

# Student Perspectives on Writing Self-Efficacy in First-Year Composition

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**Abstract:** This study examines how writing self-efficacy (WSE) develops over time among first-year university students and identifies the instructional and contextual factors that shape that development. Drawing on social cognitive theory, we employed a mixed-methods design to investigate the extent and the sources of change in students' WSE during a ten-week writing course. Data from 252 students enrolled in three different first-year writing courses included surveys, reflective journal entries, and interviews. Quantitative analyses revealed significant increases in WSE over 10 weeks, while qualitative data showed how students attributed these changes to factors such as feedback, writing practice, instructional design, and their own goal-setting and effort during the study term. Students' reflections in particular revealed complex relationships between past writing experiences, evolving self-perceptions, and classroom environments to explain their levels of writing self-efficacy. Our findings suggest that pedagogical practices that foreground student agency, metacognitive reflection, and supportive feedback can foster meaningful growth in writing confidence, even within a single academic term. By highlighting student voices and integrating narrative and text analysis, this study contributes to ongoing WSE research and contributes to conversations about how writing instruction can support students' positive beliefs about themselves as writers.

**Keywords:** writing self-efficacy, mixed-method analysis, student reflections, first-year writing, social cognitive theory



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I changed my opinions and attitudes during my writing process and my confidence level changed, I feel more confident when writing.

My confidence level has increased...The major reason is that I got great and positive feedback after great effort.

These end-of-term reflections from first-year university students reveal more than personal growth; they illustrate a broader psychological shift. As students gain experience, receive feedback, and engage with writing as a process, their confidence evolves. Understanding this change requires a theoretical lens that explains how beliefs shape behavior.

Bandura's social cognitive theory (SCT) provides that lens (Bandura, 1986, 1997, 2023). SCT emphasizes the interplay between individual agency and external influences in shaping human behavior (Bandura, 1986, 2001, 2023). Bandura proposed that human functioning is governed by a model in which behavior, personal factors, and environmental influences all interact. For example, a person may be born and raised in an environment with little opportunity for formal learning. This might lead to poor educational attainment. However, that same person can exercise agency by changing their environment (perhaps moving to a college town) and by exposure to intrapersonal factors such as acquiring new knowledge through formal instruction, developing learning strategies, and setting learning goals. These changes influence learning behavior, which feeds back into their environment and personal beliefs. Whether such changes occur depends on key motivational factors, particularly self-efficacy (Bandura, 1986, 1997).

Bandura (1997) defined self-efficacy as "beliefs in one's capabilities to organize and execute the actions required to manage prospective situations" (p. 2). Within SCT, self-efficacy is a central driver of behavioral change (Usher & Pajares, 2008). That is, a student who believes they can improve through effort and adaptation is far more likely to act than one who believes improvement is impossible (McCarthy et al., 1985).

In writing contexts, writing self-efficacy (WSE) reflects a writer's confidence in their writing abilities, which then influences motivation, goal setting, persistence, and overall performance (Mitchell et al., 2023; Schunk & Zimmerman, 2007; Zimmerman & Bandura, 1994). Pajares and Valiante (1997) describe WSE as "students' ... confidence that they possess various composition, grammar, usage, and mechanical skills" (p. 355), and Eckstein et al. (2021) define WSE more broadly as the "confidence that students have in their general writing skills" (p. 311). This confidence acts as a mediating factor between a writer's cognitive skill and the way they approach a task (Pajares et al., 2007). Writers with high WSE tend to demonstrate greater perseverance and achievement, whereas those with low WSE

are more likely to experience writing anxiety and procrastination and to put forth reduced effort (Bruning & Kauffman, 2016; McCarthy et al., 1985; Mitchell et al., 2019, 2023; Pajares, 2003; Pajares et al., 2006; Sanders-Reio et al., 2014). Because writing is a social endeavor that is often developed through instruction and feedback, WSE is particularly sensitive to environmental conditions, such as a supportive classroom climate, successful goal-setting and attainment, and affirming feedback, while negative experiences can undermine it (Bruning & Kauffman, 2016; Ferris, 2018; Mitchell et al., 2019, 2023; Mitchell & McMillan, 2018).

Despite decades of research linking WSE to writing achievement, most studies rely on quantitative surveys (Mitchell et al., 2023), offering little insight into why students' beliefs change or how instructional factors influence that process. Few have incorporated students' own narratives or examined WSE development across diverse first-year writing contexts. This study addresses that gap by combining psychometric measures (surveys) with reflective journal entries and interviews, thereby foregrounding student voices to explain the mechanisms behind WSE change and situating these findings within SCT to inform both research and pedagogy.

## 1. Background

Research on self-efficacy has spanned various domains, including health sciences, education, engineering, nursing, language development, and mathematics teaching and learning (Concannon et al., 2019; Grigg et al., 2018; Mata et al., 2021; Mitchell et al., 2018; Wang & Sun, 2020; Wray et al., 2022). Across these domains, several consistent trends have emerged. High self-efficacy is generally linked to greater success and persistence<sup>1</sup>, and low self-efficacy correlates with procrastination and a lack of motivation (Huang, 2016; Usher & Pajares, 2008).

### 1.1 Writing self-efficacy

In writing contexts, it has been taken as settled fact for some decades that higher levels of WSE predict better writing performance and are positively associated with greater use of self-regulation strategies and lower levels of writing anxiety (Bruning & Kauffman, 2016; Mitchell et al., 2023; Pajares, 2003; Pappamihel, 2002; Sanders-Reio et al., 2014). Students who possess high WSE tend to approach writing tasks with more confidence and commitment, which leads them to engage more deeply in the writing process, persist in the face of difficulties, and apply more effective writing strategies (McCarthy et al., 1985; Pajares & Johnson, 1994; Teng & Wang,

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<sup>1</sup> A particular exception to this trend is that overly optimistic self-efficacy among students with learning disabilities can be detrimental as they may underprepare or ignore feedback, leading to poorer outcomes (Klassen, 2002).

2023). This increased engagement usually results in stronger writing outcomes. In contrast, students with low WSE are more likely to avoid writing tasks, procrastinate, and demonstrate reluctance to seek out or apply feedback (Lavelle & Zuercher, 2001). These are all factors that can hinder their writing development and long-term improvement.

