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ABSTRACT

Implementation supports for teachers can significantly impact the degree to which evidence-based practices are used as intended with secondary students across settings and content areas. The present analysis focused on examining the impact of teacher implementation supports on the goals set by students with and without disabilities engaging in an evidence-based practice designed to promote self-determination, the *Self-Determined Learning Model of Instruction* (SDLMI), in inclusive, secondary classes. While goal setting is central to SDLMI, there is limited research on the impact of teacher implementation supports (i.e., online only versus online + coaching supports) on the content of the goals students choose using the SDLMI, particularly in inclusive, secondary classrooms where students are learning core content. The findings suggested that the vast majority of goals set by students in inclusive, general education classes focused on academic learning and minimal differences across goals set by students with and without disabilities and across teacher implementation support groups. Implications for practice and research are provided.

Adoption and high fidelity of implementation of evidence-based practices is more likely with sustained, systematic implementation supports based on the tenets of implementation science (Fixsen et al., 2005; Odom et al., 2014). The National Implementation Research Network (NIRN) defines implementation as a set of activities designed to put an intervention or program in practice (Fixsen et al., 2005). These activities include "mechanisms to develop, improve, and sustain one's ability to implement an intervention as intended" (Fixsen et al., 2013, p. 220), which include ongoing implementation supports (e.g., online supports, in-person coaching). While in-service training is a fundamental element of promoting teacher competency with interventions (Fixsen et al., 2009), it is generally accepted that in-service professional development alone does not provide sufficient time and support for implementation. Instead, intensive, ongoing, and sustainable implementation supports are needed (Joyce & Showers, 2002; Yoon et al., 2008).

To support the implementation of evidence-based interventions, researchers have identified varying forms of ongoing implementation supports that can create opportunities for teachers to learn and implement new skills, above and beyond in-service training alone, including online professional development and in-person coaching. Online supports for implementation can potentially be time- and cost-effective ways to provide teachers with interactive opportunities that influence their knowledge and attitudes toward interventions (Barnett, 2002; Meirink et al., 2007; Tillema & Orland-Barak, 2006). In-person coaching has also been identified as an essential feature of effective professional

development that supports teachers' abilities to translate knowledge and skills into classroom practice (Joyce & Showers, 2002). Coaching is characterized by "an observation and feedback cycle in an ongoing instructional or clinical situation" (Joyce & Showers, 1981, p. 170). To further our understanding of teacher implementation supports and their associated impact on student outcomes, there is a need to explore how they are used in the context of evidence-based practices that enhance outcomes when implemented with fidelity.

Evidence-based practices to promote self-determination

There is consensus in emerging college and career readiness frameworks that opportunities and experiences for all students to build self-determination, or the abilities that enable them to act or cause things to happen as they set and work toward goals, is a key component of student success after exiting high school (Conley, 2012; Morningstar et al., 2017). Further, the critical importance of abilities associated with self-determination, including goal setting and attainment (Shogren et al., 2015), has been increasingly emphasized in secondary education research and instructional standards all students are expected to achieve (National Research Council, 2012; Next Generation Science Standards Lead States, 2013). The *Self-Determined Learning Model of Instruction* (SDLMI; Shogren et al., 2018; Wehmeyer et al., 2000) is a model of instruction designed to enable trained facilitators (e.g., general or special educators, related service providers) to teach students self-regulated problem-solving skills, including goal setting and attainment skills, that can be utilized across contexts (e.g., academic instruction, transition planning, community settings).

Self-determined learning model of instruction

With a specific focus on secondary students with disabilities who are engaging in transition planning, the SDLMI has been established as an evidence-based practice for enhancing self-determination and postschool outcomes (e.g., competitive employment, community participation; National Technical Assistance Center on Transition, 2017). However, the SDLMI was designed to be a flexible intervention trained facilitator that can be utilized to enhance student self-determination across educational settings (e.g., core content classes, transition planning). There are three distinct phases of the SDLMI: Set a Goal (Phase 1), Take Action (Phase 2), and Adjust Goal or Plan (Phase 3). In each SDLMI phase, students are supported to solve an overall problem by answering a series of four *Student Questions* (for a total of 12 Student Questions across the three phases) supporting them in moving from where they are (i.e., not having their goal-related needs and interests satisfied) to where they want to be (i.e., the goal state of having their needs and interests satisfied). Each Student Question is associated with *Teacher Objectives* which provide SDLMI facilitators with a road map of what they must do to support students in answering the targeted Student Question, while utilizing *Educational Supports* (e.g., goal-setting instruction) to enable students to learn the skills needed to answer the Student Questions and self-direct learning. Students typically work through the 12 SDLMI Student Questions one to two times over the course of an academic semester, and they can set and work to attain multiple goals (typically between two and four goals) over the course of a school year, creating multiple opportunities to learn and develop abilities associated with self-determination. Shogren et al. (2018) provided additional information on the SDLMI.

Pilot studies demonstrated the benefits of the SDLMI for all students in inclusive, general education mathematics classes (Raley et al., 2018, 2020). For example, Raley et al. (2018) explored the impact of implementing the SDLMI with all students in two high school Algebra I classes and found that after one semester of SDLMI implementation in both classes, over 90% of students with and without disabilities achieved expected or greater than expected levels of goal attainment on self-selected goals that would facilitate mathematics learning. It is important to note that this pilot work did not include comparison data from students who did not engage in the SDLMI, which is an area for future research. However, previous research on the impact of the SDLMI on the transition and academic goal

attainment of students with learning disabilities has suggested that students engaging in the SDLMI showed significantly higher attainment of academic goals at the end of the intervention year, but no differences in their attainment of transition-related goals (Shogren et al., 2012). Interestingly, the opposite pattern was observed for students with intellectual disability (ID) in comparison to their peers with ID who did not engage in the SDLMI. Researchers hypothesized a possible reason for this finding was a differential focus for teachers of students with these two disability labels on academic versus transition-related goals.

