CHAPTER 5.

"I'M A BAD WRITER": HOW STUDENTS' MINDSETS INFLUENCE THEIR WRITING PROCESSES AND PERFORMANCES

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Writing teachers and tutors often hear students characterize themselves as "bad writers," but how does this self-belief and feeling of failure affect them? Decades ago, Mike Palmquist and Richard Young (1992) hypothesized that viewing writing as a natural gift could be harmful for students because this "notion of giftedness" can lead to writing apprehension and resistance to instruction (p. 162). However, their study was inconclusive; we still do not fully understand how students' beliefs about writing affect them. Psychological research on students' mindsets, characterized by their beliefs about the expandable nature of ability, can help us unpack students' belief systems and behaviors (Dweck, 2006). Better understanding the consequences of students' mindsets could help explain and mitigate challenges writing instructors face, such as students' reluctance to revise, resistance to feedback, and poor response to failure.

The goals of this chapter are to illuminate the connection between students' mindsets and their writing processes and the connection between their writing processes and performances by presenting empirical findings that highlight growth-minded students' writing practices. The study I describe is part of a larger project with additional research questions and data that exceed the scope of this chapter. For the larger project, I assessed engineering students' literature review essays and explored how an embedded writing tutor influenced students' mindsets and writing performance. I found that tutored students became significantly more growth-minded, and they revised their final essays more significantly than control group students did (Miller, 2020). In this chapter, I use mindset theory to interpret my interview and survey data, to understand how writers' beliefs can impact their writing processes and performances.

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MINDSET THEORY

According to Stanford Psychologist Carol Dweck (2006), people's implicit beliefs about their intelligence and abilities characterize their "mindset." Through decades of research, Dweck has discovered that people tend to have either a "fixed" mindset—the belief that intelligence and ability are mostly unchangeable—or a "growth" mindset, the belief that people can improve themselves through effort. Studies have shown that growth-minded students typically outperform fixed-minded students: They tend to earn higher grades (Aronson et al., 2002), improve their standardized test scores (Good et al., 2003), work harder with greater motivation (Blackwell et al., 2007), and enjoy school more (Aronson et al., 2002). Fixed-minded students tend to avoid challenges because they are afraid of failing, which they perceive as a reflection of their innate qualities (Dweck, 2006). Thus, they aim to display their intelligence and are more concerned with performance than learning. Fixed-minded students also tend to avoid effort because they see it as a sign of weakness, assuming only weak students must work hard (Dweck, 2006). Although researchers have studied the consequences of students' implicit beliefs in a variety of domains, very few studies examine mindset in the context of writing (e.g., Limpo & Alves, 2014; 2017; Powell, 2018).

According to psychological research, students' mindsets directly affect their attitudes, learning strategies, performance, and success (Good et al., 2003). Importantly, psychologists argue that mindsets influence people most when they encounter obstacles and challenging subject matter (Blackwell et al., 2007). Several groundbreaking studies have sought to change students' mindsets and then assess the effects of that intervention (e.g., Aronson et al., 2002; Good et al., 2003). Such intervention studies typically encourage students to adopt a growth mindset by teaching them about brain plasticity; they find that most students who learn about mindset theory have later increased academic performance (Aronson et al., 2002), improved persistence (Blackwell et al., 2007), better health and decreased stress (Yeager et al., 2014), and less hostility toward others (Yeager et al., 2013). These studies suggest that mindsets are malleable, and even relatively small interventions can significantly impact students' beliefs and behaviors (Blackwell et al., 2007).

Although scholars argue that a growth mindset can improve students' performance, they acknowledge that this mindset is not a panacea for all obstacles (Blackwell et al., 2007; Mercer & Ryan, 2010). It is important to note, too, that people do not display the same mindset all the time. Instead, psychologists generally view mindsets as operating on a continuum, and they "think of learners as having a tendency towards a particular mindset to varying degrees" (Mercer & Ryan, 2010, p. 438). Since mindsets are situationally bound, this study investigates students' mindsets in the context of writing with a specific emphasis on

how students' beliefs about their writing ability, not intelligence in general or aptitude in other areas, affect them.

METHODOLOGY

The context for this mixed methods study, consisting of surveys, interviews, and grades, was a Mid-Atlantic comprehensive state university with an enrollment of over 20,000 students. The study's methodological approach was designed to answer the following research question: How do students' mindsets affect their writing processes and writing performance? The participants included students enrolled in three sections of a junior-level engineering class who volunteered to participate. One section had an embedded writing tutor assigned to the class, but students were not aware of this course component when they registered.

