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Why is Writing So Difficult for Students with Learning Disabilities? A Narrative Review to Inform the Design of Effective Instruction

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This article features a discussion of what contemporary research tells us are the most significant factors that individually and collectively serve to thwart the writing development and performance of students with LD. Support is drawn from recent research syntheses, as well as individual studies. I begin with an overview of skillful writing and the process of developing writing competence. Next, I provide an overview of students' difficulties with respect to planning, text production, and revising. Finally, a discussion of motivation in writing is offered. Together, this information provides a framework to better understand why students experience difficulty with writing. Thus, the likelihood that targeted and effective instructional opportunities will be designed and assessed is increased.

Keywords: Written language, writing instruction, learning disabilities

The ability to compose represents a fundamental and essential competency for both children and adults (Graham & Perin, 2007). Writing is one of the most powerful tools we have for learning and for demonstrating what we know. It facilitates communication and connections with others, and promotes self-expression, self-reflection, and personal development. Thus, difficulties with writing create significant barriers in education, employment and other life pursuits (Graham, 2006).

Despite the importance of writing, assessment data indicate we are not yet effective at helping students gain the critical knowledge and skills required for skillful narrative, expository, and persuasive prose. For example, according to the 2011 National Assessment of Educational Progress, only 27% of eighth- and twelfth-graders were classified as proficient or advanced writers (National Center for Educational Statistics, 2012). A substantial body of research further documents that students with learning disabilities (LD) are at particularly high risk for experiencing writing difficulties (see Graham & Harris, 2003 for a review of the research base).

In this article, I offer a selective narrative review of contemporary research related to the most significant factors that individually and collectively serve to thwart the writing development and performance of students with LD. To establish the context for this topic, I first provide an overview of skillful writing. Then, I briefly describe the process through which students develop writing competence. Next, I explain the most common factors that negatively impact students' ability to engage in the three primary writing processes: planning, text production, and revising. Finally, I review salient findings regarding the impact of motivational variables on writing. This article extends the recent literature- which is focused nearly exclusively on in-

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terventions- by offering a comprehensive description of the reasons students with LD experience significant difficulties with writing. This foundational knowledge will enhance teachers', parents', and other school practitioners' ability to engage in the process of understanding *why* a particular student is experiencing difficulty with writing (i.e., 'Problem Analysis') such that targeted and effective instructional opportunities can be designed and assessed (i.e., 'Intervention Planning and Monitoring') (e.g., Santangelo, 2008).

Skillful Writing

Writing research has expanded significantly in recent decades and has produced important insights about the processes and variables that comprise and influence composition (Graham & Perin, 2007). Together, the most influential theoretical frameworks emphasize that writing is a recursive, strategic, and challenging process centric to (a) planning what to say and how to say it, (b) translating ideas into written text, and (c) revising what has been written (e.g., Bereiter & Scardamalia, 1987; Hayes, 1996; Hayes & Flower, 1980; Zimmerman & Risemberg, 1997). Whereas writing was historically viewed as a linear and somewhat simplistic activity, contemporary models now recognize it is cognitive, linguistic, affective, behavioral, and physical in nature and set within a larger socio-cultural context (interested readers are encouraged to see Prior, 2006, for an expanded discussion). Although much still remains to be learned about the composing process, the existing models help create a portrait of skillful writers.

Skillful writers have an intimate familiarity with, and understanding of, diverse genre conventions, as well as relevant topical knowledge (Olinghouse, Graham, & Gillespie, 2013). Skilled writers exhibit automaticity with foundational skills, such as handwriting, spelling, and negotiating the rules of mechanics and grammar (Graham, 2006). Throughout the writing process, skilled writers demonstrate sensitivity to the needs and perspectives of their audience, the overarching goals and purposes of their writing, and the thematic cohesion and organization of their writing (Harris, Santangelo, & Graham, 2010). They maintain attention and demonstrate flexibility, creativity, motivation, and persistence. Finally, skilled writers exhibit extensive self-regulation by establishing goals, structuring the social and physical environment, and actively monitoring and adjusting the processes used throughout the composition process (Graham & Harris, 2005).

