thus it may be, over time, that students would set more and more precise goals, and future research should explore changes in the wording and precision of goals set by students over multiple years of implementation. However, the wording of the recorded goals in the present analysis suggest the need for ongoing professional development and consideration of the

implementation protocols and coaching supports provided for teachers related to promoting

student self-direction and agency over goals. The SDLMI is designed to promote student agency

as students set and go after goals for their future with teachers shifting toward the role of a

supporter rather than a director of goal setting, and the wording of goals is a reflection of the

buy-in to this process. Future research should examine teacher expectations for student goals and

the implications for training around the SDLMI. Future research is also needed to ensure that

transition planning supports recognize that goals set by students for the future can be broad,

particularly as students first begin to engage in goal setting, and narrowed over time and as

students learn and test action plans and their ability to make progress on their goals.

   The call for high expectations as part of transition supports and services for students with

disabilities has continued to gain momentum in the field over the last several decades (e.g.,

Grigal, Hart, & Migliore, 2011; McGrew & Evans, 2004; Wagner, Newman, Cameto, Levine, &

Marder, 2007), and while this study does not specifically address expectations for students with

disabilities, the goals set by students with instruction and support from teachers using the

SDLMI have related implications. Through instruction and supports, teachers play a role in

shaping students' goals, and the content of some goals (e.g., "given a visual recipe and staff

supervision to ensure safety, the student will make brownies completing 15/19 steps

independently") indicates that some teachers may have shaped students' goals to reflect areas

that have too frequently been the exclusive focus of instruction for students with intellectual

disability. For example, the most common goal category was home living, making up a quarter

of goals in the sample ($n = 386$; 25.0%). While maintaining a home is an important aspect of

adulthood, most goals focused on cooking – 11.0% of all goals across years were categorized in

the cooking and baking subcategory. While cooking and baking can be an important daily living

skill in terms of food preparation and a personal interest (i.e., hobby) for many, the frequency of cooking and baking goals may indicate an overemphasis on such skills during students' educational experiences and when planning for the future. Researchers have repeatedly suggested that low expectations continue to permeate transition supports for students with intellectual disability (Grigal et al., 2011; McGrew & Evans, 2004), leading to poor postschool outcomes as students with intellectual disability have less time, instruction, and supports to explore and consider other relevant postschool domains (i.e., employment, postsecondary education, personal relationships).

The frequency of home living goals is corroborated by findings from another analysis of the content of goals set by transition-age students with disabilities. Kleinert, Harrison, Mills, Dueppen, and Trailor (2014) analyzed 288 self-selected goals for students ages 7 to 21 with significant support needs set through the SDLMI, and as in the present study, found a wide variety of goals set by students. But, they also noted the frequency of communication and life skills goals and lack of academic or social goals, particularly for students with multiple disabilities as compared to their peers with other disabilities. The authors noted information was not available on the level of adult support provided for students during goal selection, and it is possible school personnel may have actually selected goals for students with more significant support needs. The frequency of communication and life skills goals and lack of academic or social goals for students found by Kleinert et al. may suggest lower adult expectations for students with significant support needs, similar to our finding of the high frequency of home living goals.

However, in another goal content analysis, Williams-Diehm, Palmer, Lee, and Schroer (2010) asked 332 students with disabilities and their corresponding teachers in middle and high

school to describe goals the student was working on (i.e., both teacher-reported and student-reported goals), although goal-setting instruction or activities were not part of the study. Williams-Diehm and colleagues examined the content and category of these goals, and results showed the most common goal type was academic. The authors highlighted the importance of school within adolescents' lives, as well as its connection to future success postschool. Within the present analysis, academic goals were the third most common goal type selected by students, comprising 17.9% of all goals. The findings from Williams-Diehm et al., in combination with this study, suggest that transition-age students with intellectual disability identify academics as important in their current lives and when planning for the future. However, it also brings up the issue of how academics are targeted in students with intellectual disability. It is noteworthy that the most common subcategory within academics in the present analysis was "general academic skills" (e.g., improving grades, completing graduation requirements, selecting classes, completing classwork and homework), which may reflect students' desire to develop generalizable skills that will benefit them across environments. Notably, despite the fact that academic skills were commonly selected by students when setting goals, very few students set goals related to postsecondary education. This was the least common goal area, with a total of only three goals across all years (0.2%). The lack of goals related to postsecondary education may reflect that transition-age students with intellectual disability and their teachers are still not considering postsecondary education as a viable option, despite an increase in the number of authentic, inclusive postsecondary education opportunities available for students with intellectual disability (Grigal, Hart, & Weir, 2013).

Although goals were spread across multiple areas and home living goals were the most common, the second most common goal area in the present analysis was employment-related,

which was not unexpected given the explicit focus on enhancing post-school integrated employment outcomes in the sample in RI. However, it was positive to see this result, given – as noted in a Complaint filed in the case (2014a) related to the Consent Decree entered into by the state of RI – that "only approximately 5% of transition-age youth with intellectual disability who transitioned from Rhode Island secondary schools between 2010 and 2012 transitioned into jobs in integrated settings" (p. 13). While data is not yet available to link students' goals set using the SDLMI to postschool employment outcomes, the increasing emphasis on employment and employment-related goals represents a promising finding. The majority of students' employment goals focused on career exploration, specific and non-specific job skills, job attainment, classroom and in-school job experiences, and general workplace skills, all of which are related to one or more evidence-based predictors of improved postschool outcomes for students with disabilities (i.e., career awareness, community experiences, paid work experience, vocational education; Test et al., 2009). In particular, setting goals related to job attainment is critical, with evidence that paid work experiences in the community while in school are a strong predictor of postschool employment for youth with more significant support needs (Carter, Austin, & Trainor, 2012).

Overall, the findings suggest the importance of and need for high expectations from adults supporting students in the goal-setting process. It may be that as expectations for students with more significant support needs are raised within the field (Grigal et al., 2011), expectations across goal areas (e.g., home living versus employment) will continue to change. Work is needed that explores how to best support teachers to enable students to set their own goals, dealing with challenges teachers encounter with their perceptions of what is a "realistic" goal or letting go of what they have learned about writing "quality" goals for students, and instead enabling students

to write or identify goals for themselves based on their own preferences and interests with the opportunity to learn from achieving (and not achieving) goals related to these interests. Research is also needed on how to move away from traditionally overemphasized goal areas (e.g., home living) and push for high expectations for goals related to employment, postsecondary education, and academic learning. One clear need in future research is to explore the longitudinal impacts on both student goals and teacher expectations of the shift toward a focus on student agency and self-direction in the goal setting process. The changes that may emerge over time could inform supports, expectations, and planning for how and when to provide more and less supports in the process.

Limitations and Future Directions

In interpreting the findings, it is important to consider the limitations of the present study. First, the data in this analysis are part of a larger project being implemented in the state of RI. As noted in the Method, due to rapid implementation related to changes mandated in the Consent Decree, data collection systems were developed as implementation occurred, and thus demographic information from the 2015-16 school year is limited. Similarly, student data cannot be linked across the three years of the project included in this analysis. This is problematic because data cannot be analyzed longitudinally for growth and change, and thus future research should prioritize collecting linkable, multi-year data on students' goals.

Second, students set goals using the SDLMI with instruction and support from teachers, and teachers then recorded the goals set by students and rated students' levels of attainment using Goal Attainment Scaling (GAS; Kiresuk et al., 1994). However, the student goals used in these analyses may reflect teachers' reworded versions or even interpretations of students' self-set goals. The frequency of rewording is unknown, but may have been shaped by teachers'

expectations for students. Future research should compare the content and language of goals as they are set by students using the SDLMI and as they are recorded by teachers in order to better understand the degree to which goals identified by teachers actually reflect students' goals set using the SDLMI, particularly for students with complex communication needs. Future research on implementation of the SDLMI should also explore teachers' perceptions of their role, how teachers' expectations for students may impact goal types, and how longitudinal data on goals may reflect change from a teacher-directed approach to a more student-directed approach, particularly as students learn and grow in their goal setting and self-determination abilities.

Lastly, limited information was available on individualized adaptations and modifications made to the goal setting process, particularly for students who may have required more intensive supports in selecting their goals. This also may have contributed to goals being recorded from a teacher perspective in a format more similar to IEP goals, perhaps indicating a lack of teacher knowledge of how to create supports for students with significant support needs or complex communication needs to communicate their own goals. Future research should explore the role of educators in supporting students with goal selection to better understand this process and the supports that teachers need to engage students with a wide range of support needs.

Implications for Practice and Research

The findings of this study suggest multiple implications for practice. First, the wide variety of goals set by students suggests that transition-age students with intellectual disability are interested in and being supported by teachers to pursue a broad range of goals and are also repeating some goals within a year, likely narrowing the focus of their actions plan for that goal to enhance goal attainment, as addressed in Phase 3 of the SDLMI, Adjust Goal or Plan. Second, teachers utilizing the SDLMI within the context of transition planning may benefit from specific

training, coaching, and supports as they work to enable students to explore goals for their futures across domains (e.g., employment, postsecondary education, living arrangements, social activities and relationships). While previous research has shown teachers within this project perceived themselves as able to implement the SDLMI with fidelity (Shogren, Burke, et al., in press; Shogren, Burke, Antosh, et al., 2018), there are unique considerations for implementation of the SDLMI depending upon the students engaging in the process, the setting, and the context (Burke, Shogren, Antosh, LaPlante, & Masterson, 2019; Raley, Shogren, & McDonald, 2018). The SDLMI can be implemented with a whole class, in small groups, or one-on-one (Shogren, Raley, et al., 2018), and this and other factors may impact how teachers provide goal setting instruction and guidance. Third, the findings suggest that the SDLMI can be used over time and promote student engagement in goal setting during transition. The number of goals students set per year across all categories increased following the initial year of implementation (students set 2.0 goals on average in the first year and 2.4 goals on average in each of the subsequent two years). Engagement, which is critical in the transition planning process (Martin & Williams-Diehm, 2013), may also be a reflection of enhanced instruction and supports by teachers as they become more experienced, a finding which should be explored in future research.

Fourth, students' integration of self-determination skills into a subset of goals coded in this analysis suggests students can learn to take ownership over the use of self-determination abilities and integrate these abilities into their goal setting and attainment activities. However, more work is needed to support the integration of key self-determination skills into goals set by students and to explore how this develops over time, particularly with repeated exposure to the SDLMI. Current work suggests that students grow in goal attainment and self-determination over time when using the SDLMI (Shogren, Burke, Anderson, et al., 2018; Shogren, Burke, Antosh,

et al., 2018; Shogren, Hicks, et al., in press), but no work has focused on how this relates to goal content or quality changes over time. Finally, while the goals students set within the context of planning for their futures were explored, information on postschool outcomes was not available. Such information, particularly with regard to the targeted outcome of integrated, community-based employment in this project, would provide further evidence for the longer-term impacts of supporting students to engage in self-determined action with evidence-based practices such as the SDLMI, providing further information on the relationship between self-determination and postschool outcomes (Shogren, Wehmeyer, Palmer, Rifenbark, & Little, 2015).

Conclusion

The findings from this study inform transition planning practices for students with intellectual disability. These results provide further evidence for the impact of the SDLMI and identify the range of types of goals students are interested in setting and working toward for their future. Students' self-selected goals reflect a desire to plan for multiple aspects of their lives in the adult world, and thus research and practice must continue to explore how best to support students in working toward a range of goals and the impact of such practices on postschool outcomes. Furthermore, findings underscore the criticality of examining teacher expectations for transition-age youth with intellectual disability and how these expectations relate to instruction and supports that are provided for students engaging in the goal-setting process to enhance postschool outcomes across multiple domains.

