Examining the Impact of Professional Development on the Self-Determined Learning

Model of Instruction for General and Special Educators

Erin K. Bojanek[1*], Sheida K. Raley[1], Karrie A. Shogren[1], & Kathleen Lynne Lane[1]

[1]University of Kansas

*Corresponding Author: Erin K. Bojanek, M.A.
ebojanek@ku.edu
University of Kansas
Clinical Child Psychology Program
1000 Sunnyside Avenue Room 2020
Lawrence, KS 66045 USA

Second Author: Sheida K. Raley, Ph.D.
University of Kansas
Lawrence, KS 66045 USA

Third Author: Karrie A. Shogren, Ph.D.
University of Kansas
Lawrence, KS 66045 USA

Fourth Author: Kathleen Lynne Lane, Ph.D.
University of Kansas
Lawrence, KS 66045 USA

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Abstract

There is limited research examining professional development for general and special education teachers implementing self-determination interventions. This study presents outcomes of a two-day professional development training for the Self-Determined Learning Model of Instruction (SDLMI) for general and special educators guided by key elements of professional development. Results suggested teachers had positive perceptions of the training and showed improvements in knowledge and skills related to self-determination, but reported no change in perceived usefulness for students. Findings suggested teachers already perceived self-determination to be important and relevant to their students and that this professional development training was successful in improving teachers' knowledge and skills. Further research is needed to examine how this training impacts teacher implementation of the SDLMI and student outcomes.

Keywords: professional development, self-determination, Self-Determined Learning Model of Instruction, inclusive education

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Increasingly, the importance of abilities and skills associated with self-determination, including decision making, problem solving, goal setting and attainment, and self-regulation, are acknowledged for all adolescents (Council of Chief State School Officers & National Governors Association, 2011; National Research Council, 2012; NGSS Lead States, 2013). Initially, self-determination skills were emphasized in the field of special education, and associated with federal policies promoting student engagement in transition planning as part of the Individualized Education Program (IEP; Denney & Daviso, 2012; Russo, 2019). More recently, federal policy and curricular standards have emphasized self-determination abilities and skills, including problem solving, for all students (Common Core State Standards Initiative, 2010). However, there is limited research on effective means to support general and special education teachers in providing students opportunities and experiences to build these skills and apply them in inclusive general education classrooms.

There is a significant amount of research demonstrating the benefit of self-determination interventions on post-school outcomes for students with disabilities (Burke et al., 2020; Shogren, Wehmeyer, Palmer, Rifenbark & Little, 2015). A recent meta-analysis demonstrated medium effect sizes of interventions designed to promote self-determination in secondary classrooms (Burke et al., 2020). Research has demonstrated that self-determination interventions result in significant improvements in self-determination (Palmer et al., 2012; Wehmeyer et al., 2013), academic skills (Konrad et al., 2007), and increased access to the general education curriculum for students with disabilities (Palmer et al., 2004). Additionally, enhanced self-determination when exiting high school has been associated with more positive postschool outcomes for

students with disabilities (Shogren, Wehmeyer, Palmer, Rifenbark & Little, 2015). Given these findings suggesting that self-determination is beneficial for students with disabilities across domains, researchers have proposed that to further enhance school and post-school outcomes for students with and without disabilities, self-determination interventions targeting self-regulatory skills can and should be conceptualized as relevant for all students (Denney & Daviso, 2012; Raley et al., 2018; Raley et al., 2020; Shogren et al., 2016). Researchers have begun to establish that such interventions are implementable in inclusive, general education classrooms (Raley et al., 2018; Raley et al., 2020), and can be conceptualized in a multi-tiered framework, with more intensive supports provided for building abilities and skills associated with self-determination based on instructional and transition-related needs benefiting all students, including those with disabilities (Shogren et al., 2016).

Teacher Training to Promote Self-Determination

To continue expanding self-determination interventions into inclusive classrooms for use with all students, there is a need for research examining professional development and implementation supports for general and special education teachers. Specifically, considerations should focus on the implementation and impact of joint training to promote collaborative efforts across general and special education to teach abilities and skills associated with self-determination to all students, including those with disabilities (e.g., intellectual and developmental disabilities, learning disabilities, autism spectrum disorder). Existing theoretical frameworks of teacher professional development emphasize the importance of focusing on the content, including opportunities for teachers to engage in active learning components, creating a coherent program (i.e., the program is consistent with teacher's knowledge and beliefs), having a training that is of sufficient duration, and involving collective participation and collaboration

across teachers (Darling-Hammond et al., 2009; Desimone, 2009). Another critical feature is the inclusion of outcome measures of collaborative teacher training, specifically measuring teacher knowledge and skills before and after training and exploring how post-training knowledge and skills relate to increases in student achievement (Brownell et al., 2011; Lane et al., 2007; Lane et al., 2015). Research examining teacher training has demonstrated that when teachers engage in high-quality professional development, their knowledge, skills, and classroom teaching improve (Oakes et al., 2018) resulting in increased student achievement (Yoon et al., 2007). However, the most effective methods to achieve improvements in teachers' knowledge, skills, and classroom teaching are not well-defined, particularly related to self-determination instruction. This study will address current gaps in the literature by examining methods used and outcomes of a collaborative professional development training for general and special education teachers to implement a self-determination intervention in inclusive general education classrooms.

