Implementing Evidence-Based Practices to Promote Self-Determination: Lessons Learned from a State-Wide Implementation of the Self-Determined Learning Model of Instruction

Kathryn M. Burke

Karrie A. Shogren

Sheida K. Raley

Michael L. Wehmeyer

A. Anthony Antosh

Terri LaPlante

Accepted for publication May 4, 2018

The research reported here was supported by the Institute of Education Sciences, U.S. Department of Education, through Grant R324L160002 to the University of Kansas. The opinions expressed are those of the authors and do not represent views of the Institute or the U.S. Department of Education.

This work was funded in part by the Borchardt Family Fund through the University of Kansas.

This document represents the final pre-publication version of this material.

Burke, K. M., Shogren, K. A., Raley, S. K., Wehmeyer, M. L., Antosh, A. A., & LaPlante, T. (in press). 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.*

Abstract

Implementation science examines the process of how programs are put into action to produce outcomes and represents an emerging approach for analyzing the utilization of evidence-based practices (EBPs) in school settings. When EBPs are implemented effectively, they result in positive student outcomes. The *Self-Determined Learning Model of Instruction* (SDLMI) is an EBP shown to promote positive educational and postschool outcomes for students with disabilities; however, the process of implementing the SDLMI on a large-scale poses significant challenges. We describe efforts to implement the SDLMI state-wide with transition-age students with intellectual and developmental disabilities through the lens of implementation science. Key factors and issues that need to be addressed in ongoing research and practice to further advance student outcomes are highlighted.

Implementing Evidence-Based Practices to Promote Self-Determination: Lessons Learned from a State-Wide Implementation of the Self-Determined Learning Model of Instruction

Evidence-based practices (EBPs) are instructional methods for enhancing student outcomes that have been proven effective through quality scientific research (Cook & Cook, 2011; Cook & Odom, 2013). In the transition field, efforts have been made to identify EBPs that enhance school and postschool outcomes for adolescents and young adults with disabilities (National Technical Assistance Center on Transition, 2016; Test, Fowler, et al., 2009; Test, Mazzotti, et al., 2009). Identifying EBPs, however, has little impact on student outcomes unless they are utilized in schools, and making this link between research and practice successfully has posed significant challenges (Cook & Odom, 2013). As Wang and Lam (2017) note, focus within educational research has shifted from defining and identifying EBPs to studying implementation. The field of implementation science (Fixsen, Naoom, Blase, Friedman, & Wallace, 2005; Odom, 2009) has provided guidance for enhancing utilization of EBPs in natural contexts, such as school systems. However, there are acknowledged issues in transitioning from small, tightly-controlled efficacy trials used to establish EBPs to large-scale implementation of EBPs (Fixsen, Blase, Metz, & Van Dyke, 2013). The complexity of school systems, the diversity of students served, and the need to develop buy-in across system levels remain major issues that must be addressed.

In this exploratory inquiry, we describe efforts to take one EBP, the *Self-Determined Learning Model of Instruction* (SDLMI; Shogren, Wehmeyer, Burke, & Palmer, 2017; Wehmeyer, Palmer, Agran, Mithuag, & Martin, 2000), to scale at a state-wide level using tenets of implementation science to address ongoing and persistent challenges in promoting positive transition outcomes for adolescents and young adults with intellectual and developmental

disabilities. To accomplish this goal, we discuss (a) EBPs and the SDLMI, (b) implementation science and considerations related to the SDLMI, and (c) issues encountered in state-level implementation of the SDLMI, including issues that need to be addressed in ongoing research and practice to further advance teacher and student outcomes.

Evidence-Based Practices and the SDLMI

The utilization of EBPs in educational contexts is assumed to be a factor that can contribute to positive student outcomes by enabling teachers to systematically and regularly use effective models of instruction (Cook & Odom, 2013). Significant efforts have been undertaken in education to establish guidelines for how to systematically identify EBPs (Council for Exceptional Children, 2014; What Works Clearinghouse, 2017), including in the field of transition (National Technical Assistance Center on Transition, 2016). Such work has created formal processes for identifying EBPs and distinguishing EBPs from similar labels, like "best practices" or "research-based practices" (Cook & Cook, 2011, p. 72). Criteria include meeting specific standards of research design, quality, and quantity (Cook & Odom, 2013). The focus of this inquiry is on one specific EBP in transition, the *Self-Determined Learning Model of Instruction* (SDLMI; Shogren, Wehmeyer, et al., 2017; Wehmeyer et al., 2000). The SDLMI is an established EBP (National Technical Assistance Center on Transition, 2017), as evidenced by over a dozen quasi-experimental or single-subject design studies (Lee, Wehmeyer, & Shogren, 2015) and large-scale, randomized control trial studies (RCTs; Shogren, Palmer, Wehmeyer, Williams-Diehm, & Little, 2012; Wehmeyer, Palmer, Shogren, Williams-Diehm, & Soukup, 2013; Wehmeyer et al., 2012) supporting its efficacy (Hagiwara, Shogren, & Leko, 2017).