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. doi:10.3102/00346543071002219

Bouck, E. C. (2009). Functional curriculum models for secondary students with mild mental impairment. *Education & Training in Developmental Disabilities, 44*, 435-443.

Burke, K. M., Raley, S. K., Shogren, K. A., Hagiwara, M., Mumbardó Adam, C., Uyanik, H., & Behrens, S. (2018). A meta-analysis of interventions to promote self-determination for students with disabilities. *Remedial and Special Education*. Advance online publication. doi:10.1177/0741932518802274

Burke, K. M., Shogren, K. A., Antosh, A. A., LaPlante, T., & Masterson, L. (2019). Implementing the Self-Determined Learning Model of Instruction with students with significant support needs: A guide to practice. *Manuscript submitted for publication*.

Burke, K. M., Shogren, K. A., Raley, S. K., Wehmeyer, M. L., Antosh, A. A., & LaPlante, T. (2019). Implementing evidence-based practices to promote self-determination: Lessons learned from a state-wide implementation of the Self-Determined Learning Model of Instruction. *Education and Training in Autism and Developmental Disabilities, 54*, 18-29.

Carr, R. A. (1979). Goal Attainment Scaling as a useful tool for evaluating progress in special education. *Exceptional Children, 46*, 88-95. doi:10.1177/001440297904600202

Carter, E. W., Austin, D., & Trainor, A. A. (2012). Predictors of postschool employment outcomes for young adults with severe disabilities. *Journal of Disability Policy Studies, 23*, 50-63. doi:10.1177/1044207311414680

Grigal, M., Hart, D., & Migliore, A. (2011). Comparing the transition planning, postsecondary education, and employment outcomes of students with intellectual and other disabilities. *Career Development for Exceptional Individuals, 34*, 4-17. doi:10.1177/0885728811399091

Grigal, M., Hart, D., & Weir, C. (2013). Postsecondary education for people with intellectual disability: Current issues and critical challenges. *Inclusion, 1*, 50-63. doi:10.1352/2326-6988-1.1.050

Hagiwara, M., Shogren, K. A., Lane, K. L., Raley, S. K., & Smith, S. A. (in press). Development of the Self-Determined Learning Model of Instruction coaching model: Implications for research and practice. *Education and Training in Autism and Developmental Disabilities*.

Hagiwara, M., Shogren, K. A., & Leko, M. (2017). Reviewing research on the Self-Determined Learning Model of Instruction: Mapping the terrain and charting a course to promote adoption and use. *Advances in Neurodevelopmental Disorders, 1*, 3-13. doi:10.1007/s41252-0170007-7

Hsieh, H. F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research, 15*, 1277-1288. doi:10.1177/1049732305276687

Kiresuk, T. J., & Sherman, R. E. (1968). Goal attainment scaling: A general method for evaluating comprehensive community mental health programs. *Community Mental Health Journal, 4*, 443-453. doi:10.1007/BF01530764

Kiresuk, T. J., Smith, A., & Cardillo, J. (1994). *Goal attainment scaling: Applications, theory, and measurement*. Hillsdale, NJ: Lawrence Erlbaum.

Kleinert, J. O., Harrison, E., Mills, K. R., Dueppen, B. M., & Trailor, A. M. (2014). Self-determined goal selection and planning by students with disabilities across grade bands

and disability categories. *Education and Training in Mental Retardation and Developmental Disabilities, 49*, 464-477.

Kondracki, N. L., Wellman, N. S., & Armundson, D. R. (2002). Content analysis: Review of methods and their applications in nutrition education. *Journal of Nutrition Education and Behavior, 34*, 224-230. doi:10.1016/s1499-4046(06)60097-3

Martin, J. E., & Williams-Diehm, K. (2013). Student engagement and leadership of the transition planning process. *Career Development and Transition for Exceptional Individuals, 36*, 43-50. doi:10.1177/2165143413476545

McGrew, K. S., & Evans, J. (2004). *Expectations for students with cognitive disabilities: Is the cup half empty or half full? Can the cup flow over?* (Synthesis Report 54). Minneapolis, MN: University of Minnesota, National Center on Educational Outcomes.

National Technical Assistance Center on Transition. (2017). *Effective practices and predictors matrix*. Charlotte, NC: Author.

Patton, J. R., Cronin, M. E., & Jairrels, V. (1997). Curricular implications of transition: Life skills instruction as an integral part of transition education. *Remedial and Special Education, 18*, 294-306. doi:10.1177/074193259701800505

Raley, S. K., Shogren, K. A., & McDonald, A. (2018). How to implement the Self-Determined Learning Model of Instruction in inclusive general education classrooms. *Teaching Exceptional Children, 51*, 62-71. doi:10.1177/0040059918790236

Sands, D. J., & Doll, B. (2000). *Teaching goal setting and decision making to students with developmental disabilities: Innovations research to practice series*. Washington, DC: American Association on Mental Retardation.

Shogren, K. A., Burke, K. M., Anderson, M. H., Antosh, A. A., LaPlante, T., & Hicks, T. (in press). Examining the relationship between teacher perceptions of implementation of the SDLMI and student self-determination outcomes. *Career Development and Transition for Exceptional Individuals*.

Shogren, K. A., Burke, K. M., Anderson, M. H., Antosh, A. A., Wehmeyer, M. L., LaPlante, T., & Shaw, L. A. (2018). Evaluating the differential impact of interventions to promote self-determination and goal attainment for transition-age youth with intellectual disability. *Research and Practice for Persons with Severe Disabilities, 43*, 165-180. doi:10.1177/1540796918779775

Shogren, K. A., Burke, K. M., Antosh, A. A., Wehmeyer, M. L., LaPlante, T., Shaw, L. A., & Raley, S. K. (2018). Impact of the Self-Determined Learning Model of Instruction on self-determination and goal attainment in adolescents with intellectual disability. *Journal of Disability Policy Studies, 30,* 22-34. doi:10.1177/1044207318792178

Shogren, K. A., Burke, K. M., & Raley, S. K. (2019a). *SDLMI teacher's guide supplement: Implementing the SDLMI to enhance transition planning*. Lawrence, KS: Kansas University Center on Developmental Disabilities.

Shogren, K. A., Burke, K. M., & Raley, S. K. (2019b). *SDLMI teacher's guide supplement: Supporting students with complex communication needs to engage with the SDLMI*. Lawrence, KS: Kansas University Center on Developmental Disabilities.

Shogren, K. A., Hicks, T., Burke, K. M., Antosh, A. A., LaPlante, T., & Anderson, M. H. (in press). Examining the impact of the SDLMI and Whose Future Is It? over a two-year period with students with intellectual disability. *American Journal on Intellectual and Developmental Disabilities*.

Shogren, K. A., Palmer, S. B., Wehmeyer, M. L., Williams-Diehm, K., & Little, T. D. (2012). Effect of intervention with the Self-Determined Learning Model of Instruction on access and goal attainment. *Remedial and Special Education, 33*, 320-330. doi:10.1177/0741932511410072

Shogren, K. A., Raley, S. K., & Burke, K. M. (2019). *SDLMI teacher's guide supplement: Implementing the SDLMI with the whole class*. Lawrence, KS: Kansas University Center on Developmental Disabilities.

Shogren, K. A., Raley, S. K., Burke, K. M., & Wehmeyer, M. L. (2018). *The Self-Determined Learning Model of Instruction: Teacher's guide*. Lawrence, KS: Kansas University Center on Developmental Disabilities.

Shogren, K. A., Wehmeyer, M. L., Palmer, S. B., Forber-Pratt, A. J., Little, T. J., & Lopez, S. (2015). Causal agency theory: Reconceptualizing a functional model of self-determination. *Education and Training in Autism and Developmental Disabilities, 50*, 251-263.

Shogren, K. A., Wehmeyer, M. L., Palmer, S. B., Rifenbark, G. G., & Little, T. D. (2015). Relationships between self-determination and postschool outcomes for youth with disabilities. *The Journal of Special Education, 48*, 256-267. doi:10.1177/0022466913489733

Test, D. W., Mazzotti, V., Mustian, A., Fowler, C., Kortering, L., & Kohler, P. (2009). Evidence-based secondary transition predictors for improving postschool outcomes for students with disabilities. *Career Development for Exceptional Individuals, 32*, 160-181. doi:10.1177/0885728809346960

United States of America v. State of Rhode Island, Complaint, Case No. CA14-175 C.F.R. (2014).

United States of America v. State of Rhode Island, Consent Decree, Case No. CA14-175 C.F.R. (2014).

Wagner, M., Newman, L., Cameto, R., Levine, P., & Marder, C. (2007). *Perceptions and expectations of youth with disabilities: A special topic report of findings from the National Longitudinal Transition Study-2 (NLTS2)* (NCSER 2007-2006). Menlo Park, CA: SRI International.

Wehmeyer, M. L., Palmer, S. B., Agran, M., Mithaug, D. E., & Martin, J. E. (2000). Promoting causal agency: The Self-Determined Learning Model of Instruction. *Exceptional Children, 66*, 439-453. doi:10.1177/001440290006600401

Wehmeyer, M. L., Shogren, K. A., Palmer, S. B., Williams-Diehm, K. L., Little, T. D., & Boulton, A. (2012). The impact of the Self-Determined Learning Model of Instruction on student self-determination. *Exceptional Children, 78*, 135-153. doi:10.1177/001440291207800201

Williams-Diehm, K., Palmer, S. B., Lee, Y., & Schroer, H. (2010). Goal content analysis for middle and high school students with disabilities. *Career Development for Exceptional Individuals, 33*, 132-142. doi:10.1177/0885728810380230

Table 2

Student Descriptive Statistics by School Year

Demographic characteristic	2015-16 (*n* = 161)		2016-17 (*n* = 268)		2017-18 (*n* = 238)	
	n	%	*n*	%	*n*	%
Gender						
Male	68	42	167	62	150	63
Female	24	15	92	34	72	30
Missing	69	43	9	3	16	7
Race/ethnicity						
White	44	27	130	49	106	44
Hispanic/Latino	18	11	58	22	57	24
Black/African American	14	9	23	9	24	10
American Indian or Alaska Native	1	<1	2	<1	1	<1
Asian	1	<1	5	2	8	3
Two or more races	1	<1	8	3	1	<1
Other	0	0	1	<1	2	<1
Missing	82	51	41	15	39	16
Level of support needs (2017-18 only)						
No support needed	-	-	-	-	2	<1
A little support needed	-	-	-	-	53	22
A lot of support needed	-	-	-	-	78	33
Support needed all the time	-	-	-	-	63	26
Missing	-	-	-	-	42	17

Note. Total of percentages for each category may not be 100% due to rounding. Data on level of support needs was only available in 2017-18.

Table 3

Goals and Examples by Category

Category	n	%	Subcategory	n	%	Example goal description
Home living	386	25				
			Cooking and baking	170	11	"I want to be able to make chocolate chip cookies."
			Knowledge of personal information	62	4	"Want to learn my address."
			Hygiene and self-care	37	2	"I will apply deodorant every morning."
			Motor skills	35	2	"To be able to walk longer distances and for longer periods of time."
			Nutrition	34	2	"I want to learn to eat healthy."
			Cleaning	20	1	"I want to learn how to clean my room."
			Laundry	17	1	"I want to learn how to get the laundry ready to wash."
			Dressing	5	<1	"Remove his coat."
			Toileting	4	<1	"Student wants to become more independent using the bathroom. He currently is walked to the bathroom by his 1:1 assistant."
			Living arrangements	2	<1	"To get an apartment."
Vocational education and employment	316	20				
			Career exploration	62	4	"I am interested in cosmetology and would like to explore a job in this field."
			Job-specific skills	60	4	"I want to improve on sweeping the stands."
			Non-specified job skills	56	4	"I will complete a vocational task with less than 3 prompts."

