Research Note

Analyzing Students' Constructs of Writing Through Reflections on Their Drafts

Chris M. Anson, Beth Greene, and Matthew Halm

North Carolina State University

Structured Abstract

- **Aim:** The purpose of this study was to explore first-year college students' conceptions of their own drafts-in-progress in order to identify underlying knowledge and perspectives that are assumed (and should be intentionally taught and scaffolded) in the transition from high school to college. The project was designed to analyze students' reflections for the extent to which they saw their drafts as completed or under continued revision, as well as their focus on ideas, audience-related concerns, or textual characteristics. The study was primarily heuristic, with the goal of provoking further research about students' constructs of their writing while offering useful information for both college and high school teachers about areas of student learning relating to their conceptions of their own writing that need attention.
- **Problem Formation:** Previous research has shown that students' conceptions of writing can influence their writing processes positively or negatively and are related to their abilities of self-assessment (see, for example, Alcorta, 1996; Artemeva & Fox, 2010; Lavelle & Zuercher, 2001; Neely, 2014; Pajares & Johnson, 1994; Shaughnessy, 1977; Smith & Yancey, 2000; White & Bruning, 2005). However, research has not adequately studied the way that novice writers transitioning from high school to college conceive of their own drafts-in-progress, and how those constructs might relate to the further development and refinement of their texts and writing abilities. The current study had its genesis in an earlier classroom-based, descriptive inquiry into

how first-year students talked about their drafts-in-progress (Anson, 1999). That study showed that the weakest writers saw their drafts as static entities that were "finished" for purposes of teacher evaluation, that they deferred to the teacher's authority rather than taking control of their texts, and that they focused more often on textual features than considerations of meaning or the potential responses of their audience. Students' reflections on their drafts suggested particular constructs of writing that seemed either to inhibit or enhance the further development of their texts as well as their improvement as writers. The present study sought to explore these relationships in a more formal analysis of the current generation of first-year college students based on data analytics.

- **Information Collection:** This research note reports findings from a study of 37 first-year college students enrolled in three identical sections of an introductory composition course taught by the same instructor at a large research-oriented university. Students used a voice-recording program built into their learning management system (LMS) in order to reflect on a first, unrevised draft of an assigned paper. Audio recordings were transcribed and analyzed for time-oriented focus (what was done to produce the draft, what is the status of the present draft, and what needs to be done to revise the draft) and for function-oriented focus (text, meaning/ideas, and audience considerations). Length of the recordings and word counts of the transcripts, as well as grades on the final submitted draft, were noted for possible correlations with transcript coding (the instructor did not have access to the reflections, which were done independent of the course). Transcripts were coded by two investigators, and discrepancies in coding were adjudicated.
- **Conclusions:** First, results showed a small but not insignificant relationship between students' final paper grades and word counts of their reflections: the longer the reflection, the higher the grade. Second, students' reflections were more often retrospective (talking about how the text was produced in the past tense) than temporal (the text's current status) or projective (what revisions were imagined). Third, in the functional dimension, students more often reflected on the content of their writing or its textual features than on their readers' possible responses. Fourth, there was a slight relationship between grades on students' final drafts and the number of different codes applied to their transcripts: the more frequently students switched between the time-oriented and function-oriented dimensions, the higher their grade on the final draft. In an analysis of two subsets of students (highest- and lowest-performing), several differences were found between the groups in the time and function orientations when compared to the average. Lowest-performing students were overrepresented in the retrospective and textual dimensions,

while highest-performing students were overrepresented in the temporal dimension.

- **Directions for Further Research:** Limitations of this study, including directives for participants on how to complete their reflections, yielded several ideas for further research. First, an intervention study focusing on how students reflect on their writing could provide new insights for teaching students reflection and revision techniques and self-awareness. Second, more correlations could be made between student reflections, final paper grades, and other demographic and writing-related data such as self-efficacy and attitudinal scales, standardized test scores, and previous course experiences and results. Third, the current study could be repeated and expanded to include more participants and data points—for example, assignments in other genres or a comparison of first-year college student writers and expert writers. Qualitative studies could further explore students' constructs of writing before attending a first-year composition course or how these constructs evolve during students' time in college/university. Lastly, scaled-up studies using machine coding of transcripts could yield more robust results and/or stronger correlations with other data.

Keywords: first-year writing, reflection, revision, self-assessment, writing analytics, writing constructs

1.0 Aim

The purpose of this study was to explore conceptions of writing among first-year college students in order to identify underlying knowledge and perspectives that are assumed (and should be intentionally taught and scaffolded) in the transition from high school to college. In much contemporary writing instruction, students learn processes for composing and revising texts along with an assortment of rhetorical concepts that help to make them aware of their intentions and communicative situations and to self-assess their emerging drafts (see, for example, Yancey et al., 2014). However, although there has been some research on the relationships between students' personal constructs and their writing performance (for a review, see Pajares & Valiante, 2006), we need to know more about the forms of knowledge students bring from high school into foundational writing courses in college and how they deploy that knowledge in drafting and revising their work.

This project was designed to explore students' recorded reflections on their drafts-in-progress for the presence of certain predefined features. The results, from which we might discern constructs of writing that appear to help or hinder students' performance, provoke further research questions about knowledge and transfer while offering potentially useful information for both college and high school teachers about areas of student learning that need attention. The

results of further research on the relationship between students' constructs of their own writing-in-progress and the performance of that writing can inform the public, parents, and educational administrators about the need to teach and support deeper understandings of writing, rhetoric, genre, authorial purpose, revision, and context in the place of a preoccupation with surface details and prescribed, formulaic types of writing.

The emergent interdisciplinary field of writing analytics has as its goal the collection and analysis of textual data as evidence suggestive of empirical conclusions to be drawn about the nature of writing (see Lang et al., 2019). Within this larger framework, we view this research note primarily heuristically, as a way to (re)open inquiry into the relationship between students' constructs of their own drafts-in-progress—and their writing in general—and the effects of these constructs on their behaviors and performance. Although the analysis reported here is fairly simple, without complex correlations with other variables, its findings suggest a number of fruitful avenues for further research and instructional intervention.