Importantly, WSE does not operate in isolation; it functions within a reciprocal system of influences. Students' confidence shapes their writing behaviors—such as strategy use and persistence—which in turn affect performance and subsequent beliefs. Positive experiences and supportive feedback can strengthen WSE, while negative outcomes may diminish it, thus creating iterative cycles of change (Bandura, 1986, 1997; Zimmerman & Bandura, 1994). This dynamic interplay underscores why WSE is both a predictor and a product of writing development and is sensitive to environmental conditions and instructional practices (Bruning & Kauffman, 2016; Mitchell et al., 2019, 2023).

WSE is influenced by multiple factors, including past performance (also called “mastery experiences,” Bandura, 1997), vicarious experiences (i.e., observing others), verbal persuasion (i.e., feedback on writing), and emotional states (Bandura, 1997; Bruning & Kauffman, 2016; Pajares et al., 2007). Past performance is the strongest predictor: Students who have experienced writing success are more likely to believe in their writing abilities in future tasks (Pajares et al., 2007). On the other hand, students who have encountered negative writing experiences, such as poor grades or harsh feedback, may develop low WSE (Eckstein & Ferris, 2018; Ferris, 2018; Ferris & Eckstein, 2020). Further, Bandura (1997, 2023) noted that in educational settings, the process of explicitly setting and ideally meeting goals could build learners' self-efficacy. Through goal-setting, “humans can envision the future and act on it in the present. They can evaluate and modify ongoing current behaviors to best serve not only present needs, but also long-term aims” (Bandura, 2023, p. 38).

## 1.2 Writing self-efficacy and first-year composition

The earliest research on WSE in college writing classes was conducted by McCarthy et al. (1985) in which WSE scores were collected at the beginning and end of a basic writing course along with samples of student “in-class expository essays” (p. 468). Results showed that WSE was significantly related to writing performance, a finding that corroborates other research on the interplay between self-efficacy and achievement. Subsequent studies showed an overall moderate correlation between writing skill and writing self-efficacy (see Atasoy, 2021, for a meta-analytic review). In other words, high writing skill relates to high WSE, which is thought to relate to high writing performance. However, this relationship is not always linear nor predictable in first-year composition (FYC) contexts. For example, Igo et al. (2002) found that writing performance can increase while self-efficacy remains unchanged, Meier et al. (1984) observed that self-efficacy can increase more rapidly

than performance, and Mitchell et al. (2023) explained in their WSE scoping review that WSE “seems to consistently drop when students move into a new course or new writing context” (p. 22). These findings complicate the assumption that gains in one area automatically reflect gains in another and that such gains, when they occur, are lasting.

Additional studies have sought to determine students’ levels of WSE in FYC with the intent of better understanding student backgrounds and needs. Such research has almost exclusively employed psychometric methods that collect self-report measures, typically through questionnaires, without examining underlying reasons for changes in WSE scores over time. For instance, Hamilton and Kalyuk (2022) studied self-efficacy related to metacognitive writing habits of 162 writers in a first-year college writing course focused on short, research-supported compositions. They found that students were most confident in their openness to feedback and their responsibility to cite sources, while they reported being weakest in their flexibility and creativity (e.g., taking risks, varying writing depending on task). While the psychometric data provided a snapshot of student self-perceptions at the beginning of the course, it did little to explain why students reported as they did. Nevertheless, the authors speculated that students’ reported lack of flexibility and creativity stemmed from experiences in high school that rewarded success on standardized and one-shot writing tasks. The same researchers called for additional study of WSE by comparing pre- and post-course self-efficacy scores and by following students through a course to capture reflections and personal insights about their efficacy measures. The present study takes up both of those suggestions.

Khost (2017) collected self-efficacy measures at the beginning and end of a 15-week semester in an FYC setting where students also received instruction and completed metacognition journals about WSE on a bi-weekly schedule. Results showed that students increased significantly in self-efficacy over time and on five of eight sub-components measured, and they significantly outperformed a comparison and control group. In another intervention study, Campillo and Pool (1999) studied 20 pre-freshmen students who failed an entrance writing proficiency test for regular college courses. During the five-week program, students received whole-class writing instruction and individual tutoring while also meeting weekly with instructional coordinators and completing “homework” and “weekly writing proficiency tests” (p. 4). Students recorded their WSE weekly and submitted a concomitant practice writing proficiency test. Results showed that the interventions raised writing proficiency and WSE significantly over five weeks.

These studies together suggest that while students often begin FYC courses with low or uneven self-efficacy, supportive instruction can lead to measurable gains. Khost’s (2017) and Campillo and Pool’s (1999) pre-/post-test findings suggest that engagement in a writing class as short as five weeks contributes to increased

confidence in writing abilities. However, a key limitation in all these studies is an absence of student reflection on their self-efficacy changes over time. The predominant reliance on psychometric instruments, such as Likert-scale surveys, limits our understanding of how students perceive and narrate their writing development. While these tools are efficient and grounded in established guidelines (Bandura, 1997, 2006), they often fail to capture the more fluid, identity-based aspects of WSE. Without understanding learner experiences, it is difficult to know where WSE scores derive from originally, how they change over time, and whether instructional interventions influence them. Narrative and qualitative approaches, such as open-ended prompts and interviews, may reveal more nuanced insights into how students view themselves as writers and how those views evolve during the FYC experience.

### 1.3 Student voices and writing self-efficacy

Only recently have researchers begun to elicit student voices in WSE research, many of which come from theses and dissertations and/or studies with small participant pools. Lee (2019) in his master's thesis, for instance, investigated five focal students in a writing center experience embedded in a FYC course. In interviews, students reported feeling low self-efficacy at the outset of the course because of general trepidation and self-comparison with peers. Over a semester of meeting regularly with a tutor, students all reported increased self-efficacy and greater awareness of factors that affect their self-efficacy. In a narrative analysis of two Black students enrolled in an FYC course for underprepared and academically vulnerable students, Arras's (2024) use of semi-structured interviews revealed that both participants reported high self-efficacy. The participants recounted environmental factors which shaped their overall self-efficacy and influenced their motivation to succeed in their writing class. Despite their confidence, both also expressed insecurities about their spoken language and stereotyped racial and masculine gender identities, which reduced their willingness to contribute vocally in FYC. Both studies demonstrate nuance and complexity about the origin and durability of writing self-efficacy in various contexts that cannot be captured by numerical data alone.

A series of studies by Eckstein and Ferris has contributed to this growing conversation by examining writing self-efficacy through mixed-methods and narrative inquiry, particularly in the context of first-year university composition students. In Eckstein and Ferris (2018), first language (L1) and second language (L2) student writers were compared in a large FYC program. Survey and interview data revealed that L2 students consistently reported lower confidence in their grammar and writing abilities than their L1 peers. These findings suggest that students' self-perceptions of language competence play a significant role in shaping their writing experiences.