While pilot evidence is promising, there are key areas for future research related to the implementation of the SDLMI in inclusive contexts as a universal or Tier 1 support. First, pilot work is restricted given small sample sizes and there is a need for large-scale research investigating the impact of the SDLMI on outcomes of students with and without disabilities when used in inclusive settings. Second, while previous research demonstrated positive impacts of the SDLMI on goal attainment (Shogren et al., 2012), limited research examined the content of the goals students with and without disabilities set as they engage in the SDLMI in core content classes. Recently, Burke, Shogren et al. (2020) analyzed 1,546 goals set by students with intellectual disability (ID) using the SDLMI while focusing on transition planning and found students' set goals across broad goal areas (e.g., leisure and recreation, relationships, employment). However, there is an ongoing need to analyze the goals students with and without disabilities set using the SDLMI in inclusive educational contexts, such as core content and general education classrooms. Third, and importantly for the purposes of the present analysis, experts in implementation science have emphasized the critical importance of identifying and providing systematic supports to enable effective use of evidence-based practices (e.g., teacher coaching; Fixsen et al., 2010). A better understanding of the content of the goals set by students with and without disabilities engaging in the SDLMI inclusive, general education classes has the potential to inform professional development training and implementation supports (e.g., coaching) for SDLMI facilitators. Although developers of the SDLMI have developed implementation materials to support facilitators in using the SDLMI across a variety of educational contexts (e.g., inclusive classes [Shogren et al., 2019], with students with complex communication needs [2019b], transition planning [2019a]), these implementation materials could be enhanced with knowledge of the goals set by students with and without disabilities using the SDLMI and how they relate to academic learning. Further, trained SDLMI coaches, using the SDLMI Coaching Model (Hagiwara et al., 2020), could integrate this information as they support general and special education teachers in identifying academic learning goal areas that may be overemphasized or underemphasized as students with and without disabilities engage in the goal-setting process of the SDLMI. Thus, in the context of the SDLMI, there is a need to understand the impact of varying intensities of implementation supports for teachers on student selected goals in inclusive settings to provide guidance for teacher and system-wide supports which enable effective SDLMI implementation. The purpose of this study was to analyze the impact of the level of support provided to teachers (i.e., coaching versus no coaching) using the SDLMI in inclusive, core content classes on the types of goals students set. The overall research question that guided this analysis was as follows: What was the impact of the level of support provided to teachers to implement the SDLMI (e.g., coaching versus no coaching) on the goal areas selected by students with and without Individualized Education Programs (IEPs)?

Method

Sample

This analysis includes 774 goals set by students enrolled in six high schools across two states in the Mid-Atlantic during the first semester (Fall 2018) of a large, three-year, randomized controlled trial (RCT) examining the impact of differing levels of implementation supports for teachers implementing the SDLMI (online versus online + coaching) on student (e.g., self-determination, goal attainment, academic achievement) and teacher (e.g., knowledge, skills, and usefulness of self-determination)

outcomes when implemented in inclusive, general education classes. Previous analyses associated with this RCT reported on the changes in teacher knowledge, skills, and usefulness of self-determination as a result of professional development training (Bojanek et al., in press) as well as teacher implementation fidelity (Shogren et al., 2021), but this is the first analysis examining the content of the goals students with and without disabilities set when engaging in SDLMI instruction in inclusive, general education classes. The goals included in this analysis were set by students after completing Phase 1 of the SDLMI during their first semester of the three-year RCT. After answering the four Student Questions associated with Phase 1, students recorded their goals in a customized online platform and they logged back into the platform after they completed Phase 3 to rate their goal attainment via Goal Attainment Scaling (GAS; Kiresuk et al., 1994). The focus of the present analysis was the content of the goals set by students at the end of Phase 1 of the SDLMI and entered into the online platform, not goal attainment outcomes. Research is ongoing to explore student goal attainment as a function of SDLMI intervention and goal content in inclusive, general education classes.

Table 1 provides complete student demographic information which was primarily obtained from district databases while a small amount of missing demographic data (1.7%) was backfilled from a student self-report demographic measure. The majority of students who set the goals analyzed in this

Table 1. Sample demographics.

	N = 774	
Characteristic	n	%
Grade		
9th	752	97.2
10th	13	1.7
11th	2	0.3
Missing	7	0.9
Gender		
Male	399	51.6
Female	370	47.8
Missing	5	0.6
Race/Ethnicity		
White/European American	365	47.2
African American/Black	279	36.0
Hispanic or Latinx	68	8.9
Asian American	25	3.2
Two or more races	23	3.0
American Indian/Alaska Native	4	0.5
Hawaiian Native or Pacific Islander	3	0.4
Missing	8	1.0
Disability		
No disability	636	82.2
Learning disabilities	82	10.6
Other health impairment	26	3.4
Autism spectrum disorder	10	1.3
Intellectual disability	5	0.6
Speech language impairment	4	0.5
Emotional or behavioral disorder	3	0.4
Physical disabilities	2	0.3
Traumatic brain injury	1	0.1
Missing	4	0.5
English language learner (ELL) status		
No	740	95.6
Yes	23	3.0
Missing	11	1.4
Free and reduced price lunch status		
No	393	50.8
Yes	352	45.5
Missing	29	3.7