In particular, this research aligns with many of the new directions for writing analytics articulated by Palmquist (2019): enhance teaching effectiveness; improve student learning and success; improve feedback on writing; and help develop a deeper understanding of intersections among genres, contexts, and purposes. Instructors can replicate the research reported here with their own students' draft reflections as a way for them and their students to better understand how the students are thinking about drafts and plans for revision. They can also include such reflections in each major project to provide this same insight and move toward understanding how and whether students' views on drafts, feedback, and reflections evolve over a semester and through several different genres.

2.0 Problem Formation

Consider the following excerpt from a recorded reflection of "Gordon," a first-year college student enrolled in an introductory composition course. Gordon is discussing the draft of his paper midway to its completion:

> I described everything in third person as, almost like an omniscient narrator, but then I went straight into first person talking about my reading and writing. So as I went through that, it seemed okay when I was typing it, but then, after I read it one or two times, it really started to make less sense as to why the descriptions were what they were. . . . Firstly, I have a couple ways that I think I can fix that. It's really just to make sure that the audience knows what I'm thinking. So when I'm writing the paper, it makes sense to me, it links back to my own memory, but I have to really make sure the audience understands what the memory, like, means to me. And then I have to bring the story in to make more sense to the paper as a whole. So a lot of my memories make sense by themselves, but when you put 'em in the context of the paper, I have to really make sure people that are reading it know why they make sense, so I think maybe I'll add a couple of things, take out

> a couple sentences of the description to link it in better with the reading and writing topic of this paper.

The transcript of Gordon's full reflection is 744 words. A quick reading of this excerpt shows that Gordon talks about what he did with the text (in the past tense) but also what the text currently looks like and what he needs or wants to do in order to improve it. His reflection is therefore both *retrospective* and *projective.* Functionally, Gordon focuses on the text itself but also on his assumed audience and its potential reaction and to the particular content of his paper. One characteristic of stronger writers is their tendency to move around among these time-oriented and function-oriented dimensions as they explore and reflect on their drafts. A comment about what was done ("Here's something I did with the text") might lead to some perceived limitations, which yield a comment about revision ("Here's something I need to do with the text"); or a static comment about the draft ("Here's what I see in the text") might lead to a thought about what readers experience, shifting the focus to audience-related concerns or revision. Gordon ended up with a B on the final draft of this paper.

In contrast, consider an excerpt from the reflection of "Paul," another student enrolled in this course:

> My title is "Literary Flaws in Bassham's Essay About *The Matrix*." Could've been a better title, but that's what I came up with. I start off with a quick summary of *The Matrix* in the first paragraph and then I go on to introduce the religion of the Matrix, his essay and the [*door slamming*]. I end with my thesis statement. . . . And my last body paragraph, I—let's see, I talked about him leaving out evidence that he could've pulled in to strengthen his claims. This is my biggest paragraph. I used a lot of quotes in here and some quotes from—like directly from the movie, instead of from Bassham's essay. . . . And, like, I did it pretty late at night. That's probably why the—I have [met] a lot of like needed requirements and I thought I did a pretty good job.

The transcript of Paul's full reflection is less than half the length of Gordon's (302 words). His reflection is dominated by comments focusing on the text as it stands and on what he did to produce it, with no comments about the potential "future" of the text. Paul spends most of his time describing the text ("I start off with a quick summary . . .") and his ideas ("I talked about him leaving out evidence . . ."), and offers no thoughts about his audience's reception of his ideas. In addition, we do not see much evidence that Paul is "moving around" in the relationship between language functions and the time-oriented aspects of his text, as Gordon does. Instead, he represents his paper as a static entity rather than something in motion. A characteristic of weaker writers is a tendency to see a draft—now that it's been written—as fixed and finished, without much potential for change or improvement. It is what it is: "I thought I did a pretty good job." In addition, weaker students tend not to see their writing as something that reaches potential readers, and when they do refer to a reader, it is often in deference to a teacher's judgment or to refer to some admonishment from their teacher (such as "He said make sure you include a title";

see Anson, 1999). Overall, the reflections of weaker writers suggest that they have a conception of writing as a trial-and-error process, as something that needs to get done, perhaps all at once, and then subjected to the evaluation of the teacher to see how well it did. There is less of a sense of ownership of the text that could lead to its being shaped and reshaped based on self-assessment and the realization of specific intentions. Paul earned a D+ on the final draft of this paper.

Previous research has shown that students' conceptions of writing influence their writing processes and performance positively or negatively. As early as 1977, Shaughnessy demonstrated that basic writers' beliefs that their sentences had to be grammatically correct at the point of composing negatively impacted their flow of ideas and construction of meaning. Accounts of the writing process, such as Flower and Hayes' (1981) influential cognitive process model, demonstrated the importance of writers' awareness of the multiple rhetorical, linguistic, monitoring, and planning-based requirements for producing coherent text. More recently, scholars such as Alcorta (1996), Artemeva and Fox (2010), Lavelle and Zuercher (2001), Neely (2014), and White and Bruning (2005) have extended this earlier cognitive research by studying dimensions of students' self-efficacy and beliefs about writing and their performance (see Pajares & Johnson, 1994, for a review). However, much of this research has used questionnaires and scales to explore students' beliefs about writing, and these often focus on writing in general rather than on students' own texts-in-progress. Other recent research, based on the acquisition of "threshold writing concepts" thought to be essential for mature writing (Adler-Kassner & Wardle, 2015), has been exploring students' constructs of writing by analyzing the language they use when engaging in peer review (Anson & Anson, 2017). In this research, novice writers are less likely to use concepts or language that are used by teachers and skilled writers when discussing their own or peers' drafts. However, these studies are corpus-based and comparative, and do not fully analyze the discourse students produce when commenting on work-in-progress. In light of significant changes in student demographics and the influence of technology, current research needs stronger inquiry into the way that novice writers transitioning from high school to college conceive of their own drafts-in-progress, and how those constructs might relate to the further development and refinement of their texts.