The SDLMI is a model of instruction designed to enable teachers to teach students self-regulated problem solving in service of educational goals (Shogren, Wehmeyer, et al., 2017), and

was first introduced in the early 2000s (Wehmeyer et al., 2000). Its current development and implementation is grounded in Causal Agency Theory (Shogren, Wehmeyer, Palmer, Forber-Pratt, et al., 2015), a theoretical framework for understanding the development of the self-determination of people with and without disabilities. Causal Agency Theory defines self-determination as a "dispositional characteristic manifested as acting as the causal agent in one's life" (p. 258). Causal Agency Theory emphasizes the role of supportive contexts that enable the development of *self-regulated* and *goal-directed action* (Little, Hawley, Henrich, & Marsland, 2002) leading to causal agency and self-determination.

To create a supportive context for students to learn to self-regulate educational goal setting and attainment, the SDLMI focuses on enabling teachers to create multiple opportunities for students to engage in goal-directed action. When implementing the SDLMI, teachers support students to set their own goal, to develop action plans to work toward the goal, to self-monitor and evaluate progress toward the goal, and to revise the action plan or goal as needed. As such, the SDLMI is not a specific curriculum to teach skills associated with self-determination, but a model of instruction used by teachers to support student self-directed and self-determined learning. The SDLMI can be used by teachers to support student progress across a broad array of educational activities, including those related to academic content areas and study or self-management skills, as well as transition and vocational activities. Thus, the SDLMI has the potential to serve as a critical support for promoting access to the general education curriculum (Shogren et al., 2012) and for improving transition outcomes (Shogren, Wehmeyer, Palmer, Forber-Pratt, et al., 2015). Implementation of the model consists of three phases: setting self-identified and written goals ("What is My Goal?"), creating action plans to achieve those goals and self-monitoring processes to track progress ("What is My Plan?"), and self-evaluating

progress and adjusting the action plan or goal itself as necessary ("What Have I Learned?"). Each phase includes four Student Questions, which are stated in first-person voice and serve as a guide for the student to progress through the problem-solving sequence. Linked with each Student Question are Teacher Objectives, which provide a roadmap for teacher activities that support students to answer the Student Questions (and, thus, go through the steps in the problem-solving process). Educational Supports are embedded within each Teacher Objective to support instruction as students answer each Student Question.

Evidence of the impact of the SDLMI on student school and postschool outcomes has been established through a number of studies, including multiple large RCTs. Wehmeyer et al. (2012) conducted a group-randomized modified equivalent control group time series design study over two years examining the impact of the SDLMI on the self-determination of 312 high school students. Results showed significant differences in latent means across time and treatment and control group conditions, with students in the SDLMI group showing significantly more positive growth in self-determination over two years compared to the control group. An important finding was that it took two years of implementation to detect significant changes in self-determination scores between the treatment and control group, suggesting the importance of long-term exposure to goal-setting opportunities. Shogren et al. (2012) examined the impact of the SDLMI on academic and transition goal attainment as well as access to the general education curriculum in the same RCT, finding that students exposed to the SDLMI showed greater access to the general education curriculum and goal attainment after one year of intervention. Wehmeyer et al. (2013) conducted another RCT of multiple self-determination interventions, including the SDLMI, with students over three years, and found significant gains in self-determination for those in the treatment group. Shogren, Wehmeyer, Palmer, Rifenbark, et al.

(2015) followed up with the participants from Wehmeyer et al. (2013) and found self-determination status at the time of school completion predicted more positive employment and community access outcomes one and two years postschool, linking enhanced self-determination as a function of exposure to interventions while in school with more positive postschool outcomes. As demonstrated by this body of research, the SDLMI has been shown to have efficacy in tightly controlled RCT studies, positively impacting the academic, transition, and postschool outcomes of students with disabilities (National Technical Assistance Center on Transition, 2017). This work provides a foundation for further considering the implementation of the SDLMI in natural contexts, exploring the role of implementation supports for scaling-up the use of the SDLMI, and improving secondary transition outcomes for students with disabilities, an area identified as in need of improved practices and implementation (Test, Mazzotti, et al., 2009).

Implementation Science and the SDLMI

Implementation science is a term broadly used across a number of fields to describe how programs are put into action to produce outcomes (Fixsen et al., 2005). Implementation science has been defined as "the study of factors that influence the full and effective use of innovations in practice" (NIRN, 2013a). Other common terms include implementation research (Bhattacharyya, Reeves, & Zwarenstein, 2009), knowledge translation (Graham et al., 2006), and diffusion and dissemination (Fixsen et al., 2005). When knowledge is slow to transfer to practice, students with disabilities are denied the opportunity to receive a proven benefit (Graham et al., 2006). The lack of implementation of EBPs may be a reason for persistent, disparate outcomes for students with disabilities, particularly for students with intellectual and developmental disabilities (Grigal, Hart, & Migliore, 2011; Test, Mazzotti, et al., 2009). For

example, without access to opportunities to develop self-determination and learn and apply skills associated with self-regulation, problem solving, and goal setting and attainment, students with intellectual and developmental disabilities may not develop skills necessary for postschool success (Shogren, Wehmeyer, Palmer, Rifenbark, et al., 2015). As an EBP, the SDLMI has the potential to support development of the skills leading to enhanced self-determination, resulting in improved outcomes in the adult world for adolescents and young adults with disabilities (National Technical Assistance on Transition, 2017). Once a practice has been identified as an EBP, the challenge shifts to supporting sustained implementation on a large scale (Singer, Agran, & Spooner, 2017).

