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Aporia-triggered knowledge construction: the use of interviews and a focus group to further assess Science Writing Heuristic impact on participating teachers

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To Caroline

Best Friend

Soulmate

Wife

Mother of Our Son
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Statement Of the Problem

Personal Origins Of the Study

Throughout my graduate education nothing has been more impacted by my course of study and work experiences than my thoughts on literacy. I am a fortunate individual in that my master’s program consists of studies in language arts education and literacy—precisely what I am intrinsically motivated to study. I have long been fascinated by the use of writing in the classroom, surprisingly, even before I became a teacher. Throughout the various classes and grade levels that comprise my high school teaching experience, I have always relied on student writing as my primary source of insight into the effectiveness of learning in my classroom. But, as I have moved from my teaching to my graduate studies, my interest in classroom writing has deepened. My interest in research to further my knowledge in my content area, as well as contribute knowledge to my content area, has also deepened.

Learning the ways of qualitative research methodology in my graduate studies has been both daunting and empowering. I have found myself becoming familiar with methodological tools available to the qualitative researcher. Where I once would have felt bewildered and intimidated by the concept of a large research study, I have become better able to read an epistemological roadmap of a study and am more comfortable with research design. My graduate education suggests that a multi-year longitudinal study can include a diverse blend of data collection tools and avenues of data analysis. It can even include smaller studies, inspired by its own investigations.

Throughout my teaching career I have been interested in the use of writing as a means of assessment in the classroom. My graduate career has expanded this interest in writing to
include an interest in its function within the larger process of learning. More specifically, I have become interested in using writing to investigate learning, despite my fears that it might be inherently problematic for a researcher in that it might generate an overwhelming volume of data to bring into focus. With this in mind, I have now become curious about a number of questions:

• What is revealed in student writing beyond the classroom of its origin?
• What pedagogical preferences are revealed in the teachers whose classrooms produced the writing?
• How does such writing point back to curriculum intent?
• And what are the thoughts and insight of the implementing teachers on the use of writing as a knowledge constructing process?

Science Writing Heuristic Influence On the Study

I was fortunate to encounter a major research study in the second year of my graduate education. The research project, which became a part of my graduate career, is The Science Writing Heuristic (SWH), a multi-year longitudinal study that employs a teaching methodology meant to investigate the impact of connecting science learning with literacy. This methodology is meant to “[give] students multiple opportunities to develop conceptual understanding by integrating practical laboratory work with peer group discussion, writing, and reading” (Hand and Keys, 28). In the age of No Child Left Behind, investigating and improving learning has become more important than ever before. The SWH has already made successful strides in the improvement of science learning through its interdisciplinary infusion of literacy strategies in the science classroom and applying such student-centered
strategies toward the generation of new knowledge in the content area (Hand, Wallace, and Yang, 132). Among the data collection tools are state standardized testing scores (Iowa Test of Basic Skills—ITBS/Iowa Test of Educational Development—ITED), project-designed curriculum, teacher observation and evaluation—and, most important to this study, the collection and evaluation of student writing samples across multiple years of project curriculum implementation.

Writing samples are collected at a number of points during a teacher’s implementation of SWH curriculum. Teachers initially collect samples pre-implementation, collect samples repeatedly as curriculum is implemented, and also post-implementation. Writing samples are evaluated against the study’s Six-Trait Rubric (including the traits of: Ideas, Organization, Voice, Word Choice, Sentence Fluency, and Conventions). Multiple evaluators on the project team independently verify these writing samples. These writing samples undergo a quantitative analysis based on the rated presence of the Six Traits.

Yet, within such a volume of writing samples exists any number of qualitative insights into the teaching and learning process. Though my study was certainly not designed to sift, identify, and organize every piece of qualitative data in the SWH writing samples, it was designed to inject an additional qualitative perspective into the greater SWH study, in general—a perfect fit for my research interests. My study was meant to facilitate a concerted look at the writing samples for any emergent trends, any large patterns that seemed to stand out from the wealth of writing samples. To further put such trends into perspective within the educational field and the SWH, my study sought to speak directly with the teachers implementing the curriculum that generated the writing samples, to facilitate the teachers speaking with each other, and to establish a greater context of the writing samples within
their original classroom environment. I also hoped to shed light on the pedagogical origins of the samples within the minds of their original implementing teacher. Ideally, I hoped to ultimately gain a greater sense of one or more factors that contributed to greater learning among students.

The SWH as a large study is fortunate to have a number of data collection and data analysis means in its makeup. My study is not intended to fix any flaw or correct any problem in a much larger study that is already a very successful, very effective investigation into learning. As a veteran classroom teacher, I can attest to the often-qualitative nature of education. My study is, however, designed to inject additional qualitative insight into the SWH. It was inspired by the hope of identifying something more in these samples regarding the role of writing within the practice of education, something that both points back to the SWH, and something with which to inform and enhance the profession. More specifically, I hope to unlock connections between the theoretical foundation of knowledge construction in this study, the many writing samples I examined, the teachers in the classrooms that generated the samples, and the methodology behind them. Finally, it is my ultimate hope that this study—a qualitative look at the SWH writing samples and the implementing teachers that helped produce them in the classroom—will shed additional light on the learning process and the construction of knowledge. The resulting findings could very well unlock additional avenues of investigation.


**Literature Review**

In order to frame this qualitative study, it is important to examine three primary critical sources (as well as a number of supporting sources) that have helped to inform the study. In this literature review I will examine the role of interdisciplinary thinking on classroom practice and, on a much more finite level, the impact of not just interconnected methodology, but the role of interconnected ideas in the learning process. Second, I will use these sources to further clarify how such interconnectivity can be taken to a higher level—what some might call a higher order—and how this phenomenon occurs. I will then use the interaction of these schools of thought to further highlight the plausibility (and benefit to the learning process) of this higher level of idea interconnection; I will appropriately also indicate future avenues of study that might even further highlight this plausibility. Finally, I will clarify the value of these ideas to the teaching and learning process, as well as any study that examines the learning process.

**Study-Specific Methodology: Ethnographic Interview and Discourse Analysis**

Before exploring the primary critical sources framing the larger thinking of this study and analysis, it is important to briefly examine the thinking behind several methodological elements of this study’s data collection. Bonnie Sunstein and Elizabeth Chiseri-Strater’s (2007) recent text on ethnographic fieldwork takes the burgeoning researcher through though the many steps of the ethnographic interview process. Regarding interviews, they note that it is a highly ironic proposition; one must “be both structured and flexible at the same time” (Sunstein and Chiseri-Strater, 238). They also note that as critical is it is to prepare, it is
equally critical to follow the informant’s lead. Ultimately, they say that the energy behind a good interview “comes from expecting the unexpected” (Sunstein and Chiseri-Strater, 238).

These authors draw a clear distinction between closed questions and open questions. Closed questions yield simple, abbreviated answers; open questions “elicit perspective and allow for more conversational exchange” (Sunstein and Chiseri-Strater, 239). To avoid the closed question, they suggest preparation before the interview: informal research into the informant’s subject area and the topics that they bring with them to the interview. To further nurture the open question, they suggest following the lead of the informant. Since no one answer will be the clear outcome of an open question, the interviewer should feel free to authentically engage a lively response. Sunstein and Chiseri-Strater even point out that storytelling can be a tangible form of artifact in interviews and will yield data just as examining a tangible object does. Interestingly enough, they finally recommend making your informant feel like your teacher.