The current study had its genesis in an earlier classroom-based, descriptive inquiry into how first-year students talked about their drafts-in-progress (Anson, 1999). In that study, students were asked to tape-record their reflections on an assignment after they had produced a full rough draft but before revision, submission, and evaluation. Recordings were transcribed and analyzed using the qualitative method of constant comparison from grounded theory (Stern, 2008), which led to the establishment of three time-oriented and three function-oriented categorizations of statements. Results showed that, in contrast to strong writers, weak writers saw their drafts as static entities that were "finished" for purposes of teacher evaluation, that they deferred to the teacher's authority rather than taking control of their texts, and that they focused more often on textual features than considerations of meaning or intentions for their audience. Students' reflections on their drafts suggested particular constructs of writing that seemed either to inhibit

or enhance the further development of their texts as well as their improvement as writers. The present study sought to explore these relationships in a more formal analysis of the current generation of first-year college students based on data analytics.

3.0 Information Collection

Subjects were first-year students newly enrolled in one of three identical sections of a required composition course at a large, research-oriented public university. Each section enrolled 18 students, yielding a potential *N* of 54. The majority of the students were recent high-school graduates (most of them 18 years old) who brought a range of knowledge and experience into the course. An Institutional Review Board (IRB) application resulted in approval under the exempt status, meaning that it was determined the study posed a low risk of harm to participants. After opt-outs and data discarded because of inaudible recordings, the total *N* of students for the study was 37, roughly representing an equal number from each of the three sections.

Students were invited to participate in the study and provided consent under approved IRB guidelines, and were promised a $25 Amazon gift card. Participants agreed to reflect orally on the full rough draft (prior to revision) of their first main, graded writing project in the course and to allow their drafts and revisions to be shared with the investigators. Students were trained to use PoodLL, a voice-recording program built into their learning management system (LMS), Moodle, which was programmed to allow them up to five minutes of reflective audio commentary on their draft. At the point when they had completed a full rough draft of their first major writing project, they activated the voice recording device with their paper in front of them or onscreen. Minimal prompts were used to avoid researcher influence. The only suggestion given to students was to pinpoint any sentence or passage that they otherwise referred to generally (such as, "So here I added something about my source," where they would need to explain "here"). Recorded reflections were produced outside the course requirements and were not evaluated, and students' performance in the course was not affected by their choice to opt into or out of the study. The use of audio recording facilitated students' fluent reflection, eliminated the effects or influence of a researcher being present, and provided additional data about the textual focus of their comments. Although writers' reflections focused on a specific writing project (a literacy autobiography), this study was chiefly interested in meta-level conceptions of discourse and the language used to articulate them rather than the effects of talking about the production of a specific genre. Drawing from three identical sections (taught by the same instructor with the same assignments) limited the confounds associated with different task constraints across multiple sections and teachers.

Audio recordings were downloaded as MP3 files from the instructor's Moodle course sites and saved. The recordings were then transcribed and cleaned of non-functional extraneous words (ums and other hesitations and repetitions). Word counts of transcripts were noted for possible relationships to the other data. Transcripts were coded using a six-feature matrix based on a time dimension (Retrospective/Temporal/Projective) and a functional dimension borrowing from the work of M. A. K. Halliday (1973): Textual/Ideational/Interpersonal. Codes were initially

determined from an earlier study (Anson, 1999) that used constant comparison from grounded theory (Charmaz & Bryant, 2008; Glaser & Strauss, 1967; Stern, 2008) of students' tape-recorded reflections on drafts; as a result, the codes used here were determined *a priori*. Grades on students' final papers were also recorded for potential correlation with elements of their reflection. The six categories follow, with examples:

Time-Oriented Categories:

- Retrospective (R): what the writer did to produce the text
- Temporal (T): what characterizes the text at this point in time
- Projective (P): what the text could become; what is needed or what the writer will do or might do

Function-Oriented Categories (from Halliday, 1973):

- Textual (Tx): the textual nature of the draft
- Ideational (Id): content or meaning; the writer's "expression of experience" (66)
- Interpersonal (In): thoughts about the reader's response; relationship of writer and reader

These codes provide a nine-cell matrix (based on pairs from the two categories) that can be applied to any statement in students' reflections. Below are illustrations of the codes (based on Anson, 1999).

Table 1

Categorical Code Matrix

R	R/Tx	R/Id	R/In
T	T/Tx	T/Id	T/In
P	P/Tx	P/Id	P/In
	Tx	**Id**	**In**

R/Tx: "I used somewhat angry words in this section. I wanted to use boldface for some." (past tense focusing on specific textual features)

R/Id: "I had a strong urge to write about the issue of animal rights because I'd seen atrocities in the lab where I worked last summer." (past tense focusing on specific features of meaning)

R/In: "I was trying to convince people that no human cause justifies animal torture in lab experiments." (past tense focusing on reader-related intentions)

T/Tx: "There's a balance of long and short sentences in the middle section." (present tense focusing on specific textual features)

T/Id: "The idea here in paragraph 3 also focuses on the subsidiary issue of products like shampoo that are developed as a result of animal testing." (present tense focusing on specific features of meaning)

T/In: "At this point in the paper I can imagine someone feeling attacked." (present tense focusing on reader-related intentions)

P/Tx: "I need to trim the introduction a little and move some of the information to the next section." (future tense focusing on specific textual features)

P/Id: "What I hope to do is learn more about specific cases of abuse to animals." (future tense focusing on specific features of meaning)

P/In: "I want to send this to some researchers who use animals and see how they react to my points." (future tense focusing on reader-related intentions)

The authors divided the transcripts and coded them in pairs using Dedoose, a program for organizing and analyzing qualitative and mixed-methods research. Initial coding showed strong levels of agreement. Discrepant results were adjudicated. Transcript word length was included as a descriptor to allow for correlational analysis with coding results. The unit of analysis was any string of words or sentences that matched any pair of codes in the matrix. A unit terminated when either the time orientation or function orientation of the transcript changed.

