

Attending to Motivation During Vocabulary Interventions for Students With or at Risk for Learning Disabilities

A Review of the Literature

Rebecca Louick, Alyssa Emery, Katherine Muenks, and Madeline O’Grady

Evidence indicates that well-planned vocabulary interventions can be highly effective in helping students with language-based learning disabilities to develop the necessary vocabulary skills for literacy success. Although many researchers recognize the general importance of attending to psychological factors such as student motivation in developing successful interventions, the role that these factors play in vocabulary interventions designed specifically for students with learning disabilities has not yet been sufficiently considered. In this review, we synthesized the extant literature regarding when and how motivational components are addressed in vocabulary interventions for P-12 students with or at risk for learning disabilities. We found that successful vocabulary intervention programs for this student population most frequently address motivation through the constructs of goal setting and interest. Furthermore, operationalizing terms such as “motivation” (and related constructs) using theories established in the field of educational psychology may allow researchers to develop interventions that have positive, long-lasting impact by encouraging students with learning disabilities to persist at challenging tasks and by enabling them to more clearly see linkages between vocabulary learning and their personal and career goals. **Key words:** *goal setting, interest, intervention, learning disabilities, motivation, self-regulation, vocabulary*

DURING the most recent round of National Assessment of Educational Progress (NAEP) testing, only 9% of Grade 8 students with disabilities (SWDs) received scores indicating proficient reading (U.S. Department of Education, 2022). This is more

than a relic of COVID-era educational challenges; a consistent reading score difference between students with and without disabilities has been documented for many years (see Gilmour et al., 2019 for a meta-analysis). The question of how to address reading difficulties among this student population is a critical one, requiring attention to all components of the reading process. The five areas of reading established by the National Reading Panel (2000) in their seminal report—phonemic awareness, phonics, fluency, vocabulary, and text comprehension—all require evidence-based, high-quality interventions. Each of these areas of reading has its own complexities. Here, we choose to make our contribution by examining interventions with specific components dedicated to vocabulary skill development.

Author Affiliations: *Eastern Michigan University (Dr Louick); Iowa State University (Dr Emery); and University of Texas at Austin (Dr Muenks and Ms O’Grady).*

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Corresponding Author: *Rebecca Louick, PhD, College of Education, Eastern Michigan University, 128 John W. Porter Bldg, Ypsilanti, MI 48197 (rlouick@emich.edu).*

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Literacy scholars have compiled evidence indicating that well-planned vocabulary interventions can be highly effective in helping students to develop the vocabulary knowledge and skills that are necessary for effective reading (e.g., Filderman et al., 2022; Lesaux et al., 2014; Townsend, 2015; Vaughn et al., 2013). Narrowing this field somewhat, special education scholars have developed vocabulary interventions specifically for students with or at risk for learning disabilities (LDs; e.g., Coyne et al., 2007; Harmon et al., 2005; Pullen et al., 2010). In addition, educational psychologists have determined that reading interventions that attend to students' psychological needs as learners (e.g., students' motivation to engage with and continue using the intervention) are most effective (e.g., Guthrie et al., 2013; Rosenzweig et al., 2018). However, to the best of our knowledge, there has yet to be a specific review of the literature regarding the ways in which successful vocabulary interventions specifically designed for students with LD address motivational components. In the present review, we synthesize the extant literature regarding this topic—when and how motivational components are addressed in effective vocabulary interventions for P-12 students with or at risk for LDs—to identify the ways in which interdisciplinary work in special education and educational psychology can result in improved vocabulary interventions for readers with LDs.

LITERATURE REVIEW

The relationship between reading and vocabulary skill/knowledge

For many years, and in particular since the advent of No Child Left Behind (NCLB, 2001) and subsequent demands for accountability (e.g., Lagana-Riordan & Aguilar, 2009), teachers and school leaders have been under pressure to demonstrate that their students are making notable progress in fundamental literacy skills such as reading, writing, speaking, and listening. With the 2004 reau-

thorization of the Individuals with Disabilities Education Act (IDEA), calls for accountability that had been put forth in NCLB were reemphasized for learners receiving special education services, in terms of documenting the academic progress of SWDs in particular. These calls went even further than the ones put forth in the 1997 IDEA reauthorization; lawmakers renewed their demand for tangible evidence that students in special education were making quantifiable progress on a regular basis.

One area in which quantifiable progress is expected is vocabulary learning. The term “vocabulary” can be understood to mean an individual’s “knowledge of words and word meanings ... that can be used receptively (i.e., listening, reading) and expressively (i.e., speaking, writing)” (Hennessey, 2018, p. 558). Stated differently, students use vocabulary skills both to acquire new knowledge and make connections with existing knowledge and to express what they know verbally and in writing. To promote reading skill development, educators must find ways to strengthen students’ vocabularies such that students not only know a vast breadth of words but also understand those words in great depth (Nagy & Scott, 2000). Researchers have consistently demonstrated a strong relationship between vocabulary and reading comprehension for students developing typically (e.g., Pearson et al., 2007), as well as for students with LD (Faggella-Luby & Deshler, 2008), who represent 33% of U.S. students receiving special education services (National Center for Education Statistics, 2022). There are multiple theories about how vocabulary and comprehension are related. As summarized by Elleman et al. (2009), these range from the instrumentalist belief that simply being instructed on more words leads to better comprehension, to belief in a reciprocal hypothesis in that incidental learning of vocabulary (through frequent exposure to reading materials) creates a “Matthew effect” scenario in which the more students read, the more vocabulary they learn, which encourages them to read

even more, and so on. Given the complexity of the relationship between vocabulary and comprehension, none of these theories has been firmly established as providing a full explanation by itself; rather, researchers tend to rely on characteristics from multiple theories to understand how vocabulary and comprehension are related (Elleman et al., 2009).