Ferris and Eckstein (2020) extended this work through a multiple-case study of 12 FYC students, synthesizing interviews, surveys, and writing samples to explore students' language backgrounds, instructional histories, and self-assessments. They found that students often overestimated their language problems and carried negative narratives about their writing into the classroom. Despite actual writing performance that varied from their self-assessments, many expressed a desire for more language instruction and support, revealing discontinuity between perceived and demonstrated ability. These findings underscore the importance of attending to students' writing self-efficacy as both a pedagogical concern and a research focus.

Finally, Eckstein et al. (2021) analyzed 248 first-week FYC essays in which students reflected on their writing identities and past experiences. The purpose was to examine first-year university students' self-evaluations of their identities and abilities as writers as they transitioned from secondary school to university. Nearly half of the students (48%) described themselves negatively as writers, and 79% expressed dissatisfaction with their past written products. These reflections revealed that students often enter college with entrenched beliefs about their writing abilities that shape their engagement, motivation, and performance. Many students described themselves as "scattered, disorganized, procrastinating, or unwilling to revise," and some expressed "feelings of helplessness, anxiety, or even resentment" toward writing (p. 319). These sentiments were not isolated; they reflected a broader pattern of writing apprehension and low self-efficacy among students who had otherwise been high achievers, as demonstrated by their admission to a competitive, highly ranked public research university. However, some students expressed positivity and optimism about their writing. Those with a favorable disposition to their own writing attributed this to their confidence and skill, but they also described self-regulatory behavior, such as planning, outlining, seeking help from teachers or parents, and intentionally engaging in a writing process. These findings underscore the value of narrative inquiry in WSE research to reveal how students' internalized writing histories and affective experiences can shape their self-efficacy and, by extension, their development as writers.

Building on this background, the present study draws from Bandura's social cognitive theory (1986, 1997, 2023), particularly its emphasis on self-efficacy as shaped by past performance and goal setting. Guided by Bandura's work and the findings in Eckstein et al. (2021), we designed a mixed-methods study of WSE in an FYC environment. Our goal was to explore both how students describe their writing self-efficacy and why they hold those beliefs. We sought to understand the range of WSE attitudes students bring into first-year writing courses and how those beliefs evolve over time. By incorporating students' voices, we aimed to capture the complex interplay between individual agency (e.g., goal setting) and external influences (e.g., past performance). Social cognitive theory, with its dual emphasis

on internal and external factors, provides a useful lens for interpreting how students' satisfaction with improvement and goal attainment interacts with the support structures around them to shape their writing self-efficacy.

With these goals in mind, this study addresses the following research questions:

1. Do students' WSE levels change after completing a first-year writing course?
2. What factors influence students' initial levels of writing self-efficacy?
3. What factors contribute to changes in writing self-efficacy over time?

## 2. Method

As discussed in the introduction, our study drew from Bandura's social cognitive theory (1986, 1997, 2023) and its central construct of self-efficacy. Our specific data collection emphases on *past performance* and *goal setting* were further inspired by Bandura's work (1997, 2023). In addition, the findings in Eckstein et al. (2021), which drew inductively from students' reflective texts using narrative inquiry, shaped both the construction of specific survey items and the reflective writing tasks that we asked our participants to complete.

### 2.1 Context

This study was conducted during the fall 2023 term in the writing program at a large public research university in California. Because we were especially interested in factors influencing WSE as students transitioned from high school to college, we focused on courses that primarily enroll new first-year students. Most U.S. colleges and universities have a FYC course that is typically required of all new students unless they meet specific exemption criteria (e.g., standardized test scores). This near-universal requirement in U.S. higher education is designed to develop students' academic writing and rhetorical skills. These courses emphasize genre awareness, audience adaptation, and research-based writing meant to support writing in all college classes, making them a central component of undergraduate education. This writing program had three distinct courses in which first-year students might enroll. We drew from students in these three courses:

- The general first-year composition course (FYC, four sections, 25 students each)
- An entry level (developmental) writing course for students who needed to satisfy the university's entry level writing requirement (ELW, 7 sections, 18 students each)
- A sheltered version of the ELW course for multilingual students (ML, 6 sections, 18 students each)

The courses were taught by either graduate student instructors (PhD students) or full-time lecturers.

Following ethical approval from our university's IRB office, we recruited instructors from multiple sections of all three courses during summer 2023. Instructors scheduled to teach those courses in the fall 2023 term were offered the opportunity to participate and were thanked for their assistance with a gift card. We asked them to assign their students two homework tasks (described further below), one during the first week of the fall quarter (Week 1) and the other during the final week of instruction (Week 10). After the teachers had collected the assignments, they downloaded them from the learning management site (Canvas) and sent them to the first author. Other than assigning the two tasks and forwarding them to us, the instructors taught their classes as they normally would.

## 2.2 Student participants

The student participants were enrolled in the instructors' classes described above. The students themselves were not separately recruited or selected; rather, the instructors were recruited as already discussed. Students completed all study materials (except interviews) as course assignments, but Survey 1 (described below) included consent documentation and an option to opt out of having their work included in the research. Their instructors were not informed as to which of their students had agreed or declined to participate. Survey responses and journal entries from those who opted out (82 students, 25%) were excluded from the dataset. For the rest, we obtained demographic information from the first set of survey responses, summarized in Table 1.