4.0 Results

Figure 1 shows the transcript length and grades on final drafts. As shown in the figure, there is a small but not insignificant correlation between grades on students' final drafts and the length of their reflections as measured by word count. While short reflections are fairly well represented throughout the range of grades, longer reflections were slightly more likely to be correlated with higher grades on final drafts. This suggests that students who spend more time thinking about their writing (or who are able to articulate more about their writing in the same amount of time) perform more strongly on the finished draft. Instructors did not have access to the recordings or know which students had opted into the study, so their grades were not influenced by students' participation. It is not clear whether this finding is explained by some capacity-related dimension of students' reflection (i.e., that weaker writers simply don't know what to say about their work-

in-progress or lack certain kinds of meta-cognitive writing abilities or perspectives to delve back into their drafts) or some other cause such as lack of motivation (which could affect both their enthusiasm to work on their papers and the creation of a recording about them). The former conclusion was reached in the earlier descriptive study on which this project is based; this relationship has been supported by scholarship on reflective capacities (Yancey, 1998) and, more recently, by scholarship on threshold writing concepts (Adler-Kassner & Wardle, 2015).

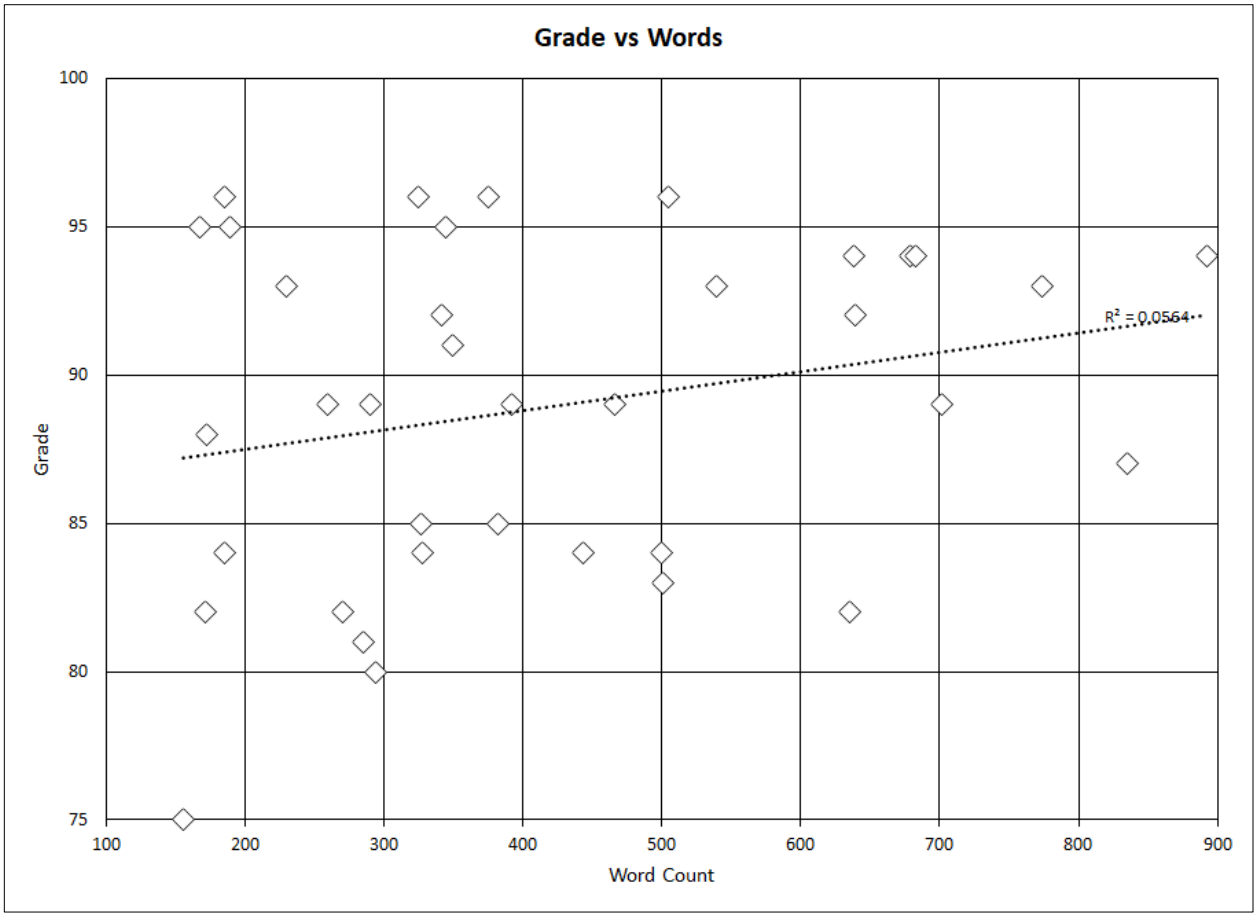

Figure 1.

Transcript Length and Grades on Final Drafts

Figure 2 shows the weighted distribution of codes across the transcripts. In the two dimensions of analysis (function-oriented and time-oriented), one code significantly outweighed the others. In the time-oriented dimension, the retrospective code was applied about four times as often as the next highest code (temporal). As might be expected, students asked to reflect on their drafts spent most of their time looking back at what they did. The projective code was the least represented; students generally did not comment on aspects of their texts that could be improved during the revision process.