Improving postschool transition outcomes, particularly integrated employment outcomes for youth with intellectual and developmental disabilities, is an area of great need. Recent actions by the U.S. Department of Justice to enforce Title II of the Americans with Disabilities Act as interpreted by the U.S Supreme Court in *Olmstead vs. L.C.* suggest that the all-too-frequent outcome of transitioning to segregated employment for young adults is unacceptable (Department of Justice, 2015). In Rhode Island (RI), the state entered into a Consent Decree 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 disabilities. The Consent Decree identified transition-age youth with intellectual and developmental disabilities as a target population under the decree, recognizing the role of transition services and supports in creating the context for postschool integrated employment outcomes. As such, the SDLMI is being implemented as part of state-wide reform efforts to improve secondary transition services for students with intellectual and developmental disabilities given the established relationship between enhanced self-determination and postschool integrated employment outcomes (Shogren, Wehmeyer, Palmer,

Rifenbark, et al., 2015). A collaboration emerged between researchers from the University of Kansas (KU) and the Conversion Institute in Rhode Island, administered by the Paul V. Sherlock Center at Rhode Island College (RIC), which was established to provide training and technical assistance to organizations affected by the Consent Decree. The goal was to train teachers to implement the SDLMI in all participating secondary schools in the state serving students with intellectual and developmental disabilities to enhance efforts to change transition services so as to lead to more positive postschool employment outcomes, beginning in the 2015-2016 school year.

Implementation Framework

The National Implementation Research Network (NIRN) conducted a meta-analysis of over 800 articles related to implementation practices in various fields to devise a model of implementation science. As Fixsen et al. (2013) describe it, "effective interventions X effective implementation = improved outcomes" (p. 214). In the sections that follow, we describe the framework devised by NIRN through their large-scale meta-analysis of implementation practices that is beginning to be applied to special education (Fixsen et al., 2013; Fixsen et al., 2005), and highlight how this model was applied in our scaling-up of the SDLMI (see Figure 1). Just as an intervention and its outcomes must be planned carefully and documented, so too must implementation. Thus, our goal in the remainder of this inquiry is to capture the facilitators and barriers of scaling-up implementation of the SDLMI, providing directions for ongoing research and scaling-up efforts.

Essential components of implementation. Five essential components comprise implementation: (1) a source, (2) a destination, (3) a communication link, (4) a feedback mechanism, and (5) a sphere of influence (Fixsen et al., 2005; see Figure 1). The *source* is the

best example of a program or practice to be implemented at a *destination*, the organization using the innovation. In our example, the SDLMI is the source and RI participating schools serving transition-age students with intellectual and developmental disabilities are the destination. The *communication link* is the group of individuals working to implement the program or practice with fidelity and positive impacts, and the *feedback mechanism* is the flow of information about implementation shared between relevant players. In the scaled-up implementation of the SDLMI, the communication link is the University of Kansas (KU), the Conversion Institute at the Sherlock Center in Rhode Island, and the RI Department of Education, and the feedback mechanism is the communication between the aforementioned organizations, and the teachers and coaches implementing this model. These processes occur within, and are directly impacted by, contextual factors, known as the *sphere of influence.* The sphere of influence is comprised of the unique factors associated with transition education of students with intellectual and developmental disabilities in Rhode Island. For example, there are a number of facilitators in the Rhode Island context, including the size of the state, the strong, pre-existing relationship between the Conversion Institute at the Sherlock Center and school districts, and the commitment of a number of school districts to making change. However, there are also a number of barriers, including the history of segregated education for students with intellectual and developmental disabilities at the secondary level (particularly students with extensive to pervasive support needs), the pre-Consent Decree utilization of sheltered workshops as the primary placement for postsecondary employment and the influence this had on transition goals for students with intellectual and developmental disabilities, limited resources and time for professional development, and limited opportunities for implementation of evidence-based practices related to self-determination.

Stages of implementation. Beyond the essential components of implementation, there are four distinct stages that frame the specific actions that must take place during implementation: (1) exploration, (2) installation, (3) initial implementation, and (4) full implementation (NIRN, 2013b, 2015; see Figure 1). When action planning for each stage, team members ask (a) how they can strengthen the process, (b) what activities should be revisited, and (c) what next steps to take. At the *exploration* phase, an implementation team is established to assess potential fit and create a plan for implementation, if appropriate (Fixsen et al., 2005). In Rhode Island, Sherlock Center leadership reached out to content experts in the area of promoting self-determination at KU for support in implementing the SDLMI to improve outcomes for transition-age students with intellectual and developmental disabilities. However, this process occurred rapidly given the circumstances (e.g., issuance of the Consent Decree) and the need for immediate action. Thus, there was not a strong emphasis on developing a systematic implementation plan. Instead, after a short period of planning, the team immediately delivered in-service training to teachers and devised implementation supports concurrently with teachers beginning implementation during the 2015-2016 school year. More time to develop a strong implementation plan would likely have led to more effective supports and roll out of the intervention. During *installation*, the team organizes resources, strategies, and funds to support implementation. As mentioned, in many ways the installation phase occurred concurrently with exploration, wherein members of the communication link (see essential components above) fully developed strategies as implementation was occurring. However, steps were also taken during this phase to secure additional funding to support and evaluate implementation, which provided more structure and a context for ongoing implementation. *Initial implementation* signifies the plan being put into action, followed by *full implementation*, or when the program is

comprehensively integrated and operational. The state-wide implementation of the SDLMI in RI is currently in full implementation, as the majority of districts in the state have agreed to supporting teachers of transition-age students with intellectual and developmental disabilities to use the SDLMI. Specifically, the majority of districts have allowed teachers to participate in in-service training, have identified a district SDLMI coach (or partnered with other districts to identify a multi-district SDLMI coach), and have provided ongoing time and resources for coaches to engage in professional development themselves and to provide supports to teachers. Districts have also supported data collection activities to document student self-determination and transition outcomes, as well as teacher fidelity of implementation.