At the beginning of the semester, study participants completed an online self-administered survey during class. The survey instrument was a modified version of three previously validated surveys (Dweck, 2000; Limpo & Alves, 2014; Palmquist & Young, 1992). It contained eight Likert-scale statements that assessed students' beliefs concerning the malleability of writing skills (e.g., "Good writers are born, not made"; "No matter who you are, you can significantly change your writing ability"; "Good teachers can help me become a better writer"). Students rated these statements on a 6-point scale from "strongly disagree" to "strongly agree." I calculated students' mindset scores by assigning a numerical value to each statement (1=strongly agree to 6=strongly disagree, reverse scored for growth-minded statements), and then I calculated the mean. I did not identify cut-off points for growth and fixed mindset scores. Instead, mindset scores fell along a spectrum, with higher scores indicating more of a growth mindset and lower scores reflecting more fixed-mindedness.

At the end of the survey, I invited students to participate in a short interview. Five students volunteered to be interviewed individually about their mindsets and writing experiences in a semi-structured interview setting. I also interviewed the course-embedded writing tutor. I coded interview transcripts inductively to identify emerging codes and categories. I initially coded on paper, using underlining and color-coding techniques to highlight salient quotations and patterns. Then, I used NVivo software to organize and tag the data. To identify and organize major themes, I created a codebook with emerging codes, categories, and salient quotations. Finally, I used structural coding to connect the codes to my research questions and to relevant literature in psychology. Structural coding initially yielded 28 codes, and I condensed these into seven major categories: Difficulties, failure, improvement, motivation, teachers, performance, and writing process.

To interpret interview participants' experiences and behaviors, I operationalized mindset theory to illuminate how mindsets may manifest in a writing context. Operationalizing mindset theory revealed coding categories that were relevant to mindset literature. Since researchers have found that students' mindsets directly influence their attitudes, learning strategies, performance, and success (Blackwell et al., 2007), I hypothesized that students' mindsets influence their (1) revision practices, (2) responses to feedback, and (3) reactions to challenge and failure. The following three hypotheses guided the data analysis:

1. Growth-minded writers see revision as a natural component of learning and are, therefore, willing to compose multiple drafts. Fixed-minded writers tend to avoid drafting and revision to save face, especially if they see effort as fruitless or believe that only weak writers need to revise.
2. Growth-minded writers see feedback as an opportunity to improve and are motivated to revise their drafts after receiving constructive criticism. Fixed-minded students resist receiving negative feedback, even if constructive criticism could help them improve their drafts.
3. Growth-minded writers welcome challenging writing assignments that require substantial effort because they see difficult writing tasks as opportunities to improve their skills. Fixed-minded writers do not welcome challenge or risk-taking but instead tend to give up easily to avoid failure.

This operational scheme was used to code and analyze the interview data.

To triangulate the data, I also collected students' grades from their literature review assignment that required multiple drafts. I analyzed the data using bivariate correlation tests to see whether students' mindset scores correlated with their final essay grades. When conducting these statistical analyses, I consulted a statistician to help me select the most appropriate tests and interpret the results accurately. For the correlation test, we opted to run Spearman's correlation to minimize the effect of outliers because the data had a small departure from normality; the growth end of the curve was slightly higher than normal.

RESULTS

Survey

Of 66 total students in the three engineering sections, 57 completed the survey, resulting in an 86.4 percent response rate. On average, 15 percent of students displayed a fixed mindset in response to the survey statements, and 85 percent displayed a growth mindset. Notably, the highest percentage of students expressed a growth mindset (98.2%) in response to the statement, "Good teachers

can help me become a better writer." Only one of the 57 participating students even disagreed slightly with this statement. The highest percentage of fixed-mindedness was displayed in response to the statements "Good writers are born, not made" (28.1%) and "I believe I was born with the ability to write well" (36.8%). Both statements assessed students' beliefs regarding the innateness of writing ability, whereas the remaining statements assessed students' beliefs regarding effort and dedication. Table 1 highlights these findings. The final column reports the overall percentage of students who agreed and disagreed with growth- and fixed-minded statements, respectively.