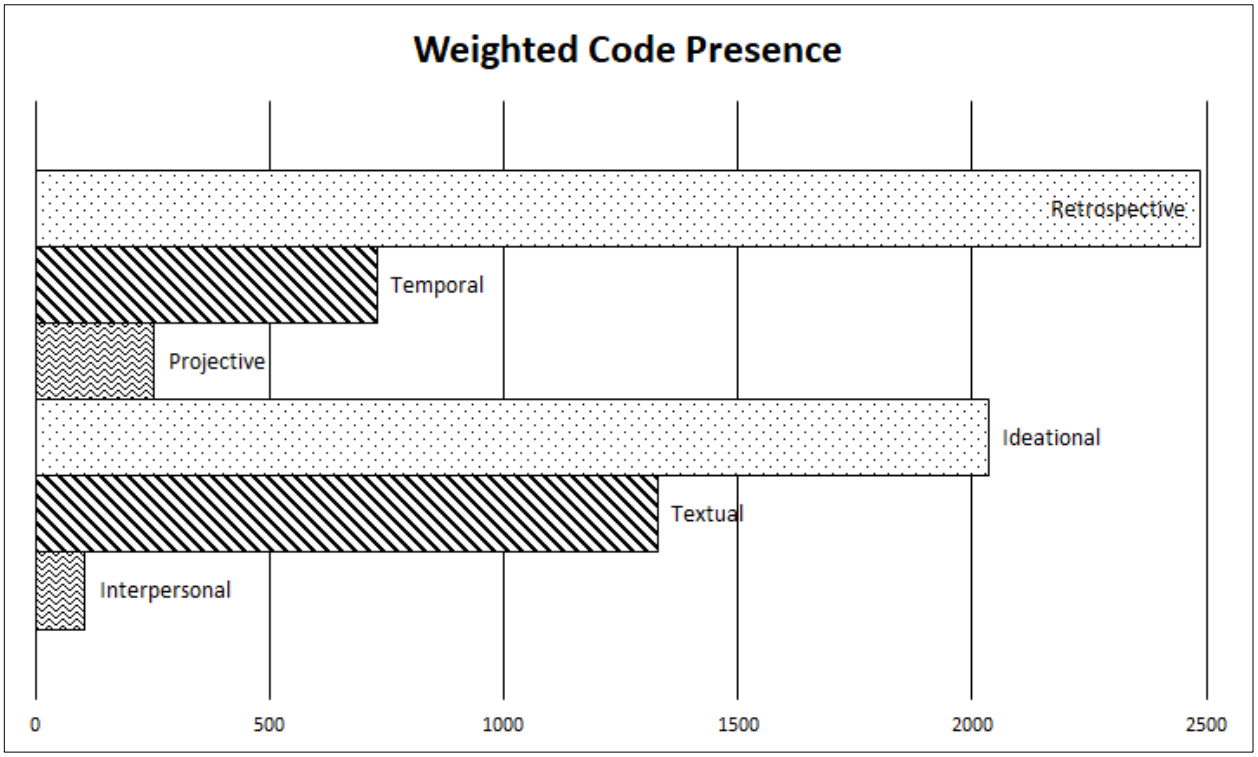

Figure 2.

Weight Distribution of Codes across Transcripts

In the function-oriented dimension, the difference between the first and second most frequent codes is less pronounced, but the least frequent code is even less present. Students mostly focused on the ideas behind their writing and also devoted a considerable amount of time to the text itself, but spent almost no time discussing the text's relationship to an addressed or invoked audience (Ede & Lunsford, 1984) or their instructor.

Figure 3 shows a slight correspondence between a student's grade and the number of codes applied to their transcript. In other words, the more times a student switched between the time-oriented and function-oriented dimensions in their reflection, the higher their grade (with about a nine percent correspondence). This suggests that moving around through the different code groups may lead to insights that end up resulting in a higher grade, though some students who received high grades used relatively few codes.

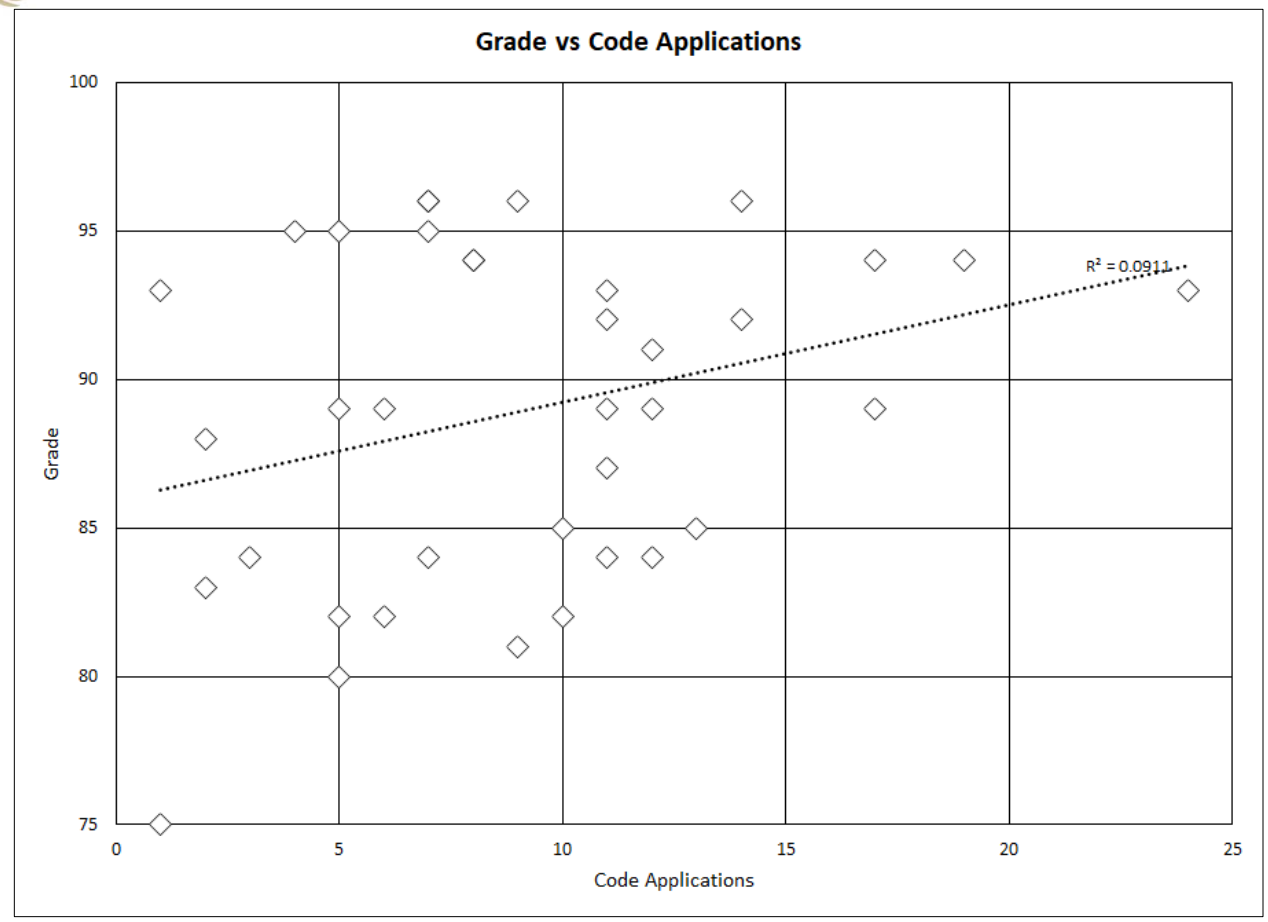

Figure 3.