Drivers of implementation. The success of an innovation (e.g., the SDLMI) is highly contingent on three critical drivers: (1) competency, (2) organization, and (3) leadership (NIRN, 2015; see Figure 1). Each of these factors is examined below in connection to the implementation of the SDLMI in RI.

Competency. The competency driver encompasses issues related to building a competent team of implementers that have the knowledge, skills, and abilities to use EBPs (NIRN, 2015). The recruitment and selection of staff and training, coaching, and performance assessment (i.e., fidelity) for the staff are the primary components that determine the competency of implementation. Activities associated with competency include: (a) specifying the skills and abilities required and preferred of ideal team members, (b) providing opportunities to practice new skills and receive feedback during training, (c) embedding staff coaching as a medium for advice, (d) providing encouragement, (e) creating opportunities to extend skills in practice, and (f) assessing the use and outcomes of skills taught and reinforced through training and coaching. Because the implementation of the SDLMI is part of a state-wide systems change initiative, there

is less control over the training, recruitment, and selection of staff given the complexity of the state school system. Instead, identifying and developing the knowledge, skills, and abilities of the already established staff (e.g., teachers and coaches) was the focus. Specifically, in the 2015-2016 school year, only general information was given to coaches regarding their duties to support teachers. During the 2016-2017 school year, the research team began regularly communicating with coaches about supports and data collection via e-mail. The goal for the 2017-2018 school year is for research team members to regularly share resources and participate in monthly coaches' meetings to enhance their impact with teachers. Future research is needed to explore key competencies for SDLMI implementation and how to build these competencies into training teachers and selecting coaches. Further, the need for customized implementation supports based on teacher and coach backgrounds, mindsets, and training is needed.

As emphasized by NIRN (2015), training and coaching are crucial in eliciting behavior change as selection and recruitment influence the beginning stages of implementation. Special education directors and the RIC research team members selected coaches, and there were no explicit criteria used to identify coaches other than availability and perceived competency in serving as a coach. Further, none of the coaches had previous experience with the SDLMI, and because of the rapid implementation, as described previously, coaches were often learning alongside teachers while also serving in a coaching role. Prior to implementation, all teachers, including coaches, received a one-day training on the intervention from the KU research scientists and content experts, which included behavior rehearsals of the SDLMI. Coaches then received ongoing monthly professional development, but more systematic training and selection protocols could have further enhanced implementation, particularly of the coaching model, and this planning will be critical to future implementation plans in scaling up projects. During the

2017-2018 school year, coaches will participate in a two-week online training module to enhance their knowledge of and skills in implementing the SDLMI. Further development of screening and training protocols will be important as performance assessment is a key mechanism for monitoring performance and making adjustments to selection, training, and coaching.

Organization. The organization driver is associated with mechanisms administrators employ to change practices and support systems (NIRN, 2013b). The organization driver is arguably the most important as it relates to measures that assess key aspects of the overall performance of the organization and benefits of implementing the EBP. Further, the organization driver includes the internal use of feedback and data (e.g., various measures, information from stakeholders) by facilitative administrators (e.g., district administrators, teachers) to improve implementation. As it relates to external support for the organizational structure, strategies that leaders and staff can utilize to work and collaborate with resources outside of the organization to ensure the need for support of team members is part of the organization driver (NIRN, 2015).

A timeline for implementing the SDLMI and reporting data was collaboratively created by the team concurrent with delivering training and planning for implementation. The timeline was distributed to teachers and coaches at the beginning of the school year. Beginning in the 2016-2017 school year, the KU project manager regularly communicated data collection periods to teachers and coaches, and followed-up if information was not submitted by the deadlines. The data are relevant to measure intermediate outcomes (i.e., enhancements in self-determination and transition planning) and longer-term outcomes (i.e., longitudinal data of post-school outcomes). A challenge during the first two years of implementation was quickly turning around data to share progress with key stakeholders, including administrators, teachers, students, and families.

Moving forward, the leadership team plans to share progress reports with stakeholders on an annual basis. Measuring and reporting are particularly important in establishing social importance as the major goal of implementing the SDLMI in this setting was to improve students' post-school outcomes across domains, including employment, independent living, and community participation. Further, such data can be leveraged to document changes in the state, evaluate the impact of the implementation supports, and promote student, teacher, and community buy-in by documenting changes that are seen as a result of intervention.