Table 5.1. Survey Responses

Statements	Strongly Disagreed	Disagreed	Disagreed Slightly	Agreed Slightly	Agreed	Strongly Agreed	Growth vs. Fixed Mindset
No matter who you are, you can significantly change your writing ability.	0%	1.8%	7%	31.6%	45.6%	14%	8.8% Fixed 91.2% Growth
Hard work, desire, dedication, and enough time are all I need to become a good writer.	0%	1.8%	10.5%	28%	42.1%	17.5%	12.3% Fixed 87.7% Growth
Good teachers can help me become a better writer.	0%	0%	1.8%	24.6%	54.4%	19.3%	1.8% Fixed 98.2% Growth
You have a certain amount of writing ability, and you can't really do much to change it.	17.5%	50.9%	21.1%	10.5%	0%	0%	10.5% Fixed 89.5% Growth
Good writers are born, not made.	8.8%	50.9%	12.3%	22.8%	5.3%	0%	28.1% Fixed 71.9% Growth

Statements	Strongly Disagreed	Disagreed	Disagreed Slightly	Agreed Slightly	Agreed	Strongly Agreed	Growth vs. Fixed Mindset
I believe I was born with the ability to write well.	12.3%	28.1%	22.8%	28.1%	8.8%	0%	36.8% Fixed 63.2% Growth
My essays will always have the same quality, no matter how much I try to change them.	15.8%	54.4%	14%	12.3%	3.5%	0%	15.8% Fixed 84.2% Growth
No matter how hard I try, I will never be a great writer.	33.3%	35.1%	22.8%	8.8%	0%	0%	8.8% Fixed 91.2% Growth

In addition to containing Likert-scale items, the survey posed the following question: "When it comes to writing success, which is more important: effort or talent?" Over 87 percent of students reported that effort is more important. Only seven students indicated that talent is more important, and they provided the following reasons why talent matters more than effort:

- "It is the accumulation of skills you have acquired over time."
- "Because it takes creativity to write well and that is talent."
- "It comes easier to those writers."
- "Because at this point in our career our writing abilities are engrained in [our] minds so in order to alter them it will take a lot of effort."
- "I feel that people acquire the ability to convene words better than others."
- "Some people are left brain creative thinkers. Writing is easier for them."

Most of these comments suggest a belief in "giftedness," as Palmquist and Young (1992) hypothesized. However, at least two comments also reflect an appreciation for effort, which underscores the complexity of the effort/talent binary, a phenomenon I will examine in the discussion section.

Grades

The bivariate correlation test showed that students' mindset scores and their final grades correlated moderately, Spearman's $r = 0.481$, $p = .008$. This finding suggests that a relationship exists between students' mindsets and their writing

performance: Growth-minded students tended to earn higher essay grades, and fixed-minded students tended to earn lower grades.

Interviews

The interviews provide insight into students' (pseudonyms given) writing mindsets and their effects on students' motivations, attitudes toward performance, and beliefs about writing and learning. Table 2 provides an overview of each interview participant's mindset score with quotations that reflect the interview categories. As shown, all interview participants' mindset scores displayed growth mindsets. Thus, lingering on the interview data offers examples of growth-minded students' writing processes and experiences with writing. In the next two subsections, I highlight interview comments that illustrate connections to mindset theory; I will analyze and interpret these findings in the discussion section.

Table 5.2. Combined Data for Interview Participants

Name	Mindset Score (0-6)	Quotations That Reflect Interview Categories
Jenna	5.125	"I hear a lot of people say 'I can't spell because I'm an engineer' or they just say 'I'm a math person, I'm not a writer.'" (Challenges) "If I'm just really getting stuck on something, I'll just kind of take a look back, read over everything, make sure it sounds nice. And then go back to where I was stuck, maybe, and that'll help me a little bit." (Writing process)
Elijah	5.125	"Constructive feedback is the driving thing that makes me do things better, to learn things more." (Teachers/Motivation) "I take from an English class and I use that and apply it in an engineering class." (Improvement)
Paula	5.25	"If I am doing it a lot in the semester, I'm getting better." (Improvement) "I'm not sure if I did it right." (Performance)
Jordan	4.625	"What did we do on this one that we didn't do on this one; how can we improve?" (Improvement) "I like to have built in times of reflection, as that can be a really powerful way to improve one's performance." (Improvement)
Maria	5.25	"That was like a negative experience. Because I did not know exactly what, how it was supposed to be done." (Failure) "So I would write different things. Read it over. Take my time to write. Understand. It's just like writing; you just keep writing, writing, writing. You make a mistake. Write. You make sense out of it" (Writing process).