*Table 1.* Student Background Variables

| Demographic Variable    | Responses  | First-year Composition (FYC) | Entry Level Writing (ELW) | ELW–Multilingual Students (ML) |
|-------------------------|------------|------------------------------|---------------------------|--------------------------------|
| First Writing Course?   | Yes        | 22 (32%)                     | 97 (95%)                  | 70 (86%)                       |
|                         | No         | 38 (55%)                     | 4 (4%)                    | 11 (14%)                       |
|                         | Repeating  | 2 (3%)                       | 1 (1%)                    | 0                              |
|                         | Other      | 8 (12%)                      | 1 (1%)                    | 0                              |
| Year in School          | First      | 6 (9%)                       | 91 (89%)                  | 71 (88%)                       |
|                         | Second     | 39 (57%)                     | 8 (8%)                    | 10 (12%)                       |
|                         | Beyond     | 24 (35%)                     | 2 (2%)                    | 0                              |
|                         | Second     | 0                            | 1 (1%)                    | 0                              |
|                         | Not Sure   |                              |                           |                                |
| Major field(s) of study | STEM       | 44 (64%)                     | 79 (77%)                  | 39 (48%)                       |
|                         | Social     | 16 (23%)                     | 11 (11%)                  | 16 (18%)                       |
|                         | Sciences   | 2 (3%)                       | 5 (5%)                    | 4 (5%)                         |
|                         | Humanities | 2 (3%)                       | 0                         | 5 (6%)                         |
|                         | Multiple   | 5 (7%)                       | 7 (7%)                    | 17 (21%)                       |
|                         | Unknown    |                              |                           |                                |
| Totals                  | 252        | 69 (27%)                     | 102 (40%)                 | 81 (32%)                       |

Table 1 shows that most of the student participants were first-year university students <sup>2</sup> (67%) taking their first writing course at the university (75%) and that the majority (64%) planned to major in a STEM (science, technology, engineering, or mathematics) field.

### Interview participants

The final items on Survey 1, completed during the first week of the quarter, invited students to volunteer for follow-up interviews, offering a \$50 Amazon gift card in return for completing two 30-minute interviews over Zoom. Over 100 students expressed interest in the interviews. We compiled an initial list of 36 students—12 from each course level (FYC, ELW, and ML)—based on their survey responses. Our goal was to represent all three course types and include students across the range of WSE attitudes indicated in Q15 (“very good,” “OK,” “more negative than

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<sup>2</sup> At this university, students aren't required to take the FYC course in their first year, but those who haven't met the entry-level writing requirement must do so within three quarters. Those placed in earlier English for Multilingual Students courses get additional time to complete the requirement. These placement differences explain why some take “first-year” courses after their first year.

positive,” and “terrible”). We invited all 36 selected students to participate in interviews, but 13 did not respond (36% attrition). Ultimately, we interviewed 23 students—22 twice and one once. Interview participants were well distributed across the three course levels: seven in FYC courses, eight in ELW courses, and eight in ML courses. Due to our intentional selection process, we had roughly equal numbers of students in three writing confidence categories: seven reported feeling confident in their writing abilities, eight felt very weak, and eight described themselves as somewhere in between or “okay” with their writing.

### 2.3 Data collection

The first author completed a pilot version of the study in spring quarter 2023, drawing upon participants from one section each of the three first-year courses represented in the present study. This pilot enabled us to make changes in the final versions of the various data collection instruments, most notably sharpening survey questions and journal prompts for clarity. As already noted, the primary data collection took place in the first and last weeks of the ten-week quarter in Fall 2023, when the participating instructors asked their students to complete journal entry assignments and surveys. The interviews took place approximately around Weeks 4 and 10 (or 11, which was finals week) of the quarter.

#### Types of data collected

Reflective journal entries and surveys. The major pieces of data collected were from the two homework tasks assigned during Weeks 1 and 10. Each had three parts (A, B, and C). We describe these briefly here; redacted versions of the actual instruments used (journal prompts and surveys) are provided in supplemental materials submitted with this manuscript. As we discussed previously, one of our goals for this study was to add students’ voices (from reflective journal entries and interviews) to this examination of WSE.

1. Part A: Reflecting on previous writing. For both journal entries, students were first asked to identify a piece of writing<sup>3</sup> they had recently completed and then

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<sup>3</sup> The students were allowed to choose any previous piece of writing that they wanted to discuss (see instructions for the journal entries in our supplemental materials). When coding the Journal 1 entries, we noted that 130 focused on a paper students had written for a high school or college course, 98 discussed a college application essay, and 40 on other contexts, such as internships or personal writing (e.g., journal or blog). The Journal 2 entries focused on texts they had written for courses during the quarter; about 75% of those focused on assignments completed in their current writing course.

to critically analyze its strengths and weaknesses and discuss in hindsight their experience of writing the text.

2. Part B: Survey responses. After students had completed Part A, they were given a link to the survey, which was called “Writing Experiences and Attitudes” survey. Survey 1 asked background questions and the WSE-related questions described in the Data Analysis section below (see Table 4). Survey 2 (Week 10) repeated the WSE questions for statistical comparison and further asked students to evaluate whether they had met their Week 1 goals and explain why or why not, as well as to self-report their effort in the course. Both surveys were completed on the Qualtrics® platform, an online survey collector.
3. Part C: Discussing goals. After completing Parts A and B, students were asked to articulate goals for the quarter (Week 1) or for their future writing endeavors (Week 10). In addition, in the Week 10 response, they were prompted to consider questions about their attitude toward, confidence about, and enjoyment of writing and whether those feelings had changed since the beginning of the quarter.

Interview data. The interviews with the 23 students were conducted according to standard semi-structured protocols, also shown in our supplemental materials (Corbin & Strauss, 2015). A team of six researchers conducted the interviews, which were recorded on Zoom. The automatically generated transcripts were lightly edited by the interviewers for clarity and accuracy, and the recordings and transcripts were uploaded to our project website. After we had completed both interviews, we compiled a folder for each interview participant that included their survey responses, their journal entries, and their interview recordings and transcripts. As we describe in the next section, we used those materials to compose narrative descriptions of each participant, which were then used as a secondary data source for analysis (Cresswell, 2018; Ferris & Eckstein, 2020). Table 2 summarizes the different data types and how many of each were collected.

**Table 2.** Summary of Data Collected

| Data Source/Type                      | Number Collected (Consented only) |
|---------------------------------------|-----------------------------------|
| Survey 1                              | 243                               |
| Journal 1 (Parts A & C)               | 237                               |
| Survey 2                              | 223                               |
|                                       | (188 paired surveys)              |
| Journal 2 (Parts A & C)               | 197                               |
| Interview 1                           | 23                                |
| Interview 2                           | 22                                |
| Interview Narratives (secondary data) | 23                                |

## 2.4 Data analysis

Because we collected both quantitative and qualitative data, our analyses included statistical procedures, text analysis (coding of reflective journal entries), and construction of narrative descriptions of our 23 interview participants, which we then used as a secondary data set. We discuss each set of analyses in turn.

### Statistical analyses of survey responses

There were five questions that appeared on both surveys, and the responses to these five items were operationalized as “WSE variables” for statistical comparisons. SPSS version 29.0.2 was used for all statistical procedures. Table 3 outlines these variables, which include the five survey items plus a “Total” score (the five items taken together).