Vocabulary interventions

One common feature of many successful vocabulary interventions is the use of focus words simultaneously in multiple learning contexts. For example, the “Word Generation” intervention developed by Catherine Snow and colleagues involves vocabulary instruction across content areas and has been shown to support students’ reading comprehension and perspective-taking abilities (e.g., Jones et al., 2019). Other vocabulary interventions such as that which is embedded in Collaborative Strategic Reading, frequently used with students with or at risk for language-based LDs, are effective when they include features such as visual representations of word meanings, examples and nonexamples, connections to personal experiences, and collaborative work with peers (e.g., Swanson et al., 2015; Vaughn et al., 2019). Some interventions for SWDs focus on improving vocabulary-related skills such as morphological awareness to ultimately grow a child’s vocabulary knowledge and use (Collins et al., 2020; Wolter & Green, 2021).

To assess the effectiveness of their interventions, researchers often use norm-referenced measures of receptive vocabulary (e.g., Peabody Picture Vocabulary Test or PPVT; Dunn & Dunn, 2007) and expressive vocabulary (e.g., Expressive Vocabulary Test or EVT; Williams, 2019). Sometimes, a researcher-generated assessment specific to the individual study is used instead; this often occurs when researchers are looking to see whether an intervention supported students’ development of knowledge of specific content-area words (e.g., Dennis & Whalon, 2021). In their meta-analysis on the effectiveness of vocabulary intervention for

passage-level comprehension, Elleman et al. (2009) found a positive effect of vocabulary interventions on the reading comprehension skills of students with LD ($d = 1.23$) that was significantly greater than that for their non-LD peers ($d = 0.39$); however, these comprehension gains were only detectable on measures developed by the researchers conducting a given study as compared with standardized measures. Elleman et al. (2009) suggest that standardized measures might not be “sensitive enough to detect changes in comprehension due to vocabulary instruction” (p. 33). A critical component of effective instruction for students with LD is attending to students’ affective needs (Deshler & Hock, 2007). As such, we next consider the role that student motivation might play in a vocabulary intervention’s success.

Motivation

Motivation is a multifaceted construct that is sometimes erroneously distilled to an individual personality trait. Students do vary in motivation, but it is widely believed by psychologists that motivation is contextually situated (Eccles & Wigfield, 2020) such that it varies in response to changes in the environment (e.g., instructional practices, classroom tasks, relationships with others). Similarly, motivation can be conflated with compliance or on-task behavior. Most theories of academic motivation account for individual interest, perceived autonomy, cognitive engagement, and other internal phenomena that may not result in outwardly observable actions.

Understanding academic motivation is often a lever for understanding student success or struggle, which may be distinctly useful in explaining differing effects of vocabulary interventions. Motivation is linked to academic achievement (e.g., Jiang et al., 2018; Meece et al., 2006), task persistence (Schunk & DiBenedetto, 2020), and goal-directed behavior (Zimmerman & Moylan, 2009), as well as interest and identity development (McCaslin, 2009). Although much educational research focuses on the mediating or moderating

effect of motivation in relation to learning and achievement, motivation can also be an outcome in and of itself. As K-12 schooling in the United States is compulsory, many educational psychologists aim to ensure that classrooms are motivationally supportive environments for all students (Patrick & Pintrich, 2001).

Given that motivation is not a static trait, but rather a dynamic response to the environment, much research aims to capture patterns in group and individual differences. For example, longitudinal research has demonstrated that young students often report having high expectations for success on academic tasks regardless of their objective abilities (e.g., Muenks et al., 2018). But students' general academic motivation declines over time, particularly around the transition to middle school/junior high in the United States (e.g., Jacobs et al., 2002). Other research has demonstrated the importance of promoting a sense of *belonging* for students from historically marginalized backgrounds (e.g., Gray et al., 2018). Belonging includes both mutually respectful relationships with peers and teachers *and* includes the perception that "people like me succeed here" and a sense of affiliative pride (e.g., "it's a good thing to be a Buckeye"). In essence, student motivation is often an indicator of adaptive and attentive environments.

Motivation is often discussed alongside a related concept, engagement, which can be defined as "a person's or a group's involvement in a particular context (e.g., the classroom, the family)" (Renninger & Hidi, 2016, pp. 71-72). Motivation is one of the factors that can impact a child's engagement in an academic activity (Wigfield et al., 2015). However, it is important to understand that "motivation" and "engagement" are two separate constructs. Motivation is the psychological desire or will to carry out an activity, whereas engagement is the carrying out of the activity itself, a behavioral phenomenon (Renninger & Hidi, 2016). For example, a student's desire to learn more about whales (motivation) is different from

the act of reading books and websites about whales (engagement).

In the current literature review, for the purposes of specificity and clarity, we chose to focus solely on the construct of motivation instead of engagement. Given the importance of vocabulary for foundational literacy, it is an investment in SWDs' long-term academic self-concept and academic achievement to be particularly conscious about their motivational experiences. Students with LD are more likely to struggle with motivational problems that lead to poor academic performance (Graham et al., 2017; Louick & Muenks, 2022). This is, in part, due to the fact that students with LD tend to attribute their academic struggles to internal causes and academic success to external ones (Núñez et al., 2005; Sideridis, 2009).