In addition, it is important to more closely examine the critical approach of discourse analysis and its relevance to this study. Though discourse analysis can apply to many types of studies or approaches to research, considering the seemingly limitless potential for dialogue and discourse to permeate any kind of human activity under examination, it plays an important role in examining the resulting data form both the individual interviews and also the focus group. Discourse is at the heart of classroom instruction. Discourse is also at the heart of a teacher communicating his or her thoughts on the profession of education and the myriad of methodologies necessary to educate successfully. An appropriate use of discourse analysis is a way to infuse a greater degree of reliability into the data gathered by the individual interviews and the focus group. In a sense, discourse analysis can offer a check
and balance into how genuine a teacher’s responses are during an interview. Discourse analysis can also help sift the social push and pull from the academic interaction during the focus group. It might even help unlock unknown factors within both areas of responses from the participating teachers in the study. Ultimately, discourse analysis will enhance the role of both primary means of data collection within this study.

Schools of thought on discourse analysis will impact the role of the focus group in different ways, due to the presence of multiple individuals. On the level of the individual interviews, Shawn Rowe (2004) clarifies two key central concepts of discourse analysis: activity and utterance. The utterance, simply put, is a unit of speech analysis that corresponds “to any uninterrupted stretch of speaking by one or more people” (Rowe, 79). The concept of activity grows somewhat more complicated in that it includes multiple individuals and their accompanying physical and psychological tools of speech. Activities can include smaller sub activities and the more isolated actions of the participating individuals. Essentially, these two concepts intertwine into something of a dance that amounts to a balance of talk versus action. As it relates to the individual interviews, this breakdown of talk and action could have significant bearing on the role of the photocopied writing samples that accompany the interview; interviewed teachers could potentially produce a great deal of activity as these samples interact with their responses in the interview.

Another of Rowe’s points of particular interest is that of “pulling off” a social identity (Rowe, 89). He notes that understanding nonverbal cues in discourse is not only critical to an understanding of what is said, but also to understand the expectations of communicators as part of this act of “pulling off” social identity (Rowe, 89). Teachers interviewed about
education and educational practices will certainly be mindful of their own social identity as teachers, in a sense, most individuals have an interest in sounding like experts in their own areas. He further notes that what participants both say and do hold equal weight when it comes to understanding how speakers create their own “situation definition that privileges or rejects particular social languages and orders of Discourse” (Rowe, 93). In a sense, responses to questions in the interview should hold their very own roadmap to explaining the role of the responding teacher as a social participant in his or her realm of education. When responding to a question in the interview, a teacher should give all the necessary hints as to what is necessary relative to an understanding of the individual’s perceived standing as a teacher.

Lewis and Ketter (2004) offer their own insight these individuals as commentators on their own profession. They note the idea of “communities of practice” which are the informal systems of social interaction that develop gradually as individuals participate collectively in a shared endeavor. These common practices “create and reinforce the tacit and explicit expectations and worldviews” shared by the common practitioners (Lewis and Ketter, 118). They further note that participants in a shared community of practice continue to collectively learn as they collectively interact. This certainly applies to teachers, who continually interact with their own profession. Of interest are clues as to how strongly those in individual interviews, and in the focus group, connect with their community of practice as a teacher—perhaps even revealing their confidence level or comfort level within their community of practice. These authors also point out the notions of genre and voice and their distinctions relative to one another, where genre is the language of the social activity and voice is the language used by participants in that social activity, which is strongly linked to
their social identity (Lewis and Ketter, 118). Certainly in the individual interviews, but also in the focus group, the participating teachers will be very much aware of their genre of teaching—which is their community of practice, as well.

**Interconnected Networks**

As the Science Writing Heuristic (SWH) is interdisciplinary, it is important to examine the impact of interdisciplinary methodology on learning. Rebecca Nowacek (2007) is a critical source of significant interest, investigating interdisciplinary classroom communication and shedding a great deal of light on the role of language and communication, writing and discourse, in the classroom striving toward greater literacy. She notes that, though rather trendy in undergraduate and graduate classrooms, it remains a largely under researched area in the field of education. Fortunately, the time is right for further investigation in light of plentiful opportunities. Of the two implications to the research of literacy, she first notes the potential for a richer understanding of writing by students, but also notes that these environments “offer a particularly rich context for learning, not just about interdisciplinary, but also about writing and learning in the disciplines” (Nowacek, 369). This is of particularly high research value, especially in the context of the SWH, where writing and discourse—often considered core elements of language arts—are considered essential to improving learning in the discipline of science.

Nowacek further asserts that her study is a step in the proper direction toward the proper facilitation of interdisciplinary learning and a “robust theory” of how to go about the proper application of interdisciplinary learning. Her analysis of Bakhtinian theory of language and cognition is a first step, followed by the identification of effective discursive
connection resources, and self-reflection on established and newly experienced interdisciplinary connections (Nowacek, 369). At its heart, the SWH strives to improve learning in the science classroom by incorporating elements once considered limited to “English” class. Using literacy-based strategies and practices in the science classroom not only improves the quality of science education, but produces more “scientifically literate” students, capable of better communicating science concepts and investigative processes (Nowacek, 370).

Nowacek’s glimpse into Bakhtinian theory is a necessary and intriguing look at the role language plays in interdisciplinary learning. Bakhtin sees language, “embedded in social context,” as a “useful way to reconceptualize the process of building interdisciplinary connections and recognizing such moments” (Nowacek, 372). Under this view, language is a social process with every speaker also responding to another speaker, and every spoken contribution is another link in the chain of “already spoken and not-yet-spoken utterances” (Nowacek, 372). Nowacek, in fact, says that interdisciplinary connections cannot help but resonate within these utterance chains. With the Bakthinian notion in mind, an interdisciplinary educator must consider the social implications of language use: spoken and not-yet-spoken utterances are all relative to each other, and also relevant to each other. This social function, as evident in the SWH’s preference for multiple forms of communication in the classroom, can be used to further reinforce any type of learning concept within the context of a particular classroom.

One clear example of this social function is the presentation of student work. Leander and Rowe (2006) note that even though classroom presentation is a common and routine element in many language arts classroom, it is actually motivated by a greater
pedagogical goal. It is not just the presenters, sharing writing, posters, artifacts, skits, etc., but also audience members who make connections between ideas. “The audiences of these student presentations also engage in a number of social practices, including making back-channel remarks, asking questions, filling out evaluations” (Leander and Rowe, 428). These student presentations are not just talk, or printed text, but are “multimediated and constituted through relations of talk” (Leander and Rowe, 428). Audience members anticipate the words and actions of presenters and shift their thinking when new presenters take the front of the room. Essentially, presentation of student work is much more complicated affair than it appears on the surface.

Takao and Kelly (2003) build upon this when identifying both spoken and written argumentation as “two modes that allow students to externally engage (internal engagement occurs in the mind of individuals) in argumentation practices” (Takao and Kelly, 343). They note how talk helps students develop their understanding of concepts, as well as expand their understanding of the language of the content area. They do caution that, “as students develop the genre-specific writing competencies, they also need to get a sense for the associated argumentative forms and dynamics of the disciplinary field in question” (Takao and Kelly, 344). This would imply that it is not merely enough to write within the learning process, but also to engage in discourse. Furthermore, this would imply that the learning process should not just involve sharing or repeating information, but interacting with information.