Growth-Minded Writers' Traits

Applying mindset theory to the interview data reveals three themes: Growth-minded writers are characterized by (1) an appreciation for effort, (2) an openness to learning and application, and (3) a positive response to challenge and failure. For instance, appreciation for effort is displayed in statements like "Unless you go out of your way to develop writing skills, you're probably not going to" and "[You must be] intentional about trying to grow your skills or make a change if you feel like you need to become a better writer." These comments suggest my subjects understand that writing improvement requires investment and effort. Students' openness to learning was also salient in the data. For instance, Elijah described how he applies his learning from one context to the next: "I take from an English class and I use that and apply that in an engineering class and see how my professor kind of reacts to that." Even professors' "conflicting" messages regarding writing conventions helped Elijah apply what he learned in one class to another class because he developed different skills. Jordan also emphasized reflection and an "iterative" writing process. In fact, Jordan used variations of the terms "reflection" and "iteration" 12 times in the interview and referenced mindset theory without any prompting. Finally, several students indicated that challenging assignments fostered their most substantial writing improvement. Even when a writing task is challenging, these students find the process to "be very rewarding to at the end have a project, a paper at the end, a product that is incredibly well sourced." For these growth-minded students, failure is an opportunity to reflect on an assignment and improve. For instance, Jordan explained how he reflects on poor performance by recalling past success: "What did we do on this one that we didn't do on this one; how can we improve?"

Despite approaching writing from a growth perspective, these students also made comments that were inconsistent with growth-minded tendencies. This finding is important because mindset literature does not typically describe students who simultaneously display characteristics of both growth- and fixed-mindedness. Specifically, my interview subjects did not actively seek feedback from others, and they tended to be preoccupied with performance—both behaviors that are more common in fixed-minded students. For instance, although Jenna reported that her professors' specific guidance and feedback helped her in the past, she indicated that she does not usually request it. Both she and Maria were confident reviewing their own work, and they only sought feedback when it was required. Elijah also endorsed faculty feedback, but he did not willingly seek peer review. Additionally, all interview participants discussed their grades, and some exhibited a preoccupation with performance. For instance, Jenna said, "In college, I would get a lot better grades on essays than I did in high school, and

I took that as, like, oh, my writing improved." In this comment, Jenna seems to equate writing improvement with higher grades. Paula also reported using grades to gauge her abilities, saying that she was unsure how well she performed on her literature review because she had not received her grade yet. Her linking of grades to quality suggests she relies on grades to assess herself. Jordan also displayed a concern for grades when he indicated that his grades correlate directly to his interest level. Maria suggested that low grades might incentivize her to change her writing process, but she believes her process is currently working because her grades are satisfactory.

Fixed-Minded Writer's Traits

Although no fixed-minded writers volunteered to be interviewed, data from my interview with the course-embedded tutor provide a glimpse into fixed-minded students' beliefs and behaviors. In the interview, the tutor, Sara, talked at length about her interactions with one student, Alex, who was remarkably resistant to her feedback. According to Sara, Alex appeared distracted and impatient throughout the session, and he quickly dismissed suggestions when she offered them. He even characterized his literature review as "terrible," saying, "There's nothing you can do. This is all a waste of time." According to Sara, every time she offered advice or explained a genre convention, she was immediately "shut down." The tutor interpreted Alex's demeanor as "very closed minded," which was consistent with his survey data: He scored a 3.5 on the survey instrument, indicating a fixed mindset. He was also one of the few students who reported on the survey that his writing process and performance did not change over the course of the semester. He also said that talent influences writing success more than effort does. This snapshot of a fixed-minded writer's beliefs and behaviors provides useful comparison data for discussion.

DISCUSSION

For students like Alex, who believe writing success is dependent on natural talent, drafting and revision may seem like futile processes. Such beliefs can have negative effects, as demonstrated in the tutor's experience with Alex: He rejected all attempts to help him, and he seemed to resist the very practices that could help him, such as feedback and revision. Avoiding these practices likely impairs the 15 percent of students like Alex who have fixed-minded approaches to writing—as demonstrated by the correlations seen in the data between students' essay grades and their mindset scores. Although this window into one fixed-minded writer's beliefs and behaviors can only suggest the importance of mindset, the interviews with growth-minded writers offer compelling illustrations of how

students' mindsets affect their writing processes and performance. In the next section, I will draw from mindset theory to interpret these results.

How Do Students' Mindsets Affect Their Writing Processes?