Interest

Interest is a key component of many theories of motivation, including self-determination theory (Ryan & Deci, 2020), expectancy-value theory (Eccles & Wigfield, 2020), and the four-phase model of interest development (Hidi & Renninger, 2006; see Table 1), among others. Self-determination theory researchers have demonstrated that the type and quality of motivation individuals experience are predictive of their volition and internal regulation—willingness to begin, sustain, and finish a task. As students' psychological needs of autonomy, competence, and relatedness are fulfilled in a given environment, they experience higher internal regulation. Certain approaches to extrinsic motivation that undermine students' psychological needs are often perceived by individuals to be externally regulating (e.g., coercive), leaving no room to develop or experience interest or enjoyment in a task. Individuals can, however, internalize extrinsic reasons for initiating and sustaining an activity (e.g., "I do this task to make my teacher proud," or "I understand why this task is valuable") if they perceive that their psychological needs are met. Although it is fundamentally a different type of motivation,

Table 1. Sample of educational psychology theories that address interest

Theory	Key References	Interest-Related Construct(s)	Focus	Key Application
Self-determination theory	Ryan & Deci (2020)	Volition, internal regulation	Social contexts that promote interest and enjoyment	When contexts fulfill students' psychological needs of autonomy, belonging, and competence, they will have higher internal regulation
Expectancy-value theory	Eccles & Wigfield (2020)	Interest value as a component of overall value	Individuals' own interest as a key component of their motivation	Value (including interest value) predicts students' academic choices (e.g., major, career)
Four-phase model of interest development	Hidi & Renninger (2006)	Situational interest, individual interest	Development of interest	Interest develops by first triggering, then maintaining situational interest, and finally building to emerging and well-developed individual interest

intrinsic motivation represents the most internally regulated state and includes those activities in which we engage due to inherent interest or enjoyment in the activity itself. Many classroom activities are necessarily extrinsic in nature—students would not choose those activities for themselves—however, promoting internalized regulation by supporting students' psychological needs may provide opportunities to develop interest in the tasks themselves.

Within expectancy-value theory, *interest value* is a key component of students' value for activities and predicts their academic choices, such as a choice for a major or career (Eccles & Wigfield, 2020). Some researchers have focused more specifically on the *development* of interest (Hidi & Renninger, 2006). These researchers have identified two different types of interest: *individual interest*, which concerns a student's innate views toward particular content, and *situational interest*, which can be triggered and maintained by the environment (Ainley et al., 2002; Schiefele, 2009). Individual interest has been shown to predict students' inclination to reconnect with the material and has the potential to increase learning and academic achievement outcomes such as conceptual understanding, text recall, comprehension, standardized test scores, and grades (Murphy & Alexander, 2002; Neblett et al., 2006). Furthermore, Hidi and Renninger (2006) propose a model for how interest can develop from situational to individual through efforts to maintain and expand the former to create the latter (see Table 1).

Goals

As with interest, goals have been conceptualized in different ways across different theories (see Table 2). One of the most common ways that motivation researchers have studied goals is by studying students' achievement goal *orientations*, which are the purposes for engaging in goal pursuits (Midgley & Urdan, 2001). According to achievement goal theory, individuals can have goals to develop ability (mastery goal)

Table 2. Sample of educational psychology theories that address goals

Theory	Key References	Goal-Related Construct(s)	Focus	Key Application
Goal orientation theory	Elliot & McGregor (2001); Midgley et al. (2001)	Goal pursuits	Reasons for engaging in goal-related behaviors	Achievement contexts should emphasize improvement and progress over performance
Self-regulated learning	Schunk (2012); Zimmerman (2002)	Goal setting	Planning for, monitoring, and reflecting on goal pursuits	Predicts strategy usage and on-task behavior
Attributions for success	Graham (1994); Weiner (1986)	Goal attainment	Subjective assessments of success and failure of goal pursuits	Individuals who understand success/failure to be within their control are more likely to initiate behaviors that result in goal attainment

or demonstrate ability (performance goal; Ames, 1992; Dweck & Leggett, 1988), which can lead to different educational outcomes (Urduan & Kaplan, 2020). This work has found that encouraging students to develop mastery goals focused on improvement and progress leads to better academic outcomes than encouraging students to develop performance goals focused on competition and performance (Urduan & Kaplan, 2020). However, other researchers have focused less on goal orientations, which are presumed to be individual differences in students' approaches to school, and more on goal setting or attainment. Goal *setting* has typically been studied with respect to self-regulation frameworks (Schunk, 2012; Zimmerman, 2002). The self-regulating learning model has three main components: forethought phase, performance phase, and self-reflection phase. In the forethought phase, students engage in goal-setting strategies or identifying the willful outcomes associated with learning (Locke & Latham, 1990). In the performance phase, self-monitoring includes both measuring progress toward a goal and naming the specific actions or strategies used to work toward it (Bloom, 2013). For example, students might use a checklist or graph to represent the content they have mastered and also keep a log describing how they studied, how long they studied, and what strategies they used to study. Then, in the self-reflection phase, they might look back at their logs to decide what worked best for them and what their next goals should be. Research on goal setting has shown that students who are able to regulate their learning have higher achievement outcomes (Zimmerman & Kitsantas, 2007), and this continues to be true after controlling for context and prior achievement (Cleary & Kitsantas, 2015). Finally, goal *attainment* has been discussed with respect to attribution theory (Graham, 1994; Weiner, 1986), which proposes that students' assessments of their success or failure at attaining their goals predict their emotions and future goal-relevant behavior (Graham, 2020).

Motivation's role in reading interventions

Recent meta-analyses have provided important insights into the relationship between reading and motivation. Toste et al. (2020) addressed the issue of multiple theoretical concepts being described as “motivation,” which has presented a challenge in fully understanding this relationship. Their meta-analysis indicated that student beliefs about themselves (e.g., self-efficacy), beliefs about reading (e.g., value placed on reading), attitude toward reading, and interest in reading were more related to reading proficiency than were the students' goal orientations. In other words, by coding studies of “motivation” and reading in terms of the specific motivation construct that researchers had employed, Toste et al. were able to pinpoint motivational elements that they argue are most important to reading.

Over the years, multiple meta-analyses have considered the impact of including a motivation component in reading interventions (e.g., Dignath & Büttner, 2008; Guthrie et al., 2007; Unrau et al., 2017). In the most recent meta-analysis on this topic, McBreen and Savage (2021) found that such interventions did have a small effect on reading achievement overall. However, they also found that the impact varied widely based on specific factors: “content approaches to intervention, intensity of training given to intervention providers, study quality, and type of measures used” (p. 1125). The researchers indicated that among the studies included in their meta-analysis, there was wide variety in each of these areas, which is critical for researchers conducting a research synthesis (such as ours) to consider.