Slight Correspondence between Grade and Number of Transcript Codes

Figure 4 focuses on subsets of the transcripts. The highest- and lowest-performing students were grouped into subsets and compared to each other and to the overall average. In the retrospective dimension, the low-performing group is overrepresented, while the high-performing group is represented about as much as the overall average. This suggests that an emphasis on the retrospective dimension is important but that too much reliance on it is ultimately detrimental, or points to a construct of writing that sees completed drafts as "finished." In the temporal dimension, the low-performing group is underrepresented, while the high-performing group is overrepresented, suggesting that focusing on the temporal dimension is important for performing more successfully, perhaps because describing or scrutinizing the draft in its present form yields insights about its success. In the projective dimension, both low-performing and high-performing students are underrepresented compared to the overall average. This suggests that the projective dimension may be less important or simply not indicative of overall performance. The small number of projective codes may also be skewing the data. This result is counterintuitive based on both the results of the previous study and the common assumption that when students think more about revision at the draft stage of their writing, they

end up creating stronger products. However, it is not possible to know how much more successful any of the students could have been in their final drafts relative to the norms for success in the course.

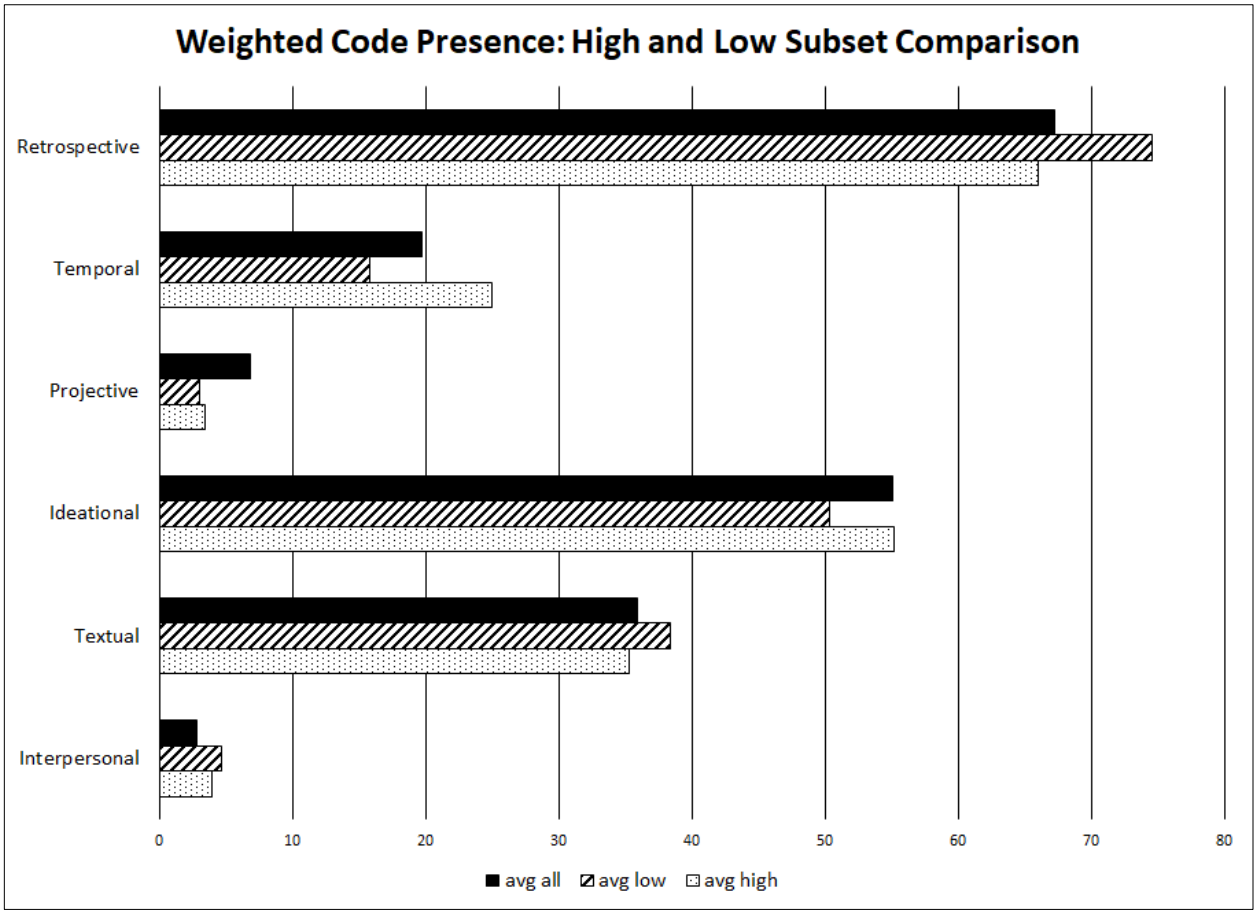

Figure 4.

Codes by Subsets of Highest- and Lowest-Performing Students

In the ideational dimension, low-performing students are underrepresented, while high-performing students are represented about as much as the overall average. This suggests that ignoring the ideational dimension is detrimental but that it is not an indicator of high grades (it is necessary but not sufficient). In the textual dimension, the low-performing group is overrepresented, while the high-performing group is represented about as much as the overall average. Much like the retrospective dimension, above, this suggests that attention to the textual dimension is necessary but that too much focus on this area can be detrimental. Finally, both low- and high-performing groups are overrepresented in the interpersonal dimension. As in the projective dimension, the small occurrence of interpersonal codes could be skewing the data, or

there may be genre- or task-related effects that cause students with different strengths to focus on their readers.

5.0 Limitations and Directions for Future Research

Our analysis revealed some instructional implications as well as possibilities for further research on students' constructs of writing that may translate into writing behaviors. Clearly, students' reflections on their drafts-in-progress reveal aspects of their constructs of writing that may relate to both their preparation and their current abilities. If weaker students' constructs of writing assume a kind of stasis once a draft has been composed, and perhaps until it's been evaluated, and if they have less to say about their drafts than stronger students, then deliberate work is needed to help them reconceive their models of writing to allow for the potential of revision and to think of writing as something that is shaped and reshaped over time, with multiple re-readings and self-assessment. If weaker students are less able than stronger students to imagine the effects of their writing on readers, and defer to their teacher's authority rather than taking control of their own texts and their intentions for it, then instruction can build in opportunities and activities that help students to be more conscious of the effects of their linguistic and rhetorical decisions. These instructional implications are as important in high school English and writing courses as they are in first-year college composition.