With Nowacek’s examination of Bakthinian theory in mind, Lyn Kathlene calls expressive writing a “pedagogical technique that can enhance students’ interest and integration of information that challenges (even disrupts) their understanding of the social world” (Kathlene, 19). She calls this a necessary component of learning to be nurtured and
on that, for all its struggle, offers a great deal of personal engagement. She notes that it can help foster skills that push a mere stated opinion into the realm of strong, supported argument. Expressive reaction in writing helps students engage with material in the classroom in much more personal ways, ways that aid in constructing knowledge where more traditional writing might not fully foster creativity and genuine learning. Ultimately, she calls expressive writing in a sustained manner something that has “the potential to transform itself from unexamined opinion reactions to the construction of more persuasive opinion driven arguments” (Kathlene, 19).

Considering the relevance of this connective social web of past and future discourse, it is also interesting to examine another source of great interest. David Galbraith (1999) explores a connective web that strikes a chord much closer to the patterns and logic traditionally considered to be a part of math and science classrooms. He sees writing, if used as a tool for problem solving, as an active process. He asks the researcher to consider if writing merely indicates thought, or does thought drive writing? Do the thoughts and ideas of students emerge as writing is created, or do preexisting ideas merely compel a student to write? Galbraith actually looks a bit deeper and sees the mechanisms at work underneath as more important than the chicken/egg debate between writing and knowledge construction. The goal of Galbraith’s work is, in fact, to create a model of how and where knowledge is constructed in connection with the writing process. A greater understanding of this process will shed light on the critical moments for teachers implementing literary strategies—making use of writing—in order to maximize the construction of knowledge (Galbraith, 143)—as with Nowacek’s investigation into interdisciplinary language in order to maximize the impact of interdisciplinarity.
Galbraith rejects the notion that merely transferring knowledge offers an element of gain, of creating new ideas. Merely transferring knowledge, by one method or another, is no different than copying a linear stream of data, as in any common data storage medium. He likens the construction knowledge to the semantic constructions of language, itself. He says that “individual units do not correspond to separate ideas,” but rather “different ideas emerge as different patterns” emerge (Galbraith, 144). In other words, constructing knowledge through language and writing is much like focusing on particular voices in a crowded room. The user of language will construct knowledge by accessing the appropriate pieces of available knowledge and reconnect them in the new and appropriate way. Quite literally, speakers and writers will simply do it, just as one simply tunes in to the appropriate voice in the crowded room. He even further asserts that “one of the main functions of language in thinking” is to provide “a means of representing content separate from the content itself” (Galbraith, 146). Just as music does not equal a piano, so does language not equal its own content. Galbraith further describes a process of thought whereby the appropriate segments of knowledge are retrieved from memory, connected in the semantically proper way, and even kept on standby, buffered to prevent a knowledge constructing overdrive. This process continues, “until all the units activated by the input have been expressed, and then inhibited” (Galbraith, 147).

Velmans (1991) looks at patterns within memory in a similar fashion. He notes that “to identify a new pattern as a coherent unit may require one to combine outputs from various feature detectors to form an integrated, higher-order perceptual code” (Velmans, 677). Succinctly stated, to create a new idea means synthesizing it as a result of examining several existing ideas in a new way. Furthermore, he adds that, “attaching a name to a
pattern or investing it with meaning may require one to form associations between relatively distinct representational systems (for example, associations between visual codes and phonemic or semantic codes)” (Velmans, 677). This would imply attaching meaning to the new idea and, subsequently connecting it with additional ideas, such as images, basic sounds, or words and phrases. Clearly, this allows the interconnected web of ideas to grow.

Velmans is careful to note that this is a conscious process and, thus, done intentionally.

To return to Galbraith, who earlier discussed the concept of knowledge in the context of mental pathways, means continuing to consider the support and enhancement of a mental pathway when a desirable outcome occurred. For example, when one unit of knowledge is activated and stimulates connections with other units of knowledge, an active path between the two will be reinforced. In this way knowledge is “not stored explicitly but rather emerge[s] in context as transient stable states of the network as a whole” (Galbraith, 145). His description of this process echoes with a familiarity to the development of infant motor control, as well as language development. So, if this supportive and connective developmental network of knowledge stems from the same process as language itself—and even earlier motor control—one could conclude that Galbraith’s claim is that the construction of knowledge is a perfectly natural process. This notion is made only more interesting when considering that the science classroom is traditionally thought to be a place for constructing knowledge of the natural, the physical, the biological content areas.

Galbraith later examines a number of factors that can explain the differences in a writer’s constructed knowledge. The first of these factors is the “conceptual complexity of the writer’s disposition” and even “structure of semantic memory” (Galbraith, 149). In other words, the way the writer’s brain is wired can determine the nature of knowledge constructed
from the start. Second, he notes the range and quantity of units of knowledge that the writer is able to activate. This notion of a writer’s available, functional brainpower could be considered analogous to intelligence, a natural state of available effort a writer or knowledge-constructor is able to attempt. And, finally, he adds basic linguistic knowledge. Though this third element might not indicate a natural process on the surface, he further adds that, “one would expect writers with greater linguistic skill to have a more differentiated set of linguistic structure for expressing content” (Galbraith, 149). In other words, experience equals complexity; the amount of experience a writer has with language could be as simple as age or maturity. In summary, these three key factors that Galbraith uses to explain the difference between writers can be attributed to natural factors.

McCutchen, Teske, and Bankston (2008) lend credibility to this notion of Galbraith. The three authors call the approach of novice writers one that “typically [shows] little concern for conceptual planning, especially in advance of writing” (McCutchen, Teske, and Bankston, 454). They further call the approach of novice writers as one that retrieves content from memory, with the novice writer sometimes even searching aloud for the proper words during the writing process. They note that, ultimately, the approach “may vary depending on the goal of the writer, as well as the skill level” (McCutchen, Teske, and Bankston, 455). Subsequently, these three authors note that more experienced writers will draw upon more interactive conversational skills, translating them into their writing; they even note the extended writing produced by students who had conversational partners during the writing process. They also make a case for minding the revision process and not overlooking it as a later stage where no new knowledge is created, stating that, “like planning and text production, [revision] is guided by an overall task schema that directs multiple cognitive
processes, including critical reading, problem solving, and [additional] text production” (McCutchen, Teske, and Bankston, 455). Ultimately, they make a strong case for the incorporation of multiple levels of discourse in the writing process, and using the resulting connections to enhance the final product.

One complex means of enhancing content is metaphor. Jakobson and Wickman (2007) describe the most well known aspect of metaphor as that which helps make a concept clear through the use of a completely different concept. Although this might seem confusing, it is in fact extremely useful in Galbratih’s context in that a connection between two ideas (the concept in question and the representational concept—or metaphor) occur. This process will also aid in bridging different kinds of thinking among students ranging from the literal to the abstract. They call metaphors typically “means rather than ends” (Jakobson and Wickman, 18). They are not the key element in a concept, but merely an aid to its understanding. Though the concede that there is a risk that this kind of content might cause ideas or observations to go unnoticed, should the metaphor fail to encompass all of their intended content, the greater payoff lies in the ability of metaphor to connect ideas.