Category	Total	Total %	Subcategory	n	%	Example
			Job attainment skills	38	3	"To complete job application with decreasing prompts to fill in correct information."
			Classroom jobs and chores	34	2	"Student wants to be able to do classroom shredding."
			In-school job experiences	33	2	"I want to be able to complete my second floor recycling job."
			General workplace skills	23	2	"Student wants to learn how to be more social when at work."
			Worksite behavior	6	<1	"Student will improve on their behavior when they are at work."
			Volunteering	4	<1	"I would like to volunteer at a local day care."
Academics	277	18	General academic skills	84	5	"Student wanted to make arrangements to visit a computer classroom to determine if it would be a class he might want to take next year."
			School behavior	74	5	"Goal is to earn points in the behavior goal of 'following directions'."
			Writing	31	2	"I want to write my senior reflection before May 15th."
			Reading	30	2	"I will read independently or have someone read aloud to me for 15 minutes each day."
			Math	29	2	"I can memorize more of my multiplication facts."
			Science	19	1	"I want to complete the smells experiment."
			Other class-specific content	10	<1	"I will learn more words in Spanish."
			Social Studies	0	0	Not applicable.
Leisure and recreation	227	15				

Category			Subcategory			Example goal
			Trips, outings, and non-specified leisure activities	60	4	"Student will choose a leisure activity and complete the activity."
			Sports and physical activities	54	4	"I want to learn how to catch a ball."
			Arts	49	3	"I would like to learn how to play the guitar."
			Games	30	2	"Student will learn how to play tic tac toe."
			General exercise	17	1	"I will exercise for at least 15 minutes a day."
			Technology	17	1	"I want to watch parades on YouTube."
Communication	100	6	Expressing wants and needs and making requests	50	3	"The student wanted to communicate her wants and needs better by learning more sign language and using more spoken words."
			General speech and language skills	20	1	"To speak clearly in English/Spanish so he can be understood."
			Email	15	1	"I want to learn how to send an email."
			Conversation skills	9	<1	"I will greet people when they enter the room."
			Phone	6	<1	"I want to learn how to transfer phone calls."
Transportation	94	6	Driving	45	3	"I will learn different ways to get a license."
			Taking the bus	25	2	"I want to learn how to read bus schedules."

Category	n	%	Subcategory	n	%	Example quote
			General transportation knowledge	21	1	"I want to learn a new sign in order to be better prepared to work, travel on a bus, and go to school so I can be an active member of my community and school."
			Biking	3	<1	"I want to learn about how to be safe when riding my bike in the community."
Social and relationships	74	5				
			Activities with others	33	2	"To go to a WWE show with my friend."
			Meeting new people	21	1	"I want to become more involved in student activities and meet new friends."
			Engaging in conversation with others	10	<1	"To have positive interactions with other people."
			School or community activities and programs	8	<1	"I want to go to the junior prom."
			Dating	2	<1	"I want to learn how to get a girlfriend"
Finances	36	2				
			Identifying and counting currency	19	1	"I want to improve on counting dollar amounts larger than $20 and change amounts that include nickels and dimes."
			Writing checks or balancing a checkbook	11	<1	"I will learn how to balance a checkbook register."
			Budgeting	5	<1	"To set up an online budgeting tool and use it."

Category	n	%	Subcategory	n	%	Example
			Completing tax forms	1	<1	"To seek support and participate in filing RI and Federal income taxes."
Community access	33	2				
			Making purchases	26	2	"I want to learn how to buy a Barry Manilow CD."
			Adult services	4	<1	"I want to be able to visit my adult placement setting."
			Making appointments	3	<1	"Make a doctor's appointment for myself."
Postsecondary education	3	<1				
			Exploring postsecondary education options	2	<1	"Student wants to be able to go the college with Special Supports."
			Completing applications	1	<1	"To fill out and submit Rhode Island College application for certification program."

Note. Total of percentages for categories and subcategories may not be 100% due to rounding.

Table 4

Goals Addressing Skills Associated with Self-Determination

| Skill	*n*	Example goal description
Choice making	85	"Student will read the course catalog and choose seven courses for the following year."
Self-advocacy	68	"Student will navigate to familiar places in the school without her 1:1 assistant (asking for help if needed)."
Planning	58	"Plan a field trip."
Decision making	52	"The student will identify three ways to improve grades and try one."
Problem solving	17	"Student will increase his ability to multiply accurately and fluently in order to better solve multi-step problems when in the inclusion classroom."
Self-management and self-regulation	13	"I will independently access strategies when I feel overwhelmed and need a break to allow me to have safe behavior."
Self-awareness and self-knowledge	11	"Student will recognize when he needs a break and ask for one independently."
Goal setting and attainment	0	Not applicable.
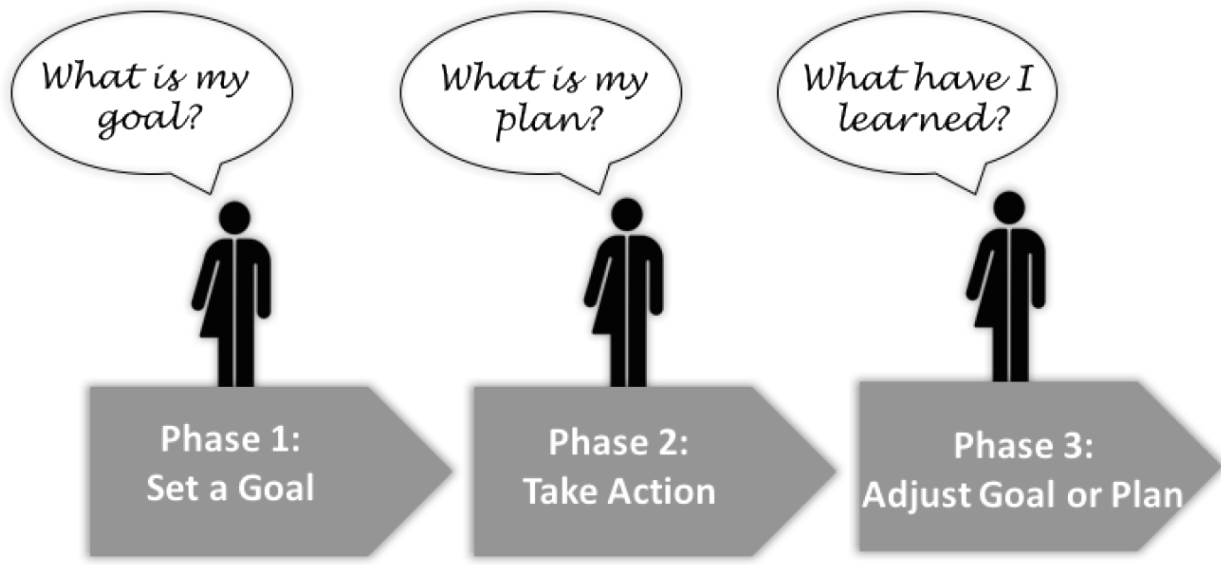
Figure 3. Three phases of the Self-Determined Learning Model of Instruction.

Reprinted with permission from Shogren, Raley, et al. (2018).

Chapter 4: Impact of Overall Type of Goals and Personal Factors on Transition-Related Goal Attainment

Goal attainment, the counterpart to goal setting, is generally viewed as progress toward a goal, which results in varying levels of achievement (Kiresuk, Smith, & Cardillo, 1994). Having the skills to sustain goal-directed actions that enable goal attainment is important for students with disabilities, particularly during the transition from school to adulthood (e.g., Shogren, Burke, Anderson, et al., 2018; Shogren, Burke, Antosh, et al., 2018). Goal-directed actions and goal attainment are associated with self-determination, specifically agentic action, one of the three essential characteristics of self-determined action (Shogren et al., 2015). Self-determination is defined as a "dispositional characteristic manifested as acting as the causal agent in one's life. Self-determined people (i.e., causal agents) act in service to freely chosen goals" (p. 258). Wehmeyer et al. (2011) suggest that interventions to promote self-determination may be impacted by personal factors, such as culture, gender, age and life stages, and cognitive ability, and it is likely that goal attainment, a skill associated with self-determination (Shogren et al., 2015), may be similarly impacted by such factors.

Factors Impacting Self-Determination and Goal Attainment

Researchers have advocated for the consideration of students' personal factors in transition planning and self-determination research (Cavendish, 2017; Leake & Boone, 2007; Shogren, 2011; Trainor & Bal, 2014), and existing research suggests that students' self-determination and potentially goal attainment may be influenced by both type of goals set (i.e., the focus of the goal; e.g., Kleinert, Harrison, Mills, Dueppen, & Trailor, 2014) and personal factors (e.g., age, gender, race/ethnicity, level of support needs; Shogren, 2011; Wehmeyer et al., 2011).

Type of goals. Goal type may impact the level of goal attainment a student achieves, although limited research has addressed this topic. The only study that has explicitly examined the relationship between type of goals and goal attainment for transition-age students with disabilities was conducted by Kleinert et al. (2014), who examined 288 goals set by students ages 7 to 21 with developmental disabilities with instruction and supports from teachers using the *Self-Determined Learning Model of Instruction* (SDLMI; Shogren, Raley, Burke, & Wehmeyer, 2018; Wehmeyer, Palmer, Agran, Mithaug, & Martin, 2000). The SDLMI is an evidence-based model of instruction in which trained facilitators (e.g., teachers) teach students self-regulated problem-solving skills that can be applied to setting and going after goals. Goals were labeled as academic, hobby/interest, communication, social, social-communication, post-secondary, or life skill, and *Goal Attainment Scaling* (GAS; Kiresuk et al., 1994) was used to measure goal attainment. GAS involves establishing a five-point rating scale (-2, -1, 0 [goal attained at expected level], +1, and +2) to rate level of attainment. Results showed most goals (*n* = 205, 71.2%) were achieved (i.e., 0, +1, or +2 on the GAS rating scale), but academic goals significantly predicted increased goal attainment while other goal types (hobby/interest, communication, social, social-communication, post-secondary, and life skill) did not.

Age. Generally, research has suggested adolescents gradually show increases in self-determination abilities as they age, although this growth may vary based on opportunities to develop and exercise skills associated with self-determination (Wehmeyer, 1996; Wehmeyer et al., 2011). Shogren, Shaw, Raley, and Wehmeyer (2018b) explored the impact of age on scores on the *Self-Determination Inventory: Student Report* (SDI:SR; Shogren, Little, et al., 2018) for students 13 to 22 years old with and without disabilities. In this analysis, there were three distinct groups for age: 13 to 15 (pre-transition), 16 to 18 (transition), and 19 to 22 (postsecondary).

Findings suggested an overall positive impact of students' age on scores, establishing that younger students (i.e., ages 13 to 15) generally showed lower levels of self-determination, increasing with age (i.e., ages 16 to 18 and 19 to 22). Relatedly, it can be hypothesized that goal attainment, a skill associated with self-determination, may be enhanced as students age and develop more abilities associated with self-determination that support goal-directed actions. For example, in the goal content analysis by Kleinert et al. (2014) introduced previously, the relationship between age and goal attainment was examined for three grade level groups: elementary school, middle school, and high school. Results showed high school students had significantly greater goal attainment than elementary and middle school students.