Developing Writing Competence

Before the age of 3, students demonstrate an understanding of and appreciation for writing and engage in purposeful graphic production (Brennemann, Massey, Machado, & Gelman, 1996). With increasing exposure to and practice with writing, their graphic representations evolve into recognizable text and, eventually sophisticated written language. Although our understanding of how developmental, contextual, and individual variables influence the development of writing competence is still evolving, there is general agreement that it is heavily dependent upon growth in four key areas: self-regulatory or strategic behaviors, writing knowledge, writing skills, and motivation (Alexander, Graham, & Harris, 1998). Furthermore, there is unequivocal recognition that the complexity involved with progressing from

novice to competent to expert writer cannot be underestimated. As Berninger and Winn (2006) explained,

> The journey to skilled writing involves many small steps, false starts, plateaus, and regressions, along with some leaps forward and a few major developmental transitions along the way. The processes contributing to writing development cascade (overlap) and show developmental discontinuities. Contributing to these cascading and discontinuous processes are interactions among the internal structures and functions of the writer's brain, the external instruction, the external writing tools, and the external writing productions. (p. 108)

This article describes how strategic behaviors, writing knowledge, writing skills, and motivation influence the writing of students with LD. However, it is important to recognize that research has shown several additional powerful correlates. Writing is closely related to the three other linguistic systems (speaking, listening, and reading); they share essential phonemic, orthographic, morphological, lexical, and syntactic features, depend upon similar cognitive substrata abilities, and draw from overlapping knowledge bases (e.g., Dockrell, Lindsay, Connelly, & Mackie, 2007). Although the relationships among these domains are complex and asymmetrical, the presence of bidirectional patterns has been established. Thus, one can generally infer that abilities or difficulties in one area will serve to enhance or impede development of another (see Shanahan, 2006 for a review of the research base).

Educational variables are also critical. For instance, writing development and performance are enhanced when teachers: blend process-embedded skills and strategy instruction with writing workshop elements; provide intense, individualized, and explicit instruction to students who need it; create a positive, collaborative, and supportive climate in the classroom; provide extended writing opportunities with authentic, relevant, and engaging tasks representing multiple genres; and utilize multiple resources, including technology (e.g., Graham & Harris, 2003, 2005; Graham & Perin, 2007).

Finally, gender, race/ethnicity, and socioeconomic status are related to writing achievement (National Center for Educational Statistics, 2012). For example, the average 2011 NAEP writing scaled score among female and male eighth-grade students was 160 and 140, respectively. The average score among Caucasian students was 158, whereas it was 132 and 136 among African American and Hispanic students, respectively. The average score among students who were not eligible for free or reduced meals was 161, whereas it was 134 among students who were eligible for free lunch. Thus, each of these variables may provide information about a student's risk for experiencing difficulties with the development of writing competence (e.g., Graham, 2006).

Characteristics of Writing Processes and Products Among Students with LD

In this section, an overview of common characteristics related to the writing processes and products of students with LD is offered. Specifically, this includes an examination of planning, text production, revising, and motivation.

Planning

Planning is a fundamental and essential component of skillful writing that occurs in advance of, and during, text production (Graham, 2006). Efficacious planning is triadic, wherein the writer (1) develops, prioritizes, and modifies goals; (2) generates possible ideas; and (3) selects and organizes the ideas that are perceived as being valuable (Hayes & Flower, 1980). Skilled writers typically begin planning by critically considering the task (e.g., Torrance & Galbraith, 2006). That allows them to formulate goals and delineate plans that reflect crucial elements such as the rhetorical purpose, perceived audience needs, genre demands, and appropriate tone and linguistic style. Skilled writers also use a variety of strategies to facilitate the generation and organization of content. For example, many develop an outline because it helps them focus their cognitive resources and attention first on organizing ideas, and then on translating those ideas into text. Another hallmark of skilled writing is that planning continues throughout the composition process, as evidenced by the fact that skilled writers frequently pause to reflect upon their developing text (Graham, 2006).