In addition to clear timelines, the leadership and implementation team facilitated administrative supports. Both the KU and the RIC on-site project managers communicated regularly with teachers and coaches to address teachers' support needs. Teachers and coaches also received timeline reminders, instructional resources, and data collection information from the leadership and implementation teams. Members of the KU research team visited several times per year to conduct trainings, observe classrooms, and meet with coaches and principal investigators. Feedback was used to make immediate changes and plan improvements for the next year of implementation. Throughout implementation, systematic documentation of communication, planning, resources, and data collection has occurred. Over time, this structure has become stronger with a clearer, more developed plan for implementation. As noted, the initial roll out of the project was rapid, with a limited plan developed. However, because of the strong partnership between and shared mission amongst the leadership and implementation teams, lessons learned and barriers encountered during initial activities were used to further enhance ongoing implementation and systematize implementation supports. For example, a formal coaching model with roles and responsibilities, systematized training, and stronger supports for providing feedback was developed and implemented. Also, more systematic

supports for teachers were developed, with resources designed that could be delivered on a regular basis to provide teachers with implementation resources and to keep them engaged with implementation of the SDLMI.

Leadership. Finally, the leadership driver addresses the need to problem-solve over the course of implementation. Issues related to adaptability require the leadership team to "champion change" at the beginning of implementation, while technical leadership is required to support ongoing implementation and address problems as they arise (NIRN, 2015). Recent research demonstrates that actual leadership does not reside within a given individual; rather, it is the aggregation of leadership behavior across individuals to enact change (Day, 2001; Komives, Owen, Longerbeam, Mainella, & Osteen, 2005). Within any given organization, the dispersion of leadership responsibilities varies as the same people can provide both adaptive and technical leadership or these duties can be more evenly distributed amongst implementation team members (NIRN, 2015).

With regard to implementing the SDLMI state-wide, technical leadership was possible by establishing a team of leaders with diverse skillsets. The KU research team supported implementation through biweekly meetings with project staff to review progress and make changes as needed. A data collection specialist attended team meetings and provided updates on data systems. The KU project manager was responsible for monthly meetings with the RIC project manager, and these conversations were used to share updates and address issues that arose. Adaptive leadership was demonstrated through the interactions between leadership and project staff. The KU researchers were responsible for teacher and coach training, and the RIC project manager supported coaches during monthly meetings held throughout the academic years. In turn, the coaches provided on-site support to teachers. This leadership and

management structure has emerged over time, and is currently being documented to support knowledge translation across different contexts. Ongoing research is needed to explore the development of strong implementation plans and the role of leadership teams in establishing and implementing these plans.

Lessons Learned and Future Directions

The sections above described how the SDLMI has been implemented at a state-wide level for transition-age students with intellectual and developmental disabilities. The information presented allows us to examine strengths and challenges of implementation, and share this information to advance research and practice. Strengths and areas of needed improvement within each implementation driver, along with implications and recommendations for the future are described below.

Competency

Utilizing coaches as a medium for support is a major strength of this project. Notably, coaches were selected without input from most of the leadership team, demonstrating the challenges of working within an established school system and a rapid implementation schedule without time allotted for screening and training coaches. A master coach, the RIC project manager, was responsible for ensuring coaches had the necessary training and support and were held accountable for supporting teachers. This master coach led coaches in monthly meetings to discuss the intervention, troubleshoot issues, and report progress and feedback. Over the course of implementation, coaches grew in their knowledge and roles; however, in an ideal situation, much of this professional development would have occurred prior to implementation to enable coaches to provide maximal support to teachers. Further research is needed to identify the best ways to enhance pre-implementation training and professional development in the context of

instruction to promote self-determination

In this state-wide implementation, coaches supported teachers by observing implementation of the intervention in their classrooms, completing fidelity checklists, and meeting to discuss strengths and areas for improvement. Coach observations of teacher implementation and subsequent feedback occurred at least three times during the year, although coaches also met with teachers informally as needed. A recommendation for future implementation is to establish a more formalized written coaching service delivery plan to ensure coaching is standardized across coaches and their assigned teachers. To further improve the coaching system, soliciting feedback from teachers about their experiences with the coaching supports would demonstrate the benefits to the intervention as a result of the coaching system.

Performance assessment, or fidelity, was another strong point of the implementation. Teachers self-reported on intervention fidelity at three time points during the year, and coaches conducted the same fidelity assessment after observing each teacher. Furthermore, performance assessment was viewed as a positive, reflective process of improvement because it was designed to improve quality, rather than judge or criticize teachers. After each observation, coaches met with teachers to discuss strengths and areas for improvement they noted. Performance assessment within this study was effective in meeting its goals of imparting encouragement and offering opportunities to extend skills in practice. Fidelity data from the first year of implementation showed teachers' self-reported fidelity of implementation ranging between 75.1% and 94.1% (Shogren, Burke, et al., 2017). Teachers reported highest fidelity during implementation of the first of three phases of the SDLMI, while coaches tended to rate teachers' fidelity of implementation lowest during the initial phase and increasing over time. These findings indicate potential differences in the perception of fidelity between teachers and coaches,

indicating the need for further investigation to understand this discrepancy and differential training implications.