Gender. Findings on the impact of gender on self-determination are generally mixed (Wehmeyer et al., 2011), with some research suggesting higher levels of self-determination for females (Nota, Ferrari, Soresi, & Wehmeyer, 2007; Shogren et al., 2007) and other research indicating no impact of gender on levels of self-determination (Cavendish, 2017; Wehmeyer, 1996; Wehmeyer & Garner, 2003). Most recently, findings from Shogren, Shaw, et al. (2018b), in an analysis of the relationship between gender and scores on the SDI:SR, show no latent difference in overall self-determination based upon gender. Notably, however, when gender was crossed with disability status, female students with no disability or learning disabilities generally scored lower on the SDI:SR than male peers. The relationship between gender and transition-related goal attainment has not been previously examined. However, findings from one study exploring differences in transition planning experiences based on gender suggest the need for differentiated transition supports and services (Powers, Hogansen, Geenen, Powers, & Gil-Kashiwabara, 2008). Female students reported receiving greater support around transition than male peers, but they also indicated experiencing greater barriers and lower expectations related

to gender stereotypes. Thus, initial steps to specifically explore the relationship between gender and transition-related goal attainment are needed.

   Race/ethnicity. Research has consistently established differences in levels of self-determination for adolescents based upon race and ethnicity (Shogren, Kennedy, Dowsett, Garnier Villarreal, & Little, 2014; Shogren, Little, et al., 2018; Shogren & Shaw, 2017), with White/Caucasian students tending to score higher on measures of self-determination than peers from diverse racial/ethnic backgrounds. However, race/ethnicity alone does not fully explain the different patterns, as there are interactive effects of race/ethnicity and other personal factors on self-determination outcomes. White/Caucasian students without disabilities tend to score higher than peers of other racial/ethnic backgrounds and with disabilities, particularly autism spectrum disorder, intellectual disability, and other health impairments (Shogren, Shaw, et al., 2018b). The impact of race/ethnicity alone or in combination with other personal factors has not been examined for transition-age students in the goal attainment literature, although research on adult outcomes provides preliminary information. For example, research suggests adolescents from Black/African American and Latino backgrounds with disabilities experience poorer community-based employment outcomes during the transition from school to adult life than White/Caucasian peers with disabilities (Hasnain & Balcazar, 2009). In contrast, an analysis of predictors of employment outcomes for students with intellectual disability indicated no significant relationship between race and employment (Grigal, Hart, & Migliore, 2011). Thus, as with age and gender, work is needed to explore the relationship between race/ethnicity and transition-related goal attainment, which will inform future work related to the intersectionality of personal and environmental factors and transition-related goal attainment.

Level of support needs. Support needs refer to "the pattern and intensity of supports necessary for a person to participate in activities linked with normative human functioning" (Thompson et al., 2009, p. 135). At this time, only one study has explicitly examined how a student's level of support needs predict their transition-related goal attainment (Shogren, Palmer, Wehmeyer, Williams-Diehm, & Little, 2012). Shogren and colleagues (2012) examined the impact of the SDLMI on academic and transition goal attainment and access to the general education curriculum for students with intellectual disability and learning disabilities, and they also explored whether students' level of educational support needs predicted their goal attainment. Teachers were asked to rate students' educational support needs during the school day on a scale from 1 (*no support needed*) to 5 (*total support needed*), with a mean educational support needs level of 3.4 (*SD* = 1.1). Results showed students' level of support needs did not significantly predict academic or transition goal attainment, but other factors such as disability label did. Given that the literature on this topic is limited, more work is needed.

Intervention and Context

The goal of this study is to begin to examine the influence of personal factors and overall type of goals on goal attainment in the context of a large-scale project examining the implementation of an evidence-based practice to promote self-determination, the *Self-Determined Learning Model of Instruction* (SDLMI; Shogren, Raley, et al., 2018; Wehmeyer, Palmer, et al., 2000), for transition-age youth with intellectual disability in the state of Rhode Island (RI). In 2014, the state of RI entered into a Consent Decree with the U.S. Department of Justice to address the "unnecessary over-reliance upon segregated sheltered workshops and facility-based day programs" (United States District Court District of Rhode Island, 2014) for adults with intellectual and developmental disabilities, a violation of Title II of the Americans

with Disabilities Act. The Consent Decree identified transition-age youth with intellectual and developmental disabilities as one of the target populations and emphasized the need to enhance transition services and supports, particularly with regard to providing transition services and supports that lead to postschool integrated employment outcomes. Because the SDLMI is an evidence-based practice shown to result in more positive employment outcomes (National Technical Assistance Center on Transition, 2017), leadership in RI instituted systematic training and ongoing coaching for special education teachers serving transition-age students with intellectual disability to implement the SDLMI.

The SDLMI is a model of instruction used by trained facilitators (e.g., teachers) to teach students self-regulated problem-solving skills that can be applied to setting and going after goals. The SDLMI includes three distinct phases – *Phase 1: Set a goal, Phase 2: Take action, Phase 3: Adjust goal or plan* (see Figure 4; Shogren, Raley, et al., 2018). Teachers instruct and support students to enable them to answer four *Student Questions* per phase (a total of 12 Student Questions). *Teacher Objectives* linked to each Student Question serve as a roadmap for what teachers want to achieve in supporting students to respond to questions. Through *Educational Supports* corresponding to each Student Question, teachers provide instruction on skills associated with self-determination (i.e., choice making, decision making, goal setting and attainment, planning, problem solving, self-advocacy, self-awareness, self-knowledge, and self-management; Shogren et al., 2015) approximately two times per week. In RI, teachers were charged with supporting students to set and work toward approximately three goals per school year using the SDLMI related to the transition to employment (e.g., career exploration, developing specific job-related skills, identifying job or internship opportunities). However, SDLMI implementation protocols are designed to promote flexibility, enabling teachers to

provide instruction and supports for students to set goals across many areas (e.g., academics, postsecondary education, home living, social and relationships, community access, transportation, finances, leisure and recreation, communication) based on students' interests and preferences, particularly when initially using the model, as these abilities can then be generalized to other goal areas such as employment (Shogren, Raley, et al., 2018). No research to date has explored the impact of students setting multiple goals within one area (e.g., transition to employment) versus setting multiple goals across areas (e.g., one social and relationships goal, one transition to employment goal, and one community access goal) using the SDLMI across a school year. This issue is particularly important to transition-related goal setting and attainment, given the multiple domains relevant to transition planning (i.e., postsecondary education, vocational education, integrated employment, continuing and adult education, adult services, independent living, and community participation) identified in the Individuals with Disabilities Education Act of 2004.

Purpose

Understanding if the type of goals set using the SDLMI within a school year and personal factors impact students' level of goal attainment is useful for informing future research on differentiating supports for the SDLMI. Research has only recently begun to explore the types of goals that students typically set when supported to use the SDLMI (Burke, Shogren, & Carlson, 2019), and very limited work has explored the factors that influence transition-related goal attainment. Enhancing what is known about how overall type of goals predict level of attainment when implementing the SDLMI in a school year may inform how teachers scaffold supports related to types of goals set by students (referred to in the literature on SDLMI implementation as goal "buckets"; Burke, Shogren, Antosh, LaPlante, & Masterson, 2019). Furthermore,

evidence for how students' personal factors (i.e., age, gender, race/ethnicity, level of support needs) predict goal attainment could inform how teachers tailor individualized instruction and supports for students (Raley et al., in press; Shogren, 2011; Wehmeyer et al., 2011). Therefore, the purpose of this paper is to examine how the overall type of goals students set using the SDLMI along with students' personal factors predict goal attainment for transition-age youth with intellectual disability.

The following research question was addressed: To what degree do type of goals set using the SDLMI and personal factors (i.e., age, gender, race/ethnicity, and level of support needs) predict goal attainment for transition-age youth with intellectual disability?

Method

Sample and Setting

The sample included transition-age students served under the educational classification of intellectual disability in Rhode Island (RI) during the 2015-16 (Year 1), 2016-17 (Year 2), and 2017-18 (Year 3) school years. Given differences in available demographic information across the three years of implementation, demographic information is reported by year of SDLMI implementation. In Year 1, the age range for students was 13 to 21 years (M =16.22, SD = 1.94). The age range for students in Year 2 was 12 to 21 (M = 16.56, SD = 2.03), and the age range for students in Year 3 was 11 to 21 years (M = 16.71, SD = 2.04). Table 5 provides demographic information on gender, race/ethnicity, and level of support needs across the three years.

This analysis is part of a series of studies on the impact of interventions to promote self-determination for transition-age youth with intellectual disability in RI (Burke, Shogren, Raley, et al., 2019; Shogren, Burke, et al., in press; Shogren, Burke, Anderson, et al., 2018; Shogren, Burke, Antosh, et al., 2018; Shogren, Hicks, et al., in press). The sample reported here represents

students in the project who set at least one goal in a given year, which represents a subset of the overall study sample. Implementation of the SDLMI began rapidly in 2015 as part of changes mandated in the Consent Decree entered into by RI with the U.S. Department of Justice (see Burke, Shogren, Raley, et al., 2019; Shogren, Burke, et al., in press; Shogren, Burke, Anderson, et al., 2018; Shogren, Burke, Antosh, et al., 2018; Shogren, Hicks, et al., in press). Given this context, state-wide implementation was the focus during Year 1, along with building data collection systems for subsequent years to allow for analysis of long-term outcomes (Shogren, Burke, Antosh, et al., 2018). As a result, demographic data for Year 1 is limited, and students from Year 1 cannot be linked to subsequent years of implementation (see Limitations). Because available data differed by year and students cannot be matched across all years, data were analyzed separately by year of implementation (i.e., Year 1, Year 2, and Year 3).

Outcome Variable: Goal Attainment

After completing a one-and-one-half day training with SDLMI content experts from the University of Kansas in 2015, teachers began implementing the SDLMI (Shogren, Raley, et al., 2018; Wehmeyer, Palmer, et al., 2000) with students. Teachers also received ongoing coaching during their implementation of the SDLMI. Teachers reported information on students' attainment of goals set through the SDLMI using *Goal Attainment Scaling* (GAS; Kiresuk et al., 1994), a measure developed in the fields of counseling and clinical intervention (Kiresuk & Sherman, 1968) and extended to special education (Carr, 1979). In this measure, goal outcomes are individually determined and set on a five-point scale from -2 to 2, wherein -2 is *much less than expected*, -1 is *somewhat less than expected*, 0 is *expected*, +1 is *somewhat more than expected*, and +2 is *much more than expected*. For the present analysis, the scale was recoded as 1 to 5, with 3 representing expected level of attainment. Students set a goal during Phase 1 of the

SDLMI (see Figure 4), which were then recorded by teachers on a GAS form. Then, the teacher established a five-point rating scale of levels of attainment in quantifiable (e.g., number of opportunities correct) or in less quantified (e.g., engagement in activity) terms for each student goal. After the student completed Phase 3 of the SDLMI, the teacher returned to the GAS form and recorded the level of attainment on the five-point scale. This process was repeated each time the student worked through the SDLMI, which was between two and four times each year. Because the purpose of this analysis was to analyze how types of goals and personal factors impact students' overall goal attainment for a school year, the average level of attainment for all goals within a year for each student was calculated by adding their raw GAS scores and dividing by the number of goals. Overall, teachers reported GAS data for 318 goals set by 161 students (average of 2.0 GAS data points per student) in Year 1, 649 goals set by 268 students (average of 2.4 GAS data points per student) in Year 2, and 579 goals set by 238 students (average of 2.4 GAS data points per student) in Year 3.

Predictor Variables: Overall Type of Goals and Personal Factors

Overall type of goals. Because the purpose of this study was to analyze how types of goals set using the SDLMI impact students' goal attainment within a year, an overall goal category was identified for each student. The classification of goal types utilized were identified by Burke, Shogren, and Carlson (2019) in an analysis of the types of goals students set using the SDLMI. In their analysis, ten goal areas were identified: academics, vocational education and employment, postsecondary education, home living, social and relationships, community access, transportation, finances, leisure and recreation, and communication. In the present analysis, if the student had goals during the year that fell into more than one of these ten goal areas they were classified as having "multiple goal types" for the year. However, if a student had goals only in

one area over the entire year, they were classified only as having goals in that area (e.g., academic only, vocational only, etc.). The number of students with postsecondary education, social and relationships, community access, transportation, finances, or communication as their only type of goals was too small to include as a predictor alone, and these overall types of goals were collapsed into a group entitled "other – singular". See Table 6 for counts of students' overall goal types by category.