There are at least two significant contrasts between the planning behaviors displayed by skilled writers and those displayed by students with LD (e.g., Graham & Harris, 2000, 2003). First, unlike skilled writers who often engage in thoughtful and conceptual-level advanced planning, students with LD typically devote less than one minute to this important task (De La Paz, 1999; De La Paz & Graham, 1997; Graham, 1990; Lienemann, Graham, Leader-Janssen, & Reid, 2006; Troia, Graham, & Harris, 1999). This pattern holds true regardless of students' age, the writing genre, the writing medium (e.g., handwriting, typing, or dictating), or the use of explicit prompts for advanced planning. Second, whereas planning continues to be an integral part of text production among skilled writers, students with LD show little, if any, evidence of planning while they compose (Graham, 2006). Instead, they rely on an un-planful approach that is aptly termed, 'knowledge telling' (Bereiter & Scardamalia, 1987). That is, they write down all information they perceive to be somewhat topic-related and use each idea, phrase, or sentence to spawn the one that follows. They rarely (if ever) critically evaluate their initial ideas, reorganize their text, or reflect on whether their writing is harmonious with important considerations, such as their purpose for the task, the needs of their intended audience, or the demands of the genre. Unfortunately, the knowledge telling approach is neither efficient, nor effective for the majority of writing tasks; skillful writing require thoughtful planning, rather than episodically listing ideas that happen to be spontaneously retrieved (Graham & Harris, 2005). Together, students' lack of advanced planning and reliance on knowledge telling, results in the production of compositions that rated low in terms of overall quality (e.g., Graham & Harris, 2000, 2003). That is, they are short, poorly organized, incomplete, and lacking in detail and elaboration.

Why do students with LD have difficulty with planning? Research suggests three primary reasons individually or collectively contribute to the planning difficulties experienced by students with LD. First, students often find it challenging to generate content for their compositions by retrieving relevant information from memory (e.g., Graham & Harris, 2003). In other words, even though they have knowledge of a particular topic, or have ideas that would enhance a story, they are unable to access that information such that it could be incorporated into their writing.

Support for this premise is found in research documenting that providing students with LD verbal prompts or visual text frames significantly increases the length and quality of their writing (De La Paz, 1999; De La Paz & Graham, 1997; Graham, Harris, MacArthur, & Schwartz, 1991). For example, Graham (1990) reported when fourth- and sixth-grade students with LD handwrote and dictated argumentative essays, their compositions were short and incomplete. They began with a simple "yes" or "no" response and offered minimal support for their premise; their essays were completed, on average, in less than 6 minutes. However, when three successive verbal prompts were used to encourage them to expand their writing, they generated up to four times more substantive content.

Second, many students with LD have limited knowledge about writing genres, devices, and conventions (e.g., Graham & Harris, 2003). This includes not only more sophisticated and unique forms, such as poetry or persuasive writing, but also those that are more common, such as personal narratives and story writing. Unfortunately, this limited knowledge is often directly reflected in students' writing, as important components are frequently omitted. For instance, MacArthur and Graham (1987) reported that when fifth- and sixth-grade students with LD were asked to handwrite, to type, and to dictate a story, they typically included a main character, some information about when or where the story took place, and some type of action on the part of the characters. However, they rarely established a starter event, included goals for the characters, described characters' reactions, or offered a conclusion. De La Paz (1999) reported similar findings with persuasive writing among seventh- and eighth-graders. All students stated their premise, but less than half included a conclusion, and nearly 15% failed to include even one supporting reason. Further emphasizing the impact of students' limited genre knowledge is a substantial body of research documenting that explicitly and systematically teaching students with LD about important schematic structures and genre characteristics consistently helps them write compositions that are longer, more complete, and qualitatively better (De La Paz, 1999; De La Paz & Graham, 1997; Graham, Harris, & Mason, 2005; Lienemann et al., 2006; Troia et al., 1999).

Finally, many students with LD lack knowledge of and/or have difficulty coordinating and executing the planning strategies that are used by skilled writers (e.g., Graham & Harris, 2000, 2003). The strongest evidence for this explanation comes from studies that have documented the significant benefits of teaching students strategies for advanced planning (e.g., setting goals, gathering and organizing information), as well as strategies to promote planning while producing text (Bui, Schumaker, & Deshler, 2006; Graham et al., 2005; Lienemann et al., 2006; Walker, Shippen, Alberto, Houchins, & Cihak, 2005). Consistently, these interventions have resulted in meaningful increases in students' knowledge of planning strategies, the time they spend engaged in planning behaviors, their appreciation for planning, as well as their compositional length and quality.