**Knowledge Telling Versus Knowledge Transformation**

Next, it is important to examine a third source of primary interest that shows how the interconnection of ideas can be taken to a higher level of effectiveness in the learning process. Bereiter and Scardamalia (1987) further digest the notions of both Nowacek and Galbraith when they consider written composition from standpoint of the building blocks of natural human traits, as well as the conflict between said natural traits and more complex human traits. They dismiss the simplicity of considering writing to be easy or hard, that
writing is simply a fixed matter of talent or given the quota of past or potential experience. They reject the simplicity of good versus bad writing in favor of a distinction between inherent writing ability based on natural human traits and a more developed form of writing supported by social interaction (Bereiter and Scardamalia, 5). The first of their two prominent notions, which they call “knowledge telling,” is a concept that appears much more natural, more inherent to all writers—especially early writers. Like Galbraith, they touch on the natural processes akin to mental and linguistic development. The authors note that, “in order to solve the problems of generating content without inputs from conversational partners, beginning writers must discover alternative sources of cues for retrieving content from memory” (Bereiter and Scardamalia, 7). In other words, writers working alone must discover new connections among preexisting ideas. Beginning writers, especially, are likely to simply link and retell existing ideas. These processes do generate new connections, and even strengthen old ones, but ultimately they do not ensure coherent discourse beyond a kind of stream of consciousness.

This would seem to indicate that Bereiter and Scardamalia do not necessarily favor their own notion of knowledge telling. Further supporting their assertion that knowledge telling is a natural process more common to early writers, they note that it provides a “natural and efficient solution” to problems beginning writers face when confronted with a lack of interactive support (Bereiter and Scardamalia, 9). They further note the favorability of this model for relating personal experience, relying on preexisting ideas, and the preservation of already understood and mastered language production. It also does not require planning, the formation of goals, in order to organize the writing task at hand. Since this first model can indeed produce successfully completed writing on behalf of beginning writers, they warn that
“it is not obvious that a second model is required to account for the different ways writers go about getting text content” (Bereiter and Scardamalia, 10). More succinctly, instructors might see successful creation of writing and mistakenly assume that successful creation of knowledge has also occurred.

As discussed earlier, Nowacek was much more concerned with the social factors of language and knowledge construction. In the first of her three conclusions, she notes a number of social factors that, she asserts, support and enhance the knowledge construction in the interdisciplinary classroom. Galbraith also indicates three factors that do deviate from the inherently natural and might point back to Nowacek’s socials findings. Nowacek’s first finding is that students “tend to make the types of interdisciplinary connections that were modeled for them” (Nowacek, 393). She indicates that undergraduate and graduate students seem particularly inclined to identify types of connections formed by a modeling instructor and seek to replicate them. Although this might be problematic in that it could possibly lead to the copying of knowledge of which Galbraith warns, it does indicate that interdisciplinary students are socially aware of the idea connecting and knowledge constructing process of another individual or individuals.

She next notes that making connections between bodies of knowledge might not necessarily be the appropriate goal for every class. Although this might also seem problematic in that it might be restrictive in the amount of knowledge a class would then be destined to construct, it does imply that students are aware of goals and the pathways to such goals. Thirdly, she notes that not all interdisciplinary similarities and differences are uniformly helpful to every class, that not all classes require the same amount or intensity of thinking. This suggests a need to understand the relationships between classes, or an
interdisciplinary interaction between classes, and the proper dialogue necessary to identify at what level interdisciplinarity will be helpful. These three conclusions suggest the importance of understanding social factors in the setup of interdisciplinary classrooms and the subsequent ways knowledge is constructed within them.

One of these ways means examining the role of listening and speaking. Muth (1997) calls discussions “valuable in their own right, regardless of whether they lead to correct answers, because they engage students in elaborated explanations of word problems, particularly those written in cooperative learning situations” (Muth, 73). Furthermore, Muth asserts that student success in areas of thinking and problem solving would be directly influenced by ideas shared, ideas challenged, and ideas connected. When taking this thinking more specifically into the realm of writing, Muth notes that students become more active as participants in their own learning. Students “are forced to clarify their own thinking, to reflect on the strategies they use, and to lean whether and when various strategies are appropriate and useful” (Muth, 72).

Galbraith’s three additional factors shed light on the writer’s construction of knowledge (Galbraith, 149). He first centers on the type of planning involved in a knowledge-constructing task. Planning, allocating time for a task, can be both managed or self-directed; however, within the context of a classroom, this is often a socially derived concept learned from modeled behavior. His second factor involves the nature of the knowledge constructing task at hand; Galbraith states that, “the extent of the dialectic should depend on how content is expressed in language” (Galbraith, 150). He adds that the applicable range of linguistic combinations is significant and can also include “possible side effects of linguistic style” (Galbraith, 150). Discussions about a writer’s style often involve
an awareness of audience, of how one’s writing might be perceived by an outside viewer. And, lastly, Galbraith is interested in the writer/knowledge constructor’s goals. Goals would seem to imply motivation, purpose. Be they intrinsic or extrinsic, student writers in a classroom will more than likely seek to construct knowledge in accordance with the outside expectations of an assignment or as an internal motivation as the result of inspiration from an outside source. Either way, some type of interaction will drive students toward goal formation. These three additional factors, though not as inherently natural as Galbraith’s first three factors, make an excellent supportive case for Nowacek’s socially motivated elements when it comes to the construction of knowledge.

Along these same lines, Bereiter and Scardamalia further indicate the need for something more than just their prominent notion of knowledge telling in order to “account for the different ways writers go about getting text content” (Bereiter and Scardamalia, 10). They hint that something more is necessary—just as Galbraith hints that something more is possible through his three more social factors—to account for individual difference and the potential for improvement through the learning. Their second prominent notion and partner concept to knowledge telling is called knowledge transformation, one that “cannot be accounted for by the knowledge telling model and that seems to require a differently structured model” (Bereiter and Scardamalia, 5). This model involves moving beyond “normal linguistic endowments in order to enable the individual to accomplish alone what is normally accomplished only through social interaction” (Bereiter and Scardamalia, 5). The “normal linguistic endowments” to which they refer, are the very inherent and natural factors indicated by Galbraith, centered around his first three natural factors accounting for differences in constructed knowledge. Granted, Bereiter and Scardamalia do say they want
to aim for the individual accomplishing alone what is normally accomplished via social interaction, so their concept does center on external factors to be internalized.

They characterize the difference between knowledge telling and knowledge transforming as that “between a naturally acquired ability, common to almost everyone, and a more studied ability involving skills not everyone acquires” (Bereiter and Scardamalia, 6). Additional or even extensive knowledge telling is not enough. Thus, a necessity for some kind of social networking, communication or discourse designed to model or teach skills to eventually be internalized, if at all possible by the learner. Interestingly enough, they reveal a bit of ambiguity in their concept, which, on the surface seems to form a dichotomy between knowledge telling and knowledge transforming—between the inherently natural, and the externally social. They say that, “a knowledge-transforming approach to writing can be found even among people who have no particular talent for commitment to writing” (Bereiter and Scardamalia, 11)—even those destined to be judged as “bad writers.” It seems that knowledge transforming is available to all, not just the experts—supporting their initial claim that the distinction is far from a case of good or bad writers. Knowledge transformers likely consider not only changes in a text but also changes they want to make. Knowledge transformers see a greater number of connections between ideas (stimulate more pathways, or self-reinforce). And thus it is, as they claim, “writing can play a role in the development of their knowledge” when writing is used as the vehicle for knowledge transformation.