Growth-minded writers are willing to revise, but they still need motivation. Mindset theory would suggest that growth-minded writers are willing to revise their drafts because they embrace effort and challenge (Dweck, 2006). The interview findings confirm this hypothesis. For example, Jordan's description of his writing process underscored a willingness to revise and to embrace the "iterative process," as he called it. When given an assignment, he typically starts by gathering information from sources and synthesizing them into a document that is "just a mess." Once he collects the major parts of his paper, he begins writing, "and as that grows, the mess that's underneath kind of shrinks and becomes more organized." Jordan's belief that "the natural disorganized nature" of his writing process will turn into a cohesive final product reflects a belief in growth and improvement. In this way, his process seems directly correlated to his mindset. Jenna provided evidence of a growth-minded approach, too, when she described her drafting process: "If I'm just really getting stuck on something, I'll just take a look back, read over everything, make sure it sounds nice. And then, go back to where I was stuck, maybe, and that'll help me a bit." She suggests not being discouraged by writer's block but instead believing that she will overcome the obstacle. Comments from other interviewees reflected growth-minded approaches toward drafting and revision as well: "The second time it came out a little better"; "Usually I finish papers in one or two or three sittings"; "The whole process . . . was like a learning curve."

Although I had expected growth-minded writers to be unruffled by challenge, I found that growth-minded writers sometimes resist effort when they believe the assignment or subject is insignificant. Since resistance toward effort is more characteristic of fixed-minded students (Dweck, 2006), hearing growth-minded students report times when they resisted investing in tasks was surprising. Elijah expressed this view when he described a math class that was both difficult and, according to him, unimportant. He said, "The chance that I'm going to use one of the four calculus classes that I took is slim to none." This belief in the subject matter's irrelevance caused Elijah to take calculus "at a community college where it was easier." Rather than exerting the necessary effort, he "took the path around it." Yeager and Dweck (2012) assert that growth-minded students are motivated to put effort into anything that affords learning and development because growth-minded students see "everything (challenges, effort, setbacks) as being helpful to learn and grow" (p. 304). However, Elijah's story shows that relevance matters, too, and it may affect effort.

Elijah's comment underscores the central role that both motivation and a growth mindset play for writers. While my interview subjects were motivated for different reasons, subject matter interest and a belief in their work's relevance emerged as patterns in the data. These findings complement Michele Eodice, Anne Ellen Geller, and Neal Lerner's (2016) conclusions from *The Meaningful Writing Project*. They found that meaningful writing projects give students "the satisfaction of knowing the work they produced could be applicable, relevant, and real world" (p. 5). Such projects give students the freedom to write about their passions, and my interview subjects confirmed these findings. Students identified periods of growth as times when they were "writing more about things that interested [them]," when they felt "passionate," and when the "prompts in class would be more interesting." Jordan explained why interest and passion are so important:

> Not having a real interest or passion for the work that was being done really kind of removed a lot of the motivation that I have to kind of allot that extra time to go through a solid process to actually create something that I can walk away from feeling really proud of.

Here, Jordan connects three important elements: interest, effort, and pride. The linear sequence Jordan implies suggests that interest creates motivation, which leads to increased effort and pride and, ultimately, success. This finding aligns with expectancy-value theory, namely the notion that "If students don't value what they are learning or don't see how what they are learning will be useful to them in the future, they will not engage in mindful abstraction" (Driscoll & Wells, 2012, para. 1). Just as Driscoll and Wells connect motivation to learning transfer, it seems growth-minded writers also invest more effort when they see value in their work.

Growth-minded writers welcome constructive (and sometimes prescriptive) criticism. As I hypothesized, interview subjects confirmed that they see feedback as an opportunity to improve. Elijah expressed this view fervently, identifying moments when he improved the most as the times when he was "criticized most harshly." He acknowledged that not everyone would respond to criticism positively, saying, "There's some people who would just sit there and cry." This distinction between himself and others suggests that a positive response to criticism is characteristic of growth-minded students. Several students emphasized the role that concrete feedback and instruction have had on their writing development. They talked about "nitty gritty feedback," "reworded . . . sentences," and times when professors explained exactly how an assignment "was supposed to be done." Students' desires for concrete guidance surprised me because I had assumed growth-minded writers would be more concerned with learning than following prescriptive directions, as mindset literature would suggest. Students'

preference for specific feedback also seems at odds with our field's prevailing writing pedagogies that resist prescriptive approaches and stress higher-order over lower-order concerns when it comes to responding to student writing (Brooks, 2001; Sommers, 1982).

How Do Students' Mindsets Affect Their Writing Performance?