Text Production

Taken simply, the process of text production can be conceptualized as having two fundamental elements (Berninger & Swanson, 1994; Chenoweth & Hayes, 2001). First, the writer must *generate* a linguistic message by turning his or her ideas

into words, sentences, and larger discourse units within working memory. Then, the writer must *transcribe* that message into written text. McCutcheon (2006) explained essential features of, and relationships between, generating and translating text within the context of skillful writing this way:

> It is assumed that text generation shares many cognitive components with oral language generation, such as content selection, lexical retrieval, syntactic formulation, and so on. Transcription, in contrast, entails the cognitive and physical acts of forming written (as opposed to spoken) representations of text. Although component processes can be distinguished conceptually, protocols of skilled writers indicate there is often considerable interplay among text production processes. Prelinguistic ideas may be abandoned when appropriate language is difficult to generate, and new ideas may be prompted by the act of generating text. Even skilled writers make frequent revisions in word choice and grammar in the course of translating ideas into language. In addition, text production draws on resources from long-term memory and working memory. (p. 118)

Most skilled writers demonstrate automaticity with the processes of text generation and transcription, such that they require little conscious effort during composition (e.g., Berninger & Winn, 2006).

A substantial body of research suggests that students with LD experience significant difficulty with both generating and transcribing text (e.g., Graham & Harris, 2000, 2003). When compared with the writing of their peers without LD, writing produced by students with LD is consistently shorter and less linguistically and syntactically complex. Their compositions also contain significantly more misspelled words and errors in punctuation, capitalization, grammar, and usage (e.g., Graham et al., 1991). Students with LD also frequently experience handwriting difficulties, producing letters at a rate nearly half that of their more fluent peers, and generating papers that are considerably less legible (MacArthur & Graham, 1987; Weintraub & Graham, 1998).

Collectively, these difficulties have several deleterious implications that can be thought of as affecting the 'reader' and the 'writer' (Graham, 2006). When a composition contains numerous spelling, grammatical, and syntactical errors and/or is not very legible, it compromises the subsequent readability of the writing. Not surprisingly, these errors inhibit students' ability to effectively revise their writing. However, they have also been shown to negatively impact the other readers' perceptions of competence (Graham, Harris, & Hebert, 2011). For example, when adults are presented with multiple versions of a student's composition that contain the same content but differ in terms of handwriting legibility or the number of words misspelled, they rate those that are neatly written and those that contain correct spellings as higher in overall quality. Difficulties with lower-level text production skills also result in 'writer' effects that may be less obvious, yet more pernicious. Specifically, a lack of skill proficiency and automaticity impedes the generation of content at both the sentence and discourse level, and it compromises the ability to successfully carry

out other critical composing processes such as planning and revising (e.g., Graham & Harris, 2000, 2003). For example, when a child has to figure out how to spell a large portion of the words he or she wants to include, the writing plans or ideas being held in working memory may be lost. Similarly, students may lose ideas or plans if their handwriting is not fast enough to keep up with their thoughts.

Why do students with LD have difficulty with text production? Text production difficulties commonly result from dysfluency with the elemental skills such word retrieval, grammar, and semantic structures, as well as the motor and cognitive aspects of handwriting that allow for the fluent translation of ideas into written language (see Torrance & Galbraith, 2006 for a review). Although the exact nature of how lower- and higher-level processes compete and/or interfere with the writer's cognitive resources is not yet fully understood, automaticity and fluency with text production are critical for the higher-level aspects of writing to develop and function well. Evidence for the theoretical effect from difficulties with lower-level skills can be found in three related strands of research (see Berninger & Winn, 2006 and Graham & Harris, 2000, 2003 for extended reviews).

First, it has been shown that handwriting fluency and spelling are powerful predictors of writing achievement. Based on a comprehensive review of available research, Graham, Berninger, Abbot, Abbot, and Whitaker (1997) found that handwriting and spelling skills accounted for 25% and 46% respectively of the variance in compositional quality at the primary and intermediate grades, and 66% and 41% respectively of the variance in compositional fluency (the amount of text written within a specific amount of time), at these same grade levels. A later study by Jones and Christensen (1999) yielded an even stronger relationship, with handwriting skills alone accounting for 50% of the variance in the writing quality of second-grade children, when reading scores were held constant.