Personal factors. Information on age, gender, race/ethnicity, and level of support needs for participants was obtained from the demographic information page on the *Self-Determination Inventory: Student Report* (SDI:SR; Shogren, Little, et al., 2018) from students and the *Self-Determination Inventory: Parent/Teacher Report* (SDI:PTR) from teachers (no data was collected from parents in the present study), which were administered biannually during implementation of the SDLMI to examine growth in self-determination over time as a function of intervention. In cases where demographic information was provided by both the student and teacher and responses differed, the teacher response was used. The demographics page collected information on age (open response), gender (*male, female, non-binary, prefer to self-describe, prefer not to say*), Hispanic or Latino/Latina origin (*yes, no*), and race (*American Indian or Alaska Native, African American/Black, Native Hawaiian or Pacific Islander, White/Caucasian, Asian [i.e., Korean, Japanese, Southeast Asian, Indian subcontinent], Two or more races, Other*). For gender, no respondents endorsed non-binary, prefer to self-describe, or prefer not to say, and thus these categories were dropped from the analyses. Because of the small number of respondents who reported a race/ethnicity other than White/Caucasian, all categories other than White/Caucasian were collapsed into "Other racial/ethnic groups" for analyses, which included Hispanic/Latino, Black/African American, American Indian or Alaska Native, Asian, Two or

more races, and Other. Age was measured in years, and for the analyses, age was centered at the starting point for the age range of respondents in each year of implementation (i.e., age 12 in Year 2 and age 11 in Year 3), meaning the intercept corresponds to the expected level of goal attainment for students age 12 in Year 2 and age 11 in Year 3. The impact of age is represented by expected change from the intercept on average per unit increase from the starting age for each year of implementation.

Information on level of support needs was only collected in the 2017-18 school year using an item on the SDI:PTR, "What level of support (e.g., support from a teacher, from friends, from technology) does the person need during the school or work day to do the things he/she/they need to do?" and the SDI:SR, "What level of support (e.g., support from a teacher, from friends, from technology) do you need during the school or work day to do the things you need to do?" Response options were as follows: *no support needed, a little support needed, a lot of support needed,* and *support needed all the time.* For the analysis, level of support needs was separated into three groups: no to little support needed, a lot of support needed, and support needed all the time.

Analysis

Missing data. Because missingness for demographic information for Year 1 (age, gender, race/ethnicity) ranged from 43% to 51% by variable (see Table 5), only the overall type of goals variable was used to predict goal attainment in Year 1, and all cases for Year 1 ($n = 161$) were retained. Given the relatively small proportion of missing data for demographic information in Year 2 ($n = 41$ cases; 15%) and Year 3 ($n = 46$ cases; 19%), these data were treated as missing at random, and listwise deletion (i.e., complete case analysis) was used to remove incomplete

cases (Cheema, 2014; Graham, 2009). This resulted in a total of 227 cases retained for Year 2 and 192 retained cases for Year 3.

Regarding data on goal attainment, there were missing data for a subset of the sample for level of goal attainment in Years 1 and 2. There was no missing level of goal attainment data in Year 3. Best practices in handling missing data were used to retain the maximum number of cases (Enders, 2010). Specifically, the multiple imputation by chained equations (MICE) package, version 3.30 (van Buuren & Groothuis-Oudshoorn, 2018), in R 3.5.1 (R Core Team, 2018) was used to estimate values for the missing level of goal attainment data in Years 1 and 2 (White, Royston, & Wood, 2011), and these missing data were treated as missing at random (Graham, 2009). Demographic information and goal type data were used in the imputation process as a predictor of missingness, but these variables were not imputed and were treated as described above. The three stages of multiple imputation were: (1) generate multiple imputed data sets, (2) separately analyze the multiple imputed data sets, and (3) combine the parameter estimates and their standard errors over all imputed data sets. A total of 100 data sets using 100 iterations were imputed for Year 1 data, and a total of 100 data sets using 50 iterations were imputed for Year 2 data.

Research question. To analyze the effect of type of goals and personal factors on goal attainment for each year of implementation, three separate, multiple regressions (Tabachnick & Fidell, 2001) were conducted in the statistical program, R 3.5.1 (R Core Team, 2018).

Year 1. The first regression analysis examined the degree to which overall type of goals (i.e., multiple goal types, academics only, vocational education and employment only, home living only, leisure and recreation only, and other – singular) predicted average level of goal attainment in Year 1.

Year 2. The regression analysis on Year 2 goal attainment examined the degree to which overall type of goal (i.e., multiple goal types, academics only, vocational education and employment only, home living only, leisure and recreation only, and other – singular) and personal factors (i.e., age, gender, race/ethnicity) predicted average level of goal attainment.

Year 3. The final regression analysis examined the degree to which overall type of goal (i.e., multiple goal types, academics only, vocational education and employment only, home living only, communication only, and other – singular) and personal factors (i.e., age, gender, race/ethnicity, level of support needs) predicted average level of goal attainment in Year 3.

Results

Year 1

Table 7 provides results from the regression analysis based on the pooled estimates for Year 1 data. The average level of goal attainment for the reference group (i.e., students who set and worked toward goals across more than one category [i.e., multiple goal types]) was 3.10 (i.e., slightly greater than expected on the recoded GAS scale from 1 to 5 on which 3 indicates expected level of attainment). In comparison, students who set and worked toward only home living goals had a significantly lower level of attainment of 2.65 ($\beta = -0.45$, $p = 0.047$), indicating slightly less than expected attainment. Students who set and worked toward goals in the remaining goal categories (academics only, vocational education and employment only, leisure and recreation only, other – singular) did not have significantly different levels of goal attainment than students with multiple goal types.

Year 2

The average level of goal attainment for the reference group (i.e., White/Caucasian, male students, age 12, with multiple goal types) was 2.99, indicating expected level of attainment (see

Table 8 for results from the regression analysis based on the pooled estimates for Year 2 data). In comparison, students who set only vocational education or employment goals had a significantly lower level of attainment of 2.60 ($\beta = -0.39$, $p = 0.019$). Similarly, students who set only home living goals ($\beta = -0.79$, $p = <0.001$) had a significantly lower level of attainment of 2.20 compared to peers who had goals across more than one category (i.e., multiple goal types), as did students with "other – singular" overall goal types, who had a significantly lower level of attainment of 2.32 ($\beta = -0.67$, $p = <0.001$). Levels of attainment for students with vocational education or employment goals (2.60), only home living goals (2.20) and "other – singular" overall types of goals (2.32) are between somewhat less than expected and expected attainment on the GAS scale. Students who set and worked toward goals in the remaining goal categories (academics only and leisure and recreation only) did not have significantly different levels of goal attainment than students in the reference group. Age, gender, and race/ethnicity did not significantly predict levels of goal attainment.

Year 3

Table 9 shows the results from the regression analysis based on the pooled estimates for Year 3 data. The average level of goal attainment for the reference group (i.e., White/Caucasian, male students, age 11, with no to little support needs, who set and worked toward goals across more than one category [i.e., multiple goal types]) was 3.78, which is between expected and somewhat greater than expected attainment. In comparison, students who set only academic goals had a level of attainment of 3.00 ($\beta = -0.78$, $p = <0.001$), and students who set only communication goals had a level of attainment of 2.96 ($\beta = -0.82$, $p = 0.004$), both of which were significantly lower levels of goal attainment than students with multiple goal types, although still approximately expected attainment on the GAS scale. Additionally, students who set only home

living goals had a level of attainment of 3.23 (β = -0.55 p = 0.003), and while this is significantly lower than students with multiple goal types, it still indicates between expected and somewhat greater than expected attainment on the GAS scale. Students with goals in the remaining categories (vocational education and employment only, other – singular) did not have significantly different levels of goal attainment than students with goals across more than one goal category. Regarding level of support needs as a predictor, students with the greatest level of support needs (i.e., support needed all the time) had a significantly lower level of goal attainment of 3.44 (β = -0.34, p = 0.032) than students with no to little support needs, although 3.44 still indicates between expected and somewhat greater than expected attainment. Age, gender, and race/ethnicity did not significantly predict levels of goal attainment.

Discussion

The purpose of this paper was to examine how the type of goals set by transition-age students with intellectual disability using the SDLMI and students' personal factors (i.e., age, gender, race/ethnicity, and level of support needs) predicted average level of goal attainment during an academic year. Such work is needed because little research has examined the impact of type of goals or personal factors on individual goal attainment, and related work has shown personal factors impact self-determination (a skill with which goal setting and attainment is associated; Shogren & Shaw, 2017; Shogren, Shaw, Raley, & Wehmeyer, 2018a; Shogren, Shaw, et al., 2018b) and interventions to promote self-determination (Wehmeyer et al., 2011). Examining the impact of overall type of goals and students' personal factors on goal attainment can inform future directions for research and practice, particularly when considering how interventions implemented by teachers can be customized based on the types of goals students are interested in setting and personal factors that may impact goal attainment.

Impact of Overall Type of Goals on Goal Attainment

In Year 1, students who set and worked toward only home living goals had significantly lower goal attainment than students who set and work toward goals across more than one category. Similarly, in Year 2, students whose overall goal category was home living only, vocational education or employment only, or other – singular (included postsecondary education, social and relationships, community access, transportation, finances, or communication) had significantly lower goal attainment than students who set and work toward goals across more than one category. Lastly, in Year 3, students whose overall goal category was home living only, academic only, or communication only had significantly lower goal attainment than students who set and work toward goals across more than one category. Thus, findings replicated across three years suggest the positive impact of setting multiple types of goals within a school year using the SDLMI, and in contrast, the significant negative effect on average goal attainment of setting only one type of goal within certain areas (in particular, home living) in a school year.

These findings provide important information for researchers and practitioners to tailor interventions to support transition-age students with intellectual disability with goal setting and attainment. Notably, students showed stronger goal attainment when setting goals across multiple categories within a school year. Within the context of efforts to enhance transition services and supports, these findings support a comprehensive approach to goals related to the transition from school to the adult world and align with the focus in the Individuals with Disabilities Education Act of 2004 on addressing multiple domains during transition planning, such as postsecondary education, vocational education, integrated employment (including supported employment), continuing and adult education, adult services, independent living, and community participation. A finding replicated across all three years included in the analyses was

that students who set only home living goals, which included goals related to daily living and self-care (Burke, Shogren, & Carlson, 2019), had significantly lower levels of goal attainment than peers who set multiple types of goals within a year. As reported in Burke, Shogren, and Carlson (2019), many of the goals in the home living category focused on cooking and baking (the most common subcategory across all goals), which may suggest an overemphasis on stereotypical skills that have historically been overemphasized for transition-age students with intellectual disability and relate to low expectations as part of transition supports (Grigal et al., 2011; McGrew & Evans, 2004). Although future work is needed, it may be that students are more successful when setting and working toward a variety of challenging goals, having diverse opportunities to learn and apply self-determination skills. The SDLMI is designed to be a cyclical process, in which teachers support students to work through the phases repeatedly, either setting new goals or revising their goal or action plan as they return to Phase 1. Thus, it aligns well with targeting the multiple domains associated with transition planning as students set and work toward three or more goals within a year. Future research on goal setting and attainment for transition-age students should also continue to prioritize establishing relationships with adult service providers to streamline services and supports as students transition from school to the adult world and to extend data collection on overall types of goals, transition goal attainment, and postschool outcomes.