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

study were enrolled in ninth grade ($n = 752$, 97.2%) during the fall 2018 academic semester, while a small subset of students were enrolled in 10th ($n = 13$, 1.7%) and 11th ($n = 2$, 0.3%) grade. Within the sample, there were 399 (51.6%) males and 370 (47.8%) females. The majority of participants identified as White/European American ($n = 365$, 47.2%) followed by African American/Black ($n = 279$, 36.0%), Hispanic/Latinx ($n = 68$, 8.9%), Asian American ($n = 25$, 3.2%), and two or more races ($n = 23$, 3.0%). A small subset of students in the sample were English language learners (ELL; $n = 23$, 3.0%) and almost half of the participating students received free or reduced price lunch (provided as a proxy of socioeconomic status [$n = 352$, 45.5%]). The majority of students in the inclusive, secondary classrooms did not have a disability ($n = 636$, 82.2%); however, among students with a reported disability, the largest disability category was learning disabilities ($n = 82$, 10.6%) followed by other health impairment ($n = 26$, 3.4%) and autism spectrum disorder ($n = 10$, 1.3%).

Teacher implementers included trained general ($n = 12$) and special education teachers ($n = 5$) across English language arts (ELA; $n = 20$) or science ($n = 16$) classes. The majority of teachers identified as female ($n = 15$, 88.2%; male: $n = 2$, 11.8%) and White/European American ($n = 15$, 88.2%; African American/Black: $n = 1$, 5.9%; Hispanic/Latinx: $n = 1$, 5.9%). All teachers were certified in the subject areas they taught and the degree to which teachers collaborated varied across schools. Specifically, two general education teachers (11.8%) indicated they did not collaborate at all with other teachers, while the rest of the teacher sample partnered with other teachers to some extent by co-assessing student performance and progress ($n = 11$, 58.8%), co-planning lessons ($n = 9$, 52.9%), co-teaching some class sessions ($n = 9$, 52.9%), and co-teaching all classes ($n = 6$, 35.3%). Class sizes ranged from 13 to 29 students.

Procedures

Intervention

The SDLMI was implemented by 17 general ($n = 12$) and special education ($n = 5$) teachers in inclusive, general education classes targeting either ELA or science core content. All SDLMI implementers received a standardized, two-day SDLMI in-person training by the authors who are self-determination experts in the summer prior to fall semester implementation. All implementers reported enhanced knowledge and skills related to promoting self-determination as a result of the training on standardized professional development training surveys administered before and after the two-day training, and consistently high perceptions of the usefulness of enhancing self-determination for all students (Bojanek et al., in press). As described subsequently, following the in-person training, participating teachers received ongoing implementation supports (i.e., coaching and/or online supports) throughout the academic year.

Consistent with SDLMI implementation protocols (Shogren et al., 2019), teachers were trained to provide two SDLMI, whole-class mini-lessons (e.g., approximately 15-min instructional periods) each week to explicitly teach students to use and apply the Student Questions to their goal setting and attainment. Teachers supported students with and without disabilities to set one individualized goal related to academic learning each semester (goals from the first semester were the focus of the present analysis). Teachers were also trained to provide opportunities for students to reflect and use the self-determination abilities (e.g., problem solving, self-regulation, planning; Shogren et al., 2015) they developed during instruction throughout their core content instruction. For example, while supporting students to answer the Student Questions during the Phase 1 mini-lessons, general and special educators explicitly taught students to weigh the benefits of working on goals in different areas (e.g., study skills, assignment completion) and then provided them opportunities and experiences to consider those options and engage in decision-making during the core content instruction to select a priority goal area. Fidelity of implementation data was collected by trained, external observers for both SDLMI mini-lessons targeting Student Questions and content instruction using the *SDLMI Fidelity Measure: Inclusive, General Education Version*. These data were collected for each phase of the SDLMI during the academic semester (i.e., three fidelity observations per implementing teacher),

which was approximately 25% of SDLMI lessons for each implementer. The *SDLMI Fidelity Measure: Inclusive, General Education Version* includes two main sections: (a) SDLMI Lesson Observation (when targeted SDLMI mini-lessons are being delivered) and (b) Content Instruction Observation (when SDLMI content is infused into content instruction). The SDLMI lesson observation includes 12 items and the content instruction observation includes 7 items in which the observer assesses the degree to which the teacher embeds opportunities for students to work toward their goals during content instruction without direct SDLMI instruction. Excerpts from each section are provided in supplemental materials. Findings suggested that teacher implementation fidelity was at expected levels across targeted dimensions (i.e., adherence, quality of delivery, and participant responsiveness) and consistent across SDLMI phases (Shogren et al., 2021). Further, interobserver reliability (IOA) was conducted for 30% of fidelity observations and Kappa ranged from 0.62 to 0.95, indicating adequate to high agreement (Landis & Koch, 1977). The research team shared fidelity of implementation data aggregated at the school level with teachers and administrators during summer professional development training to guide intervention planning for future years of the RCT. Coaches also completed the *SDLMI Fidelity Measure: Inclusive, General Education Version* during coaching observations to provide general feedback to teachers; data collected by external observers was not shared directly with teachers.