In large national surveys, teachers have identified that they perceive self-determination as beneficial for enhancing students' post-school outcomes, yet they reported a gap between their perceptions of importance and their implementation of interventions in the classroom (Agran et al., 1999; Chambers et al., 2007; Cho et al., 2011; Wehmeyer, Agran, & Hughes, 2000). A lack of effective training has been identified as a significant barrier to implementing interventions that promote self-determination, particularly in inclusive settings (Chambers et al., 2007; Thoma et al., 2002; Wehmeyer, Agran & Hughes, 2000). These findings highlight the need for further research examining professional development trainings to promote self-determination emphasizing collaboration across general and special education. Such work is particularly important given emerging research suggesting the benefits of implementing self-determination interventions, namely the Self-Determined Learning Model of Instruction (SDLMI; Shogren,

Raley, et al., 2018; Wehmeyer, Palmer, et al., 2000), in inclusive classrooms with all students

(Raley et al., 2018). The SDLMI is an instructional model designed to enable teachers to support

students to set goals, create action plans to achieve those goals, and adjust their self-identified

action plan or goal based on self-evaluation. As such, the SDLMI is designed to build critical

self-regulatory skills as well as goal setting and attainment, problem-solving, and decision-

making skills and abilities.

Self-Determined Learning Model of Instruction (SDLMI)

The SDLMI is based on Causal Agency Theory, which defines self-determination as a

"dispositional characteristic manifested as acting as the causal agent in one's life" (Shogren,

Wehmeyer, Palmer, Forber-Pratt, et al., 2015, p. 258). This theory suggests that self-determined

actions are volitional, agentic, and driven by action-control beliefs. Further, Causal Agency

Theory posits that self-determined actions develop over the lifespan as people enhance their

abilities related to autonomy, self-initiation, pathways thinking, self-direction, control-

expectancy, psychological empowerment, and self-realization through opportunities and

experiences to set goals, solve problems, make decisions, and engage in self-regulation across

settings, including in inclusive general education classrooms (Shogren, Wehmeyer, Palmer,

Forber-Pratt et al., 2015). Thus, the SDLMI is a framework to guide facilitators (e.g., general and

special educators) in enabling students to self-direct the learning process by providing students

with opportunities and experiences to engage in self-determined action.

The SDLMI is divided into three distinct phases with each phase guided by an overall

problem that students must solve by posing and answering questions that guide them through the

problem-solving sequence. In Phase 1, students (with support from their general and special

education teachers) solve the overall problem "What is my goal?" by reflecting on their

strengths, prior experiences, interests, and instructional needs. After students set a goal, they address the overall problem in Phase 2: "What is my plan?". In this phase, students partner with teachers to create an action plan to achieve their goal based on strategies that they self-identify will be supportive. Finally, in Phase 3, students solve the problem "What have I learned?" and self-evaluate their progress toward achieving their goal and determine if adjustments to their goal or plan are needed. After students progress through all three phases of the SDLMI, they are well-positioned to use the SDLMI to set and work toward achieving their next goal (Shogren, Raley, et al., 2018; Wehmeyer, Palmer, et al., 2000).

Preliminary studies examining the implementation of the SDLMI in an inclusive general education classroom suggested that over 90% of students achieved expected or higher levels of academic goal attainment as well as perceived improvements in teaching practices and overall student engagement (Raley et al., 2018). Additionally, implementation of the SDLMI in inclusive secondary mathematics classrooms found that students showed improvements in self-determination and goal attainment (Raley et al., 2020). However, these preliminary studies have only examined implementation of the SDLMI by general education teachers, primarily with students without disabilities. Given the evidence demonstrating the benefits of promoting self-determination for students with and without disabilities (Burke et al., 2020, Raley et al, 2018; Raley et al., 2020), additional research is needed to examine the collaborative implementation of the SDLMI in inclusive classrooms with diverse groups of students. To achieve this, there is a need to develop a systematic method to collaboratively train general and special education teachers to ensure special education teachers can effectively support students with disabilities or students who may need more intensive supports to access and engage with self-determination instruction in inclusive, general education classes. Future studies also should examine the impact

of collaborative general and special education teacher training on student outcomes, including

academic goal attainment and self-determination.

The purpose of the present study was to explore outcomes of a two-day professional

development training developed to prepare general and special education teachers, jointly, to

implement the SDLMI in secondary, inclusive core content classes. The present study is situated

within an Institute of Education Sciences (IES) funded multi-year project comparing the efficacy

of varying intensities of implementation supports (e.g., professional development training, online

module supports, in-person coaching) for secondary general and special education teachers to

implement the SDLMI in inclusive, core content classes with students with and without

disabilities (Shogren et al., 2017). In the present IRB approved study, we explored data on the

outcomes of the initial professional development training, which was provided to the first cohort

of secondary, general and special education teachers participating in the project as well as other

relevant stakeholders identified by participating schools and districts (e.g., administrators,

transition and curriculum specialists, middle school teachers). We chose to include other relevant

stakeholders in the professional development training given their role in supporting teachers in

implementing the SDLMI as well as evidence showing that principal and administrator

leadership style play a significant role in teacher motivation and well-being (Eyal & Roth, 2010).

Further, successful implementation of self-determination instruction should include the

involvement of administrators and support staff, such as transition specialists. These other

relevant stakeholders can also be beneficial in creating a culture within the school or district that

supports self-determined action (Denney & Daviso, 2012; Karvonen et al., 2004).