A number of limitations to this study, however, qualify the results. Students were deliberately not given directions, other than technical ones, for how to reflect on their drafts. While this allowed an examination of their reflections without the influence of task constraints, it also raised the possibility that students' constructs of their own writing were actually or partly constructs of task interpretation. A strong writer, for example, could have interpreted the task as a need to comment on the content of their essay: "Here's what I was trying to say/show/illustrate/argue in my paper." Others might have interpreted the task as a need to describe the composing process: "Here's how I wrote my paper." As a result, their recordings might not have reflected a range of considerations captured in the coding categories and reflected in the stronger writers in the original study.

In contrast to the earlier study, in the present study, students did not address their instructor when they reflected on their draft. They were aware that the reflections were not part of course requirements, would not be seen by their instructor, and would not factor into an assessment of their performance. Consequently, there were almost no references to instructional guidelines or the instructor's admonitions or preferences, unlike the prior study, in which the weaker students frequently deferred to their instructor's authority and expressed apprehension about whether they were meeting the demands of the assignment ("I hope this is what you wanted, but I didn't really know"). The lack of accountability (beyond the requirements of the researchers for the receipt of the gift card) may have influenced students' responses and perhaps limited the extent to which they discussed their drafts. Knowing that their instructor could have been looking for evidence of their effort, processes, struggles, or other aspects of their task completion, especially as a backdrop during final-draft assessment, could significantly change the nature of their reflection.

Length of time for reflection may also have affected the results. In the original study, students took as much time as they wished (subject to the limitations of their cassette tapes, which typically had a capacity of 60 minutes per side). This latitude may have strongly affected the nature and depth of students' reflections, with the weakest students spending just a few minutes and the strongest students talking for more extensive periods. The five-minute limit programmed into the PooDL recording app may have collapsed or pushed out opportunities to reflect in different dimensions of the coding rubric, whereas students in the original study could say more, and in doing so, open up more possibilities for revision or audience consideration, or, conversely, make it clear that these were not considerations in light of the much more extensive time available to discuss them.

These limitations suggest several ideas for future studies. First, our study deliberately avoided prompting students to consider certain aspects of their drafts before they recorded their reflections because we wanted as "pure" a sense of their writing constructs as possible, at the earliest stage of their transition from high school to college. However, new insights could be gained from an intervention study in which students could be enjoined to reflect in productive ways on their drafts, perhaps through a series of reflective prompts. This study could take the form of a quasi-experiment (with control and experimental groups), or a more descriptive study of weak and strong writers, or a study that compares the results of an initial writing project without intervention and a second project with intervention. Such instruction might also include deliberate attention to the development of threshold writing concepts, a direction being vigorously pursued in the field (see Adler-Kassner & Wardle, 2015, 2016, 2020).

Second, further studies could include correlations of student reflections with other demographic and writing-related data. The present study used grades on final papers as an index of successful performance; but grades are proxies for measures of writing ability because they are influenced by many factors, including impressionistic and non-writing related concerns. In addition to direct assessments of writing ability (including the extent and nature of students' revisions of their drafts), a number of instruments could be employed, such as self-efficacy scales, attitudinal scales, scores on standardized tests (SATs or ACTs), high school grades and class ranks, and previous relevant course experiences such as Advanced Placement (AP), dual-credit, and International Baccalaureate (IB) courses. Time allowed for reflection could also be manipulated, as suggested in the methods from the earlier and present study. These additional variables could be correlated with data from reflections on drafts-in-progress to determine any significant relationships.

The current project could also be repeated with the inclusion of data from other course sections. This would move the research in the direction of comparing reflective practices in different genres in different courses taught by difference instructors. In a study of over 2,000 college-level writing assignments, Melzer (2014) found that the assumed audience for students' writing was overwhelmingly the teacher playing the role of an examiner. Reflections on drafts of assignments in genres that invoke or assume specific, non-teacher audiences could be compared with reflections on more conventional "teacher-as-audience" assignments to discern possible

influences in the way that students construct their rhetorical situations and how those are manifested in their reflections on first drafts (see Piolat, 1999). In the spirit of early research on the development of cognitive models of the writing process (e.g., Flower & Hayes, 1981), further research could compare the reflections of first-year college student writers and expert writers. This would involve collecting data from both groups as they reflect on a first draft of writing, such as a research paper (for student writers) or an article (for expert writers).

Students' constructs of writing could be further studied qualitatively through a series of case studies or longitudinal studies of students' experiences prior to first-year composition. Other longitudinal studies of college-level writing could track the evolution of students' writing constructs over time, especially as they move from general-education courses into the major. Studies of the relationship between success in writing and the ways that students act on their constructs of writing could solidify our understanding of how best to prepare students through their conceptions of writing. Related areas to explore include self-concept, learning style preferences, and mindset theory.

Finally, possibilities for scale-up also present themselves. Because the analytics in this study required the hand-coding of transcripts, the number of subjects was necessarily small. A more robust study could collect data from perhaps several dozen courses with the provision of additional coders, but the scope would remain limited. However, the features in the coding matrix involve relatively simple constructs embedded in specific linguistic features. The time dimension is typically manifested in tense markers: past as -ed suffixes and the past tense of irregular verbs ("wrote," "kept," "felt," etc.), the temporal in present tense forms, and the future in modal auxiliaries ("might," "could," "may," etc.). Function categories could be determined through the application of a set of semantically collocated terms (in the example cited earlier from the subject named "Paul," textually-focused terms would include "title," "summary," "paragraph," "introduce," "quotes," and the like). With iterative testing and refinement, an algorithm could be developed using corpus linguistics and other methods of text analysis to automatically code hundreds or thousands of transcripts (see Alsop & Gardner, 2019 for an example of how a small pilot corpus can be scaled up for large dataset analysis). Such a system would allow more extensive statistical correlations with other data described above. And, although self-reports can be suspect as sources of information about writers' constructs of their own composing processes (see Tomlinson, 1984), instruments could be developed to stand in for or supplement transcripts of students' reflections on their own drafts, such as questionnaires about what writers typically do when they produce an academic (or other) text from earliest conception to submission. These kinds of studies involving significantly larger samples could reveal the effects of assignment or genre, previously determined levels of ability or experience, writer demographics, and other characteristics important for the formulation of appropriate instructional interventions.