**Table 3.** Writing Self-Efficacy Variables from Surveys 1–2

| Survey Item Description                                                                             | Score Range |
|-----------------------------------------------------------------------------------------------------|-------------|
| Attitude about self as writer (four options: terrible, more negative than positive, OK, very good)  | 1–4         |
| Verbal self-description (coded negative, mixed, neutral, positive by two raters; scores totaled)    | 2–8         |
| Confidence about writing for college (four options: hopeless, not confident, hopeful, confident)    | 1–4         |
| Writing processes (seven descriptive statements about strategy use—could choose none, some, or all) | 0–7         |
| Writing products (seven descriptive statements about own writing—could choose none, some, or all)   | 0–7         |
| Total WSE score (all above items summed)                                                            | 4–30        |

The first two WSE variables in Table 3 probe students’ general feelings about themselves as writers. In the first item, students were given a choice of four responses (“I feel *terrible/more negative than positive/OK/very good* about myself as a writer”). In the second, they were asked to provide a verbal description of themselves as writers (a single word or a phrase). Four members of the research team coded these self-descriptions as *negative, mixed, neutral, or positive*. “Neutral” meant that the raters could not tell if the student intended a positive or negative connotation by the word or phrase they used. Examples included “average” and “decent.” After norming with a sample of 20 responses, the team members coded them in pairs, achieving over 95% agreement. We added this item of verbal description so that students were not entirely constrained by the four

choices we gave them in the first item in expressing their feelings about themselves as writers at the beginning and ending of the study period. The “confidence” item asked students about whether they felt prepared for writing in college, again giving students a choice of four responses (*hopeless, not confident, hopeful, confident*). For all three items, we coded the responses from the most negative to the most positive statements (so 1 was low and 4 was high.) The verbal self-description item ranged from 2 to 8 because we had two raters for each item and we summed their responses.

For the other two WSE variables (“process” and “product”), students answered two multi-option items. The process question asked how they usually approach a writing task, offering seven statements such as “I make a writing plan before I begin” and “I leave time to revise and edit.” The product question asked students to evaluate their past writing with options like “My ideas are a strength” and “My writing is well organized.” Each selection counted as one point, yielding scores from 0 to 7 for each variable. These two variables follow Bandura’s (1986) strong recommendation that questionnaires measuring self-efficacy be as specific as possible (e.g., “My writing is well organized” rather than “I’m a good writer”). The seven specific choices for each of those two items were also derived from Eckstein et al. (2021), a content analysis of student essays in which participants described their own writing processes and the strengths and weaknesses of their written products. In that study, participants who clearly described a thoughtful and engaged writing process were more likely to also describe themselves as writers in more positive terms.

Having analyzed and coded the five WSE variables as described above, we also added the points from the five items to obtain a “Total WSE” variable. For statistical analysis, we utilized nonparametric measures because the variables were categorical. To contrast the two sets of survey responses (Week 1 and Week 10) across those six variables (the five survey items and the total), we conducted paired-samples t-tests, using the Wilcoxon test for nonparametric samples. Finally, we used Spearman correlations to examine relationships between the WSE variables and other survey information, specifically the self-reported amount of effort students said they put into the course (Survey 2), and whether they felt they met their goals for the term (Survey 2). A value of  $p < 0.05$  was set as the baseline for statistical significance.

### Coding of reflective journal entries

Four members of the research team participated in analyzing the two sets of journal entries, using MaxQDA® software for coding. The lead researcher (Ferris) prepared an initial codebook, using sample journal entries from her own students (who were not included in the study) and guided by specifications of the journal prompts in creating coding categories and subcategories (e.g., positive and negative

evaluations of the texts that the students had chosen to reflect upon, types of goals that they set, etc.). The three other researchers did independent coding of the samples, and then the team met to discuss and refine the codes. Once the codes were agreed upon, the sample was divided among the four researchers, who coded them separately. A second coder from the team was assigned behind each team member to read through the entries, check the first coder's decisions, and add memos where they suggested either a different code or adding a code. Any coding questions were discussed in a team meeting after the first and second coders finished their work. Following this meeting, the first coder made any final changes needed.

#### Analysis of interview data

As noted in the "data collection" section, we compiled a folder of materials for each of our 23 interview participants. We used these materials to construct a narrative description of each participant (Creswell, 2018; Ferris & Eckstein, 2020; Ferris et al., 2013). The lead researcher (Ferris) composed a model narrative for the team, and then the six interviewers composed drafts of narratives for the students whom they had interviewed, typically between 2–3 pages long. When the narratives had been drafted, a second member of the team was assigned to go through each participant's materials and the initial narrative draft and offer any suggestions or corrections to the original writer. Any questions about the narratives were discussed at a team meeting, and then the original writer finalized the narratives. Once those were completed, we created a spreadsheet that summarized the information from each of the 23 narratives for easy review and comparison. A sample narrative is included in the supplemental materials.

### 3. Results

#### 3.1 RQ1: Changes in WSE over the study period

We compared students' responses to selected survey questions that we identified as "WSE variables" (see Table 3) from the beginning to the end of the study period, using paired-sample Wilcoxon t-tests. For all but one of the WSE variables ("Process"), there were statistically significant changes ( $p < .001$ ) in students' responses to questions about how they felt about themselves as writers and their writing between the two surveys. Their levels of WSE, as measured by these survey responses, increased significantly during the study period. The t-test results for the six WSE variables are shown in Table 4.

**Table 4.** WSE Variables: Results of Paired Samples T-Tests (Total N=188)

| Variable                                | Test<br>Statistic | Standard<br>Error | Standardized<br>Test Statistic | Significance  |
|-----------------------------------------|-------------------|-------------------|--------------------------------|---------------|
| Attitude toward self as a<br>writer     | 4902.500          | 281.712           | 7.712                          | p<.001        |
| Verbal self-description                 | 6900.000          | 415.468           | 6.672                          | p<.001        |
| Confidence about<br>writing for college | 2939.000          | 182.112           | 8.134                          | p<.001        |
| Writing processes                       | 5495.000          | 465.556           | 1.353                          | p<.176 (n.s.) |
| Written products                        | 6357.000          | 466.238           | 3.200                          | p<.001        |
| Total WSE score                         | 13013.000         | 663.978           | 8.134                          | p<.001        |

Students also, in their Week 10 reflective journal entries, wrote about how their attitudes towards writing and themselves as writers had changed during the term.<sup>4</sup> These trends are summarized in Table 5.