Self-Determination Professional Development Training

Exploring the outcomes of this initial professional development training is important and timely for several reasons, including informing the ongoing development of joint professional development at the secondary level related to the SDLMI and self-determination instruction. Skills and abilities related to self-determination are critical for the postschool success of all students. As such, interventions to promote self-determination can be conceptualized within a multi-tiered framework in which all students receive universal supports to engage in self-determined actions (i.e., Tier 1 supports) and more intensive (i.e., Tier 2) and individualized (i.e., Tier 3) supports are provided, as needed (Shogren et al., 2016). As preliminary research exists demonstrating the potential benefits of the SDLMI when implemented in inclusive general education classrooms with all students (Raley et al., 2018; Raley et al., 2020), there is a need to examine the impact of systematic professional development trainings on general and special education teachers' knowledge and skills. Joint training of general and special education teachers is necessary to effectively implement the SDLMI in inclusive general education classrooms with students with and without disabilities. Additionally, conceptualizing the SDLMI within the multi-tiered system of support framework promotes inclusion of students with disabilities by enabling special education teachers to provide additional Tier 2 and Tier 3 supports in addition to universal or Tier 1 supports as needed.

Professional development in the context of this study is novel as it is one of the first efforts to systematize professional development on the SDLMI for general and special educators guided by emerging knowledge on key elements of professional development (Darling-Hammond et al., 2009; Gulamhussein, 2013; Wei et al., 2010). Research has shown that high quality in-service training improves teachers' knowledge and use of evidence-based instructional methods (Wood et al., 2016). The present study is one of the first examples of a large-scale,

systematic training approach involving collaborative training of both general and special

educators related to self-determination that would benefit all students, not just students with

disabilities. Second, professional development training considerations related to the SDLMI are

unique in that the SDLMI was developed as a model of instruction, not a curriculum, requiring

educators to overlay SDLMI instruction onto existing curriculum and instruction, creating an

opportunity to embed student self-direction of goal setting and attainment related to the targeted

content areas (Raley et al., 2018; Shogren, Raley, et al., 2018). As such, it requires teachers to

problem solve and modify instructional practices related to curricular goal setting to more

directly and explicitly involve the student. Therefore, teachers need to both deeply understand

the SDLMI and its components (i.e., Student Questions, Teacher Objectives, Educational

Supports; see Shogren, Raley, et al., 2018 for more information) as well as to be able to devise

strategies to align SDLMI instruction and supports throughout their curriculum. Thus, enabling

general and special educators to work collaboratively to develop an understanding of the SDLMI

and plan for its implementation is critical, particularly to promote collaborative teaching

processes that build on the strengths that general educators bring to the content area and

expertise that special educators bring to designing educational supports.

Purpose of the Study

As such, the present study reports the outcomes of the initial two-day SDLMI

professional development training, specifically focusing on teachers' perspectives of the training

materials and context, changes in their self-reported knowledge, skills, and perceived usefulness

of self-determination interventions for all students, as well as the degree to which they viewed

self-determination as an essential student characteristic. Given that frameworks of effective

collaborative teacher education emphasize the importance of measurable outcomes of teacher

training, specifically knowledge and skills (Brownell et al., 2011), this study will examine

teachers' knowledge and skills of instruction to support student self-determination and their

perceived usefulness before and after the two-day professional development training using tools

adapted from reliable measures (Barton-Arwood et al., 2005; Lane et al., 2010; Lane et al.,

2015). The following research questions guided this study:

1. What were teachers' and other relevant stakeholders' perspectives on the content of

   materials and information received during the two-day professional development training

   on the SDLMI? Were there differences in teacher understanding of the material before

   and after each day of training?

2. To what degree did implementing general and special education teachers report on

   changes in their knowledge of self-determination, skills related to self-determination, and

   usefulness of self-determination before and after the two-day professional development

   training?

3. Were there changes in whether teachers perceived self-determination skills to be essential

   in preparing students across life domains?

Method

Sample

Sixty-two teachers and other relevant stakeholders attended a professional development

training. Of this sample, 30 of the participants were general and special education teachers who

agreed to participate in the ongoing study to implement the SDLMI in inclusive, general

education classes with students with and without disabilities during the 2018-2019 academic

year. This subset of 30 teachers will be referred to as implementing teachers throughout this

paper. Each implementing teacher attended only one training. The remaining 32 individuals who

attended the professional development training were considered other relevant stakeholders (e.g., administrators, transition and curriculum specialists, middle school teachers); they were not in a position in which they would directly implement the SDLMI as part of the study, but they were included to support the broader implementation and sustainability in participating schools and districts. All participants of the training, including other relevant stakeholders, completed surveys on the training materials and learning outcomes after each day of the training. Implementing teachers also completed an additional demographic measure and a self-report measure of their knowledge, skills, and use of self-determination interventions. Table 1 provides demographic information of the 30 implementing teachers, which included 17 general education teachers and 10 special education teachers; three additional teachers identified as both general and special education teachers. All implementing teachers reported having some experience teaching and including students with disabilities (e.g., learning disability, physical disability, intellectual disability, emotional and behavior disability, speech or language impairment, autism spectrum disorder) in inclusive general education classrooms.