Second, removing the mechanical demands (but not rhetorical constraints) of writing through the use of dictation and speech recognition technology typically results in increased compositional length and quality (e.g., MacArthur & Graham, 1987). For instance, Quinlan (2004) documented the negative impact of transcription dysfluency on compositional length, quality, and surface errors among adolescents. The following two narratives (produced by the same student in response to picture prompts) provide an excellent illustration.

> *Handwritten narrative:* Jimy he cold fly. The next day he tried to fly he jumped in the air he floted and fell, then he tried again, and he went really hi in the air then he went over the bildings and hills. He went over everything! No body code see him any where.
>
> *Speech recognition narrative:* One day while Bobby was playing baseball outside, the sun was shining and he thought he [was] God! God was coming towards him walking on clouds and waving, at him. He was shocked at first but he realized he was not in trouble, he was only been visited. He was awful bright and in white. He was awful nice even as large as he was. Soon he had to go, when he did leave I was disappointed. (p. 343)

Third, providing students with explicit instruction in text production skills has a positive impact on their compositional fluency, length, and sometimes quality. Specifically, interventions targeting spelling (e.g., Berninger et al., 1998, 2002; Graham, Harris, & Chorzempa, 2002), handwriting (e.g., Berninger et al., 1997; Graham, Harris, & Fink, 2000), and sentence-combining (e.g., Saddler, Behforooz, & Asaro, 2008; Saddler & Graham, 2005) are beneficial, especially when they are nested within meaningful writing tasks and taught in tandem with other writing skills and processes.

Revising

Revising is a critical and multi-dimensional component of the writing process that involves reviewing, evaluating, and rewriting text (Hayes, 2004). For skilled writers, revision is an integral, extensive, ongoing activity that requires the coordination and management of several cognitive skills and draws upon the resources of both working and long-term memory. Guided by their overarching goals (e.g., reflecting rhetorical purpose, intended audience, and genre expectations), skillful writers iteratively improve the overall quality of their compositions by attending to both the conceptual and linguistic aspects of their texts (McCutcheon, 2006). Skilled writers' revision schemas direct them to critically read their work in a sophisticated way, such that they focus on the macrostructure and meaning of their compositions, rather than surface-level textual features of discrete sentences and words, such as spelling, grammar, punctuation, and so on. They identify discrepancies between the actual and intended text, and evidence proficiency with the skills that allow problems to be successfully addressed.

The revising behaviors of students with LD differ significantly from those that are associated with skillful writing (Graham, 2006). Whereas skilled writers spend significant time revising the conceptual aspects of their compositions, students with LD devote minimal time to revising their text, focusing their efforts almost exclusively on changing surface-level features such as punctuation, capitalization, spelling, and word selection. Furthermore, the majority of their revisions have no appreciable impact on their writing quality (e.g., Graham & Harris, 2003, 2005). Typically, the only improvement across drafts is handwriting legibility. Although this is a necessary and important accomplishment for some students, it is by no means sufficient.

For example, MacArthur and Graham (1987) found that nearly 60% of the revisions made by fourth- and fifth-grade students with LD focused on surface-level features, regardless of whether they were handwriting or word processing their compositions. Moreover, the mechanical revisions they did make were generally ineffective, as evidenced by insignificant differences between the proportion of spelling, capitalization, punctuation, or grammatical errors in students' first and second drafts. Of the few revisions that focused on changing the meaning of the text, only 10% of the revisions made when handwriting and only 28% of the revisions made when word processing had a positive impact on their writing. Similarly, MacArthur, Graham, and Schwartz (1991) reported that 57% of revisions made by seventh- and eighth-grade students with LD were focused on surface-level text features, irrespective of writing genre; these were generally ineffective, as the only significant change between the first and second drafts was handwriting legibility. Of the meaning-level revisions that were

made, 45% were rated as having a positive impact on the text, and 28% actually reduced the overall quality of the text.