Growth-minded writers welcome challenge and are unshaken by failure. Challenging writing situations did not deter these growth-minded students. In fact, several of them linked challenge to improvement. For instance, Jordan said, "It was a really challenging time, but I really grew as a writer during that time." Elijah expressed a similar sentiment: "I feel like negative feedback or constructive feedback is the driving thing that makes me do things better, to learn things more." For these growth-minded writers, failure is an opportunity to learn and improve. Elijah explained the connection between failure, effort, and success: "If I get a D on a paper, an F on a paper, I'm going to go back and spend a bit more time on that, and I'll probably get better at it because I spent a little more time on it." Here, Elijah's growth mindset correlates directly to his response to failure; he responds by emphasizing the value of effort rather than interpreting the failure as indicative of innate deficiencies. Importantly, none of my subjects said their sense of themselves or their abilities was shaken by failure, a characteristic of fixed-minded students that suggests growth-minded writers are more likely to bounce back from failure.

It is important to note that diverse writing experiences helped my interview subjects. Several participants mentioned that "writing for different classes" helped them improve, and Elijah described it best:

> When you write about different things, too, you write in different styles and take different approaches. When I'm in a religion class, I'm taking a different approach to talk about a religion than I am when I'm in a lab class and I'm talking about how a chemical is made.

Learning different genres, conventions, and styles has helped these students develop their writing repertoire. Hearing professors' different viewpoints has helped, too, because they give students insight into different audiences' responses to their work. It is important to note that this emphasis on variety came from growth-minded students. Fixed-minded students may not respond so positively to conflicting messages about writing because adapting to different writing situations requires flexibility and openness. If it is true that fixed-minded writers do not thrive in diverse writing situations, then their ability to develop rhetorical dexterity could be at stake. Such a potential finding is important, given my

interviewees' emphasis on the positive influence that diverse writing experiences have had on their development as writers.

Growth-minded writers are sometimes performance-oriented. Although Dweck (2006) has found that growth-minded students tend to be more learning-oriented, my interview subjects' growth mindsets did not shield them from grade preoccupation. All participants mentioned grades in their interviews—the term appears 29 times in the transcripts—suggesting some preoccupation with performance. This trend, of course, could relate to the local student culture; anecdotally, many of my colleagues would agree that students at this university are especially concerned with grades. While interview subjects expressed interest in learning about genres, conventions, and writing processes, their comments showed that grades were a strong motivating factor. As Elijah said, "Grades kind of push you to do better." He also used rubrics as a guide for revision, saying, "If a rubric said I did a perfect score on one section, I wouldn't go back and touch it; I'd leave it." Most often, students referred to grades as evidence of their success rather than as primary sources of motivation. This distinction is important because Dweck classifies students as performance-oriented when they are more motivated to prove their abilities than they are to learn. Performance-oriented students are fixated on competence, whereas learning-oriented students are focused on skills acquisition (Dweck et al., 1995). The fact that my participants talked much more about research skills and genre proficiency—focusing on skills acquisition—than they did about grades indicates a potential problem with the binary posed by Dweck et al. in that my participants showed they were still invested in learning, despite their desire to earn high grades.

Mindsets are complicated. Although psychologists are careful to describe mindset as a continuum, Yeager and Dweck (2012) assert that mindsets "create different psychological worlds for students" (p. 304). These opposing worlds can sometimes sound all-encompassing in the literature when they are described as either "a world of threats and defenses" or "a world of opportunities to improve" (Yeager & Dweck, 2012, p. 304). My findings suggest that writers can experience aspects of both worlds at the same time, when they care about both grades and learning or when they are both resilient and risk-averse, for instance. These findings challenge the notion of separate "worlds" and suggest that students' mindsets are not always congruent, even within the same domain. Yeager and Dweck acknowledge that students can have different mindsets regarding different subjects, but they do not consider students who simultaneously display features of both mindsets. It may be that writers accumulate growth- or fixed-minded traits over time and eventually become more fully situated in one world or another. However, the students in my study demonstrate that mindsets may have a fluidity not described in Dweck's research, and thus, my research challenges the growth/fixed binary that characterizes much of the current literature.