Training Procedures

To accommodate teachers' schedules, three separate, two-day intensive professional development trainings were held for the first cohort of volunteer general and special education teachers and other relevant stakeholders from participating schools and districts. The two-day professional development training was designed as part of an ongoing, IES funded project to explore the efficacy of varying intensities of implementation supports related to the SDLMI (Shogren et al., 2017). This is the first study evaluating a systematized training on the SDLMI that integrated best practices in professional development to jointly train general and special educators. The training was developed in line with key quality indicators of professional

development (Ball & Cohen, 1999). In the context of implementation science, high-quality

professional development must be (a) substantive, (b) coherent, (c) active, (d) collaborative, (e)

evaluative, and (f) sustainable to provide maximal teacher learning (Darling-Hammond et al.,

2009). Table 2 provides a description of how these quality indicators were implemented

throughout the professional development training.

      During the two-day training, a content expert on the SDLMI led the professional

development training and provided comprehensive information on the theory underlying the

SDLMI, Casual Agency Theory, and associated skills as well as practical examples that linked

the theory to teachers' environments (substantive). Additionally, the SDLMI training and

associated materials were intentionally aligned with core content standards and classroom-related

activities for implementing teachers to be supportive of district policies and ongoing initiatives

(coherent). For example, general and special education teachers across content areas (e.g.,

English Language Arts, Science) engaged in a targeted activity focused on reviewing the core

content standards for ninth grade (as this was the targeted grade level for the first year in the

large study) and aligned skills associated with self-determination (e.g., problem solving, decision

making) that are necessary, metacognitive skills to achieve those standards. Similar activities

were strategically embedded throughout the training to engage teachers in reflecting on how they

can promote self-determination in their core content area classrooms and curriculum. The

professional development training also promoted hands-on, interactive learning to promote

inquiry, participation, and address unique classroom and student needs in using the SDLMI

(active). For example, a strategy utilized throughout the two-day training was small- and large-

group discussions of challenges related to implementation as well as practicing teaching SDLMI

mini-lessons in small groups. Providing general and special educators with opportunities to

practice SDLMI mini-lessons was a key strategy used during the professional development

training as it allowed teachers to envision implementation in their classrooms and begin to

develop fluency.

Additionally, general and special education teachers also were encouraged to participate

in collective problem solving, group learning activities, and discussions to facilitate collaboration

throughout the training (collaborative). The SDLMI content expert that led the professional

development training circulated the training space while teachers were collectively problem

solving to provide additional insight and support. Teachers were supported to understand and

build a plan to engage in progress monitoring of their implementation of the SDLMI and their

students' learning (evaluative). This strategy was purposefully included in the training to provide

teachers with an opportunity to develop a system that would allow them to reflect on their

implementation. Finally, teachers were provided with materials, strategies, resources (including

the SDLMI Teacher's Guide), and an action plan for putting the SDLMI into regular practice

with students. Additionally, teachers will receive ongoing training each summer to promote the

longevity of implementation (sustainable). A sample agenda of the two-day professional

development training is provided in Table 3.

Measures

Teacher Demographic Form (TDF). The TDF is a self-report measure used to collect

teacher demographic information (e.g., gender, age, race/ethnicity) as well as information about

the number of years teaching, teaching assignment (e.g., general or special education),

experience teaching students with disabilities, and experience teaching abilities and skills

associated with self-determination and the SDLMI. This information was collected at the start of

the in-service training from implementing teachers to be utilized in analyses for the broader

project.

   SDLMI Professional Development Survey. The SDLMI Professional Development

Survey (Shogren, Quirk, & Raley, 2018) is a self-report measure used to assess teacher

satisfaction with the quality and content of the training as well as the skills learned across the

two-day professional development training. The SDLMI Professional Development Survey was

adapted from other measures of professional development outcomes for other interventions

informed by principles put forth by the U.S. Department of Education, Office of Special

Education Programs and Technical Assistance and Dissemination (TA&D) guidelines of how to

measure program performance (U.S. Department of Education). The measure assessed the

usefulness and relevance of the training as well as the delivery of the training in line with TA&D

guidelines. The SDLMI Professional Development Survey consists of eight items assessing

teachers' perception of the content, materials, and presenters on a 5-point Likert scale from 0

(*Strongly Disagree*) to 4 (*Strongly Agree)*. Responses for five of the questions assess the degree

to which participants felt the content is important, the content is relevant, teachers are likely to

use something that they learned, the materials are useful, and the activities help them learn.

Additionally, specific learning objectives linked to the delivered content are measured before and

after each day of professional development training to assess teachers' knowledge level on a 4-

point Likert scale from 0 (*None*) to 3 (*Extensive*). Because the first day was focused on orienting

teachers to self-determination and the model, the associated learning objectives related to

teachers' ability to define self-determination, explain the importance of self-determination,

facilitate preliminary conversations about the SDLMI (e.g., key terms, teacher and student roles),

and apply the protocol for Phase 1: Set a Goal. Day 2 learning objectives assessed teachers'

ability to apply the protocol for Phase 2: Take Action, apply the protocol for Phase 3: Adjust

Goal or Plan, integrate knowledge of the three phases to support self-regulated problem solving,

and create an implementation schedule. The SDLMI Professional Development Survey was

administered before and after each day of training and was completed by all participants in the

training including implementing teachers and other relevant stakeholders, regardless of whether

or not they would be implementing the SDLMI in the coming academic year.