Reaves, Flowers, and Jewell (1993) lend support to this notion. They note that, “the idea that writing is a method of learning is based on a simple principle: when students write, they process information in a physical, tangible form” and that “writing activities require students to explore ideas, discover relationships, observe contrasts, sequence ideas, and
process information” (Reaves, Flowers, and Jewell, 34). This certainly implies using writing as a vehicle for connecting ideas. They further note three roles writing fills that are basic to learning: drawing on what is relevant to the topic at hand, bringing together new ideas, and expanding understanding. In short, they call “writing-to-learn” activities those that “cause students to think, not just record what the teacher has said or what they have read” (Reaves, Flowers, and Jewell, 34). If this is the case, then positive impact of using writing in the classroom should not be overlooked, nor should it be ignored in the context of knowledge transformation.

Relative to knowledge telling, knowledge transformation is merely the next step, available to those who push more. Though it is rooted in the natural, an extension of their more natural knowledge telling, it is simply problematic to refer to knowledge transformation as merely the social side of the coin. Knowledge transformation is a more complicated concept, to be sure; it requires more attention on behalf of the teacher or the self-motivated learner. This increased need for attention seems most easily fueled by some kind of social interaction in order to steer in the right direction and eventually internalize. They add that knowledge telling, as a foundation for knowledge transformation, “remains one of the capabilities of the knowledge-transforming model” (Bereiter and Scardamalia, 12).

Knowledge telling will, therefore, always be a part of knowledge transformation, but perhaps a more telling explanation of the difference between the two lies in both forming and solving problems, supporting at the same time interaction continuously developing knowledge and text. In other words, it means constructing knowledge in a way that reinforces thinking and promotes interaction—be it ideas inside the mind or between individuals in communicative settings.
Knowledge telling, as described, centers on connecting old ideas or old information. And, as described, it is ideal for novices in its inherent natural roots. But these potentially social factors driving knowledge transformation can be further aided by some kind of enhanced schema. Doing so will only further clarify their initial statement that the difference between knowledge telling and transformation is far from the difference between good and bad writers. To maximize the potential structure and even payoff of knowledge transformation, more “expert-like writers” will see composing (writing) as a “complex goal-directed activity, significant parts of which do not involve the actual generation of text content or language” (Bereiter and Scardamalia, 17). Thus, planning to write can become as critical (or even more so) to the process of constructing knowledge as writing, itself. What they authors call nonverbal symbols (concepts such as arrows, bullets, or other atypical methods of written communication) can literally become a representation of the connective directions between ideas and even greater bodies of knowledge. This goal-setting, facet of knowledge transformation resonates strongly with the third of Galbraith’s three additional, more social factors in knowledge construction.

Along these same lines, Fried and Amit (2003) note that “though one is tempted to say that, as a means of communication, one writes only to be read, it is clear that the act of writing is not completely separate from the thinking that goes on before it” (Fried and Amit, 103). This would fall in line with Galbraith’s thinking that writing in itself is not the most critical part of the overall process. Fried and Amit further expand on this as they make the distinction between types of writing meant for public and private domains—often the more expressive is the more private. They offer poetic writing as one that falls within the private domain and is a kind of writing done for the writer. Yet, since the private is often the more
engaging and the more creative, they call the “near absence of expressive writing in the classroom” something that “weakens teachers’ ability to encourage independent and creative thought” (Fried and Amit, 105). They build a clear case for teachers to not only connect multiple parts of the writing process, but also to connect public and private domains of writing.

However, creating a “game plan” for knowledge transformation may not be enough to reach the plateau of Bereiter and Scardamalia’s knowledge construction for each and every knowledge constructor. Galbraith offers additional insight into this, when he notes a strong similarity to Bereiter and Scardamalia’s key concepts. He notes that evaluating the content (of goals—of a plan for knowledge construction) “is not just a matter of transferring material from content space for evaluation in rhetorical space” (Galbraith, 152). Like knowledge telling, there is the potential for much more within the realm of knowledge construction than simply accessing and retelling the old information. Galbraith sees the need for a conscious strategy that defines ideas contained within a text and for translating said ideas into a “form suitable for explicit manipulation in working memory.” In other words, Galbraith’s knowledge-constructor has a specific reason for embarking on this process, has a game plan for reorganizing available knowledge, and does so in a more user-friendly manner. This would seem to indeed fall in line with Bereiter and Scardamalia’s assertion that knowledge transformation seeks and supports new connective routes between bodies of information.

Galbraith even refers directly to Bereiter and Scardamalia, themselves, noting that when problem solving is not merely limited to identifying a greater body of information, “but also evaluating this structure with respect to rhetorical goals, it provides the preconditions for development of the writer’s understanding” (Galbraith, 153). In other words, as the
knowledge transformation model suggests, greater knowledge construction occurs when the knowledge-constructor also seeks connections and interactions between bodies of information. He even states that, along these lines, “the two way interaction (to use Bereiter and Scardamalia’s term) responsible for the transformation of thought in writing is between explicit problem solving processes and implicit knowledge-constituting process, rather than between two mental spaces, and involves two different kinds of transformation of thought rather than a single one” (Galbraith, 153). Again, in other words, transformation of thought involves considering the difference between the internal, the natural, and the external, the social. Clearly, although different processes of knowledge constructing will yield different resulting knowledge, combining processes will do so, as well. The only collateral impact would be a resulting priority among different writers/knowledge-constructors—Galbraith’s tradeoff between his two processes—that is only as important as different writers or different writing conditions.

Klein (2004) summarizes the relationship between Galbraith and Bereiter/Scardamalia well. He cites the basic composition process used by beginning writers as a common example of knowledge telling. Although writers in this case might “allow content knowledge to inform writing goals, novice writers do not ‘make the return trip,’ ” (Klein, 193). On the flip side, it is expert writers who set elaborate goals and exhibit reflection in their writing. With this distinction between beginning and expert writers in mind, he turns to Galbraith, who focuses more on the expert level and the “dialectic between the writer’s implicit disposition toward a topic, and the explicit text” (Klein, 194). This would further imply that there is more at work in the writing process besides simply
writing—that the writing process is constantly interacting with additional ideas and forming additional connections.

**Solidifying the Plausibility Of Transformation**

How plausible is knowledge transformation? It is the very relationship between Bereiter and Scardamalia’s schools of thought that highlights their potential, as I will here illustrate. The authors continue to further clarify the plausibility of their notion of knowledge transformation, via the potentially social and external factors supporting the construction of knowledge when they state that “what distinguishes the more studied abilities is that they involve deliberate, strategic control over parts of the process that are unattended to in the more naturally developed ability” (Bereiter and Scardamalia, 6). Ignored in knowledge telling, they point here to the need to control the process, to be aware of the pathways between connected knowledge and even unexplored connections. Considering the many ways information can be connected, they concede that this very complexity is why different models are required to describe the process—hence, the need for additional perspectives, such as Galbraith. But what they do make clear is that taking knowledge construction to a higher level involves an effort, a plan, or a schema that involves making use of resources greater than the existing connections possessed by the knowledge-constructor. And, like Galbraith, they concede the need for additional perspectives that this very complexity generates. Specifically, they conceded the need to intentionally shape a piece of writing and—most importantly—“to reorganize one’s knowledge in the process” (Bereiter and Scardamalia, 6). At any rate, multiple interactions between bodies of knowledge, as indicated by both the schools of thought of Galbratith and Bereiter/Scardamalia is critical to
negotiating the gulf between the inherently natural and less productive process and the externally social and potentially more complex processes.