Why do students with LD have difficulty with revising? Juxtaposing what is known about the critical elements necessary for skillful revising with the observed behaviors of students with LD provides several possible explanations as to why they have difficulty with this part of the writing process. First, and not surprisingly, the same lower-level difficulties that hindered students' ability to engage in planning and text production also compromise their ability to successfully revise even the surface-level features of their text. In other words, if a student struggles with spelling and grammar when writing a first draft, it is likely he or she will not be able to identify errors and/or fix them correctly (e.g., Graham, 1997; MacArthur & Graham, 1987). Similarly, if a student is not skilled at combining simpler sentences into more complex sentences, he or she will be unable to do so when revising (e.g., Saddler et al., 2008; Saddler & Graham, 2005). Difficulties with handwriting have also been shown to negatively impact revising. For instance, MacArthur et al. (1991) reported that many students with LD omitted sections of their text because they did not want to recopy them. Others made accidental deletions when they rewrote their second draft. In both cases, the deletions caused by difficulties with handwriting diminished the overall quality of the students' composition. Additionally, a lack of automaticity with the lower-level text production skills means students will have less time and energy to revise their compositions.

Second, many students with LD have revising schemas that lead them to over-emphasize surface-features such as text appearance and mechanics, rather than the overall quality or substance of the content (e.g., Graham & Harris, 2003, 2005). They conceptualize the revising process as being synonymous with proofreading or editing, rather than making overall improvements to the meaning of their text. Although it might seem plausible to attribute this schematic perspective to one of practicality, given the sheer number of errors students with LD make in their writing, it is not the sole cause. Another contributing factor is students' fundamental lack of knowledge regarding the essential elements and characteristics of good writing in general, and successful revision, in particular (e.g., Graham et al., 2005; Saddler & Graham, 2007). As an illustration, Graham, Schwartz, and MacArthur (1993) reported that fourth-, fifth-, seventh-, and eighth- grade students with LD were significantly more likely to attribute successful writing to elements of form (e.g., neatness and mechanics), and significantly less likely to identify conceptual-level revision strategies (e.g., text reorganization) than their peers without LD.

Sample interview responses from students with LD illustrate these patterns. When asked, "Suppose you were asked to be the teacher for one of your classes today and that one of the students asked you, What is good writing?- What would you tell that student about good writing?", they responded:

"It's neat, correctly formed, and stays on the baseline";

"Good posture, sit up straight, write as neat as you can.";

"Spelling every word right."

When asked, "Teachers often ask students to change their papers to make them better; if you were asked to change your paper to make it better or improve it, what kind of changes would you make?", they responded:

"Do it in ink";
"Write it bigger so it takes up more space";
Try to make it neater"; and
"Make sure I had my date on there and name..." (p. 246).

Third, students with LD have difficulty with the coordination and management of the knowledge, skills, and processes that collective: equate to skilled revision (e.g., Graham & Harris, 2000, 2003). Evidence for these executive function difficulties is found in research documenting the positive outcomes that occur when students with LD learn about the critical elements of the revising process and are providing with procedural support to systematically implement them (e.g., Graham et al., 2005; Graham & MacArthur, 1997). For example, in Graham (1997) fifth- and sixth-grade students with LD learned to apply a triadic revising strategy called CDO (i.e., Compare, Diagnose, and Operate) to each sentence of their text. First, they selected from one of seven possible evaluations that were written on individual index cards (i.e., "This doesn't sound right; This is not what I wanted to say; This is not useful to my paper; This is good; People may not understand this part; People won't be interested in this part; and People won't buy this part"). Then they explained how it applied to their text. Next, they selected from one of five revision tactics that were also written on individual index cards (i.e., "Leave it the same; Say more; Leave this part out; Change the wording; and Cross out and say it a different way") and implemented the corresponding change. Collectively, this revising routine facilitated their executive functioning by scaffolding the sequential implementation of each revising element and limited their choice of evaluative and tactical possibilities. When compared to students' original revising behavior, the use of the CDO revising strategy increased the time they devoted to revising, the overall quality of their revisions, and the number of substantive changes that were made to their compositions. Students' reflections on their use of this strategy highlight its benefits. They explained:

"Well you have the steps for revising and its easier to use than not steps";
"Reminds me to look over to see if it sounds right";
"Gave me a choice of how I wanted to change it or make it different";
"Helped me make it an interesting story, and change things, and not miss much"; and
"It helps [me] understand more about it- how to revise" (p. 227).