Notably, teachers and coaches completed the same fidelity form, with the exception of items worded in first-person or third-person language. And yet, the differences in fidelity ratings may suggest the need for fidelity measures aligned with roles. Such a nuanced approach aligns with the implementation fidelity literature, in which the five elements of fidelity include adherence to an intervention, exposure or dosage, quality of delivery, participant responsiveness, and program differentiation (Carroll et al., 2007). For example, it may be that teachers felt more comfortable with the initial phases of the model as this was strongly emphasized in training, and immediately implemented by teachers after training. Thus, a teacher self-report fidelity form would focus more on adherence to the intervention. However, coaches may have perceived the importance of repeated opportunities to work through the model, noting increases in quality over time. For coaches, the fidelity observation would focus more on quality of delivery. Future research should explore the differences in teacher self-report versus coach observation fidelity, as well as solutions with training, coaching, and supports. Part of this solution likely needs to involve a more rigorous process for measuring teacher-level outcomes resulting from training and coaching, to determine the learning that is occurring and if a certain level of expertise in all phases of the model is needed prior to implementation, or to continue with implementation.

Leadership

Another facilitator of the current project was the strong and adaptive leadership that focused on leveraging the Consent Decree to "champion change" as implementation began. These contextual factors (Shogren, Luckasson, & Schalock, 2014) created conditions that drove a need for immediate changes. This impacted the exploration and implementation phases, as

during the initial year of implementation many issues related to the implementation plan were designed concurrently with implementation. Over time, the processes were able to become more systematized; however, maintaining the same level of motivation or "buy-in" with regard to the SDLMI and tracking progress demonstrated a challenge, as frequently occurs in scaling-up efforts (NIRN, 2015). Coaches and teachers seemed excited to use the SDLMI after trainings in the first year of implementation, but over time buy-in appeared to diminish, based on informal conversations with leadership, coaches, and teachers. This may have been influenced by the challenges with the implementation plan, however, it may also reflect the need to identify effective strategies to continually promote engagement of all stakeholders. Establishing ways to both develop and maintain buy-in for all relevant parties is essential. Data systems hold the potential to foster motivation if results are shared with key stakeholders (e.g., students, practitioners, families) regularly. A potential strategy to continue long-term buy-in would involve using the most efficient (i.e., least time consuming) system possible for measuring outcomes and assessing fidelity. Future implementations would be enhanced by establishing a system and timeline for sharing progress and results, although the need for problem-solving (i.e., technical leadership) will likely arise during implementation and the appropriate balance of implementation and adaptability in implementation needs to be further considered.

Organization

Administrative supports by way of communication represented both a strength and a challenge for leadership in scaling-up the SDLMI. Because of the clear communication systems and regular opportunities for discourse, leadership and staff were generally well connected. Both teachers and coaches had contact information for leadership, which many used to inquire about supports for students and recording progress. Teachers and coaches also received timeline

reminders, instructional resources, and data collection information, although it was unclear whether more support would have been helpful or overwhelming. Despite regular reminders, almost half of teachers and coaches did not report progress and goals overall. Informal feedback about the content and frequency of communication from leadership was assessed throughout the year with coaches, but a more formal method of seeking regular feedback and input from teachers and coaches with regard to leadership is a recommendation for future implementation. Further, there is a need to better understand and adaptively address challenges to implementation at the teacher, coach, and school level. For example, the SDLMI is a model of instruction, not a standardized curriculum. As such, it requires teachers to not only teach problem-solving skills, but also use them personally as they are integrating the SDLMI into ongoing instruction. Further determining how to troubleshoot problems that teachers encounter initially and over time to problem solve around the use and integration of the SDLMI into ongoing instruction is important, particularly in the context of the use of a coaching model. For example, is troubleshooting with coaches the most effective route for teachers, or should there also be online troubleshooting tools developed and made available? Further research is critically needed that compares and decomposes the most effective supports for implementing the SDLMI, as these are issues that have not been addressed in efficacy trials, and must be systematically examined in the context of larger-scale implementation in natural contexts.

Conclusion

Research has established that the SDLMI, an evidence-based practice, can be a source of powerful change, especially for students with disabilities (Shogren et al., 2012; Wehmeyer et al., 2012). However, we are only beginning to explore how to effectively implement the SDLMI on a large-scale. In the state-wide implementation described in this paper, Shogren, Burke, et al.

(2017) reported positive findings from the first year of implementation; teachers implemented the SDLMI with fidelity, students attained educationally relevant goals, and teachers reported changes in student self-determination. For example, the majority of students were able to work through two self-directed goals over the course of the 2015-2016 school year, and generally achieved these goals at close to expected levels of attainment when rated by teachers. Teachers reported significant changes in two aspects of student self-determination, volitional action and agentic action, which connects to research showing the impact of implementing the SDLMI on teacher perceptions of student capacity (Shogren, Plotner, Palmer, Wehmeyer, & Paek, 2014). Furthermore, when implementing the SDLMI, significant changes in teacher perceptions of student self-determination have been shown to precede changes in student self-determination and outcomes (Wehmeyer et al., 2012).

Data from subsequent years of implementation hold the potential to document ongoing changes in student self-determination and postschool outcomes, from both the teacher and student perspective. As described above, reaching the full implementation stage while continually addressing implementation drivers and essential components presents significant challenges. And yet, these challenges hold the potential to drive the field forward by advancing research and practice. The recommendations above, including those for training, communication, and motivation, represent the next step in enhancing self-determination and postschool outcomes for substantial numbers of students through the implementation of the SDLMI.