Note

This study was supported by a grant from the Conference on College Composition and Communication as part of their research initiative.

Author Biographies

Chris M. Anson is Distinguished University Professor and Director of the Campus Writing and Speaking Program at North Carolina State University. He has published extensively on many aspects of written communication. He is past Chair of the Conference on College Composition and Communication and past President of the Council of Writing Program Administrators. His professional summary is located at www.ansonica.net.

Beth Greene is a PhD candidate in the Communication, Rhetoric, and Digital Media program at North Carolina State University. Her academic interests lie in Writing Studies, Writing Program Administration, and a range of research methods and methodologies. She has been teaching composition courses at multiple institutions for six years. Outside of academia, she loves video games, crafts, and cats.

Matthew Halm is a recent graduate of the Communication, Rhetoric, and Digital Media doctoral program at North Carolina State University. His research incorporates materialist media theory and theories of composition and rhetoric, particularly as they pertain to understandings of rhetoric, writing, and composing that draw on resources beyond the symbolic.

References

Adler-Kassner, L., & Wardle, E. (2015). *Naming what we know: Threshold concepts of writing studies*. University Press of Colorado.

Adler-Kassner, L., & Wardle, E. (2016). *Naming what we know: Threshold concepts of writing studies (classroom edition)*. University Press of Colorado.

Adler-Kassner, L., & Wardle, E. (2020). (*Re)considering what we know: Learning thresholds in writing, composition, rhetoric, and literacy*. University Press of Colorado.

Alcorta, M. (1996). The role of rough drafts in written text production: The transition from a "self-directed" text to a text "geared for others." In G. Rijlaarsdam, H. van den Bergh, & M. Couzijn (Eds.), *Theories, models and methodology in writing research* (pp. 339-348). Amsterdam University Press.

Alsop, S., & Gardner, S. (2019). Understanding attainment disparity: The case for a corpus-driven analysis of the language used in written feedback information to students of different backgrounds. *The Journal of Writing Analytics*, *3*, 38-68.

Anson, C. M. (1999). Talking about writing: A classroom-based study of students' reflections on their drafts. In J. B. Smith & K. B. Yancey (Eds.), *Student self-assessment and development in writing* (pp. 59-74). Hampton.

Anson, I. G., & Anson, C. M. (2017). Assessing peer and instructor response to writing: A corpus analysis from an expert survey. *Assessing Writing*, *33*, 12-24.

Artemeva, N., & Fox, J. (2010). Awareness versus production: Probing students' antecedent genre knowledge. *Journal of Business and Technical Communication*, *24*(4), 476-515.

Charmaz, K., & Bryant, A. (2008). Grounded theory. In L. M. Given (Ed.), *The SAGE encyclopedia of qualitative research methods* (pp. 375-376). Sage.

Ede, L., & Lunsford, A. (1984). Audience addressed/audience invoked: The role of audience in composition theory and pedagogy. *College Composition and Communication*, *35*(2), 155-171.

Flower, L., & Hayes, J. R. (1981). A cognitive process theory of writing. *College Composition and Communication*, *32*(4), 365-387.

Glaser, B. G., & Strauss, A. L. (1967). *The discovery of grounded theory: Strategies for qualitative research*. Aldine.

Halliday, M. A. K. (1973). *Explorations in the functions of language*. Arnold.

Lang, S., Aull, L., & Marcellino, W. (2019). A taxonomy for writing analytics. *The Journal of Writing Analytics*, *3*, 13-37.

Lavell, E., & Zuercher, N. (2001). The writing approaches of university students. *Higher Education*, *42*(3), 373-391.

Melzer, D. (2014). *Assignments across the curriculum: A national study of college writing*. Utah State University Press.

Neely, M. E. (2014). Epistemological and writing beliefs in a first-year college writing course: Exploring shifts across a semester and relationships with argument quality. *Journal of Writing Research*, *6*(2), 141-170

Pajares, F., & Johnson, M. J. (1994). Confidence and competence in writing: The role of self-efficacy, outcome expectancy, and apprehension. *Research in the Teaching of English*, *28*(3), 313-331.

Pajares, F., & Valiante, G. (2006). Self-efficacy beliefs and motivation writing development. In C. A. MacArthur, S. Graham, & J. Fitzgerald (Eds.), *Handbook of writing research* (pp. 158-170). Guilford Press.

Palmquist, M. (2019). Directions in writing analytics: Some suggestions. *The Journal of Writing Analytics*, *3*, 1-12.

Piolat, A. (1999). Planning and text quality among undergraduate students: Findings and questions. In M. Torrance & D. Galbraith (Eds.), *Knowing what to write: Conceptual processes in text production* (pp. 121-138). Amsterdam University Press.

Shaughnessy, M. P. (1977). *Errors and expectations: A guide for teachers of basic writing*. Oxford University Press.

Smith, J. B., & Yancey, K. B. (Eds.). (2000). *Self-assessment and development in writing: A collaborative inquiry*. Hampton.

Stern, P. N. (2008). Constant comparison. In L. M. Given (Ed.), *The SAGE encyclopedia of qualitative research methods* (pp. 115-116). Sage.

Tomlinson, B. (1984). Talking about the composing process: The limitations of retrospective accounts. *Written Communication*, *1*(4), 429-445.

White, M. J., & Bruning, R. (2005). Implicit writing beliefs and their relation to writing quality. *Contemporary Educational Psychology*, *30*(2), 166-189.

Yancey, K. B. (1998). *Reflection in the writing classroom*. Utah State University Press.

Yancey, K. B., Robertson, L., & Taczak, K. (2014). *Writing across contexts: Transfer, composition and sites of writing*. University Press of Colorado.