SDLMI implementation support groups

All teachers participated in the same training but were randomly assigned by high school campus to receive one of the two types of implementation supports following the training. The two groups were as follows: (a) online implementation modules disseminated every 2 weeks via e-mail (online only) or (b) online implementation modules plus in-person, monthly coaching (online + coaching). After randomization during the first year, participating teachers ($n = 11$) at four high schools received online only supports, while participating teachers ($n = 6$) at the other two high schools received online and coaching supports. The sequence of the content of the online implementation supports aligned with the SDLMI schedule recommended for whole-class implementation (Shogren et al., 2019). In total, teachers received 15 modules over the academic year, including six modules highlighting strategies teachers could use as they implemented each SDLMI phase (e.g., prompting questions to enable students to answer the targeted Student Question), seven modules that provided details and examples of Educational Supports associated with the SDLMI (e.g., self-evaluation instruction), and two modules describing how to start and end SDLMI instruction. The online implementation modules also provided teachers with video examples and scenarios to supplement instruction across the three phases of the SDLMI. At the end of each module, teachers had the opportunity to communicate feedback on their implementation (e.g., share successes or challenges they experienced), but were not interactive (e.g., no feedback was provided and teachers could not communicate through the online modules).

General and special education teachers assigned to the online plus coaching support group received the online modules as well as monthly, in-person coaching from coaches trained in the SDLMI coaching model (Hagiwara et al., 2020). Coaching sessions were aligned with each SDLMI phase during the fall and spring semesters (i.e., three coaching sessions each semester, six total) and consisted of coaches observing a SDLMI mini-lesson while completing the *SDLMI Fidelity Measure: Inclusive, General Education Version* and then using information on implementation fidelity to drive a coaching conversation session lasting approximately 30 minutes. The SDLMI coaching model is based on six coaching principles: (a) application, (b) empowerment, (c) equality, (d) reflective dialogue, (e) shared vision, and (f) trust. Further, the SDLMI Coaching Model defines four stages of the SDLMI coaching process (plan, observe, reflect, and share) to guide and operationalize specific tasks coaches lead during interactions with facilitators and support them in setting goals for their implementation while also addressing challenges they encounter using the SDLMI in their classrooms. The first stage (plan) occurs prior to an observation and occurred via e-mail as the objectives in this stage are to set an observation and coaching session time and date based on the teacher's availability

and collaboratively identify the actions that the coach (e.g., finding resources) and teacher (e.g., practicing specific skills) will take before the next coaching visit. The second stage (observe) takes place during the SDLMI mini-lesson observation, while the coach records ecological and contextual factors of the classroom as well as how students respond to instruction using the *SDLMI Fidelity Measure: Inclusive, General Education Version*. The last two stages (reflect and share) occur during the coaching conversation session and provide coaches and opportunity to collaboratively identify areas of strength and set a shared goal to work toward before the next SDLMI coaching session. Fidelity of the coaching support was not collected as a part of this RCT; however, coaches were trained to use a procedural checklist before and after each coaching session which described tasks they were completing in each SDLMI coaching stage.

Data analysis: impact of IEP and implementation supports

To examine the types of goals set by students with and without disabilities receiving SDLMI instruction in inclusive, secondary classrooms, a directed approach to content analysis with deductive category development was utilized (Hsieh & Shannon, 2005). The first step in the data analysis process was to review the 774 goals and code them for whether they were related to academic learning (i.e., associated with general academic skills or a particular subject area) or another area (e.g., extracurricular activities, career interests). Then, each goal in the academic learning category was reviewed and coded for whether it was directly linked to the subject area (e.g., ELA, science) where SDLMI instruction was delivered. The final step was deductive category development with categories emerging and being refined from ongoing review of the specific focus area of the goal (e.g., increasing grades, completing assignments regularly, being prepared at the start of class). Because many goals included multiple focus areas (e.g., "Do all of my homework and study at least 20 minutes a day."), up to three focus areas could be coded for each goal. In the previous example, the goal would be coded as completing assignments and studying. The final codebook included 13 focus areas: (1) increasing grades or achieving passing grades, (2) completing assignments or turning them in regularly, (3) enhancing study skills, (4) participating in class (e.g., asking or answering questions by the teacher), (5) improving specific skills related to the subject area (e.g., "I will write 10 Spanish words every day."), (6) engaging in note-taking skills, (7) enhancing test-taking skills, (8) learning time management skills, (9) improving interpersonal or intrapersonal skills while in class (e.g., asking for help from the teacher, keeping calm while learning in class), (10) improving organization skills, (11) completing high school or pursuing postsecondary education, (12) attending class or school regularly, and (13) being prepared for class (e.g., ensuring necessary materials are accessible at the beginning of class).

To enable descriptive analysis to of differences based on whether teachers received coaching and if students had an IEP, we also coded each goal based on whether or not students had an IEP ('0′ for no, '1′ for yes) and the implementation support provided to the teacher (online or online + coaching supports) to compare goal characteristics based on the type of support the teacher received. The type of goal set (i.e., academic versus non-academic) was analyzed for statistical significance using chi-square tests of association. Specifically, a chi-square test of goal type (i.e., academic or non-academic) was conducted between the two implementation support groups (i.e., online versus online + coaching), and a separate analysis was conducted between the groups of students with and without disabilities. Additionally, the frequency with which students with IEPs versus students without IEPs set ELA versus non-ELA goals was tested. Phi, a non-parametric correlation coefficient, was used as a measure of effect size for chi-square tests of association, following standard guidelines for correlation coefficient interpretation (i.e., .1 small, .3 moderate, .5 large; Cohen, 1992).

Inter-rater reliability

A project coordinator with expertise in special education was trained by the primary researcher on the codebook with an introduction to all codes and definitions with examples from goals in the sample not designated for inter-rater reliability (IRR). The project coordinator used the codebook to practice

coding goals that were not included in the IRR sample until ≥90% agreement with the primary researcher was achieved. After reaching an acceptable level of agreement, the project coordinator coded 194 of the 774 goals (25%) across all dimensions, including coding for the targeted subject areas, up to three codes for goal focus areas, and three codes for the degree to which the goal is related to academic learning. IRR was calculated based on the percentage of agreement across all codes by dividing the number of agreements by the sum of the total number of codes, then multiplying the number by 100. The mean agreement between the coding results from the primary researcher and project coordinator was 91.6% agreement (Kappa value of 0.764, indicating substantial agreement [Landis & Koch, 1977]). All coding disagreements were discussed to reach consensus before finalizing the dataset for analysis.