Recently, educational psychologists and other researchers have begun to apply motivation concepts in their development of not just reading interventions broadly but those interventions that focus on vocabulary as a specific component of reading as well. For example, Griffin et al. (2021) compared the effectiveness of a vocabulary interven-

tion when it was paired with instruction in growth mindset (the belief that ability is malleable as opposed to fixed; Dweck & Leggett, 1988) with its effectiveness when provided on its own; they found that students made significant gains in their overall reading comprehension in both groups (although not in vocabulary specifically). Given the specific needs of students with LD, we decided to narrow our search to interventions designed specifically for that target population instead of for students in general. Bearing this information in mind, we set out to investigate when and how researchers utilize motivation constructs in their vocabulary interventions for students with or at risk for LD, particularly among interventions that were found to successfully improve these students' vocabulary skills. We included only effective interventions in our review (defined as interventions that demonstrated at least one positive, statistically significant effect on a vocabulary measure), because we wanted to focus on understanding how motivation could potentially *facilitate* students' vocabulary development. Our research question was as follows: “According to the extant literature, when and how are motivational components addressed in successful vocabulary interventions for P-12 students with or at risk for reading disabilities?”

METHOD

Review protocol

The description of the review protocol that follows was written in accordance with the PRISMA guidelines for systematic reviews; Figure 1 is a systematic review flow diagram, adapted from PRISMA's model and documenting our review process. We sought first to gather information about published, effective vocabulary interventions for students with or at risk for LD and then to examine if, when, and how those interventions addressed key motivation constructs. We began by doing an EBSCO PowerSearch, which cross-searches

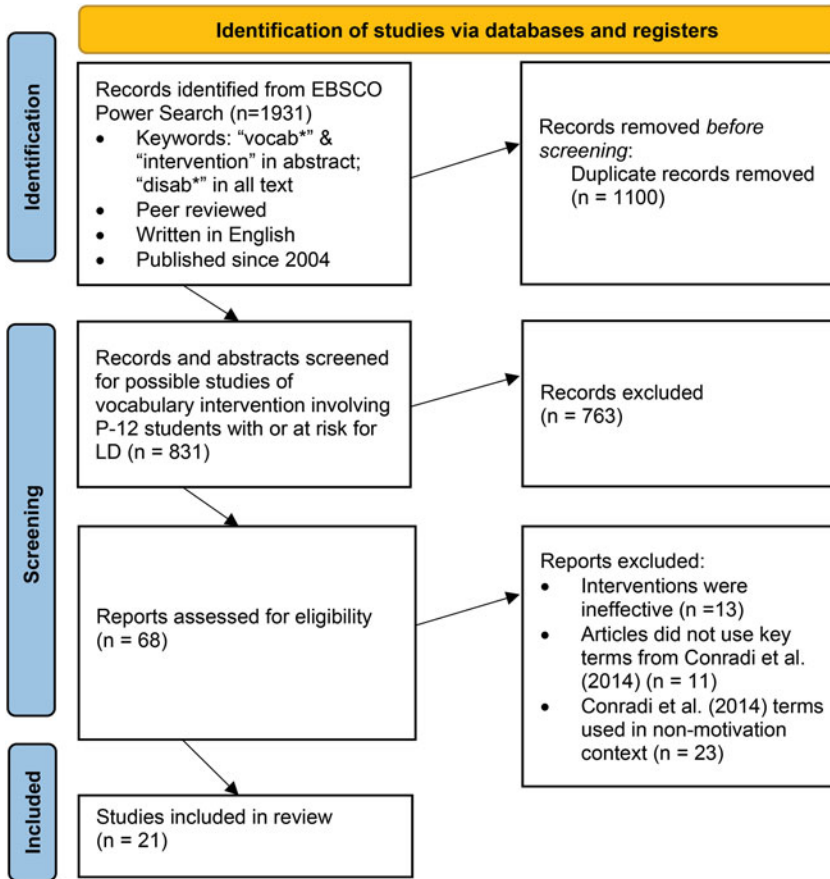


Figure 1. Systematic review flow diagram. Adapted from Page et al. (2021) and PRISMA guidelines. This figure is available in color online (www.topicsinlanguagedisorders.com).

25 academic and traditional databases, including Academic Search Complete, Education Source, ERIC, and the Psychology and Behavioral Sciences Collection, among others. We searched for “vocab*” and “intervention” in abstracts and “disab*” in all text. Further inclusion requirements were that the articles be peer reviewed, be written in English, and be published since 2004 (when an important set of revisions to IDEA were officially enacted; we chose this as a starting point because, as stated earlier, this marked an occasion when special education teachers and researchers received specific guidance that the federal government expected accountability in the form of SWDs’ demonstrated reading abilities). Our literature search re-

sulted in 1,931 articles; once duplicates were removed by the search engine, the total number of articles found in the search was 831. Among these articles, the first author read record titles (and, in some cases, abstracts) to identify studies that could possibly concern the efficacy of a vocabulary intervention involving P-12 student participants identified with, or at risk for, LD (see Table 3 for the terms/phrases that were accepted as describing participants with or at risk for LD). At this point, a total of 68 articles remained; all following rounds of coding were completed independently by at least two members of the research team, and any differences in coding were resolved by consensus. For our second pass, we read Results sections (and, where