Though social by nature, Nowacek’s interdisciplinary methods might seem to have moved beyond the potentially limiting realm of knowledge telling. It might even seem to steer in the direction Galbraith hints at when pointing toward the social, in the direction Bereiter and Scardamalia indicate regarding knowledge transforming. She does, however, concede that, “there have been known systematic examinations of how students and teachers make interdisciplinary connections in speech and in written text” (Nowacek, 372). Indeed, the SWH seeks out connections via multiple modes of communication in an interdisciplinary method. She does not hesitate to make clear that such interdisciplinary connections (which, in may circles can even become something of an educational “fad”) are significantly under researched. And, to Nowacek, therein lies the roadblock—this potentially informative area being under researched is a problem. Making use of such a forum for systematically examining spoken and written interdisciplinary connections requires a specific interdisciplinary framework in order to conceptualize connections. Bereiter and Scardamalia, as well as Galbraith, offer an excellent framework for attempting to separate the natural forces at work in the construction of knowledge and the more complex forms of social interaction that can take knowledge construction to a higher level. Nowacek’s brief examination of Bakhtinian theory—which bears similarity to Galbraith’s views of the connective idea pathways during knowledge construction as similar to motor control and even language structure—indicates a step in this direction. Adding Bereiter and Scardamalia’s clearly defined concepts of knowledge telling and knowledge transformation
helps to clarify the gray space enough to select an informed, yet still somewhat unexplored, place to fully enter the dialogue on this issue.

Bereiter and Scardamalia issue a number of cautionary notes that, though they do further defend the authors’ work, compel an outside researcher to enter the discussion (Bereiter and Scardamalia, 27). Their cautionary notes—more specifically, clarifications on four possible pitfalls that will lead to misunderstandings when considering their work—do actually open the door for further research. They first note that it is problematic to examine child competence at knowledge construction versus adult competence. As they noted, it’s not as simple as age; knowledge can be constructed at any age, any ability level. They caution against considering age as a variable and to explain differences caused by age, rather than “explaining them away” (Bereiter and Scardamalia, 28). Second, they further caution against the metaphor of “knowledge dumping” entirely. As it is not realistic to write out the contents of one’s own mind, it is not realistic to expect a knowledge constructor to simply dump information out of memory storage en masse.

Thirdly, more directly grounded in the theoretical, they caution that good writing can also occur through knowledge telling. Indeed, bad writing can occur just simply for lack of planning. But, as far as the good is concerned, it may occur when a writer already has some organized content that happens to be already available. Though they do step out on something of a long limb when stating that virtually all procedures that claim to raise the quality of student writing are forms of knowledge-telling, they do at least account for the possibility that extremely eloquent writers can produce excellent writing that, ultimately, is not knowledge-transforming—and they warn of this. Finally, they caution against idealizing models. They bat around the pros and cons of two models, versus three, or four—or even a
continuum of models. Ultimately, they concede that they are after two core ideas, but not the core ideas of knowledge construction. And to them, it seems, there is no best answer—not even theirs—but, rather, additional answers. Not all scholars and researchers will agree with their models of knowledge telling and knowledge transforming; they may seem realistic models, of course, but others’ models should and will be identified.

Nowacek moves through additional conclusions—some of which she deems unsurprising, like the fact that students tend to make many of the same interdisciplinary connections that their instructors do; she even allows for the fact that making “explicit connections among ways of knowing” may not be appropriate for all classrooms (Nowacek 393). And, building upon that, she also allows for the fact that it is not clear that greater interdisciplinary connections will be uniformly helpful in all situations. In other words, many students will replicate what their instructors do, and not all methods of constructing knowledge are appropriate for all classes, especially those that don’t require such higher order thinking. There is a danger that a number of her early conclusions would be swiftly agreed with and dismissed by instructors or researchers; they will likely ring true to those with such professional experience. But, in her defense, they are helpful reminders.

The later half of Nowacek’s conclusions are particularly revealing in terms of what she considers to be the value of her study and its potential as a springboard for further study. Among them, she notes that her study “suggests the need for longitudinal and comparative studies of interdisciplinary versus traditional disciplinary classrooms, perhaps taking up the question of whether interdisciplinary classes sponsor greater meta-awareness of disciplinary conventions and conversations” (Nowacek, 394). In other words, she is curious about how students in both settings are self-aware of the conventions governing those settings and the
impact of their own setting on their own discourse and writing. But, most impressive in this conclusion is that she sees the need for long-term investigation, likely qualitative in nature. Along the same lines, she calls for increased scholarly insight on creating interdisciplinary writing assignments. Doing so would surely generate additional connective pathways between ideas, in the realm of Galbraith, and point more toward knowledge-transforming, in the realm of Bereiter and Scardamalia. Her caution along these lines, however, before instructors start generating new writing assignments, is to become a part of this inquiry—lest said instructors “be left in the position of reinventing the wheel” (Nowacek, 394).

She credits Bakhtinian theory with a great deal of contribution to her study and she does recommend an examination of it by those considering study into realms similar to hers. But, it is not clear if her study validates Bakhtinian theory, or is merely a logical extension of it, thanks to its foundation. In the end, she states that, “continued research in these areas will provide [researchers and practitioners of interdisciplinary education] with a greater knowledge of the connections made in interdisciplinary classrooms” (Nowacek, 395). As noted earlier, she is crystal clear that this is an under researched area with much yet to explore and identify, the very roadblock limiting advancement in this area. Thus, in a sense, her study and its conclusions are a clear request for further researchers to enter her realm of investigation.

Galbraith notes in his own conclusion that “models are metaphors, and metaphors are tools for thought” (Galbraith, 158). An interesting, if slight, deviation from the style of the rest of his article, this nugget is much more than sound advice—it is also the same call for continued investigation made by Nowacek. Galbraith adds that when highlighting what they explain, metaphors also highlight what they cannot. “Like all abstractions,” he continues,
“they fit some phenomena better than others” (Galbraith, 158). This is indeed true. He reiterates his goal has been to attempt to formulate a viable model of knowledge constituting through writing. He concedes that even if his model falls short, as too much of an abstraction, it may serve as a “useful heuristic.” He even goes so far as to suggest his model may, in all actuality, be a mere “sketch” that requires far more specific refinement before it could be used as an actual, working model that accounts for all the many factors contributing to the production of a text.

**Outlook and Impact On Learning and Further Investigation**

Be it an educator instructing in the classroom or a researcher investigating the classroom, these sources clearly inform both the practice of teaching and also aid investigation into that practice. The Galbraith model of knowledge constituting shows great promise, especially when one examines the impact of planning and organization of ideas prior to the writing task. This would seem to fall in line with Bereiter and Scardamalia in that such a planning stage would mean a greater degree of knowledge transformation. Galbraith’s data clearly show that “new ideas produced by explicit planning should be associated with changes in organization, but not with increases in knowledge” (Galbraith, 155). This only further supports Bereiter and Scardamalia’s caution that high quality writing does not necessarily indicate knowledge transformation. Both camps are, indeed, side by side in these theories; both camps use effective metaphors. Galbraith even hints that he is planning further study into verbal protocols that impact this planning stage, prior to writing, and he seems rather positive about its plausibility. Perhaps this is some of the very revision he seeks for his “sketch;” however, despite any necessity for revision in his model that may
exist, he is also clear that his way is not the only way—and that continued exploration will only help further understanding in this field.