However, the results of this study (as well as others) also emphasized the need to concurrently address students' other difficulties, such as their focus on surface-level features and their lack of proficiency with lower-level skills; the revising strategy alone was not enough to help them revise comprehensively and successfully.

Motivation

Insomuch as the previous descriptions of planning, text production, and revising have emphasized the role of strategic behaviors, writing knowledge, and writing skills, it is critical to understand that motivation is also an essential element of writing development and performance (Alexander et al., 1998; Graham, 2006; Troia, Shankland, & Wolbers, 2012). Although a variety of motivational variables enhance,

and are affected by, learning in all domains, this reciprocal relationship is paramount within the context of writing. As Bruning and Horn (2000) explained,

> We now recognize skilled writing for what it is- a tremendously complex problem-solving act involving memory, planning, text generation, and revision. In solving writing's ill-defined problems, writers must juggle multiple goals and satisfy many constraints- of topic, audience, purpose, and of physically creating the text itself. They also must switch back and forth among a variety of frames of reference, including critical thinking (e.g., perspective, logic), rhetorical stances (e.g., description, persuasion), and writing conventions (e.g., tone, mechanics, spelling). In a difficult and complex task like this, motivational issues will assume particularly prominent status. Writers need to develop strong beliefs in the relevance and importance of writing, and as they grapple with writing's complexities and frustrations, learn to be patient, persistent, and flexible. (p. 26)

Although much still remains to be understood about motivation and writing, research focused on this area has revealed some insights regarding students with LD.

Perception of value is a critical motivational variable; when we believe a task or activity is important and worthwhile, we are much more likely to devote time and effort to completing it (Bruning & Horn, 2000). Research has documented that most students perceive writing to be highly useful, at least for achieving academic and vocational goals, by the time they reach upper-elementary school and through college (e.g., Pajares & Valiante, 2006). Unfortunately, this finding does not hold true for students who struggle with writing, including those with LD (e.g., Graham et al., 1993). For example, based on interviews with fourth-graders, Saddler and Graham (2007) reported that struggling writers had significantly less knowledge about the purpose and value of writing than their peers who were skilled writers. Skillful writers were more than twice as likely to articulate how writing benefited them in school (e.g., "will help when we go to college," "helps the teacher understand you"), and more than four times as likely to describe how writing could promote future occupational success (e.g., "make more money," "you might be a lawyer and have to write a persuasive story," "if you want to be a doctor you could take special notes") (p. 241). Collectively, the data suggested that students who struggled with writing perceived it to have minimal personal relevance or value.

Attitude is another important motivational variable (Graham, 2006). Within the context of writing, attitude can be defined as "an affective disposition involving how the act of writing makes the author feel, ranging from happy to unhappy" (Graham, Berninger, & Fan, 2007, p. 518). Several studies have documented that students who struggle with writing, including those with LD, hold a less positive view of the process than that of their peers who are skillful writers (e.g., Graham et al., 1993). Moreover, recent research by Graham et al. (2007) empirically supported the determinative relationship between attitude towards writing and the development of competence. Based on data from a large sample of first- and third-graders, two conclusions were drawn: (a) students' attitudes towards writing serves to catalyze and shape their writing development (at least when defined by proxy as performance)

and (b) individual differences in students' attitudes toward writing predict writing performance. Thus, the need to address negative attitudes towards writing cannot be overemphasized.

Motivation is also influenced by self-efficacy, a construct that represents beliefs and personal judgments about the ability to perform at a certain level (Pajares & Valiante, 2006). Self-efficacy is derived from multiple sources (e.g., interpretations of previous performance, vicariously observing others performing the task, reactions from others, and somatic and emotional states) and affects choice of activities, effort, perseverance, resiliency, and performance. Since students with LD experience tremendous difficulty with writing, one might expect correspondingly low-levels of self-efficacy. Research has shown, however, that the self-efficacy of students with LD often does not differ significantly from that of their peers who are skilled writers (e.g., Graham et al., 2005). For example, Graham et al. (1993) reported that fourth-, fifth-, seventh-, and eighth-grade students with and without LD were equally confident about their ability to generate and organize ideas for compositions, transcribe ideas into sentences, sustain their writing effort, and correct mistakes on their paper. Similar results have been found with third-grade students (Graham et al., 2005).