Impact of Personal Factors on Goal Attainment

The only personal factor that significantly predicted overall goal attainment was level of support needs, and data was only collected on this factor in Year 3, allowing for only one replication of the findings. Students whose level of support needs were described as "support needed all the time" had significantly lower levels of goal attainment than their peers who had

less intense support needs (i.e., "no to little support needed" and "a lot of support needed"). This finding differs from previous work that showed students' level of support needs did not significantly predict academic or transition goal attainment (Shogren et al., 2012); however, it suggests the need for ongoing work to consider how to support students with extensive support needs to engage in goal setting and goal attainment. A next step for research may be to document information on the type of individualized instruction and supports teachers provide when implementing the SDLMI to better understand the gap in goal attainment for students with the most significant support needs (i.e., "support needed all the time") and how individualized support and instruction can be delivered as part of the SDLMI. The SDLMI is intentionally designed as a framework that allows teachers to individualize instruction and supports to meet students' needs. As such, the SDLMI can be made accessible for any student, but examining what accessible implementation of the SDLMI looks like is an area to be explored in future research and practice (Raley et al., in press).

It is also possible that the lower levels of goal attainment for students with the most significant support needs in the present analyses may be related to goals that were not appropriately challenging. Researchers suggest that the most effective goals are neither too easy nor too challenging and that students may lose motivation to work toward goals that are too easy or become frustrated when working toward goals that are overly challenging (Shogren & Wehmeyer, 2017). For example, a finding replicated across all three years of the present analyses was that students who set only home living goals within a year had significantly lower levels of goal attainment than students who set multiple types of goals. The overemphasis on only home living goals for some students, a similar finding to another analysis of the content of goals set through the SDLMI that included transition-age students with significant support needs (Kleinert

et al., 2014), coupled with evidence that this focus has a negative impact on average goal

attainment, may suggest not only lower adult expectations for students with significant support

needs, but also that such goals are not appropriately challenging and relate to lower levels of goal

attainment. Future research is needed to explore the interaction of support needs and types of

goals set (an analysis not possible in the present study because of the sample size, see

Limitations). However, the findings do suggest that goal-setting instruction and supports teachers

provide may be influenced by teachers' perceptions of students with more significant support

needs and expectations for an appropriate curriculum for population. In a national survey of

teachers, Wehmeyer, Agran, and Hughes (2000) found that the "severity" of a student's

disability influenced their teacher's perception of the importance and benefits of promoting self-

determination. More recent findings show that while teachers consider promoting self-

determination important for all students (Stang, Carter, Lane, & Pierson, 2009), teachers

perceive students with more significant support needs as having limited knowledge of and ability

to engage in self-determined actions (Carter, Owens, Trainor, Sun, & Swedeen, 2009). These

negative perceptions may influence the instruction, supports, and opportunities teachers provide

for students with significant support needs as they engage in the self-regulated problem solving

process of the SDLMI to set and go after goals. Thus, future directions for research and practice

include attention to teachers' perceptions of students with significant support needs and how

teachers can provide goal-setting instruction for students with disabilities to learn to set "just-

right" goals (i.e., goals that are neither too easy nor too hard) and establish supportive

environments to learn and practice skills associated with self-determination.

Race and ethnicity also did not significantly predict goal attainment, although this finding

must be considered in light of the fact that all groups apart from White/Caucasian were collapsed

into a separate group due to limited sample size (see Limitations). Thus, the only two groups analyzed as predictors were White/Caucasian and Other racial/ethnic groups (including Hispanic/Latino, Black/African American, American Indian or Alaska Native, Asian, Two or more races). Prior to the present analysis, no research had specifically examined the relationship between race and ethnicity and transition-related goal attainment. But, it was hypothesized that race and ethnicity might predict transition-related goal attainment given that research has consistently established differences in levels of self-determination for adolescents based upon race and ethnicity (Shogren et al., 2014; Shogren, Little, et al., 2018; Shogren & Shaw, 2017). Notably, such research has also suggested the interaction of students' race/ethnicity, other personal factors, and self-determination (Shogren, Shaw, et al., 2018b). It is possible similar interactive effects pertain to the relationship between race/ethnicity and goal attainment during the transition planning period, and thus future work should explore the intersectionality of race/ethnicity, other personal factors (i.e., age, gender, level of support needs), environmental factors (e.g., expectations, supports provided), and goal attainment.

Lastly, results also indicated age and gender did not significantly predict goal attainment. The finding that age was not significant was somewhat surprising, given that research has suggested adolescents gradually show increases in self-determination abilities (e.g., Shogren, Shaw, et al., 2018b; Wehmeyer, 1996) and goal attainment (Kleinert et al., 2014). However, this was the first analysis to examine the impact of age on goal attainment specifically within the context of transition supports and services (although the age range was slightly greater, including students ages 11 to 21). Findings from Kleinert et al. (2014) found that high school students had significantly greater goal attainment than elementary and middle school students, but it may be that age is not a significant predictor of goal attainment within the transition period. It was also

surprising to a degree that gender did not significantly predict transition-related goal attainment, given evidence from research that female students report experiencing greater barriers and lower expectations related to gender stereotypes than male students, although they also report receiving greater support during transition than male peers (Powers et al., 2008). Future research should consider exploring how these factors individually relate to goal attainment, given findings from the present analysis that gender did not significantly predict goal attainment. Furthermore, future work should consider exploring the intersectionality of types of goals, personal factors, goal attainment, and related environmental factors, such as teachers' expectations for students with more significant support needs and teacher preparation and training for providing individualized instruction and supports during the transition planning period. Such work can inform the supports teachers need to effectively support diverse students to set and work toward goals (Burke, Shogren, Antosh, et al., 2019).

Limitations

In interpreting the results of these analyses, several limitations should be considered. First, there was not sufficient demographic information for Year 1 to examine the impact of personal factors on overall goal attainment, and students from Year 1 cannot be linked to subsequent years of implementation, which limits the ability to look at student data longitudinally and capture growth or change over time. Thus, ongoing work is needed to examine the impact of types of goals and personal factors on goal attainment over multiple years. Information on level of support needs was also only available for Year 3 of implementation, and given that this variable significantly predicted overall goal attainment, it is critical that future research prioritize collecting information on level of support needs and examining the impact on

goal attainment over time, as well as related environmental factors (e.g., teacher expectations, quality of individualized instruction and supports).

It also should be noted as a limitation that interactions between predictor variables were not examined, and future research should consider the degree to which the interactions of overall type of goals, age, gender, race/ethnicity, and level of supports needs may influence overall goal attainment. Relatedly, not all groups were of sufficient size to serve as predictors individually (e.g., as described previously, Hispanic/Latino, Black/African American, American Indian or Alaska Native, Asian, Two or more races, and Other were grouped together for race/ethnicity because of the small size of each group), and future research should aim to obtain sufficiently large samples to enable all subcategories within personal factor categories to be examined as stand-alone groups. Race/ethnicity and other personal factors such as gender and disability interact with and influence cultural identity (Trainor, Lindstrom, Simon-Burroughs, Martin, & Sorrells, 2008), and increased attention has been paid to culturally responsive research and practice in the field of special education (Trainor & Bal, 2014), particularly the critical importance of considering cultural variables that may impact self-determination (Shogren, 2011; Wehmeyer et al., 2011). This analysis did not specifically address culture or context more broadly (Shogren, Luckasson, & Schalock, 2014), and collecting sufficient data to explore this topic comprehensively represents both an ongoing challenge for researchers and a noted limitation of the present study.

Conclusion

Goal setting and attainment are critical skills for students with intellectual disability as they prepare for the transition from school to adulthood (e.g., Shogren, Burke, Anderson, et al., 2018; Shogren, Burke, Antosh, et al., 2018). The present analyses shed light on factors impacting

goal attainment for transition-age students with intellectual disability, including whether goals are set within one or more goal areas and students' level of support needs. The findings suggest the positive impact on goal attainment of setting goals across multiple areas (e.g., vocational education and employment, academics, home living, social and relationships). Nonetheless, more work is still needed on this topic. With ongoing research on how types of goals and personal factors may impact students' goal attainment, researchers and practitioners can further explore how to tailor instruction and supports to meet the individualized needs of students when using an evidence-based practice to promote self-determination such as the *Self-Determined Learning Model of Instruction* (SDLMI; Shogren, Raley, et al., 2018; Wehmeyer, Palmer, et al., 2000).

References

Burke, K. M., Shogren, K. A., & Carlson, S. R. (2019). Examining the types of goals set by transition-age students with intellectual disability. *Manuscript in preparation*.

Burke, K. M., Shogren, K. A., Antosh, A. A., LaPlante, T., & Masterson, L. (2019). Implementing the Self-Determined Learning Model of Instruction with students with significant support needs: A guide to practice. *Manuscript submitted for publication*.

Burke, K. M., Shogren, K. A., Raley, S. K., Wehmeyer, M. L., Antosh, A. A., & LaPlante, T. (2019). Implementing evidence-based practices to promote self-determination: Lessons learned from a state-wide implementation of the Self-Determined Learning Model of Instruction. *Education and Training in Autism and Developmental Disabilities, 54*, 18-29.

Carr, R. A. (1979). Goal Attainment Scaling as a useful tool for evaluating progress in special education. *Exceptional Children, 46*, 88-95. doi:10.1177/001440297904600202

Carter, E. W., Owens, L., Trainor, A. A., Sun, Y., & Swedeen, B. (2009). Self-determination skills and opportunities of adolescents with severe intellectual and developmental disabilities. *American Journal on Intellectual and Developmental Disabilities, 114*, 179-192. doi:10.1352/1944-7558-114.3.179

Cavendish, W. (2017). The role of gender, race/ethnicity, and disability status on the relationship between student perceptions of school and family support and self-determination. *Career Development and Transition for Exceptional Individuals, 40*, 113-122. doi:10.1177/2165143416629359

Cheema, J. R. (2014). Some general guidelines for choosing missing data handling methods in educational research. *Journal of Modern Applied Statistical Methods, 13*, 53-75. doi:10.22237/jmasm/1414814520

Enders, C. K. (2010). *Applied missing data analysis*. New York, NY: Guilford Press.

Graham, J. W. (2009). Missing data analysis: Making it work in the real world. *Annual Review of Psychology, 60*, 549-576. doi:10.1146/annurev.psych.58.110405.085530

Grigal, M., Hart, D., & Migliore, A. (2011). Comparing the transition planning, postsecondary education, and employment outcomes of students with intellectual and other disabilities. *Career Development for Exceptional Individuals, 34*, 4-17. doi:10.1177/0885728811399091

Hasnain, R., & Balcazar, F. E. (2009). Predicting community- versus facility-based employment for transition-aged young adults with disabilities: The role of race, ethnicity, and support systems. *Journal of Vocational Rehabilitation, 31*, 175-188. doi:10.3233/JVR-2009-0487

Kiresuk, T. J., & Sherman, R. E. (1968). Goal attainment scaling: A general method for evaluating comprehensive community mental health programs. *Community Mental Health Journal, 4*, 443-453. doi:10.1007/BF01530764

Kiresuk, T. J., Smith, A., & Cardillo, J. (1994). *Goal attainment scaling: Applications, theory, and measurement*. Hillsdale, NJ: Lawrence Erlbaum.

Kleinert, J. O., Harrison, E., Mills, K. R., Dueppen, B. M., & Trailor, A. M. (2014). Self-determined goal selection and planning by students with disabilities across grade bands and disability categories. *Education and Training in Mental Retardation and Developmental Disabilities, 49*, 464-477.

Leake, D., & Boone, R. (2007). Multicultural perspectives on self-determination from youth, parent, and teacher focus groups. *Career Development for Exceptional Individuals, 30*, 104-115. doi:10.1177/08857288070300020101

McGrew, K. S., & Evans, J. (2004). *Expectations for students with cognitive disabilities: Is the cup half empty or half full? Can the cup flow over?* (Synthesis Report 54). Minneapolis, MN: University of Minnesota, National Center on Educational Outcomes.