Most passionate about how true it is that their model is not the only model is clearly the work of Bereiter and Scardamalia. They also state in their final cautionary note, when addressing the possibility of a continuum of models as opposed to their two, that “continuums are fine for describing the variability, but discrete models have an advantage for showing distinctions between design concepts” (Bereiter and Scardamalia, 29). It is interesting to note that they support such a discrete model—not all that far from something that could be interpreted as a dichotomy of knowledge transforming versus non-knowledge transforming—all the while warning that successful knowledge construction is not as simple as the dichotomy of old versus young. They recommend further researchers avoid a continuum of models when, in fact, the “real world variability” to which models must correspond might actually be complex enough to require something more than two, three, or even more than five of their models.

Ultimately, Bereiter and Scardamalia admit that “the idea that there are two distinct models”—as opposed to one—was plenty radical and that they preferred to not “be in a hurry to add still further models” (Bereiter and Scardamalia, 30). It is certainly understandable that these authors would not want to take on too much. They do, to their credit, take on two very sensible models and explore them to a specific, focused degree that places them clearly within the context of the very process of knowledge that they seek to explore. Galbraith, by comparison, takes on a much more multi-faceted model that, though well constructed and well applied to his area of investigation, would have been more than these two authors would have preferred to take on within their writing. It is, perhaps, the insight of Nowacek and her
assertion that there is simply not enough investigation into this area that is the very roadblock preventing the best possible understanding of the process of knowledge construction from taking shape. With her call for further investigation in mind, and the other authors’ admission that their models are not the only possible ones, it seems that further research into the area is not only encouraged, but even necessary.
Methodology

Epistemologically, this qualitative study is highly constructionist in nature. The methodology of this study is driven by the notion that individuals, specifically through communication, interaction, and discourse, construct knowledge. The constant comparative approach in this study essentially falls into three key stages: writing sample examination, teacher interviews, and a teacher focus group. This study employs discourse analysis, more specifically in the second and third stages, which are grounded in discourse. Thus, in summation, an overview of this study’s framework:

• Constructionist Epistemology
• Primary Focus on Knowledge Construction
• Use of Writing as a Knowledge Constructing Process
• From Large Connected Units to Finite Connected Units:
  - Interdisciplinary Connectivity (Nowacek)
  - Connection of Ideas via Knowledge Telling vs. Knowledge Transformation (Bereiter & Scardamalia)
  - Discourse (Writing) as the Connecting Process (Galbraith)
• Methodology:
  - Constant Comparative Method—Search for Patterns
  - Ethnographic Interview and Focus Group—“Communities of Practice”
  - Discourse Analysis

To begin each stage it was necessary to review the existing data from the previous stage (or SWH project data, in the case of the first stage). Doing so informed decisions that fine-tuned
the methods across all three stages—primarily including comparative analysis, theme identification, interviews, and the focus group. This Methodology section will overview these each of these three stages, their structure, their implementation, their role within the greater structure of the combined three stages, and their role in the larger Analysis section.

**Examining Writing Samples to Inform Interviews**

My initial look at the body of SWH writing samples was, in many respects, like exploratory surgery. I wanted to see what they spoke to me. But, as I became more familiar with the size of the body of writing samples, it became clear to me that keeping track of random ideas and impressions would be too chaotic and too untidy. To simply look at them to see what they spoke to me was no longer enough enough. It then quickly seemed appropriate to examine them systematically in search of larger patterns, larger trends. The size of this body of writing samples included over two dozen teachers from throughout the SWH project; the majority of the teachers on file had already submitted an average of four batches of writing samples (a pre-implementation set, at least one set during the course of the first year, and a post-implementation set). These writing samples all spanned a variety of topics, some specifically following the guidelines of SWH curriculum, and others following teacher-designed curriculum for their own classroom that made lighter use of SHW methodology.

Examining a number of the collections of writing samples proved difficult from the standpoint that a number of the teachers taught in the lower-elementary grade range, which fell so far out of my area of expertise as a high school language arts teacher, that I found it difficult to draw upon professional experience to gain a sense of whether or not these
samples reminded me of their age group. It is very necessary, as a high school language arts teacher, to “size up” a class and its writing ability; throughout my growing teaching career I have used early writing prompts and short essay topics to gain a sense for the writing ability of students. Experience quickly makes a teacher familiar with how students of their age level of expertise write. I found that the writing samples from the junior high teachers, as well as the upper elementary ages resonated with more familiarity. Though it was somewhat discouraging to find the lower elementary samples somewhat outside of my grasp, this did help to narrow down a rather large playing field.

I did seek minimal suggestions from colleagues regarding which teachers’ samples to use as a starting point. I did so in as roundabout a way as possible, avoiding directly asking whose I should look at first, or which teachers project staff found most interesting. Though there were numerous suggestions from staff members about whose I should make sure to look at, a number of these suggestions seemed to me the result of favorable impressions of interesting samples, such as interesting writing topics, or samples that connected staff members with lessons they had observed in the teacher’s classroom. Perhaps favorable impressions of the teachers, themselves, after a number of months of professional collaboration also impacted their suggestions. At no point do I recall a staff member telling me to look at any particular teacher’s writing samples because they were “the best.” I also avoided, initially, asking which teachers came from predominantly rural or urban districts—sometimes considered an indicator of affluence—though I did, as a native Iowan, recognize the names of some districts. Ultimately, as I was planning to individually interview a number of teachers as a follow-up to reading their samples, and, hopefully, to also interview
them again en masse as a focus group, I wanted to come to know the project teachers from as impartial a direction as possible.

My examination of the samples began with reading through batches of writing samples. My initial journey through the volume of samples consisted, largely, of moving through the sets, sorted alphabetically by teacher and sub-sorted by the order in which the office received the samples. As stated, I had hoped to find patterns—trends or traits of repeated or familiar qualities—present in the sets of multiple teachers. It seemed reasonable to me to assume that this would mean taking a complete look at all of a teacher’s samples; writing samples from pre-implementation of SWH curriculum or even early in implementation might not necessarily reveal or match any patterns due to an incomplete exposure to SWH methodology. Along those lines, I certainly did not assume that I would find trends or alignment with pattern as far back as post-implementation samples, either. Thus, I reserved judgment of any batch of samples until I had completed my examination of the teacher’s entire folder of samples.

As I read through a batch of samples, I did so next to my computer and made note of my impressions throughout each set of a teacher’s samples. I headed each set of impressions with a clear notation of which teacher, and which year’s set from the teacher under which the comments fell. I did so in as efficient a manner as possible; some notes lacked full sentence structure and others took on multiple, detailed sentences. Essentially, I wrote down comments that, at a minimum, would serve as a capable way to describe what I had seen in the batch of samples, should anyone ask me to describe the set. Beyond that I noted anything else that I felt strongly enough to not want to forget about the samples. I made every attempt to keep my thoughts and impressions brief enough to avoid making any unsubstantiated
claims about the samples without any further information, as I certainly did not have enough background on factors such as the students in that teacher’s classroom or the teacher’s experience as an educator.