The study's findings concerning growth-minded students' approaches to feedback reinforce the complicated nature of mindsets. While on the one hand, the interview data suggest growth-minded writers seek opportunities for improvement, their comments also indicate a reluctance to seek feedback. Although most interview subjects spoke positively about times they received feedback, four of five students explicitly reported hesitancy to ask for help. Instead, they seemed either already confident in their work or capable of revising on their own. For instance, Jenna said, "I'm good with what I wrote," so "I don't really need much feedback." Elijah expressed similar confidence: "I'll write it and then I'll go back and look over it, but I'm not going to, like, hand it to somebody else and ask them to revise it extensively." His reluctance to seek help suggests he wants to maintain agency because he feels capable of working independently. Maria also sounded self-reliant when she said feedback is unnecessary because she has "grown as a writer" and can "read through the eyes of who's going to be grading." For Maria, feedback is only necessary if the assignment is "really, really big" or, as Paula said, "a big assignment like a final or something." These comments suggest a preoccupation with performance over learning, and they reinforce the notion that even growth-minded writers might not always be concerned about growth. This finding reinforces the importance of scrutinizing the dichotomies that sometimes take hold in the field.

While I had expected growth-minded writers to express confidence and self-reliance, I was surprised to hear they would not seek more avenues for improvement. Jordan, however, did say he regularly invites his roommate, a writing center tutor, to offer feedback. This interview subject, who was so committed to reflection and an "iterative" writing process, seemed to defy the norm. He stood out as emblematic of the growth-minded writer. He had faced and benefited from challenges; he had failed but saw it as an opportunity to reflect and improve, and he declared, "If I continually practice my writing ability because I have the motivation and rationale to do so, then [I] can certainly become a stronger writer." Contrasting him to the other growth-minded students reinforces the idea of a mindset continuum: There are common traits to look for in growth- and fixed-minded writers, but students may not present all of them.

Although these findings illustrate how a growth mindset influences students' writing processes, questions remain concerning the potency and effects of these individual traits. It is unclear which traits are most influential to writing improvement. For instance, is it more important for writers to be reflective (on their own) than it is to seek feedback (from others)? Is a preoccupation with performance less important than overcoming failure? Which of the growth-minded traits make the most impact on writers, and how do writers like Jordan acquire the whole growth-mindset package?

My study makes it clear that the growth mindset is not a cure-all, as other researchers have noted (Mercer & Ryan, 2010). In the interviews, growth-minded students expressed difficulties with writing assignments, moments of failure, and uncertainty about their abilities. Many of the interviewees underscored the value of clear and concrete instruction, along with exposure to a variety of genres. Simply having a growth mindset was not enough for them to succeed. I am reminded especially of Paula, who repeatedly expressed uncertainty regarding her ability. Her interview displayed many comments like, "I'm not sure if I did it right," "I don't really know how to change it," "I don't know if I would be able to catch that on my own," "I don't know if what I'm saying is better necessarily," and "I don't really know what my skills are doing." She had a high growth mindset but low self-efficacy.

These findings raise the question of whether a growth mindset for students like Paula could make them more aware of their need for improvement. That is, if they see themselves as capable of improving, they might be more aware of their shortcomings, as Paula seemed to be. Researchers have discovered a similar phenomenon occurred in patients who increased their emotional awareness through mindfulness training (Boden et al., 2015). Boden and his colleagues found that patients reported increased anxiety and depression after engaging in mindfulness training, most likely because they had become more aware of these thoughts and feelings. Similarly, Paula's growth mindset might simply make her more aware of growing pains.

Mindsets may affect transfer. Although this study did not intentionally investigate transfer, several interview participants referred to times when they accessed previous knowledge, implying that growth-minded students are attuned to transfer. For instance, Elijah said he will "take from an English class and use that and apply that in an engineering class and see how my professor kind of reacts to that." According to Elijah, applying his learning from one context to another has helped him improve, especially because he can navigate the conflicting messages he receives about writing. Maria also indicated she could apply her genre knowledge to another writing task:

> It was like a learning curve kind of thing. But at the end I was like, so in the future I could actually do it this way . . . So my next literature review after that was really good. It was not a critical review. It was just a literature review. But that was really good because I think I understood what they were asking for. And I understood how to do it. I didn't just know what to do.

Here, Maria expresses an ability to apply her knowledge of one genre to another similar genre, an example of near transfer. It is also important to note her

emphasis on learning "how" to write in a specific genre versus simply knowing about a genre. Knowing "how" to do something is important to Maria, and this emphasis on the process seems to influence her ability to transfer her learning because she can adapt the process for other writing occasions. Jenna also attributed her success writing a literature review to her previous experience with the genre. She said she was confident because she had written one before and, therefore, "had a bit of a sense [of] what was going on." Jenna's unprompted discussion of transferring her learning from a previous class shows she is aware that previous knowledge should be accessed in new situations. Interpreting these comments from a mindset lens suggests that students who believe they can improve are more likely to recognize opportunities to apply their learning simply because they see their abilities and intelligence as malleable.