This inflated perception of competence among students with LD may result from a lack of development of the skills that facilitate an accurate assessment of abilities. Another possibility is that it reflects a false sense of confidence that is projected to disguise embarrassment about writing difficulties (Graham & Harris, 2003, 2005). In one respect, students' positive self-assessments may protect their self-esteem and facilitate persistence despite previous difficulties. However, there is also a risk that students will fail to allocate the necessary time and effort to improve their writing skills; they believe that good writers, like themselves, produce quality compositions spontaneously. To help students with LD develop validly high-levels of self-efficacy, practices such as goal setting, performance monitoring, and performance evaluating are often used.

Concluding Remarks

A substantial body of research documents that students with LD often have difficulty acquiring the critical competencies required for skillful writing (e.g., Alexander et al., 1998; Graham & Harris, 2003). Consistently, their compositions are judged to be of lower quality than those produced by their peers without LD; they are short, incomplete, less linguistically and syntactically complex, and lacking in detail. In this article, I described some of the salient factors that have been shown to hinder students' writing development and performance. Specifically, I highlighted the characteristics of skillful writing in the areas of planning, text production, and revision, I compared them to the ways in which students with LD engage in each of these processes, and I explored some of the possible reasons for these differences.

With regard to planning, I described how skilled writers engage in thoughtful planning, while students with LD typically devote less than one minute to this critical part of the writing process. Planning continues during text production among skilled writers, while students with LD rarely evaluate their ideas or reorganize their text. Instead, they engage in knowledge telling. Research suggests students' planning difficulties occur because they are unable to readily retrieve potential content from

memory, they have limited knowledge of writing genres, devices, and conventions, and they have difficulty coordinating and executing efficacious planning strategies.

With regard to text production, skilled writers are able to generate linguistic messages that reflect their ideas, and then transcribe those ideas into written text with little conscious effort. In contrast, students with LD experience significant difficulty with both text generation and text production because they lack automaticity and fluency with skills such as word retrieval, spelling, grammar, semantic structure, and handwriting. Collectively, these difficulties impact the readability of their text, and they impede the generation of content, and compromise students' ability to carry out other critical processes such as planning and revising.

With regard to revision, skilled writers spend a significant amount of time and effort reviewing and improving their text, focusing primarily on the macro-structure and meaning of their compositions. In contrast, students with LD devote minimal time to revising their text, and they focus predominantly on changing surface-level textual features. Furthermore, the majority of their revisions have either a neutral or negative impact on their writing. These difficulties with revision result from a lack of proficiency with skills such as spelling, grammar and handwriting, an unsophisticated revising schema, a fundamental lack of knowledge regarding the essential elements and characteristics of good writing and successful revision, and difficulties coordinating and managing the processes that underlie skilled revision.

Finally, with regard to motivation, skillful writing is facilitated by several motivational variables. For instance, skilled writers typically perceive composing to be a useful and important activity. In contrast, struggling writers, including those with LD, have significantly less knowledge about the purpose and value of writing, perceive it to have minimal personal relevance or value, and do not describe it as being a positive, pleasant, or enjoyable activity. Furthermore, many possess an inflated perception of confidence. Collectively, these affective dimensions thwart their desire to write, thus their opportunities for practice and improvement.

This information, describing the difficulties commonly experienced by students with LD, should facilitate the ability to design targeted and effective instructional interventions to promote the development of writing competency. For instance, students who are challenged by managing certain aspects of the writing process benefit from learning strategies targeting their particular area of need (e.g., planning, revising). Students who have limited knowledge of the essential elements and characteristics of good writing across genres, need to acquire such knowledge. Students who lack automaticity and fluency with lower-level transcription skills (e.g., handwriting and spelling), require meaningful and contextually situated opportunities to develop those abilities. Finally, for students who have yet to recognize and understand the purpose, power, value, enjoyment, and relevance of writing, it is especially important to design authentic, extended, and engaging writing opportunities.

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