Table 3. Articles included in literature review

Article	Vocabulary Construct/ Intervention Purpose	Student Descriptor(s)	Student Age/Grade Descriptors	Study Location	Section in Which Motivation Terms Appear	Integration of Motivational Constructs Into Intervention
Baker et al., (2015)	• Expressive vocabulary	At risk for language and/or literacy difficulties	Grade 1	United States (Northwest)	• Method	• High-interest texts
Barwasser et al. (2020)	• Expressive vocabulary	Learning disabilities	14 and 15 years	Germany	• Literature Review • Method • Discussion	• Points earned = group reward • Self-graphing • Self-graphing
Barwasser et al. (2021)	• Expressive vocabulary	Learning problems	Grades 6-8	Germany	• Literature Review • Method • Discussion	• Self-graphing • Self-graphing
Fishley et al. (2012)	• Morpheme definition	High-incidence disability	High school students	United States (Midwest)	• Literature Review • Results	• Self-graphing
Fogarty et al. (2020)	• Receptive vocabulary • Expressive vocabulary	Reading difficulties	Grade 3	United States (Northeast and Southwest)	• Method	• Embedded prompts • Self-graphing
Gelzheiser et al. (2011)	• Receptive vocabulary	Struggling readers	Grade 3	United States (Northeast)	• Literature Review • Method	• Opportunities for choice • Goal setting
Hock et al. (2017)	• Receptive vocabulary	Learning disability	Middle school	United States (Midwest)	• Literature Review • Method • Discussion	• Goal setting and monitoring • High-interest texts
Jozwik & Douglas (2017)	• Expressive vocabulary	Learning difficulties	Grade 5	United States (Midwest)	• Literature Review • Method • Discussion	• Goal setting and monitoring • Goal setting and monitoring

(continues)

Table 3. Articles included in literature review (*Continued*)

Article	Vocabulary Construct/ Intervention		Student Descriptor(s)	Student Age/Grade Descriptors	Study Location	Section in Which Motivation Terms Appear	Integration of Motivational Constructs Into Intervention
	Purpose	Intervention					
Kim & Linan-Thompson (2013)	<ul style="list-style-type: none"> • Receptive vocabulary • Expressive vocabulary 		Learning difficulties	Elementary school	United States (Southwest)	<ul style="list-style-type: none"> • Literature Review • Method • Results 	<ul style="list-style-type: none"> • Goal setting and monitoring
Knaak et al. (2021)	<ul style="list-style-type: none"> • Expressive vocabulary 		Learning disabilities	Secondary	Germany	<ul style="list-style-type: none"> • Literature Review • Method • Discussion 	<ul style="list-style-type: none"> • High-interest texts • Points earned = group reward • Self-graphing • High-interest texts
Loftus et al. (2010)	<ul style="list-style-type: none"> • Receptive vocabulary • Expressive vocabulary 		At risk for language and literacy difficulties	Kindergarten	United States (Northeast)	<ul style="list-style-type: none"> • Method 	
McKenna et al. (2021)	<ul style="list-style-type: none"> • Expressive vocabulary 		Students performing below expectations	Grade 1	United States (Southeast)	<ul style="list-style-type: none"> • Method 	<ul style="list-style-type: none"> • Goal setting and monitoring
McLeod et al. (2017)	<ul style="list-style-type: none"> • Receptive vocabulary • Expressive vocabulary 		At risk for reading and language delays	Preschool	United States (Southeast)	<ul style="list-style-type: none"> • Method • Discussion 	<ul style="list-style-type: none"> • High-interest materials
Nielsen & Friesen (2012)	<ul style="list-style-type: none"> • Receptive vocabulary • Expressive vocabulary 		At-risk	Kindergarten	United States (Midwest)	<ul style="list-style-type: none"> • Results • Discussion 	<ul style="list-style-type: none"> • High-interest materials

(*continues*)

Table 3. Articles included in literature review (Continued)

Article	Vocabulary Construct/ Intervention Purpose	Student Descriptor(s)	Student Age/Grade Descriptors	Study Location	Section in Which Motivation Terms Appear	Integration of Motivational Constructs Into Intervention
Pagan & Sénéchal (2014)	<ul style="list-style-type: none"> • Receptive vocabulary • Expressive vocabulary 	Lower-achieving children	Grades 3 and 5	Canada	<ul style="list-style-type: none"> • Literature Review • Method • Results • Discussion 	<ul style="list-style-type: none"> • High-interest texts
Pfenninger (2015)	<ul style="list-style-type: none"> • Receptive vocabulary • Expressive vocabulary 	Dyslexia	Grade 3	Switzerland	<ul style="list-style-type: none"> • Literature Review • Discussion 	<ul style="list-style-type: none"> • High-interest delivery format
Rodríguez & Cumming (2017)	<ul style="list-style-type: none"> • Receptive vocabulary • Expressive vocabulary 	Language-based disabilities	Grades 1–3	United States (West)	<ul style="list-style-type: none"> • Literature Review • Method • Discussion 	<ul style="list-style-type: none"> • High-interest delivery format
Shamir & Baruch (2012)	<ul style="list-style-type: none"> • Receptive vocabulary 	At risk for learning disabilities	4.5–7 years	Israel	<ul style="list-style-type: none"> • Literature Review • Discussion 	<ul style="list-style-type: none"> • High-interest delivery format
Shamir et al. (2018)	<ul style="list-style-type: none"> • Receptive vocabulary 	At risk for learning disabilities	Kindergarten	Israel	<ul style="list-style-type: none"> • Literature Review • Method 	<ul style="list-style-type: none"> • High-interest delivery format • Develop feelings of competence
Solís et al. (2017)	<ul style="list-style-type: none"> • Receptive vocabulary 	Learning disabilities	Grade 4	United States (Southwest)	<ul style="list-style-type: none"> • Method • Discussion 	<ul style="list-style-type: none"> • Goal setting and monitoring
Stevens et al. (2020)	<ul style="list-style-type: none"> • Receptive vocabulary 	Struggling readers	Grade 4	United States (Southwest)	<ul style="list-style-type: none"> • Method 	<ul style="list-style-type: none"> • Goal setting