**Table 5.** Journal 2 Responses Regarding Changes in WSE/Attitude During the Term

| Coding Category                            | Summary of Responses       |     |
|--------------------------------------------|----------------------------|-----|
| Attitude toward writing (148 items coded)  | Changed for the better     | 100 |
|                                            | Did not change             | 42  |
|                                            | Changed for the worse      | 6   |
| Confidence about writing (199 items coded) | Confidence increased       | 175 |
|                                            | Confidence stayed the same | 15  |
|                                            | Confidence decreased       | 9   |
| Enjoyment of writing (160 items coded)     | Enjoyment increased        | 110 |
|                                            | Enjoyment stayed the same  | 34  |
|                                            | Enjoyment decreased        | 7   |

This table shows that most of the student writers who addressed these items in their second journal entries felt that their overall attitude towards writing, their confidence in themselves as writers, and their enjoyment of writing had changed, and for the better. Several excerpts from the journal entries illustrate this further.

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<sup>4</sup> The journal prompt left students' responses semi-structured. They were guided by several questions but did not have to answer them all. The journal responses coded for this table thus represent only those students who chose to address the question/item in their reflections.

I used to think my writing wasn't as good or that I didn't meet all the requirements and sometimes looked at it negatively. However, the feedback I would get in class helped me realize I actually did a better job than I thought. (student in ML class)

My confidence has definitely skyrocketed since Week 1...I underestimated my own writing skills. But that goes to show that I lacked confidence in my own writing abilities. And now my confidence has built up again. (student in ELW class)

My interest in writing also grew, as I discovered in this course that writing is not limited to academic styles. There are many genres, each with its own audience and style of writing, and I thoroughly enjoyed the creative process. (student in FYC class)

Because both journal prompts required the students to critically evaluate a recent piece of their own writing, it was also possible to compare their own views toward their texts at the beginning and end of the term. Table 6 summarizes these trends.

**Table 6.** Students' Evaluations of Their Own Writing (Journal 1 vs. Journal 2)<sup>5</sup>

| Coding Category               | Journal 1 (Week 1)<br>(N=237) | Journal 2 (Week 10)<br>(N=197) |
|-------------------------------|-------------------------------|--------------------------------|
| General positive evaluations  | 99                            | 87                             |
| General negative evaluations  | 60                            | 16                             |
| Mixed evaluations             | 108                           | 33                             |
| Specific positive evaluations | 374                           | 319                            |
| content                       | 184                           | 158                            |
| organization                  | 75                            | 59                             |
| language                      | 31                            | 24                             |
| rhetoric                      | 44                            | 47                             |
| voice/style                   | 40                            | 31                             |
| Specific negative evaluations | 457                           | 302                            |
| content                       | 164                           | 132                            |
| organization                  | 80                            | 61                             |
| language                      | 118                           | 49                             |
| rhetoric                      | 50                            | 32                             |
| voice/style                   | 45                            | 28                             |

<sup>5</sup> Because we were coding reflective journal entries written in narrative form with semi-structured prompts, the number of items coded is greater than the total number of journal entries. The same journal entry, for example, could have been coded in more than one category.

These coded items from the journal responses cannot be interpreted statistically because we received more Journal 1 than Journal 2 entries and because students were not required to address all these points in their responses. However, several observations seem justified here. First, the numbers of general and specific negative evaluations dropped substantially between Week 1 and Week 10, and this decrease was especially notable for evaluations of their language use. Given that many of the student participants in the study were multilingual and/or taking developmental writing courses, this seems an important indicator that their confidence about their control of language in their writing had improved (see also Eckstein & Ferris, 2018; Ferris & Eckstein, 2020). There were also fewer “mixed” evaluations of the texts in Journal 2 (e.g., “despite being thorough in the content, it lacks cohesiveness,” student in ML class), perhaps suggesting that the students felt more assured about their own evaluative abilities and didn’t need or want to hedge their comments.

Interview data from 23 students revealed individual variation in WSE changes. A few felt very good about themselves to begin with (and not much changed); others initially felt ambivalent or even negative but saw notable improvement in their confidence levels by the end of the term; and several started and finished the term feeling mostly uncomfortable with writing and negative towards themselves as writers. For example, a student from the ML class disliked the source-based writing assignments and felt that it discouraged the expression of creative or original ideas: “we are standing on other people's shoulder” (Interview 2). In contrast, a student in the FYC class who had said at the beginning of the term that she felt “more negative than positive” (Survey 1) about herself as a writer expressed in her second interview that the range of writing tasks in the course had helped her feel more prepared for future academic and professional writing: “So I feel like I've gotten a better understanding of how to write for certain things, whether it's like a professional email or a cover letter, or like different things I normally wouldn't write. So I feel I do think I feel more confident.” (Interview 2)

### 3.2 RQ2: Factors influencing students’ initial WSE levels

Our second and third research questions prompted us to investigate the reasons behind students’ attitudes toward themselves as writers. Using surveys, journal responses, and interviews, we explored both the sources of these initial attitudes and the factors that contributed to changes observed by the end of the term (discussed below under RQ3).

When asked in the Week 1 survey which factors influenced their feelings about writing at the beginning of the term (Survey 1, Q18; students could select more than one factor), responses grouped primarily in four areas: Their own efforts (or lack thereof), the context for writing, the results of writing (grades, feedback, college

admission), and the influence of their teachers (see Table 7). They were less likely to select peers or family as being influential in their attitudes toward writing.

**Table 7.** Factors Which Influenced Students' Feelings About Writing

| Which factor(s) do you think have most influenced your feelings about writing to this point?             | n   | %     |
|----------------------------------------------------------------------------------------------------------|-----|-------|
| My own effort, strategies, and processes have influenced my good/bad feelings about writing.             | 188 | 24.29 |
| The context (type of writing, reasons for writing) has influenced my good/bad feelings about writing.    | 183 | 23.64 |
| The grades and/or feedback I received on my writing have influenced my good/bad feelings toward writing. | 160 | 20.67 |
| My teachers have influenced my good/bad feelings about writing.                                          | 137 | 17.70 |
| My classmates or friends have influenced my good/bad feelings about writing.                             | 56  | 7.24  |
| My parents or other family members have influenced my good/bad feelings about writing.                   | 50  | 6.46  |
| Total                                                                                                    | 774 | 100   |