Results

The vast majority of the goals set by students in inclusive, general education classes across teacher implementation support groups focused on academic learning ($n = 719$, 92.9%), such as "Take neater notes so when I study I can read and study easily" and "My goal was to turn my homework [*sic*] on time and complete my homework." The remaining goals ($n = 55$, 7.1%) targeted other areas such as fitness ("Exercising everyday [*sic*] of the week for a [*sic*] hour or more") or extracurricular activities ("Get better at football/sports"). Across all academic learning goals, the largest number of student goals set using the SDLMI ($n = 349$, 45.1%) targeted more than one subject area (e.g., "To turn all of my work in for all classes"). Across students who set a goal concentrated on one subject, areas targeted in order of frequency were ELA ($n = 109$, 14.1%), mathematics ($n = 72$, 9.3%), science ($n = 57$, 7.4%), foreign language ($n = 34$, 4.4%), history or government ($n = 27$, 3.5%), music ($n = 3$, 0.4%), physical education or reserve officer training corps (ROTC; $n = 2$, 0.3%), and business ($n = 1$, 0.1%). Additionally, 7.5% ($n = 58$) of goals targeted skills that would facilitate academic learning even though they were not specifically associated with a subject area (e.g., "Go to school everyday [*sic*]"). Table 2 provides frequencies of goals per subject area and associated examples of goals.

In addition to identifying the subject areas targeted across goals, deductive category development led to 13 specific focus areas across student goals, including increasing grades or achieving passing grades, improving specific skills related to the subject area, and enhancing study skills. To ensure the coding process accounted for multiple foci within a single goal, up to three goal focus areas could be identified per goal. Across the full sample of goals, 552 (88.6%) had a single goal focus area, while 115 (14.9%) had two foci and 15 (1.9%) had three foci. Table 3 provides information on the number of goals per goal focus area and examples of goals across focus areas. Overall, there were 254 goals that included a focus area of increasing grades or achieving passing grades, comprising 32.8% of all goals in the sample.

Differences based on student IEP status

Across the 135 goals set by students with an IEP, the majority of goals ($n = 122$, 90.0%) focused on academic learning, while the remaining goals ($n = 12$, 8.9%) targeted other areas (e.g., extracurricular activities). No significant differences were found when comparing the rate of academic versus non-academic goals set between students with and without IEPs ($\chi^2 = 0.72$, df = 1, $p = .40$), and phi = 0.04. Compared to the overall sample of subject areas targeted across all student-selected goals, ELA was emphasized more across goals set by students with IEPs (26.7% across goals set by students with IEPs versus 14.1% across goals set by students without IEPs, $\chi^2 = 20.24$, df = 1, $p < .01$, phi = 0.17). Further, students with IEPs targeted academic facilitator skills at a higher rate than their peers without disabilities (13.3% versus 7.5%). Most of the goals across both students with and without disabilities targeted increasing grades or achieving passing grades (32.8% across all versus 25.8% of goal set by students with IEPs). However, a higher rate of goals set by students with IEPs targeted improving specific skills related to the content area compared to the full sample of goals (19.2% versus 12.0%).

Table 2. Student goals and examples by subject area.

Subject area	n	%	Example goal descriptions
One or more subject areas	349	45.1	"I want to get A's and B's in all classes by studying for test and quizzes until the end of the semester." "My goal is to answer at least 2 questions in each class every week." "I want to be able to understand my classes more than just taking notes. At end of every class I want to recite what I learned or what was taught by notes or asking a good question to the teacher." "My goal is to get A [sic] in three classes for this semester." "My goal is to really pay attention in 5 out of 7 of my classes for 4 weeks and not get distracted."
English Language Arts	109	14.1	"I want increase my English grade to at least a 90%." "I will improve in English class by studying and writing essay [sic]." "I want to be able to ask for help when I am stuck at least three times each English class." "I will improve my English grade by reviewing my notes 3 times a week." "I want to improve in English class by being more organized and checking my binder every night."
Mathematics	72	9.3	"Correctly solve two word problems every school day until christmas [sic] break." "Improve and practice linear equations and algebric [sic] expressions." "Stay on pace with the math assignments and check my progress every day." "Study for math class at least 3 times per week." "Get at least a B in Algebra I by quarter 2."
Academic facilitators	58	7.5	"I want to stop sleeping in school." "Manage my time better so that I am not staying up late to finish homework that is due the next day." "I want to procrastinate less." "Improve on coming to school everyday [sic], not missing important school days that affect my grades." "To stay off my phone and focus on work."
Science	57	7.4	"I wanna [sic] get higher than a C in QT 2 in earth science." "To finish all labs the day they are due." "I want to take better notes in science class." "Get better at doing [sic] test and a [sic] least a 80 every time in psychical [sic] science." "I want to be more organized in Biology class."
Foreign Language	34	4.4	"Write out the sentence formats and practice writing a sentence in Spanish twice a week." "I want to get better at taking notes in Spanish class so I can get good grades." "Learn how to say the weather in Chinese." "To articulate my french [sic] words in class." "In Spanish I, I will rewrite my notes three times a week for twenty minutes each time."
History or Government	27	3.5	"My goal is to improve my studdling [sic] effort in social studies." "Study well for the test in government class, so that I can get a good grade on the test." "I can study my government study sheets the week before a test." "I want to improve my grade in Government and do better on my tests and quizzes so that [sic] can end up with 4.000 GPA." "I will get an A in A.P. government for the 2nd quarter."
Music	3	0.4	"I would like to practice my cello, specifically 'Symphonie G Moll' for at least 45 minutes every day, except for Wednesdays." "I want to improve my guitar skills in Jazz Band." "I want to get better at sight reading music."
Physical Education or ROTC	2	0.3	"I need to start participating in phys [sic] ed." "Pass every AFJROTC rank test for the year and be a Technical Sergeant by the end of the year."
Business	1	0.1	"I want to do better in JDG (business class). Right now I have 50% done. I would like to have 80%."