needed, Discussion sections) to determine whether or not the researchers found that their intervention led to significant improvement in students' vocabulary skills and/or knowledge; we eliminated interventions that were found to be ineffective. We made no limitations in terms of study design, out of recognition of the need for different study designs based on the question at hand. This winnowed our pool to 55 studies. Following this, we used Conradi et al.'s (2014) criteria to identify those articles that mentioned motivation constructs. Specifically, we looked for the words "agency," "attitude," "expectancy," "extrinsic motivation," "goal," "interest," "intrinsic motivation," "motivation," "reading motivation," "self-belief," "self-concept," "self-efficacy," and "value" within the articles. Conradi et al.'s (2014) work was important because it provided an established list of terms that conveyed study of motivation-related concepts. The words appeared in 44 of the remaining articles, and when we found one of these words, we noted where in the article the word was mentioned: Literature Review, Method, Results, or Discussion. However, we noticed that some articles used these words in a nonmotivation context (e.g., "The goal of this study is . . .", or discussing *p* values instead of interest values), so we removed any articles that did not use these terms in a motivation-related context. A total of 22 articles were removed during this stage. We removed one article (Gillon et al., 2019) that discussed the importance of concepts such as self-concept and motivation in its Introduction and Discussion sections but did not explicitly describe how these constructs were embedded in the intervention itself. This left us with a total of 21 articles that fit all our criteria (see Table 3).

Once our full data corpus was collected, we coded each article according to the type of vocabulary construct of interest (expressive vocabulary, receptive vocabulary, or language component, e.g., morpheme); the language that the authors used to describe participating students' status as identified or at risk for LD (e.g., "at risk for language and/or

literacy difficulties"); the age or grade level of the students participating in the study; the location in which the study took place; the section(s) of the article in which the authors utilized terms from Conradi et al.'s (2014) list in a motivation-related context; and the means through which the researchers integrated motivational constructs into their intervention (e.g., "high-interest texts" or "points earned = group reward"). This coding was completed by the first author, and its accuracy was checked and confirmed by the second author; discrepancies were resolved through discussion.

RESULTS

Across the studies, participating students ranged in age/grade level and in school location (note that 14 studies took place in the United States and seven took place outside the United States). Most authors discussed motivation-related concepts in their Introductory/Literature Review and Discussion sections; several discussed motivation-related concepts in their Method sections, but only four (Fishley et al., 2012; Kim & Linan-Thompson, 2013; Nielsen & Friesen, 2012; Pagan & Sénéchal, 2014) discussed motivation-related constructs in their Results section. In all 21 articles, at least one motivation construct had been integrated into the vocabulary intervention(s) being studied. Many of these integrations involved processes associated with self-regulation, such as goal setting and monitoring, self-graphing (keeping a regular recording of one's ongoing scores/progress on a personal graph, either on graph paper or on the computer), and developing positive self-talk (e.g., Fogarty et al.'s, 2020, intervention included an online "coach" who prompted students for effort). Only one study (Kim & Linan-Thompson, 2013) specifically indicated the theoretical framework that the researchers were using to define motivation (self-regulation, citing Schunk & Ertmer, 2000). Frequently, the term "motivation" was used in a broad sense, without citing a particular literature on which the

operationalization of motivation within the intervention had been anchored.

Integration of motivation into vocabulary interventions

Overall, we found that researchers implementing vocabulary interventions aimed to do so via promoting student interest in the intervention activities or by encouraging students to set goals related to the intervention. We review the results of each in turn, followed by a brief section on other motivational components that also appeared alongside interest and goal setting.

Interest

Eleven research teams aimed to address motivation by making the intervention activities *interesting* for students. Five interventions, conducted by Fogarty et al. (2020), Pfenninger (2015), Rodríguez and Cumming (2017), Shamir and Baruch (2012), and Shamir et al. (2018), aimed to do so via mode of delivery, using technology such as digital tools and e-books. In explaining this choice for mode of intervention delivery, the research teams noted that children often perceive devices or computer programs to be inherently entertaining, and content can be delivered with multimedia effects that capture and maintain students' attention. Rodríguez and Cumming (2017) argued that this is particularly the case for SWDs, citing prior research that suggests that "being able to customize a device to suit the needs of each student is motivating because it gives students with disabilities something mainstream that is engaging and interactive for them" (p. 162). These and other researchers aimed for the tool to be *assistive*, rather than merely *engrossing*, pointing to the advantages of technology in prompting metacognition, facilitating repeated practice, and other evidence-based instructional strategies that a traditional text cannot do on its own.

Other researchers incorporated interesting topics and items into the intervention materials (see Table 3). Of note is the

approach researchers took to do so. For example, in an intervention that relied on storytelling as a means of improving vocabulary skills, Nielsen and Friesen (2012) incorporated puppets that "were an important prop for retellings, because they provided a focus and were motivating" (p. 288). Some teams allowed students to choose text topics of personal interest and suggested additional texts based on similar topics; in addition to doing this, Pagan and Sénéchal (2014) assessed students' genre preferences using a previously validated reading preferences survey. Comparatively, other teams, including Knaak et al. (2021), developed materials that they deemed inherently interesting to the targeted age group ("The stories dealt with topics related to the everyday reality of teenagers to arouse the participants' interest," p. 73). Although not every research team specified the exact items or topics they offered to students in their own interventions, within their literature reviews, teams described qualities that can make texts interesting—storytelling texts, texts depicting real experiences, or vocabulary embedded in meaningful contexts. Others did specify; for example, Barwasser et al. (2020) indicated their intervention materials were stories based on popular television characters with whom students were familiar. In a 2021 study by members of the same team, they prompted students to write stories reflecting their own interests.