In our first round of semi-structured interviews with 23 participants, we asked two open-ended questions (Interview 1 protocol, Q2–3) to explore why students felt the way they did about writing and themselves as writers at the beginning of the term; their responses offered insights as to their attitudes and the factors shaping them. Some emphasized assignments and grading systems that they found too restrictive; some discussed peers or family members who they believed were better writers than they were; and some mentioned their own external or demographic characteristics, such as growing up bilingual and never feeling like a competent writer in either language. Students who generally felt positively about their experiences and identities as writers mentioned teachers who had mentored or inspired them, especially through helpful feedback or engaging tasks. Several quotes from the first round of interviews illustrate this range of feelings and experiences:

So my mom is a very good writer, and she's a principal at an elementary school. ...So I'm like, no like I'm never as good. [...] But I feel like I just either compare myself to like—Why can't I just write the way my mom does, or like even some of my peers. You know you do like peer reviews, and then I'm like, well, theirs seems so much better than mine, so that I feel like comparing myself played a really big part. (FYC student, Interview 1)

There was this one teacher I had like freshman year. It was like they had to do an example of what not to do, and they used me as an example like that.

That really got to my head like really badly so like ever since then I became like super insecure of showing my work, or like peer editing, because, like, I can just remember, like that feeling of like being put on the spot. (ELW student, Interview 1)

The influence of past performance. As discussed in the Methods section, we asked students to select a previous piece of writing and critically assess its strengths and weaknesses (Table 2). Following Bandura's assertion that past performance ("mastery experiences") is a strong predictor of self-efficacy levels (Bandura, 1997, 2023), the purpose behind this focused evaluation of past writing was to provide respondents with a data-based, real-time reminder of what they had done well, or not so well, as they answered questions in their surveys and journal entries about WSE. We followed this analysis with a survey question (Q22) that asked them to identify what they liked about their previous writing in general, not just in the one piece they had selected. Seven options were provided (Table 8), and respondents could select more than one. Students indicated that they felt the most positive about expressing their own voice and ideas, less confident about technical precision (mechanics, grammar, vocabulary), and not at all sure that anything they wrote was "entertaining" or "appealing" to readers (see Table 8). In our interviews, some students complained about boring, restrictive writing tasks in high school, which may have led survey respondents to wonder how a rigid, tedious assignment could possibly lead to a product that appeals to readers.

**Table 8.** Self-Evaluation of Writing in General (Survey 1, Q22)

| What is your self-evaluation of your writing up until now?                                                 | n   | %    |
|------------------------------------------------------------------------------------------------------------|-----|------|
| I express my personality and voice in my writing.                                                          | 139 | 20.2 |
| My ideas and content are a strength in my writing.                                                         | 129 | 18.8 |
| My writing is well organized, both as to the text as a whole and within individual paragraphs or sections. | 105 | 15.3 |
| My writing is mechanically sound (spelling, punctuation, etc.).                                            | 90  | 13.1 |
| I use grammar effectively (as to both accuracy and variety) in my writing.                                 | 84  | 12.2 |
| I use vocabulary effectively (both as to accuracy and variety) in my writing.                              | 82  | 11.9 |
| My writing is entertaining and appeals to its audience (readers).                                          | 57  | 8.3  |
| Total                                                                                                      | 686 | 100  |

### 3.3 RQ3: Factors influencing WSE change over the course of the study

As already discussed regarding RQ1, the group showed notable increases in WSE levels over the term of first-year writing instruction. Here we discuss the factors that appeared to influence these positive changes. We asked specific questions in the

second survey, in the second journal prompt, and in the second interviews to help respondents assess what (if anything) had changed for them, and why. In both the coded journal entries and in the second interviews, we noted three major themes, which, of course, overlapped in many instances: (1) the content of the writing course (readings, tasks, major writing assignments); (2) feedback from peers and teacher; and (3) a great deal of writing practice. Two quotations from Journal 2 entries are illustrative. Both were written by students in the ML class.

Taking the [ML] course helped me improve my writing skills a lot. Back then, I was scared of assignments that made me write a lot, especially those requiring 750 words and above. However, the most recent research paper in my Buddhism course requires me to write 1000 words, and I completed it in about two nights.

Not only does this course require me to write a lot of writings, but, there are big papers that I have to write too. I applied all the techniques and methods that I learned in this course to complete those assignments, and I am confident that I can do any writing from now on.

### Self-reported effort

Another question we asked on Survey 2 (Q17) was for students' honest assessment of their own effort during the writing course (see Table 9).

**Table 9.** Self-Reported Effort During the Course (Survey 2, Q17)

| Answer (choose one)                                                                           | n   | %    |
|-----------------------------------------------------------------------------------------------|-----|------|
| I worked hard throughout the course and did the best I could.                                 | 133 | 58.6 |
| I worked somewhat hard at times, but it varied depending on other things that were happening. | 91  | 40   |
| I put minimum effort into this course.                                                        | 3   | 1.3  |
| Total                                                                                         | 227 | 100  |

Table 9 demonstrates that most respondents claimed to have given their best effort either throughout the term or at least some of the time. This response complements the response from the first survey (shown in Table 7), that students felt that their own efforts, strategies, and processes were the factor that most influenced their current feelings about writing. There were significant positive correlations between students' responses to this "effort" question and three of the WSE variables (attitude toward self as a writer, selection of writing process statements, and total WSE score) as well as between this question and responses to whether they met their goals during the quarter (Survey 2, Q18), discussed further below.

### Setting and (not) meeting goals

As noted earlier, Bandura (2023) discusses at some length the relationship between goal-setting and self-efficacy. In this study, we asked students in their first journal entries, after reflecting on a past piece of writing and completing the survey—both activities that helped them identify areas of strength and/or needed growth—to articulate some goals for their writing course during that quarter. At the end of the term, after asking them to review their Week 1 responses, we asked them questions in Survey 2 about these goals (Q18–19): whether they felt they had met their goals and why or why not. Forty-six percent of respondents said that their goals had been met, while another 52% said that “some but not all” of their goals had been met, and only three students (1%) said that they had not met their goals at all. Table 10 shows the responses to Survey 2, Q19, which asked students about why their goals had or had not been met.