Since these findings suggest growth-minded students are highly aware of transfer, compositionists studying the connections between dispositions and transfer should examine the impact of mindsets on transfer, too. Roger Powell and Dana Driscoll (2020) have begun making these connections, for instance, observing how one case study participant's fixed mindset "inhibited her ability to transfer previous learning" (p. 53), particularly during challenging moments and when receiving critical feedback (p. 60). In contrast, their second case study participant, a growth-minded student, "could engage in learning transfer by receiving any type of response—critical comments that were harsh or blunt or praise-oriented comments that were supportive and nurturing" (Powell & Driscoll, 2020, p. 61). While Powell and Driscoll found that mindsets impact students' ability to apply teacher response to their writerly development, my findings suggest growth mindsets help writers simply be more open to applying their learning. It makes sense that growth-minded students would make connections between past and future learning because they see themselves as capable of change, growth, and improvement. Therefore, the belief that one can improve seems fundamental to learning transfer.

LIMITATIONS AND OPPORTUNITIES FOR FUTURE RESEARCH

Despite breaking ground in mindset research, the generalizability of this study is limited due to the small sample sizes. In particular, the interview sample was limited to only growth-minded students. Since none of the subjects on the fixed end of the mindset spectrum volunteered to be interviewed, it is difficult to draw conclusions about the interview data without making comparisons to more fixed-minded writers. Despite limited sample sizes, the methodology is replicable and can be used in future studies of larger and different groups.

The survey was also general in nature and did not define "writing" for participants. Students may have considered only their beliefs concerning creative writing or technical writing, for example. Their different conceptions of writing genres may have influenced their answers, raising the question of the roles that genre and disciplinarity play in influencing students' writing mindsets. An underlying assumption of the study was that engineering students' views toward writing are worth exploring because their disciplinary choice may imply a distaste for the humanities. Thus, attention to disciplinarity influenced the study's main questions. Future researchers might adapt the survey to define specific writing terms, depending on the researchers' interests in students' beliefs concerning specific genres.

While this study demonstrates that students' mindsets correlate moderately with their writing performance, whether there is also a causal relationship has not been established. Since this study sought to break ground in this research area, the many variables that affect students' mindsets exceed the scope. For instance, what pedagogical practices are most influential in changing students' writing mindsets? How much and what kind of influence do writing teachers have? To what degree can writers change their mindsets? In addition, future research should investigate how fixed mindsets affect writers.

Future researchers should also explore how students' demographics and backgrounds influence their writing mindsets. Dweck (2010) found that students from minoritized groups benefit the most from mindset interventions because recognizing the value of effort can alleviate stereotype threat. However, we need to understand how mindsets intersect with environmental barriers and systems of oppression. To what extent are mindset interventions effective for groups facing prejudice and other harms that extend beyond the individual's control? What are the ethical implications of studying mindset in these contexts? Is it insensitive, insulting, or even harmful to promote growth mindsets in the face of systemic racism without recognizing that context and working for justice?

In addition to examining writers' mindsets in greater depth, future research could explore the impact of mindsets on revision practices. Researchers could compare students' first and final drafts to identify patterns in changes and then correlate these patterns to mindset differences. Comparing drafts might show that growth- and fixed-minded students tend to revise differently. Understanding the nuances of different revision tendencies could help teachers detect evidence of mindset interferences in students' writing practices. Although such research should avoid essentializing revision practices according to mindsets, the findings could help teachers provide even more meaningful feedback.

CONCLUSIONS

By building on seminal studies in psychology, this research offers further evidence to demonstrate that mindsets matter: They are moderately correlated to grades, and they influence students' writing processes. These results demonstrate the value of compositionists learning about mindset theory, facilitating conversations with students about their mindsets, and discussing ways that mindsets might influence their students' responses to feedback, willingness to revise, and attitudes toward failure and challenge. The research might also prompt us to identify best practices for intervening when students' mindsets seem to be hindering them.

Since we are increasingly aware of the role internal factors play in learning (Driscoll & Wells, 2012), writing experts are well-positioned to contribute to unfolding interdisciplinary discussions about the connections between mindsets and writing. This study has identified a possible relationship between growth mindsets and successful transfer, and future research can build on this finding to contribute to evolving understandings about the best conditions for transfer. Important gaps remain in mindset theory, particularly regarding the efficacy of pedagogical interventions, especially within inequitable learning environments. Although this study and others have shown that mindsets affect student success, it is incumbent upon all of us to also dismantle the systems that don't allow the individual, whether growth- or fixed-minded, to thrive.

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