Goals

Across the 21 reviewed studies, 10 (see Tables 3 and 4) included goal setting or goal tracking as part of the intervention and at least two (Barwasser et al., 2021; Fogarty et al., 2020) involved components in which students tracked their progress through the intervention independent of setting specific achievement goals. Goal setting was largely directed by teachers across all of the interventions, but students' autonomy in the process varied. As examples, in one intervention (McKenna et al., 2021), teachers set goals for students; in another (e.g., Jozwik & Douglas, 2017) teachers assisted students

Table 4. Use of self-regulation concepts in interventions that incorporated goal setting

Article	Goal Setting	Goal Monitoring	Goal Reflection
Barwasser et al. (2020)	Yes, by instructor	Yes, by student (individually) and by group (as shared “points”)	Not discussed in manuscript
Fishley et al. (2012)	Yes, by instructor	Yes, by student and instructor	Not discussed in manuscript
Gelzheiser et al. (2011)	Yes, by student	Not discussed in manuscript	Not discussed in manuscript
Hock et al. (2017)	Yes, by student	Yes, by student and instructor	Not discussed in manuscript
Jozwik & Douglas (2017)	Yes, by student	Yes, by student	Yes, by student (self-evaluation)
Kim & Linan-Thompson (2013)	Yes, by student, with prompts from instructor	Yes, by student, with prompts from instructor	Not discussed in manuscript
Knaak et al. (2021)	Yes, by instructor	Yes, by student (individually) and by group (as shared “points”)	Not discussed in manuscript
McKenna et al. (2021)	Yes, by instructor	Yes, by student	Yes, in conference with instructor
Solís et al. (2017)	Yes, unclear whether set by student or instructor	Yes, by student	Yes, by student
Stevens et al. (2020)	Yes, unclear whether set by student or instructor	Not discussed in manuscript	Not discussed in manuscript

in setting goals or modeled goal setting. In some interventions, students were provided training or instruction about goal setting (e.g., guiding them toward a quantifiable goal that was then recorded on a personal sheet; Kim & Linan-Thompson, 2013) or were provided with tools to facilitate goal tracking at each intervention session (e.g., a “self-regulation checklist ... to establish goals of vocabulary learning, monitor learning through self-monitoring statements before and after the lesson, and reflect on goal attainment”; Solís et al., 2017, p. 108). In Gelzheiser et al.’s (2011) study, students chose a culminating challenge for themselves, and their teachers suggested tools to help them achieve that end goal. This was accomplished through collaborative discussion, in which “both teachers

and students ... initiate discussion topics [and] ask questions” (p. 285).

Among the 10 interventions that incorporated goal tracking (see Table 4), all involved goal setting, and eight involved goal monitoring (e.g., graphing progress, using a checklist to complete tasks, or recording scores). At least three of these (Gelzheiser et al., 2011; Hock et al., 2017; Jozwik & Douglas, 2017) involved the students setting their own goals, and a fourth (Kim & Linan-Thompson, 2013) involved students setting goals with prompts from their instructor. In three of the studies (Jozwik & Douglas, 2017; McKenna et al., 2021; Solís et al., 2017), the intervention involved students reflecting on their progress toward goals (e.g., in conference with their teacher, or by asking the evaluative question,

“What do I need to do next?” in order to make plans for further progress).

Citing literature about the effectiveness of “interdependent group contingencies,” the research team including Barwasser, Grünke, and Knaak included group rewards in two of their interventions (Barwasser et al., 2020; Knaak et al., 2021). In these studies, researchers explicitly noted that students’ progress towards objectives was tracked as a class, with group members reporting the number of points they had earned that day, and the promise of a reward once the whole group had attained a certain number of points all together. However, in most of the studies included in our literature review, goal-tracking activities seemed to be private to the student and their teacher.

Other motivational components

There were a few studies that addressed motivational components in addition to interest and/or goal setting. In the study conducted by Gelzheiser et al. (2011), students had the opportunity to choose a text of interest from a selection provided by their teacher. Citing the importance of collaborative discussion to students’ development of reading comprehension skills, these researchers emphasized ongoing conversations about the texts (including vocabulary words of note) “to promote understanding and engagement” (p. 284). On a different note, Shamir et al. (2018) explained that one benefit of using interactive devices to deliver an intervention is “giv[ing] the child a sense of discovery as well as competence” (p. 1234), which alludes to one of Ryan and Deci’s (2020) areas of psychological need (in order for students to experience internal regulation).

DISCUSSION

In the current literature review, we set out to identify effective vocabulary interventions for students with or at risk for LD, investigated since 2004, that included at least one motivational component. A thorough search resulted in just 21 studies that met our cri-

teria, although there may be many reasons for this. For example, when special education researchers create and implement a vocabulary intervention for students with LD, their ultimate goal is clear: Increase the students’ vocabulary knowledge and/or skills, providing them with tools that can spur on greater reading comprehension. Sometimes, making those interventions motivating is seen as potentially beneficial for the project; however, increasing student motivation is typically not the end goal of the intervention in and of itself. This makes sense, given the urgent need to support literacy skill development in SWDs.

Our finding of a relatively small number of studies that explicitly included a motivational component could also reflect how language is used across different fields of study. Often, the same term can mean different things to researchers in different fields. For example, both the conceptualization and operationalization of *self-determination* is distinct between the special education community (e.g., Wehmeyer, 1999) and psychologists (e.g., Deci & Ryan, 2020), where special educators discuss self-determination as an innate quality and set of beliefs that individuals bring from one situation to another and educational psychologists discuss this same construct as something that changes on the basis of the level of autonomy, competence, and relatedness support in a given environment. Alternatively, researchers across different fields may discuss the same concept but use different terms (e.g., “grit” vs. “conscientiousness”; see Ponnock et al., 2020). This ultimately reflects distinctions in the epistemological roots of our academic fields. For educational psychologists, on the one hand, the study of achievement motivation is rooted firmly in social cognitive theory and terminology is thus situated in that realm. Teachers (including special educators), on the other hand, are exposed to and practice a varied mix of techniques that draw not just from social cognitive theory but also from behaviorism, cognitive psychology, and constructivism, among others. As

such, when special education researchers design and implement academic interventions, they aim to do so in ways that can be feasibly integrated into classrooms. Researchers may attend to concepts such as motivation within their interventions by drawing from multiple viewpoints and academic traditions. This may explain both the elements that researchers choose to include and the terminology that they use to describe these features of their interventions.