**Table 10.** Reasons Why Goals Were (Not) Met (Survey 2, Q19)

| Reason (respondents could select multiple items)                 | n   | %    |
|------------------------------------------------------------------|-----|------|
| Feedback from my instructor and peers helped me meet my goals.   | 155 | 23.6 |
| In-class activities and instruction helped me meet my goals.     | 130 | 19.8 |
| Different writing assignments and tasks helped me meet my goals. | 111 | 17.5 |
| The pressures of the quarter kept me from meeting them.          | 70  | 10.6 |
| My goals were not matched well to the course curriculum.         | 47  | 7    |
| My goals were too unrealistic for one quarter.                   | 20  | 3    |

As Table 10 shows, when asked to respond to a survey item about why they thought they had met/not met their goals, we see that the most prominent factors were feedback (from teacher and peers), in-class activities and instruction, and out-of-class assignments and tasks. They also gave credit to themselves for their own effort and effective writing processes (see Table 9). For the items at the bottom of Table 10, when goals were not met, students attributed that to flawed goal setting or to external factors (“pressures of the quarter”). Students’ Journal 2 entries provided additional detail about the extent to which they felt they had met their goals and why (or why not). These two quotations are illustrative:

Reflecting on my goals set in Journal 1, I’ve achieved most of them. My main goal was to improve my writing structure and grammar; consistent practice over the quarter has helped me do just that. (Journal 2, ML student)

Although I did not fulfill all of my goals because they are unrealistic to achieve in one quarter, I also did not disappoint myself. My goal was to be

more fluent in writing, and I did, although not that much, but a little is still an improvement. The reason for not fulfilling my goal completely would be because I set high standards for myself: it is unrealistic to improve so much in the course of three months. (Journal 2, ML student)

There were significant positive correlations between the responses to Q18 (“goals met”) and 5 of the 6 WSE variables, supporting our expectation that setting and meeting goals influences increases in student WSE (Bandura, 2023).

#### 4. Discussion, implications, and conclusion

To summarize our findings, these first-year university students brought a range of attitudes about themselves as writers into their courses. External factors that had contributed to initially low WSE levels included rigid, demotivating writing tasks (or high-stakes tests) and teachers who either didn’t help much or were harsh in their feedback and/or assessments. Students who felt more positive about themselves as writers coming into the course cited positive experiences in high school or college writing classes (or with specific teachers) and tended to articulate a sense of agency/voice. As a group, students overwhelmingly had higher levels of WSE at the end of the quarter compared to the beginning. Specific aspects of the writing course appeared to influence this outcome: course materials (readings, tasks, major assignments), feedback (instructor & peers), and assessment models (mostly positive reactions to grading contracts). In addition to elements of the writing course, students reported that they had put a good deal of effort into the course (Table 9), and this response correlated positively with their choice to adopt a range of writing process strategies. Finally, it appeared that reflecting on past performance (in the two journal entries) and on goals set and met also seemed to improve WSE levels from the beginning to the end of the study period (as predicted by Bandura, 2023; see also Hamilton & Kalyuk, 2022).

Certain limitations in our study constrain its interpretability. For instance, about 25% of students opted out of participating in the research project, and a similar proportion never responded to interview invitations, introducing potential self-selection bias. This limits interpretability because participants may differ in motivation or confidence from non-participants. Furthermore, it is possible that students increased effort or reported greater confidence because they were completing reflective tasks for a grade. The “Hawthorne Effect,” or “the tendency for people to alter their behavior when they know they are being observed” (Vannan, 2021, p. 246) could also provide a partial explanation for some participants’ responses. The lack of a control group also prevents isolating course effects from other influences such as maturation or concurrent coursework. Future research could address these issues through randomized designs or by including comparison groups to strengthen causal claims.

Our findings clearly indicate that a well-executed writing course can improve students' WSE, especially in the short run. When students discussed, in the second journal entries and/or second interviews, why their attitudes toward writing had changed (mostly improved), most of them attributed this change to various aspects of the writing instruction they had received, whether it was the reading assignments, the writing tasks, feedback from instructor and peers, or the way the course was graded<sup>6</sup> —or, in many instances, some combination of these characteristics.

Research on the effects of writing instruction often focuses on measurable outcomes, specifically by attempting to demonstrate that students' written products had improved during the study or because of instructional choices. However, it is not as straightforward or uncontested as it might seem to measure "improvement" in writing, especially over a relatively short period of time such as a ten-week quarter. As we explained in the introduction, we chose to come at this inquiry differently, stipulating from the beginning that higher levels of WSE can lead to stronger student writing performance. There are decades of psychometric educational research that robustly demonstrate this connection. Thus, we were most interested in measuring changes in WSE over time and examining, using our mixed-method design, factors that could influence WSE (coming into college) or cause it to change.

The finding that a good experience in a writing course at the beginning of a student's college career could measurably improve their confidence and overall attitude toward writing corroborates the sparse research on WSE interventions in FYC (Campillo & Pool, 1999; Khost, 2017) and should be encouraging to teachers, who might wonder if their efforts are truly helping students. In addition, we observed that the activities completed as part of the research project—the reflective journal entries and survey questions—helped students focus on what worked well for them as writers and evaluate their own progress, which in turn built their confidence and WSE (Bandura, 2023).

Follow-up classroom-focused research could look specifically at approaches such as explicit teaching of WSE as a construct and on more precise techniques for guiding students to reflect on past performance and to set appropriate goals. We found, for example, that without much direction in the journal entries on how to articulate useful goals, some students would say vague, general things such as

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<sup>6</sup> A secondary goal in our data collection was to examine a possible relationship between assessment models—specifically labor-based grading contracts—and WSE, and several questions in our surveys explore this issue. While space in this paper does not permit us to discuss grading contracts at length, we did find a positive statistical relationship between students' reactions to grading contracts (where applicable; not all our instructors implemented them) and increases in WSE. We plan to write about this in a separate paper.

“become a better writer” or identify specific things that were not explicitly covered in the course curriculum (e.g., “improve my vocabulary”). It would be feasible to design studies that examine the best ways to design such instructional interventions to facilitate optimal growth in WSE during a particular writing course.

Social Cognitive Theory, with its dual emphasis on individual agency and external factors, helps explain why students had such a positive change in attitude and beliefs: the course/teacher/peers (external) plus students’ own satisfaction with their improvement and effort in meeting their goals (individual). This study also breaks some new ground in examining the “why” behind levels of WSE and in using mixed methods to investigate this important phenomenon.

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Link to Open Science Foundation project files (dataset for quantitative analysis, student texts for qualitative coding, data collection and analysis materials: [https://osf.io/jw3m6/?view\\_only=6b6b45510da94be9ab821a91c693bc30](https://osf.io/jw3m6/?view_only=6b6b45510da94be9ab821a91c693bc30))

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