   Teacher Self-Determination Knowledge, Skills, and Use Survey (SD-KSU). The SD-

KSU (Shogren, Lane, & Raley, 2018) is a self-report measure designed to assess teachers'

perceptions of change in their knowledge, skills, and use of instruction to promote self-

determination using a 5-point Likert scale across the component constructs associated with self-

determined action as defined by Causal Agency Theory as described previously (see Shogren,

Wehmeyer, Palmer, Forber-Pratt, et al., 2015): autonomy, self-initiation, pathways thinking, self-

direction, control-expectancy, psychological empowerment, and self-realization. Additionally,

the SD-KSU asks questions about teachers' perceptions of how essential skills associated with

self-determination are in preparing students in the following areas: participating in general

education classes, learning general education curriculum, developing social skills, self-regulating

learning, achieving community living goals, achieving employment goals, and achieving post-

secondary education goals. The SD-KSU was adapted from Knowledge, Confidence, and Use

Surveys developed by Lane and colleagues to assess educators' learning outcomes from

professional learning offerings (Barton-Arwood et al., 2005; Lane et al., 2010; Lane et al., 2015;

Oakes et al., 2018) and systematically modified to target the SDLMI and component constructs

associated with self-determined actions. The original measure was used to measure participant

learning pre- and post-training across ratings of perceived knowledge, confidence, and

usefulness, and <u>researchers documented changes as a function of training suggesting the validity</u> <u>of the scale to monitor the outcomes of professional development trainings</u> (Lane et al., 2015; Oakes et al., 2018). Studies using the Lane et al. measure reported Cronbach's alpha reliability statistics ranging from 0.85 to 0.95 across the three subscales (Barton-Arwood et al., 2005; Lane et al., 2015). For the SD-KSU, reliability coefficients were calculated based on teachers' pre-training scores. Cronbach's Alpha was 0.97 for the Knowledge scale, 0.97 for the Skills scale, 0.98 for the Use scale, and 0.95 for the Essential scale. Implementing teachers completed the SD-KSU before and after the completion of the professional development training. Data will be collected on the SD-KSU survey over time as part of the larger project to allow for examination of ongoing changes in the perceptions of implementing teachers over multiple years.

Analyses

Professional Development. To gain an understanding of teachers' perceptions of content and materials and understanding of the learning objectives targeted during the professional development training, scores on the SDLMI Professional Development Survey before and after each day of training were utilized. Descriptive statistics, including means and standard deviations, were calculated for participants' evaluation of the content and learning objectives. Additionally, differences in the perception of the content and materials between the first and second days of training using independent samples t-tests were examined, as well as differences in understanding of learning objectives before and after each of day of training using paired-samples t-tests. Missing data (20%) were excluded using listwise deletion.

SD-KSU. To gain an understanding of changes in knowledge, skills, and perceived usefulness of self-determination and SDLMI instruction, scores on the SD-KSU before and after the professional development training for implementing teachers were utilized. After obtaining

descriptive statistics, including means and standard deviations, independent samples t-tests were

used to explore if there was a significant change in knowledge of self-determination, skills

related to self-determination, the perceived usefulness of self-determination, and the degree to

which teachers thought skills associated with self-determination were essential. Additionally, the

impact of area of expertise (i.e., general or special education classification) on SD-KSU subscale

scores was explored by examining independent samples t-tests separately for each group.

Missing data (13%) were excluded using listwise deletion. All analyses were completed using

IBM SPSS Statistics for Macintosh, version 25.

Results

Research Question 1: Professional Development

Means for teachers' perceptions of the content and materials after each day of

professional development training were the same across both days on measures of the

importance and relevance of the content, how likely teachers are to use what they learned,

usefulness of materials, and the helpfulness of activities (Table 4). The means were greater than

3.0 (on a 0 to 4 Likert scale) suggesting teachers found the content and materials to be useful,

important, and relevant across each day of training. Additionally, changes in knowledge across

all learning objectives ratings showed statistically significant improvements from before to after

each day of training (Table 5). Mean scores across all post-training objectives were above a score

of 2.0 (on a 0 to 3 Likert scale) indicating a moderate level of knowledge after each day of

training.

Research Question 2: SD-KSU

Prior to training, teachers reported some knowledge of self-determination and some skills

related to promoting self-determination (mean scores ranging from 2-3 across domains on a 0 to

4 Likert scale). Implementing teachers reported a statistically significant increase in their

knowledge of self-determination total score (t[51]=-4.18, p=0.0001) and skills related to self-

determination total score (t[51]=-3.95, p=0.0002) from pre-training to post-training (mean scores

ranging from 2-4 across domains; Table 6). Pre- and post-training, teachers reported above

average scores of perceived usefulness of abilities and skills associated with self-determination

(scores ranging from 3-4 across all domains). There was no significant change in perceived

usefulness of self-determination from pre- to post-training. Similar results were reported when

subscale scores were examined separately for general and special education teachers, therefore,

results are reported using the combined sample of general and special education teachers. Means

and standard deviations for the SD-KSU item level scores and subscale scores, are provided in

Table 6 (Knowledge, Skills, and Usefulness).

Research Question 3: SD-KSU, Essential

Pre and post training, teachers perceived skills associated with self-determination to be

essential. Specifically, means were ranging from 4-5 across all domains (on a 1 to 5 Likert scale)

suggesting that teachers perceived these skills to be "mostly" to "very" essential. There was no

significant change in how essential teachers perceived skills associated with self-determination

in preparing their students from pre-training to post-training (Table 7).