The total of percentage for subject areas may not be 100% due to rounding. A.P. = Advanced Placement; AFJROTC = Air Force Junior Reserve Officer Training Corps; GPA = grade point average; JDG = Jobs for Delaware Graduates; QT = quarter; ROTC = Reserve Officer Training Corps.

The rate of goals which targeted study skills within the subset of goals set by students with IEPs was lower than the rate observed across the full sample (4.2% versus 17.3%). Enhancing note-taking skills was emphasized more within the overall sample of goals compared to the sub-sample of goals set by students with IEPs (8.4% versus 0.8%), but focus on this area was relatively low across groups of students with and without IEPs.

Table 3. Goal focus areas and examples.

Focus Area	n	%	Example goal description
Increasing grades or achieving passing grades	254	32.8	"To make my grade go up in my ELA class."
Completing assignments or turning them in regularly	157	20.2	"My goal is to focus more and complete my work."
Enhancing study skills	134	17.3	"Learn to study the correct information and ask for help if I do not understand.
Participating in class	122	15.8	"I want to improve on asking more questions in class."
Improving specific skills related to the subject area	93	12.0	"I need to learn almost every Supreme Court case."
Engaging in note-taking skills	65	8.4	"Rewrite my notes for at least 20 minutes a night."
Enhancing test-taking skills	21	2.7	"My goal is to get better at doing math tests on the computer."
Learning time management skills	18	2.3	"Focus on balancing study skills and friends. Learn when to hangout and when to study."
Improving interpersonal or intrapersonal skills while in class	15	1.9	"To maintain my behavior by keeping calm in class twice a week."
Improving organization skills	11	1.4	"I want to be more organized in Biology class."
Completing high school or pursuing postsecondary education	9	1.1	"Make it through high school."
Attending class or school regularly	7	0.9	"My goal is to make it to class on time at least 3 times a week."
Being prepared for class	2	0.3	"Bringing materials, be responsible, better grades in all my classes."

The total of percentage for focus areas may not be 100% due to rounding.

Differences based on teacher implementation support

Because teachers in the large RCT received one of the two levels of supports (i.e., online only or online + coaching), the impact of the level of support provided to teachers on the student-selected goal areas was explored. Across the 684 goals (81.6%) set by students whose teachers received only the online modules, 583 goals (85.2%) focused on academic learning. There were 154 goals (18.4%) set by students who engaged in the SDLMI with teachers who received both online module and coaching supports, and 136 goals (93.8%) focused on academic learning. No significant differences were found between the two teacher implementation support groups in terms of students goals being academic or non-academic ($\chi^2 = 0.34$, df = 1, $p = .56$), and phi = 0.03. The subject area targeted most frequently in the online module only group was ELA ($n = 40$ goals, 27.6%), while 69 goals (11.0%) focused on that subject area in the online and coaching group. Interestingly, the largest percent of goals in the online and coaching group targeted academic facilitator skills ($n = 310$ goals, 49.3%), which was a higher frequency than the online group ($n = 39$ goals, 26.9%). Table 4 provides detailed information on the goal-focused areas across the online and online + coaching groups. Overall, the largest focus area across both implementation support groups was increasing grades or achieving passing grades (online: 211 goals, 33.5%; online + coaching: 45 goals, 31.0%). In the online group, the focus area with the second highest representation was completing assignments or turning them in regularly ($n = 117$, 18.6%), while the second-largest focus area in the online and coaching group was improving specific skills associated with the target subject area ($n = 26$ goals, 17.9%).

Discussion

The overall purpose of this study was to examine the goals students with and without disabilities set when teacher implementers receive online or online + coaching supports to use the *Self-Determined Learning Model of Instruction* (SDLMI; Shogren et al., 2018; Wehmeyer et al., 2000) in inclusive, core content classes. Previous pilot research demonstrated the positive impact of the SDLMI on student self-determination and goal attainment in inclusive contexts (Raley et al., 2018, 2020); however, researchers have never explored the focus of the goals selected by students using the SDLMI in core content classes when their teachers received varying forms of implementation support. The ultimate goal of using the SDLMI in inclusive, core content classes is to equip teachers with a framework to provide their students with opportunities and experiences to (a) set goals related to academic learning,

Table 4. Goal focus areas by teacher implementation support group.

Focus Area	Online Only		Online ± Coaching		Total	
	n	%	n	%	N	%
Increasing grades or achieving passing grades	211	30.8	45	29.2	256	30.5
Completing assignments or turning them in regularly	117	17.1	22	14.3	139	16.6
Enhancing study skills	87	12.7	20	13.0	107	12.8
Participating in class	89	13.0	16	10.4	105	12.5
Improving specific skills related to the subject area	69	10.1	26	16.9	95	11.3
Engaging in note-taking skills	43	6.3	16	10.4	59	7.0
Enhancing test-taking skills	18	2.6	1	0.6	19	2.3
Learning time management skills	11	1.6	1	0.6	12	1.4
Improving interpersonal or intrapersonal skills while in class	12	1.8	2	1.3	14	1.7
Improving organization skills	5	0.7	3	1.9	8	1.0
Completing high school or pursuing postsecondary education	2	0.3	1	0.6	3	0.4
Attending class or school regularly	18	2.6	1	0.6	19	2.3
Being prepared for class	2	0.3	0	0.0	2	0.2
Total	684	100	154	100	838	100

The total of percentage for focus areas may not be 100% due to rounding.