The benefits and possibilities of incorporating extant motivational frameworks

Across the 21 articles that met our criteria for review, we saw well-executed applications of intervention procedures that included mention of motivation-related concepts. We offer the following as suggestions for further operationalizing these concepts prior to intervention implementation as a way of building on the complementary expertise of special education researchers and educational psychologists, potentially resulting in even greater vocabulary gains for students with or at risk for LD.

Interest

Several researchers, cognizant of the importance of student investment, took steps toward ensuring that the texts they chose for their interventions were of high interest to their participants. These efforts included researchers choosing reading topics/materials that they assumed were of interest to students from a particular age group (e.g., Knaak et al., 2021); selecting means of intervention delivery that were inferred to be inherently interesting (e.g., using technology; see Shamir et al., 2018); gathering anecdotal data about which topics were of greatest interest to students (e.g., McLeod et al., 2017); and requesting information directly from students about their interests (e.g., Pagan & Sénéchal, 2014). In other words, researchers' recognition of the need for student buy-in resulted in a range of approaches to addressing student interest, from entirely researcher-led

approaches to ones that were more student-driven.

Theories of achievement motivation such as Eccles and Wigfield's (2020) situated expectancy-value theory make room for the students themselves, rather than researchers, to determine which texts and topics are of interest to them, creating additional buy-in for the intervention activities. According to research driven by this theory, when students have the opportunity to act on their own interests, they are more motivated to learn and ultimately are more likely to make greater academic strides (Eccles & Wigfield, 2002). As such, building on the success of the interventions included in this literature review, future vocabulary interventions could be designed to be applicable to texts specifically chosen by students with LD as being of individual, personal interest. From the expectancy-value perspective, this would encourage long-term persistence, even with challenging tasks (Eccles & Wigfield, 2020).

If the parameters of a given intervention make student-selected texts impractical, the tenets of situated expectancy-value theory may still hold value for researchers developing vocabulary interventions for students with LD. The framework offers the notions of attainment value (e.g., "this is relevant to who I am as a person") and utility value (e.g., "this will help me achieve my goals"), which give students more reasons to engage in the intervention tasks even if they are not particularly interested in the included texts or topics. Researchers could include an initial stage of the intervention in which the student and the instructor engage in collaborative discussion about why the activities at hand are relevant to the students' beliefs about themselves and the goals they seek to pursue; such collaborative discussions are already a feature of at least one of the interventions included in our literature review (Gelzheiser et al., 2011).

Self-regulation

As demonstrated in Table 4, our final set of 21 studies included 10 in which the intervention at hand called for goals to be set.

However, the extent to which students drove the goal-setting process varied. Researchers' approaches to goal setting ranged from calling for entirely student-set goals, to ensuring that goals be mutually informed by the perspectives of both students and instructors, to prescribing that goals be set entirely by instructors.

These differences in approach to goals and goal setting have implications for the longer term results of the interventions. Although a behaviorist perspective indicates that public tracking of goal progress might foster group accountability, goal orientation theory suggests that such tracking might encourage competition, foster anxiety, or promote superficial engagement rather than deep learning (see Ames, 1992). Educational psychologists who study self-regulation argue that students benefit from setting and monitoring their own goals (Ryan & Deci, 2000). This not only helps students develop important self-regulation skills but also supports their psychological need for autonomy (Ryan & Deci, 2000).

Researchers trying to balance various learning needs of SWDs might find that constructs from social cognitive approaches to achievement goals can help teachers address students' motivational challenges if they arise by increasing teachers' mindfulness about the cumulative learning experience of students with LD across their educational trajectory (which is likely to include interventions in multiple skill, subject, and/or content areas). For example, students who perceive that their classrooms support mastery goal orientations report higher positive affect for school, including across difficult transitions (e.g., the transition to middle school; Anderman, 1999; Tuominen et al., 2020). Other research indicates that students who hold mastery goal orientations also report greater well-being overall (Yi et al., 2020). Incorporating a social cognitive understanding of achievement goals into initial conceptions of vocabulary interventions could serve to enhance the experience of students working through the intervention

tasks, reinforcing that learning and school are gratifying.

Attributions for success and failure

It was not clear from our review of the included articles that interventions systematically accounted for students' attributions for their success or failure. As noted, these internalized, subjective narratives are predictive of future behavior; if a student believes that a recent success was the function of effort and practice, they are more likely to repeat those behaviors in future goal pursuits. Given how closely students worked with teachers or the research teams during most vocabulary intervention activities, it is likely that conversations about students' perceived challenges and accomplishments naturally arose. Partnering with motivation researchers would allow intervention experts to capture the coaching conversations that encourage students to reframe less adaptive attributions into adaptive ones or provide guidance for those administering interventions as to how to facilitate attributional retraining.

CONCLUSION

All 21 of the studies reviewed here detail interventions that were shown to effectively increase targeted vocabulary skills. As such, these researchers are already at the forefront of determining when and how to support students with LD in developing rich and meaningful vocabularies. We contend that they only stand to gain from interdisciplinary collaborations. Partnership between educational psychologists and special education researchers and service providers would enable all parties involved to benefit from one another's expertise. For special education researchers, working with experts in motivation theories based in a social cognitive approach might result in students having enhanced experiences that could make vocabulary interventions even more successful, and their results even longer lasting. Educational psychologists could find that their motivation

theories would benefit from increased consideration of SWDs, given that this population has not been fully represented in their work (Emery et al., 2022). K-12 school-based educators who use these strategies with their

students could then report back to a wider range of researchers about how classroom realities shape the practicality of applying study findings. We look forward to the possibilities that these collaborations offer.

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