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Discussion

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The purpose of the present study was to examine the outcomes of a collaborative

professional development training for general and special education teachers implementing the

SDLMI in secondary, inclusive general education classes. Overall, there were three primary

goals of this study: to examine teachers' and other relevant stakeholders' perceptions of content

and materials and their understanding of the materials before and after each day of training, to

examine teachers' changes in knowledge of self-determination, skills related to self-

determination, and usefulness of self-determination before and after the professional

development training, and to examine changes in how essential teachers' perceived self-

determination skills to be, before and after the training.

Overall, the findings suggested teachers and other relevant stakeholders had positive

perceptions of the professional development training and they found the content and materials

they received to be important, useful, and relevant. Additionally, the attendees reported gains in

learning objectives before and after each day of training. Given that the SDLMI training was

developed in line with key quality indicators of professional development (Ball & Cohen, 1999),

these findings suggested teachers and other relevant stakeholders benefited from the high quality

and systematic professional development training guided by emerging knowledge of how to best

support teachers in implementing evidence-based practices. Although research has demonstrated

that high quality in-service training enhances teachers' knowledge and implementation of

evidence-based instructional methods (Wood et al., 2016), this study further extends knowledge

of professional development training to better understand how to support teachers in

implementing a complex intervention, like the SDLMI. Additionally, because positive results in

learning objectives were observed across general and special education teachers, these findings

suggested that collaborative professional development training that includes teachers of varying

areas of expertise across general and special education can be effective when learning how to

implement evidence-based interventions in inclusive, general education classrooms as a

universal support for all students.

Additionally, we found improvements in teacher's knowledge of self-determination and

skills related to self-determination before and after the two-day professional development

training. However, there were no significant differences in perceived usefulness of self-

determination before and after the professional development training. Teachers also did not

report significant changes in how essential skills associated with self-determination were in

preparing students for areas including participating in general education classes, learning general

education curriculum, developing social skills, self-regulating learning, achieving post-secondary

community living goals, achieving post-secondary employment goals, and achieving post-

secondary education goals. These nonsignificant findings suggested teachers may have perceived

self-determination as a useful and essential skill to student success but lacked knowledge and

skills of how to promote self-determination in their classrooms. This is consistent with prior

research which showed that teachers perceived self-determination as beneficial, but that they

lacked knowledge of interventions to promote self-determination and required additional support

to implement self-determination interventions (Chambers et al., 2007). Additionally, teachers

historically have dedicated limited instructional time to self-determination instruction despite

prioritizing the skills (Carter et al., 2008; Stang et al., 2009). This highlights the importance of

ensuring access to high quality, professional development on the SDLMI and self-determination

instruction in schools. Collaborative professional development training is needed to support

teachers in implementing the SDLMI as a universal support for all students and providing more

intensive and individualized supports for students with disabilities as needed.

We also examined differences in knowledge, skills, and perceived usefulness of self-

determination across special and general education teachers. Interestingly, we found similar

changes in knowledge of self-determination and skills associated with self-determination across

both general and special education teachers which suggested that special education teachers did

not have greater knowledge of or skills associated with self-determination compared to general

education teachers and that both groups of teachers gained knowledge and skills and benefited

from the collaborative training. Additionally, there were no changes in perceived usefulness of

self-determination or how essential skills associated with self-determination were in preparing

students for varying outcomes from before and after training across either general or special

education teachers. Given that the majority of self-determination interventions target students

with disabilities in special education settings (Hagiwara et al., 2017), it was somewhat

unexpected that special education teachers did not show greater levels of knowledge and skills

prior to training. However, the lack of differentiation among general and special education

participants in their knowledge of and skills related to implementing interventions to promote

self-determination and its perceived usefulness could suggest school teams are in an ideal

situation to begin collaborating to learn together about how they can support all students in

developing self-determination as all teachers are in need of professional development to

implement the SDLMI. Teachers from both disciplines regarded such interventions as useful and

essential, so the primary barriers identified included knowledge and associated skills to promote

student self-determination. These specific barriers could be removed by providing high quality

professional development training and providing opportunities for teachers to learn and practice

skills as a school team (Carter et al., 2008).

Future Directions for Policy, Practice, and Research

Given the increase in federal policies promoting the importance of self-determination

skills in the general education curriculum, such as in the Common Core State Standards, there is

increased need for future research examining the outcomes of the SDLMI and self-determination

interventions in inclusive general education classrooms. As schools are increasingly

implementing multi-tiered systems of supports, collaboration amongst professionals across

disciplines (e.g., general and special education) to implement evidence-based practices systemwide will be critical in ensuring all students receive high quality intervention that is implemented with fidelity (Shogren et al., 2016). Therefore, further research is needed to examine if school teams achieve more positive teacher and student outcomes when general and special education teachers engage in professional development training together as a collaborative team rather than in isolation.