(b) solve problems encountered in the process of working toward self-selected goals, and (c) evaluate their progress toward goal achievement. Although student goals could be directly associated with a specific curriculum, the greater purpose of utilizing the SDLMI is to create opportunities and experiences for students to set and work toward goals leading to generalization of those skills across multiple curriculum content areas (Shogren et al., 2016).

Several notable trends emerged from examining the types of goals students with and without disabilities set during their first semester of engaging in the SDLMI. First, across the full sample of goals, the vast majority of goals focused on academic learning (92.9%) as opposed to other areas (e.g., extracurricular activities; 7.1%). This suggests that general and special education teachers using the SDLMI (after receiving professional development training and online and/or online + coaching implementation supports) were successful in supporting their students to set goals that would enhance academic learning in inclusive core content classes, supporting the potential of using the SDLMI to enhance academic learning and achievement. The focus on academic learning found in this analysis aligns with a previous content analysis of 332 goals set by students with disabilities in middle and high school (Williams-Diehm et al., 2010), and although the focus of Williams-Diehm et al. (2010) was not on academic learning, the most common goal type was academic-focused. The authors posited the high frequency of academic goals suggested school was a key component of adolescents' lives and future success and further supports the importance of promoting abilities and skills associated with self-determination in inclusive classes as a Tier 1 support. The findings of this study, further support this assertion, and suggest the SDLMI can be used to promote academic-related goal setting, particularly when delivered in inclusive, general education classes. Future research should examine how to continue supporting general and special education implementers in enabling students to set academic-related goals to enhance in-school achievement. Relatedly, future research, in this multiyear project as well as the broader self-determination and inclusive education field, should examine the impact of students not only setting a goal to enhance academic achievement but also the degree to which students are empowered to take action toward their goals and if their goals and action plans have the desired effect on student outcomes.

Second, because the overall goal of the SDLMI is to build self-regulated problem-solving strategies students can generalize across multiple curriculum content areas, this finding could suggest teachers successfully enabled students to direct the goal-setting process and select the subject area(s) they identified as a priority for improvement or growth. Relatedly, the inclusion of goals focused on skills that would facilitate academic learning that were not specifically associated with a subject area suggested some students identified a need to improve on prerequisite skills that would enable them to more fully engage in academic learning across classes. This finding was

further illustrated within the sub-sample of students with IEPs as academic facilitator skills were targeted at a higher rate than within the full sample, suggesting students with IEPs identified prerequisite skills as an area for growth. Future research and practice should explore how special education supports and services can be leveraged to support students with IEPs in setting and working toward goals that targeted skills that facilitate academic learning in inclusive classes. Further, research is needed that examines how general and special education teachers enable students to select subject areas or skills aligned with their areas of needed improvement to guide professional development training and implementation supports. Exploring how general and special education teachers collaborate with students to set goals would provide an opportunity to determine the need for intensity of additive supports (e.g., Tier 2 or 3) on top of Tier 1 instruction for students with and without disabilities who would benefit from additional supports for learning and participation related to goal-setting.

Third, the largest focus area across goals in the full sample and sub-sample of students with IEPs was increasing grades or achieving passing grades, indicating academic achievement and performance were a priority for the majority group of students who were in their first semester of high school. Although enhancing or attaining a specific grade was emphasized in this analysis, future research should examine if the focus on grades maintains across semesters as students engage in the SDLMI and their teachers develop fluency in using the model of instruction. Specifically, because the overall goal of the SDLMI is to build self-regulated problem-solving strategies students can generalize across multiple curriculum content areas, it would be expected that teachers adjust their instruction and students shift in their focus areas to target broader skills that would support academic learning over time. Additionally, as students approach graduation and are faced with decisions regarding postschool endeavors (e.g., postsecondary education, employment), the focus of their self-selected goals might shift to transition-related areas. Overall, the changes are observed over time have the potential to guide supports and expectations across tiers of support.

Fourth, results from the analyses indicated that there were no statistically detectable differences across goals set by students with and without IEPs or across teacher implementation support groups, although there were some general patterns of differences that, while not significant, are worthy of ongoing attention and research with larger samples and additional outcome variables. For example, goals set by students with IEPs followed the same general subject area (i.e., multiple subject areas) and focus area (i.e., increasing or achieving passing grades) priorities, although students with IEPs set goals targeted at ELA at a higher rate than their peers without disabilities. These findings may suggest that students with and without IEPs learning in inclusive, general education classrooms identify similar areas of needed improvement, and students with IEPs more frequently set a goal related to the content area in which the SDLMI was implemented, although more research is needed. Across teacher implementation support groups, the vast majority of goals focused on academic learning; however, the online and coaching group included a lower frequency of goals targeting ELA. This was an unexpected finding as the two high schools were randomly assigned to the online and coaching group that implemented the SDLMI in ELA classes. Further, although not significant differences, the online and coaching group included almost double the representation of goals targeting academic facilitator skills, which could potentially be attributed to the in-person coaching the general and special educators received as it might have shaped their instruction, particularly given most students were in ninth grade and academic facilitator skills might be critical to build during the early years of high school. The emphasis on academic facilitator skills in the online and coaching group identified in this study raises several questions must be addressed with additional research. For example, what is the role of online supports in engaging teachers in providing goal-setting instruction? How do trained SDLMI coaches support teachers in collaborating with students to identify goal focus areas aligned with their needs? What training, mentoring, and support do coaches need as they engage teachers in enhancing their students' goal setting and attainment skills?