National Technical Assistance Center on Transition. (2017). *Effective practices and predictors matrix*. Charlotte, NC: Author.

Nota, L., Ferrari, L., Soresi, S., & Wehmeyer, M. L. (2007). Self-determination, social abilities and the quality of life of people with intellectual disability. *Journal of Intellectual Disability Research, 51*, 850-865. doi:10.1111/j.1365-2788.2006.00939.x

Powers, K., Hogansen, J., Geenen, S., Powers, L. P., & Gil-Kashiwabara, E. (2008). Gender matters in transition to adulthood: A survey study of adolescents with disabilities and their families. *Psychology in the Schools, 45*, 349-364. doi:10.1002/pits.20297

R Core Team. (2003). *R: A language and environment for statistical computing*. Vienna, Austria: R Foundation for Statistical Computing.

Raley, S. K., Burke, K. M., Hagiwara, M., Shogren, K. A., Wehmeyer, M. L., & Kurth, J. A. (in press). The Self-Determined Learning Model of Instruction and students with extensive support needs in inclusive settings: A call to action. *Intellectual and Developmental Disabilities*.

Shogren, K. A. (2011). Culture and self-determination: A synthesis of the literature and directions for future research and practice. *Career Development for Exceptional Individuals, 34*, 115-127. doi:10.1177/0885728811398271

Shogren, K. A., Burke, K. M., Anderson, M. H., Antosh, A. A., LaPlante, T., & Hicks, T. (in press). Examining the relationship between teacher perceptions of implementation of the

SDLMI and student self-determination outcomes. *Career Development and Transition for Exceptional Individuals*.

Shogren, K. A., Burke, K. M., Anderson, M. H., Antosh, A. A., Wehmeyer, M. L., LaPlante, T., & Shaw, L. A. (2018). Evaluating the differential impact of interventions to promote self-determination and goal attainment for transition-age youth with intellectual disability. *Research and Practice for Persons with Severe Disabilities, 43*, 165-180. doi:10.1177/1540796918779775

Shogren, K. A., Burke, K. M., Antosh, A. A., Wehmeyer, M. L., LaPlante, T., Shaw, L. A., & Raley, S. K. (2018). Impact of the Self-Determined Learning Model of Instruction on self-determination and goal attainment in adolescents with intellectual disability. *Journal of Disability Policy Studies, 30,* 22-34. doi:10.1177/1044207318792178

Shogren, K. A., Hicks, T., Burke, K. M., Antosh, A. A., LaPlante, T., & Anderson, M. H. (in press). Examining the impact of the SDLMI and Whose Future Is It? over a two-year period with students with intellectual disability. *American Journal on Intellectual and Developmental Disabilities*.

Shogren, K. A., Kennedy, W., Dowsett, C., Garnier Villarreal, M., & Little, T. D. (2014). Exploring essential characteristics of self-determination for diverse students using data from NLTS2. *Career Development and Transition for Exceptional Individuals, 37*, 168-176. doi:10.1177/2165143413486927

Shogren, K. A., Little, T. D., Grandfield, E., Raley, S. K., Wehmeyer, M. L., Lang, K. M., & Shaw, L. A. (2018). The Self-Determination Inventory-Student Report: Confirming the factor structure of a new measure. *Assessment for Effective Intervention*. Advance online publication. doi:10.1177/1534508418788168

Shogren, K. A., Palmer, S. B., Wehmeyer, M. L., Williams-Diehm, K., & Little, T. D. (2012). Effect of intervention with the Self-Determined Learning Model of Instruction on access and goal attainment. *Remedial and Special Education, 33*, 320-330. doi:10.1177/0741932511410072

Shogren, K. A., Raley, S. K., Burke, K. M., & Wehmeyer, M. L. (2018). *The Self-Determined Learning Model of Instruction: Teacher's guide*. Lawrence, KS: Kansas University Center on Developmental Disabilities.

Shogren, K. A., & Shaw, L. A. (2017). The impact of personal factors on self-determination and early adulthood outcome constructs in youth with disabilities. *Journal of Disability Policy Studies, 27*, 223-233. doi:10.1177/1044207316667732

Shogren, K. A., Shaw, L. A., Raley, S. K., & Wehmeyer, M. L. (2018a). Exploring the effect of disability, race-ethnicity, and socioeconomic status on scores on the Self-Determination Inventory: Student Report. *Exceptional Children, 85*, 10-27. doi:10.1177/0014402918782150

Shogren, K. A., Shaw, L. A., Raley, S. K., & Wehmeyer, M. L. (2018b). The impact of personal characteristics on scores on the Self-Determination Inventory: Student Report in adolescents with and without disabilities. *Psychology in the Schools, 55*, 1013-1026. doi:10.1002/pits.22174

Shogren, K. A., & Wehmeyer, M. L. (2017). Goal setting and attainment. In M. L. Wehmeyer, K. A. Shogren, T. D. Little, & S. J. Lopez (Eds.), *Development of self-determination through the life-course* (pp. 237-250). New York, NY: Springer.

Shogren, K. A., Wehmeyer, M. L., Palmer, S. B., Forber-Pratt, A. J., Little, T. J., & Lopez, S. (2015). Causal agency theory: Reconceptualizing a functional model of self-

determination. *Education and Training in Autism and Developmental Disabilities, 50,* 251-263.

Shogren, K. A., Wehmeyer, M. L., Palmer, S. B., Soukup, J. H., Little, T. D., Garner, N. W., & Lawrence, M. (2007). Examining individual and ecological predictors of the self-determination of students with disabilities. *Exceptional Children, 73*, 488-509. doi:10.1177/001440290707300406

Stang, K. K., Carter, E. W., Lane, K. L., & Pierson, M. R. (2009). Perspectives of general and special educators on fostering self-determination in elementary and middle schools. *The Journal of Special Education, 43*, 94-106. doi:10.1177/0022466907313452

Tabachnick, B. G., & Fidell, L. S. (2001). *Using multivariate statistics* (4th ed.). Boston, MA: Allyn and Bacon.

Thompson, J. R., Bradley, V., Buntinx, W. H. E., Schalock, R. L., Shogren, K. A., Snell, M. E., & … Yeager, M. H. (2009). Conceptualizing supports and the support needs of people with intellectual disability. *Intellectual and Developmental Disabilities, 47*, 135-146. doi:10.1352/1934-9556-47.2.135

Trainor, A. A., & Bal, A. (2014). Development and preliminary analysis of a rubric for culturally responsive research. *The Journal of Special Education, 47*, 203-216. doi:10.1177/0022466912436397

Trainor, A. A., Lindstrom, L., Simon-Burroughs, M., Martin, J. E., & Sorrells, A. M. (2008). From marginalized to maximized opportunities for diverse youths with disabilities: A position paper of the Division on Career Development and Transition. *Career Development for Exceptional Individuals, 31*, 56-64. doi:10.1177/0885728807313777

United States of America v. State of Rhode Island, Consent Decree, Case No. CA14-175 C.F.R.
(2014).

van Buuren, S., & Groothuis-Oudshoorn, K. (2018). *MICE: Multivariate Imputation by Chained
Equations*. R package version 3.3.0.

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

Wehmeyer, M. L., Abery, B. H., Zhang, D., Ward, K., Willis, D., Hossain, W. A., & … Walker,
H. M. (2011). Personal self-determination and moderating variables that impact efforts to
promote self-determination. *Exceptionality, 19*, 19-30.
doi:10.1080/09362835.2011.537225

Wehmeyer, M. L., Agran, M., & Hughes, C. (2000). A national survey of teachers' promotion of
self-determination and student-directed learning. *The Journal of Special Education, 34*,
58-68. doi:10.1177/002246690003400201

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.
doi:10.1046/j.1468-3148.2003.00161.x

Wehmeyer, M. L., Palmer, S. B., Agran, M., Mithaug, D. E., & Martin, J. E. (2000). Promoting
causal agency: The Self-Determined Learning Model of Instruction. *Exceptional
Children, 66*, 439-453. doi:10.1177/001440290006600401

White, I. R., Royston, P., & Wood, A. M. (2011). Multiple imputation using chained equations:

Issues and guidance for practice. *Statistics in Medicine, 30*, 377-399.

doi:10.1002/sim.4067

Table 5

Student Demographics by School Year

Demographic characteristic	2015-16 (*n* = 161)		2016-17 (*n* = 268)		2017-18 (*n* = 238)	
	n	%	*n*	%	*n*	%
Gender						
Male	68	42	167	62	150	63
Female	24	15	92	34	72	30
Missing	69	43	9	3	16	7
Race/ethnicity						
White/Caucasian	44	27	130	49	106	44
Hispanic/Latino	18	11	58	22	57	24
Black/African American	14	9	23	9	24	10
American Indian or Alaska Native	1	< 1	2	< 1	1	< 1
Asian	1	< 1	5	2	8	3
Two or more races	1	< 1	8	3	1	< 1
Other	0	0	1	< 1	2	< 1
Missing	82	51	41	15	39	16
Level of support needs (2017-18 only)						
No support needed	-	-	-	-	2	< 1
A little support needed	-	-	-	-	53	22
A lot of support needed	-	-	-	-	78	33
Support needed all the time	-	-	-	-	63	26
Missing	-	-	-	-	42	17

Note. Total of percentages for each category may not be 100% due to rounding. Data on level of support needs was only available in 2017-18.

Table 6

Number of Students Within Each Overall Goal Category

Overall goal category	2015-16 (*n* = 161)		2016-17 (*n* = 268)		2017-18 (*n* = 238)	
	n	%	*n*	%	*n*	%
Multiple goal types (more than one of below)	49	30	144	54	116	49
Home living only	36	22	42	16	44	18
Academics only	20	12	18	7	27	11
Leisure and recreation only	15	9	15	6	13	5
Vocational education and employment only	14	9	29	11	16	7
Transportation only	10	6	5	2	2	<1
Social and relationships only	6	4	3	1	4	2
Finances only	6	4	2	<1	2	<1
Communication only	3	2	8	3	10	4
Community access only	2	1	2	<1	4	2
Postsecondary education only	0	0	0	0	0	0

Note. Total of percentages for each category may not be 100% due to rounding.

Table 7

Regression Analysis of Average Level of Goal Attainment in Year 1 from Pooled Estimates

	β	SE	t	df	Pr(>|t|)
Intercept	3.10	0.15	21.21	128.04	< 0.001*
Goal type: academic only	-0.37	0.27	-1.39	135.31	0.166
Goal type: voc. only	-0.50	0.35	-1.44	93.29	0.153
Goal type: home living only	-0.45	0.22	-2.01	130.41	0.047*
Goal type: leisure/ recreation only	0.18	0.30	0.61	128.15	0.541
Goal type: other – singular	0.14	0.25	0.55	118.35	0.582

Note. Intercept represents students with multiple goal types. Voc. = vocational education and employment.
*p < .05.

Table 8

Regression Analysis of Average Level of Goal Attainment in Year 2 from Pooled Estimates

	β	SE	t	df	Pr(>|t|)
Intercept	2.99	0.15	19.70	215.15	< 0.001***
Goal type: academic only	-0.25	0.22	-1.15	215.87	0.251
Goal type: voc. only	-0.39	0.16	-2.37	214.22	0.019*
Goal type: home living only	-0.79	0.16	-4.84	215.71	< 0.001***
Goal type: leisure/ recreation only	-0.33	0.22	-1.52	215.94	0.130
Goal type: other – singular	-0.67	0.19	-3.61	215.79	< 0.001***
Age	0.03	0.03	1.29	215.63	0.199
Gender: female	0.09	0.11	0.83	214.57	0.410
Race/ethnicity: Other racial/ethnic groups	-0.10	0.10	-0.99	215.17	0.321

Note. Intercept represents White/Caucasian male students, age 12, with multiple goal types. Voc. = vocational education and employment. "Other racial/ethnic groups" includes Hispanic/Latino, Black/African American, American Indian or Alaska Native, Asian, Two or more races, and Other.
*p < .05. ***p < .001.