In order to achieve these goals, future studies will be needed that examine the relationship between teachers' knowledge and skills related to self-determination after the professional development training and the implementation of the SDLMI or other self-determination interventions, as well as how knowledge and skills of self-determination post-training impacts student achievement and outcomes related to self-determination and academic goal attainment. In order to achieve this future research goal within the current IES funded study, the SD-KSU will be collected from implementing teachers at several timepoints throughout the multi-year study. Additionally, understanding the association between teachers' post-training knowledge and skills and student changes in self-determination and academic goal attainment is a critical feature of determining if the professional development trainings were effective (Brownell et al., 2011). It also will be beneficial to determine how outcomes of the professional development training interact with other implementation supports for general and special education teachers implementing the SDLMI. Results of these future studies examining the outcomes of self-determination interventions in inclusive general education classrooms can be used to inform future policies regarding how to incorporate self-determination skills in the general education classrooms with students with and without disabilities.

Limitations

When considering these findings, a number of limitations should be considered. First, the training occurred over three separate training sessions rather than one large training. While the materials and presenters across the trainings were the same, the separate trainings may have resulted in different discussions during planned activities. Future research should explore the degree to which fidelity to training protocols is maintained across groups, and how discussions that emerge during training activities differ based on the experiences of training participants.

Another limitation is that demographic information was only collected from a subset of participants that will be implementing the SDLMI. Therefore, analyses were restricted in characterizing the full set of participants that attended the training. Similarly, the SD-KSU was only collected from implementing teachers meaning that changes in knowledge, skills, and perceived usefulness of self-determination were collected on a subset of training attendees. Given that other relevant stakeholders, which included administrators, transition and curriculum specialists, and middle school teachers, attended the training and will be supporting implementing teachers, it would have been helpful to examine changes in knowledge of self-determination, skills related to self-determination, and the perceived usefulness of self-determination since they may be providing support to general and special education teachers implementing the SDLMI. This information could inform the administration about school or district changes needed to enhance SDLMI training and supports. Additionally, the measures assessing changes in teachers' knowledge, skills, and perceived usefulness of the SDLMI and the quality of professional development were both self-report. Given that participation was voluntary, this may have resulted in increased scores if teachers were especially interested in self-determination and implementing the SDLMI in their classrooms.

Overall, this study focused only on outcomes data from the professional-development training, it did not measure how the professional development training impacted SDLMI implementation or student outcomes. Therefore we are unable to draw conclusions about how the skills learned during the profession development training influenced teacher practice and student outcomes. Finally, a limited number of general and special education implementing teachers attended the two-day professional development trainings. Therefore, replication is required, specifically examining differences in pre- and post-training outcomes between special and general education teachers given the small sample in each group. Future studies also should examine changes in perceived usefulness of self-determination to determine if this finding was unique to this sample or if modifications and improvements in the professional development training can result in improvements to perceived usefulness. Replication of a lack of differences pre- and post-training would suggest that teachers have an awareness of the importance of self-determination but consistently lack the support needed to implement interventions to promote self-determination.

Conclusion

Overall, this study provided information on outcomes of a two-day professional development training for teachers implementing the SDLMI and expanded the literature examining models of collaborative professional development training for general and special education teachers. Findings suggested teachers had positive perceptions of the training and gained knowledge and skills associated with self-determination and the SDLMI. This suggests that a two-day professional development training, in line with key quality indicators of professional development, can be successful in changing teacher perceptions, knowledge, and

skills. Further research is needed to better understand how this professional development training

impacts student outcomes and teacher implementation of the SDLMI.

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Table 1

Implementing Teacher Demographic Information

Demographic characteristics	n (N=30)	%
Gender		
Male	8	73.3
Female	22	26.7
Race/Ethnicity		
Hispanic/Latino	1	3.3
Black/African American	2	6.7
White	27	90.0
American Indian or Alaska Native	0	0
Asian	0	0
Two or More Races	1	3.3
Highest Degree Earned		
Bachelor's Degree	12	40.0
Master's Degree	8	26.7
Master's Degree + Credits	10	33.3
Teaching Classification		
General Education	17	56.7
Special Education	10	33.3
Both General and Special Education	3	10.0
Subject Taught[a]		

Demographic characteristics	n	%
	(N=30)	
English	18	60
Math	6	20
Science	9	30
Social Studies	3	10
Electives (e.g., music, art)	2	6.7
Other	4	13.3
	Mean	SD
Teacher age	39.90	10.20
Years teaching	12.00	7.44
Familiarity with self-determination[b]	2.90	0.96

Note. Total of percentages for each category may not be 100% due to rounding. [a]Teachers were permitted to select more than one subject taught; [b]Familiarity with self-determination was measured on a 6-point Likert scale from 1 (not at all) to 6 (very familiar).

Table 2

Professional Development Quality Indicators and Implementation During Training

Quality Indicator	Implementation
Substantive	Context expert described the theory underlying the SDLMI
Coherent	SDLMI training materials were aligned with core content standards and classroom-related activities
Active	Hands on learning activities during training to promote inquiry, participation, and address unique classroom and student needs
Collaborative	Teachers participated in collaborative problem solving, group learning activities, and discussions to facilitation collaboration
Evaluative	Teachers were taught progress monitoring skills and built a plan to evaluate their implementation of the SDLMI in the classroom
Sustainable	Teachers were provided with materials, strategies, and resources to implement the SDLMI in their classroom. This included a very clear training manual. Teachers also will receive ongoing training each summer to promote implementation.