References

Bhattacharyya, O., Reeves, S., & Zwarenstein, M. (2009). What is implementation research? *Research on Social Work Practice, 19*, 491-502. doi:10.1177/1049731509335528

Carroll, C., Patterson, M., Wood, S., Booth, A., Rick, J., & Balain, S. (2007). A conceptual framework for implementation fidelity. *Implementation Science, 2,* 40-49. doi:10.1186/1748-5908-2-40

Cook, B. G., & Cook, S. C. (2011). Unraveling evidence-based practices in special education. *Journal of Special Education, 47*, 71-82. doi:10.1177/0022466911420877

Cook, B. G., & Odom, S. L. (2013). Evidence-based practice and implementation science in special education. *Exceptional Children, 79*, 135-144. doi:10.1177/001440291307900201

Council for Exceptional Children. (2014). *Standards for evidence-based practices in special education.* Arlington, VA: Council for Exceptional Children.

Day, D. V. (2001). Leadership development: A review in context. *Leadership Quarterly, 11,* 581-613.

Department of Justice. (2015). Justice Department Reaches Proposed ADA Settlement Agreement On Oregon's Developmental Disabilities System. Retrieved from https://www.justice.gov/opa/pr/justice-department-reaches-proposed-ada-settlement-agreement-oregons-developmental

Fixsen, D. L., Blase, K. A., Metz, A., & Van Dyke, M. (2013). Statewide implementation of evidence-based programs. *Exceptional Children, 79*, 213-230. doi:10.1177/001440291307900206

Fixsen, D. L., Naoom, S. F., Blase, K. A., Friedman, R. M., & Wallace, F. (2005). *Implementation research: A synthesis of the literature*. Tampa, FL: University of South

Florida, Louis de la Parte Florida Mental Health Institute, the National Implementation Research Network.

Graham, I. D., Logan, J., Harrison, M. B., Straus, S. E., Tetroe, J., Caswell, W., & Robinson, N. (2006). Lost in knowledge translation: Time for a map? *Journal of Continuing Education for the Health Professions, 26*, 13-24.

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

Hagiwara, M., Shogren, K., & 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.

Komives, S. R., Owen, J. E., Longerbeam, S. D., Mainella, F. C., & Osteen, L. (2005). Developing a leadership identity: A grounded theory. *Journal of College Student Development, 46*, 593-611.

Lee, S., Wehmeyer, M. L., & Shogren, K. A. (2015). Effect of instruction with the Self-Determined Learning Model of Instruction on students with disabilities: A meta-analysis. *Education and Training in Autism and Developmental Disabilities, 50*, 237-247.

Little, T. D., Hawley, P. H., Henrich, C. C., & Marsland, K. (2002). Three views of the agentic self: A developmental synthesis. In E. L. Deci and R. M. Ryan (Eds.), *Handbook of self-determination research* (pp. 389-404). Rochester, NY: University of Rochester Press.

National Implementation Science Network. (2013a). *Implementation science defined.* Chapel Hill, NC: NIRN. Retrieved from http://nirn.fpg.unc.edu/learn-

implementation/implementation-science-defined

National Implementation Science Network. (2013b). *Stages of implementation analysis: Where are we?* Chapel Hill, NC: NIRN. Retrieved from http://implementation.fpg.unc.edu/sites/implementation.fpg.unc.edu/files/NIRN-StagesOfImplementationAnalysisWhereAreWe.pdf

National Implementation Science Network. (2015). *Implementation drivers: Assessing best practices*. Chapel Hill, NC: NIRN. Retrieved from http://implementation.fpg.unc.edu/sites/implementation.fpg.unc.edu/files/NIRN-ImplementationDriversAssessingBestPractices.pdf

National Technical Assistance Center on Transition. (2016). *Evidence-based practices and predictors in secondary transition: What we know and what we still need to know*. Charlotte, NC: NTACT.

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

Odom, S. L. (2009). The tie that binds: Evidence-based practice, implementation science, and outcomes for children. *Topics in Early Childhood Special Education, 29*, 53-61.

Shogren, K. A., Burke, K. M., Antosh, A. A., Wehmeyer, M. L., LaPlante, T., Shaw, L. A., & Raley, S. K. (2017). Impact of the Self-Determined Learning Model of Instruction on self-determination and goal attainment in adolescents with intellectual disability. *Manuscript submitted for publication*.

Shogren, K. A., Luckasson, R., & Schalock, R. L. (2014). The definition of context and its application in the field of intellectual disability. *Journal of Policy and Practice in Intellectual Disabilities, 11*, 109-116.

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., Plotner, A. J., Palmer, S. B., Wehmeyer, M. L., & Paek, Y. (2014). Impact of the Self-Determined Learning Model of Instruction on teacher perceptions of student capacity and opportunity for self-determination. *Education and Training in Autism and Developmental Disabilities, 49*, 440-448.

Shogren, K. A., Wehmeyer, M. L., Burke, K. M., & Palmer, S. B. (2017). *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. *Journal of Special Education, 48*, 256-267. doi:10.1177/0022466913489733

Singer, G. H. S., Agran, M., & Spooner, F. (2017). Evidence-based and values-based practice for people with severe disabilities. *Research and Practice for Persons with Severe Disabilities, 42,* 62-72. doi:10.1177/1540796916684877

Test, D. W., Fowler, C. H., Richter, S. M., White, J., Mazzotti, V. L., Walker, A. R., … Kortering, L. (2009). Evidence-based practices in secondary transition. *Career*

Development for Exceptional Individuals, 32, 115-128.