Table 9

Regression Analysis of Average Level of Goal Attainment in Year 3

	β	SE	t	Pr(>|t|)
Intercept	3.78	0.23	16.28	< 0.001***
Goal type: academic only	-0.78	0.19	-4.12	< 0.001***
Goal type: voc. only	-0.37	0.23	-1.65	0.100
Goal type: home living only	-0.55	0.18	-3.07	0.003**
Goal type: communication only	-0.82	0.28	-2.96	0.004**
Goal type: other – singular	0.05	0.25	0.21	0.835
Gender: female	-0.10	0.12	-0.82	0.412
Race/ethnicity: Other racial/ethnic groups	-0.23	0.12	-1.88	0.062
Support: a lot of support needed	-0.05	0.15	-0.33	0.742
Support: support needed all the time	-0.34	0.16	-2.16	0.032*
Age	-0.04	0.03	-1.36	0.175

Multiple r^2 = 0.21

Adjusted r^2 = 0.17

Note. Intercept represents White/Caucasian male students, age 11, with little to no support needed with multiple goal types. Voc. = vocational education and employment. "Other racial/ethnic groups" includes Hispanic/Latino, Black/African American, American Indian or Alaska Native, Asian, Two or more races, and Other.
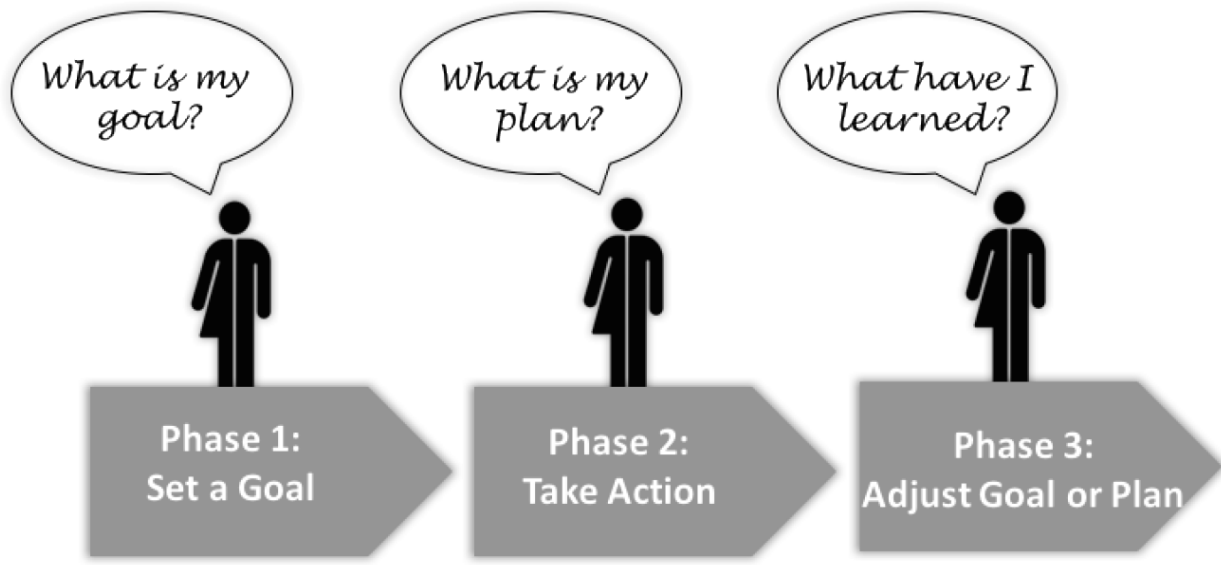
*p < .05. **p < .01. ***p < .001.

Figure 4. Three phases of the Self-Determined Learning Model of Instruction.

Reprinted with permission from Shogren, Raley, et al. (2018).

Chapter 5: Conclusion

Causal Agency Theory, a theoretical framework on the development of self-determination throughout the life course in people with and without disabilities, guided the research activities in this dissertation (Shogren, Wehmeyer, Palmer, Forber-Pratt, et al., 2015). Within Causal Agency Theory, self-determination is defined as a "dispositional characteristic manifested as acting as the causal agent in one's life" (p. 258). Self-determination is critical in the lives of adolescents with disabilities for a successful transition from high school to postsecondary education, employment, and community life (Shogren & Shaw, 2016; Shogren, Shaw, & Little, 2016; Shogren, Wehmeyer, Palmer, Rifenbark, & Little, 2015; Test et al., 2009). Notably, Wehmeyer and Shogren (2017) have emphasized that "goal setting and attainment is the fulcrum of causal action" (p. 94). The results of this dissertation inform future directions for research and practice related to self-determined action, particularly when promoting goal setting and attainment for students with disabilities during the transition planning process.

Findings from this dissertation provide further evidence for the impact of the *Self-Determined Learning Model of Instruction* (SDLMI; Shogren, Raley, Burke, & Wehmeyer, 2018; Wehmeyer, Palmer, Agran, Mithaug, & Martin, 2000) on student outcomes. Findings also provide direction for ongoing research and practice related to addressing student support needs in understanding and promoting self-determined action, particularly with regard to goal setting and attainment. In describing the rationale for reconceptualizing the construct of self-determination in Causal Agency Theory, Shogren, Wehmeyer, Palmer, Forber-Pratt, et al. (2015) cited the emergence of positive psychology, the shift to a strengths-based understanding of disability, and changes to the context in which supports for people with disabilities are delivered as key factors. The results of the present analyses suggest ongoing work is still needed in both research and

practice related to understanding and supporting self-determined actions for people with disabilities. Findings from the review of the literature on the essential characteristics of self-determination in Chapter 2 suggest an ongoing need for research that examines understandings of self-determination across contexts and populations within the framework of Causal Agency Theory. Only 12 of the 49 articles in the review addressed the topic of disability or health-related issues in some capacity, despite the significant attention that has been paid overall to the self-determination construct over the last three decades in the field. Furthermore, results from Chapter 3 indicate more work may still be needed to enable teachers to shift from a teacher-directed approach to a student-directed approach as part of the goal setting process when using the SDLMI, particularly when supporting students with more significant support needs during transition planning. The importance of considering support needs in relation to instruction and supports was further highlighted by the results of the analysis in Chapter 4 suggesting students whose level of support needs were described as "support needed all the time" had significantly lower levels of goal attainment than their peers who had less intense support needs (i.e., "no to little support needed" and "a lot of support needed"). Additionally, the wording of the goals recorded by teachers in the analysis in Chapter 3 suggest the need for ongoing professional development and supports for teachers related to promoting student self-direction and agency over goals. Relatedly, findings from both Chapters 3 and 4 suggest the need to examine teacher expectations for student goals and the implications for training around the SDLMI, as researchers have continued to note the critical importance of high expectations as part of transition supports and services for students with disabilities (Grigal, Hart, & Migliore, 2011; McGrew & Evans, 2004; Wagner, Newman, Cameto, Levine, & Marder, 2007).

In sum, the findings from this dissertation provide important information on how self-determined action is understood and factors to consider in implementing interventions to promote self-determination and goal setting and attainment leading to enhanced postschool outcomes for transition-age youth with disabilities. Such work is valuable given the importance of goal setting and attainment skills for students with intellectual disability as they prepare for the transition from school to adulthood (e.g., Shogren, Burke, Anderson, et al., 2018; Shogren, Burke, Antosh, et al., 2018). In particular, future research should explore both understandings of self-determined action and its essential characteristics within the context of disability and support needs assessment and planning, and more specifically, teacher expectations for transition-age youth with intellectual disability and the connection to goal setting and attainment instruction and supports.

References

Grigal, M., Hart, D., & Migliore, A. (2011). Comparing the transition planning, postsecondary education, and employment outcomes of students with intellectual and other disabilities. *Career Development for Exceptional Individuals, 34*, 4-17. doi:10.1177/0885728811399091

McGrew, K. S., & Evans, J. (2004). *Expectations for students with cognitive disabilities: Is the cup half empty or half full? Can the cup flow over?* (Synthesis Report 54). Minneapolis, MN: University of Minnesota, National Center on Educational Outcomes.

Shogren, K. A., Burke, K. M., Anderson, M. H., Antosh, A. A., Wehmeyer, M. L., LaPlante, T., & Shaw, L. A. (2018). Evaluating the differential impact of interventions to promote self-determination and goal attainment for transition-age youth with intellectual disability. *Research and Practice for Persons with Severe Disabilities, 43*, 165-180. doi:10.1177/1540796918779775

Shogren, K. A., Burke, K. M., Antosh, A. A., Wehmeyer, M. L., LaPlante, T., Shaw, L. A., & Raley, S. K. (2018). Impact of the Self-Determined Learning Model of Instruction on self-determination and goal attainment in adolescents with intellectual disability. *Journal of Disability Policy Studies, 30,* 22-34. doi:10.1177/1044207318792178

Shogren, K. A., Raley, S. K., Burke, K. M., & Wehmeyer, M. L. (2018). *The Self-Determined Learning Model of Instruction: Teacher's guide*. Lawrence, KS: Kansas University Center on Developmental Disabilities.

Shogren, K. A., & Shaw, L. A. (2016). The role of autonomy, self-realization, and psychological empowerment in predicting early adulthood outcomes for youth with disabilities. *Remedial and Special Education, 37*, 55-62. doi:10.1177/0741932515585003

Shogren, K. A., Shaw, L. A., & Little, T. D. (2016). Measuring the early adulthood outcomes of young adults with disabilities: Developing constructs using NLTS2 data. *Exceptionality, 24*, 45-61. doi:10.1080/09362835.2015.1064416

Shogren, K. A., Wehmeyer, M. L., Palmer, S. B., Forber-Pratt, A. J., Little, T. J., & Lopez, S. (2015). Causal agency theory: Reconceptualizing a functional model of self-determination. *Education and Training in Autism and Developmental Disabilities, 50*, 251-263.

Shogren, K. A., Wehmeyer, M. L., Palmer, S. B., Rifenbark, G. G., & Little, T. D. (2015). Relationships between self-determination and postschool outcomes for youth with disabilities. *The Journal of Special Education, 48*, 256-267. doi:10.1177/0022466913489733

Test, D. W., Mazzotti, V., Mustian, A., Fowler, C., Kortering, L., & Kohler, P. (2009). Evidence-based secondary transition predictors for improving postschool outcomes for students with disabilities. *Career Development for Exceptional Individuals, 32*, 160-181. doi:10.1177/0885728809346960

Wagner, M., Newman, L., Cameto, R., Levine, P., & Marder, C. (2007). *Perceptions and expectations of youth with disabilities: A special topic report of findings from the National Longitudinal Transition Study-2 (NLTS2)* (NCSER 2007-2006). Menlo Park, CA: SRI International.

Wehmeyer, M. L., Palmer, S. B., Agran, M., Mithaug, D. E., & Martin, J. E. (2000). Promoting causal agency: The Self-Determined Learning Model of Instruction. *Exceptional Children, 66*, 439-453. doi:10.1177/001440290006600401

Wehmeyer, M. L., & Shogren, K. A. (2017). The development of self-determination during

    adolescence. In M. L. Wehmeyer, K. A. Shogren, T. D. Little, & S. J. Lopez (Eds.),

    Development of self-determination through the life-course (pp. 89-98). New York, NY:

    Springer.