Limitations

Several limitations should be considered when interpreting the results of the present study. First, the data in this analysis were collected during a single semester where students engaged in the SDLMI, which limited the range of analyses that could be undertaken to examine the changes in goal focus areas over time. Relatedly, the sample of goals was collected during students' first semester engaging in the SDLMI and future research should examine changes in the connection of student goals to academic learning as they develop fluency in setting and achieving goals by iteratively engaging in the SDLMI process. Second, given the large sample, it was not feasible to collect concrete details on student support needs (e.g., level of support needed to engage in goal-setting process). Specific information about the instructional supports teachers utilized to support students, particularly students who might have received more intensive supports, in selecting goals would have provided some insight into the common goal focus areas selected by students. Third, the present study focused on analyzing the content of the goals set by students with and without disabilities based on the implementation support provided to implementing teachers; therefore, integrating student outcome (e.g., goal attainment, self-determination, academic achievement) and other data (e.g., fidelity of implementation) was beyond the scope of this analysis. Ongoing research is needed to systematically examine information about goal content with outcome data, exploring potential relations between goal content and attainment as well as growth in self-determination. To this end, future research on the fidelity of implementation of the coaching support would allow for more comprehensive examinations of how to best support teachers' implementation of the SDLMI and associated impacts on student outcomes. Relatedly, future research should explore how data from the *SDLMI Fidelity Measure: Inclusive, General Education Version* can be used to support teachers, including those who received coaching support, to enable students in setting and working toward goals using the SDLMI. In this multiyear RCT, external observers and coaches collected fidelity data and this work should be expanded to test varied approaches to collecting fidelity data (e.g., videos of teacher implementation and coaching sessions), particularly to support scaling-up. Lastly, in some of the inclusive classes included in the large RCT, both general and special education teachers co-implemented the SDLMI, while in other classes, the general education teacher was the primary implementer. More research is needed on the impact of co-taught self-determination instruction and the roles general and special educators take in the process. For example, is it more effective for general educators to provide whole-class goal-setting instruction, while the special educators collaborated with small groups of students who required more support in setting a goal? Future research should explore the role of educators with varying areas of expertise in supporting students with SDLMI goal selection when implemented in a tiered framework to better understand the instructional strategies teachers utilize to engage students with a broad range of support needs.

Implications for practice and research

The results from the present study suggest numerous implications for practice and future research. First, in the large RCT through which the goal sample was collected, students were engaged in the SDLMI when it was implemented as a Tier 1 support and future applications should explore how Tier 2 and 3 supports could be provided to support students who require more intensive goal-setting instruction to fully engage with Tier 1 instruction. For example, in this study, the majority of student participants included in general education settings and engaged in the SDLMI as a Tier 1 support did not have extensive support needs, and because previous research on the SDLMI with students with intellectual disability has involved a more intensive implementation of the SDLMI (i.e., Tier 2 or 3 support; e.g., Shogren, Burke et al., 2020; Shogren, Hicks et al., 2020), further research is needed to understand the instructional strategies teachers utilize to engage students with a broad range of support needs within a tiered framework. Second, the fact that increasing grades was the most frequently represented focus area highlights how many students viewed grades as an indicator of academic success. An implication of this finding related to practice is the importance of developing SDLMI implementation supports

facilitate teachers in enabling students to develop more specific goals that target what the student can do to enhance academic outcomes such as grades and understanding of key academic concepts and skills (i.e., What student actions and behaviors will lead to improved grades and increased learning?). As such, future research should examine the most effective supports for teachers (e.g., professional development training, coaching) to enable students to self-direct the goal-setting process in inclusive classrooms that target core content. For example, how do teachers adjust their goal-setting instruction to provide students with opportunities and experiences to identify goal focus areas that best meet their learning needs? Should teachers always encourage students to select goals that target content learning or focus more on self-regulated problem-solving skills? Relatedly, some differences were identified in this analysis across online only and online and coaching groups, and examining key characteristics of effective SDLMI coaches (e.g., academic qualifications or experience, professional skills, basic social skills, good judgment, knowledge of the field, personal ethics, and willingness to learn; National Implementation Science Network, 2015) will provide guidance on implementation supports teachers need to implement the SDLMI with fidelity. Lastly, research is needed to explore how student-selected goal focus areas while in high school impact the attainment of future goals. Because future goals are aims people desire but have yet to achieve (Elliot & Murayama, 2008), exploring differences in the goals high school students set and their future goals (e.g., pursuing higher education, employment) could potentially provide guidance to the field on the relations between setting goals while in high school and future goals as preliminary research demonstrated self-determination predicts the number of future goals people with ID set (Di Maggio et al., 2020).

Conclusion

The findings from this study provide guidance on the types of goals students set when using the SDLMI in inclusive, core content classes and the impact of teacher implementation supports on student goal selection. The results provide further evidence of the utility of the SDLMI in inclusive contexts to support a broad range of academic goals set by students with and without disabilities. Student goals strongly demonstrated a focus on academic learning across goal focus areas, which could potentially impact students' academic motivation and achievement. As such, future research should explore how best to support general and special educators in enabling students with and without disabilities to set goals that promote learning, participation, engagement, and achievement in inclusive classes.

Disclosure statement

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