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

U.S. District Court, District of Rhode Island, Consent Decree, Case No. CA14-175 C.F.R. (2014).

Wang, M., & Lam, Y. (2017). Evidence-based practice in special education and cultural adaptions: Challenges and implications for research. *Research and Practice for Persons with Severe Disabilities, 42,* 53-61. doi:10.1177/1540796916685872

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.

Wehmeyer, M. L., Palmer, S. B., Shogren, K. A., Williams-Diehm, K., & Soukup, J. H. (2013). Establishing a causal relationship between interventions to promote self-determination and enhanced student self-determination. *Journal of Special Education, 46*, 195-210. doi:10.1177/0022466910392377

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

What Works Clearinghouse (2017). *Standards Handbook* (Version 4.0).

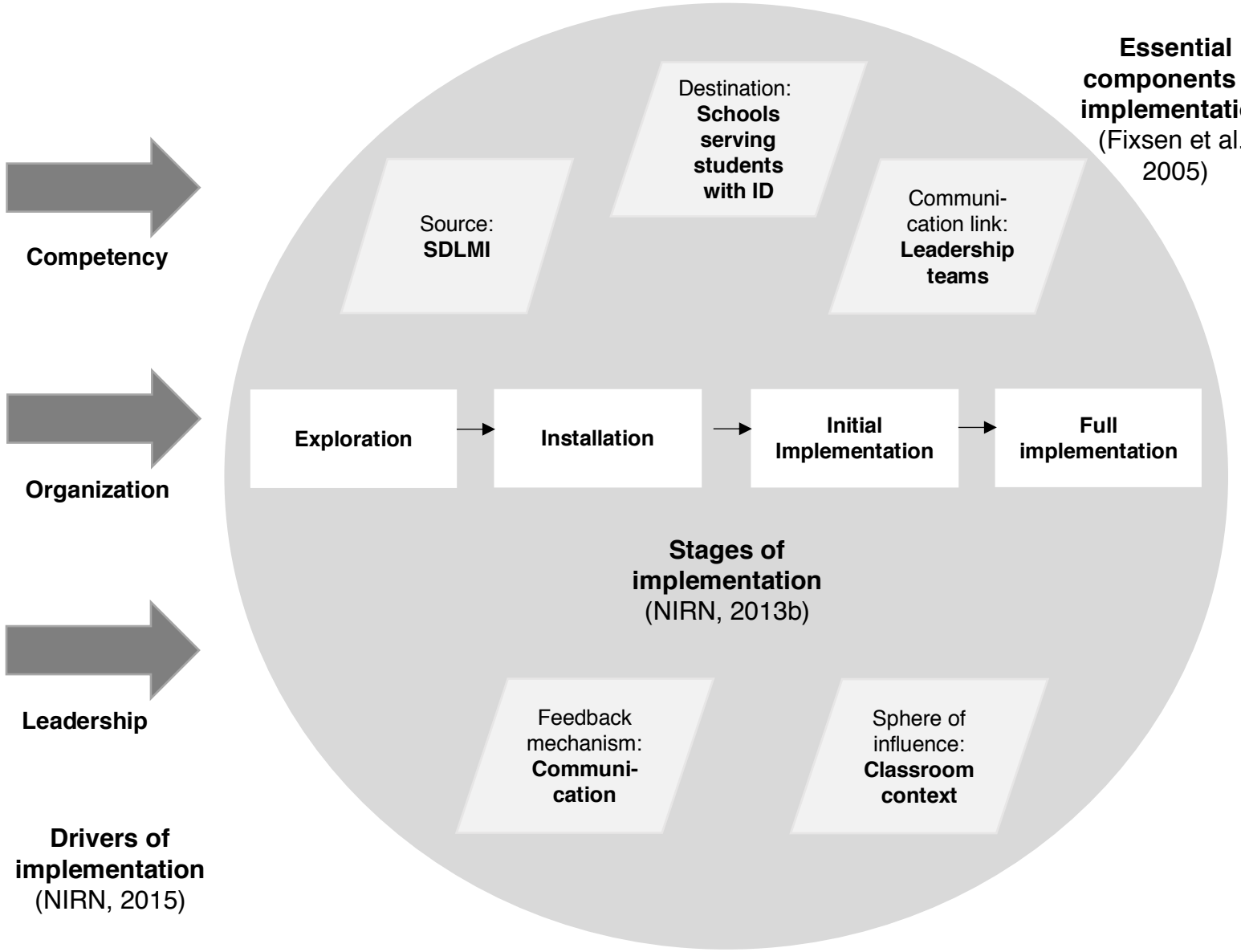
Competency
Organization
Leadership
Drivers of implementation
(NIRN, 2015)
Source: SDLMI
Destination: Schools serving students with ID
Communi-cation link: Leadership teams
Exploration
Installation
Initial Implementation
Full implementation
Stages of implementation
(NIRN, 2013b)
Feedback mechanism: Communi-cation
Sphere of influence: Classroom context
Essential components of implementation
(Fixsen et al., 2005)

Figure 1. Large-scale implementation of the SDLMI.