Table 3

Sample Agenda of the Two-Day SDLMI Professional Development Training

Day 1	Implementing teachers complete SD-KSU Pre-Survey and TDF
	All attendees complete Professional Development Day 1 Pre-Survey
	Welcome and introductions
	Introduction to self-determination
	Overview of the current SDLMI research project
	Introduction to the SDLMI in inclusive classrooms
	Phase 1: Set a Goal
	Brainstorming Phase 1
	Professional Development Day 1 Post-Survey and preview of Day 2
Day 2	All attendees complete Professional Development Day 2 Pre-Survey
	Welcome and quick review of Day 1
	Phase 2: Take Action
	Brainstorming Phase 2
	Phase 3: Adjust Goal or Plan
	Brainstorming Phase 3
	Action planning for implementation, including:
	• Data collection logistics
	• SDLMI implementation schedule drafting
	• Overview of online and coaching implementation supports
	Overall questions and answers
	Professional Development Day 2 Post-Survey and SD-KSU Post-Survey

Table 4

SDLMI Professional Development Survey

	Day 1 (n = 60)		Day 2 (n = 50)	
	M	*SD*	*M*	*SD*
Content was important	3.47	0.55	3.32	0.74
Content was relevant	3.27	0.58	3.26	0.80
I am likely to use something that I learned	3.45	0.57	3.44	0.81
The materials were useful	3.20	0.84	3.32	0.89
The activities helped me learn	3.10	0.75	3.28	0.76
Average	3.34	0.47	3.39	0.69

Note. Professional development was measured on a 5-point Likert scale from 0 (Strongly Disagree) to 4 (Strongly Agree).

Table 5

SDLMI Professional Development Survey, Learning Objectives

	Pre-training (n = 60)		Post-training (n = 50)	
Day 1				
	M	*SD*	*M*	*SD*
Define self-determination	1.25	0.77	2.67***	0.51
Explain why self-determination is important	1.39	0.86	2.69***	0.50
Facilitate preliminary conversations	0.39	0.56	2.16***	0.66
Apply Phase 1 of the SDLMI	0.15	0.57	2.07***	0.57
Average	0.80	0.48	2.40***	0.43
Day 2[a]				
Apply Phase 2 of the SDLMI	0.42	0.61	2.40***	0.53
Apply Phase 3 of the SDLMI	0.36	0.56	2.44***	0.50
Integrate 3 phases to support problem solving	0.58	0.73	2.44***	0.54
Create a schedule for SDLMI implementation	0.82	0.85	2.52***	0.68
Average	0.55	0.59	2.45***	0.46

Note. [a]Day 2 sample was n = 50 pre- and post-training. Learning objectives were measured on a 4-point Likert scale from 0 to 3. ***$p<0.001$

Table 6

Self-Determination Knowledge, Skills, and Use Survey (SD-KSU) Outcomes for Implementing

Teachers

	Pre (n=27)		Post (n=26)	
	M	*SD*	*M*	*SD*
Knowledge Total	16.22	6.34	22.50***	4.37
Autonomy	2.41	1.05	3.27	0.60
Self-Initiation	2.41	1.05	3.23	0.71
Pathways Thinking	2.11	0.97	3.19	0.69
Self-Direction	2.33	0.92	3.27	0.67
Control-Expectancy	2.26	1.02	3.19	0.69
Psychological Empowerment	2.48	1.01	3.19	0.80
Self-Realization	2.22	0.93	3.15	0.73
Skills Total	15.74	6.15	21.54***	4.34
Autonomy	2.30	1.03	3.04	0.60
Self-Initiation	2.33	0.96	2.96	0.72
Pathways Thinking	2.07	0.96	3.00	0.69
Self-Direction	2.41	0.84	3.19	0.75
Control-Expectancy	2.11	0.93	3.15	0.73
Psychological Empowerment	2.30	0.95	3.08	0.74
Self-Realization	2.22	1.01	3.12	0.71
Usefulness Total	22.00	6.56	23.88	5.46
Autonomy	3.26	0.86	3.46	0.71

	Pre (n=27)		Post (n=26)	
	M	*SD*	*M*	*SD*
Self-Initiation	3.07	1.04	3.38	0.85
Pathways Thinking	3.04	1.16	3.46	0.81
Self-Direction	3.19	0.92	3.38	0.80
Control-Expectancy	3.11	1.01	3.35	0.85
Psychological Empowerment	3.19	0.92	3.38	0.85
Self-Realization	3.15	1.06	3.46	0.81

Note. Knowledge, Skills, and Usefulness were measured on a 5-point Likert scale from 0 (no knowledge/skill/use) to 4 (substantial knowledge/skill/use). Only Total scores were compared for statistical significance. ***$p < 0.001$

Table 7

Outcomes for Implementing Teacher Ratings of How Essential Self-Determination will be in

Specific Areas (SD-KSU)

	Pre (n=27)		Post (n=26)	
	M	*SD*	*M*	*SD*
Participating in general education	4.44	0.64	4.42	0.70
Learning general curriculum	4.44	0.64	4.27	0.78
Developing social skills	4.59	0.57	4.35	0.75
Self-regulating learning	4.70	0.54	4.69	0.62
Achieving post-secondary community living goals	4.59	0.57	4.38	0.80
Achieving post-secondary employment goals	4.67	0.56	4.42	0.76
Achieving post-secondary education goals	4.63	0.57	4.50	0.71
Essential Total	32.07	3.62	31.04	4.39

Note. Ratings of essential were measured on a 5-point Likert scale from 1 (not at all essential) to

5 (very essential).