I became especially interested, as I took note of certain factors in a teacher’s early samples, in whether or not said factors would appear again in later samples by that teacher. There are, therefore, a number of statements in my early impressions of the samples that compare, for example, a second year set of samples to a first year set of samples or a pre-implementation set of samples to a post-implementation set of samples; on some occasions I even compared different sections of a teacher’s class load to each other. Figure A includes a direct copy and paste from my original file of impressions of one teacher’s second year of writing samples; Figure B includes a comparative statement between the PM and AM group of a teacher’s second year set of samples (names of both teachers, and subsequent others, will appear here and throughout as pseudonyms):

**Teacher One Year 2**

Good to know this was student-choice, draft only, no teacher assistance.

Lots of emotionally emphatic parts, as well as organization. Majority in first person (I and We very, very common). Easier for them to tell a story from their point of view?

Dialogue! Impresses me the most—add a different dimension to the work. I’m surprised to find so much of it, considering what I know about the topic guidelines. I would think this much dialogue would be more typical of a case where a teacher would say to include it.

**Figure A: Complete portion of notes from a teacher’s Year 2 body of samples.**
Teacher Two Year 2:

Very creative, full of details. Seemed to have greater paragraph/organization in the PM group this time? Strong attempt to tell a story.

Figure B: Comparative statement between a teacher’s AM and PM sections.

It was, at this point that I began to filter out certain sets of samples that simply fell too far below my level of expertise for me to make effective judgments about their quality relative to their age and grade level. Several additional sets of samples existed in the files that, although I’m sure they represented good work by the teacher submitting them and the students attempting the writing samples, simply lacked enough substance for me to generate significant impressions about their quality. Several struck me as minimal, only briefly attempting or reaching their objective, and left me with the least amount of “raw material” with which to make any statement about what I found in them. The project’s files also included several newcomers to the SWH implementation and, although I found it interesting to examine their initial samples, it seemed unrealistic to make judgments about them until an entire year’s worth of samples had been returned to the office. Figure C includes a statement regarding one teacher (neither interviewed, nor included in the focus group) that illustrates my initial frustration with what pushed into a lower age level beyond my area of expertise:
Teacher Alpha Year 2:

Difficult for me to read and evaluate...4th grade is so outside my range. I assume the visual is much more necessary to stimulate writing?

Figure C: Statement illustrating the obstacle of writing samples outside my grade level of expertise

It did not take long before I did indeed begin to notice a number of patterns in the writing samples that caught my eye. This was exciting on one hand because it fostered a strong sense of confidence in me that I was not, after all, looking at three large file cabinet’s worth of writing samples in an ultimately random fashion. But, more importantly, through these samples I had become more familiar with not only with the SWH methodology in general, but also to some extent with the teaching style of the implementing teachers. Considering that I had several years of catch-up learning about the SWH project to do, I came to appreciate this revelation on a more personal level. Granted, there is a strong possibility that the patterns in the writing samples on which I began to focus are those elements for which I have a preference in my own teaching. But, due to the fact that these teachers are not necessarily high school teachers and are—most importantly to the project—science teachers implementing the SWH curriculum, I considered their work different enough from my own to make it enough of a trip into another world of teaching. Boiled down to a quantity that avoided direct repetition and also seemed to adequately cover somewhat varied versions of similar factors, Figure D lists the patterns I noticed that contributed to what I judged to be more successful writing samples:
Organization of student ideas prior to writing
Use of voice and/or dialogue in student writing
Visual illustrations or otherwise multiple forms of communication
Peer interaction through revision and editing
Public presentation of student work

**Figure D: Emergent patterns in writing samples**

In generating this list of factors, I assumed that they would follow me as points of interest as I conducted individual interviews of teachers that submitted the samples and, subsequently, brought a number of the interviewed teachers together in a focus group.

**Conducting Interviews to Inform a Focus Group**

I next began identifying teachers with whom to conduct interviews. At this point it seemed appropriate that I certainly consider teachers whose writing samples displayed the factors that I had identified and about which I sought to learn more. I also hoped, as it seemed possible, to avoid interviewing only elementary teachers or only middle school teachers. If possible, I hoped to include a mixture of teacher gender in my interviews, as well. At this point it also occurred to me much more strongly than before that, indeed through these interviews, I would also be able to learn a great deal more about the context of the writing samples within their classroom, of origin—which was not instantly apparent in the writing samples, themselves. After dispatching a number of emails, making a number of phone calls, and resolving a number of scheduling conflicts, I initially arranged to speak with the following teachers, detailed in Figure E with accompanying school district and grade level:
<table>
<thead>
<tr>
<th>Teacher Name</th>
<th>Gender</th>
<th>Grade</th>
<th>District Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher One</td>
<td>Female</td>
<td>5</td>
<td>Boone, Iowa</td>
</tr>
<tr>
<td>Teacher Two</td>
<td>Female</td>
<td>5</td>
<td>Boone, Iowa</td>
</tr>
<tr>
<td>Teacher Three</td>
<td>Female</td>
<td>5</td>
<td>Woodward/Granger, Iowa</td>
</tr>
<tr>
<td>Teacher Four</td>
<td>Female</td>
<td>6-8</td>
<td>Pleasant Hill, Iowa (Parochial)</td>
</tr>
<tr>
<td>Teacher Five</td>
<td>Female</td>
<td>5</td>
<td>Anita, Iowa</td>
</tr>
<tr>
<td>Teacher Alpha</td>
<td>Female</td>
<td>4</td>
<td>Woodward/Granger, Iowa</td>
</tr>
<tr>
<td>(Teacher Six)</td>
<td>Male</td>
<td>5</td>
<td>Woodward/Granger, Iowa</td>
</tr>
</tbody>
</table>

**Figure E: List of interviewed teachers with grade level and district location**

Clearly, I did not achieve the balance of numbers between grade levels that I had hoped to achieve—only one among the group fell outside the elementary levels. I also ended up with a group that I considered slightly skewed into the “rural” category of school districts. And, this group of teachers does represent five female educators.

Preparing to interview teachers consisted of two stages: preparing topics/questions to cover in the interviews and also to identify writing samples submitted by the teacher to use as a visual representation of points of interest covered in the interviews. I initially began by identifying the larger issues of interest, primarily centered on the five larger patterns I had drawn from the body of writing samples, at large. Each of the five did not necessarily apply to each teacher but typically at least two applied on some level. Since I considered this even stronger an opportunity (than in the planning stages) to learn more about the teacher’s classroom and context of the samples when generated, I made note of such issues from the classroom, as well. With the larger issues in mind, I generated a list of approximately five or six questions to ask the teacher that I felt touched upon the issues of interest.
Since, as a teacher who often asks students questions in a manner designed to scaffold them into answers, I considered myself somewhat “at risk” when it came to asking leading questions. I, therefore, also made note of the specific type of question I hoped the teacher might answer in the interview without my necessarily having to ask it, specifically. Though this might seem somewhat unusual to some, I hoped to avoid the teacher instantly gaining a sense of what issues about which I was primarily hoping to learn more. Making note of the question in a form that I considered too leading a form—the way not to ask the question—I felt would help me avoid such a pitfall and even establish a more relaxed line of questioning. Essentially, I hoped that the issues and the questions I prepared for each interview would unfold like a natural conversation centered on teaching, but remaining true to the essential interests that brought me to the interview in the first place. Figure F details, directly from my notes, the interview preparation for Teacher One; bold text under the interests refers to a primary issue of interest from the larger body of writing samples with plain text indicating more of a contextual curiosity within that teacher’s classroom; plain text under the questions represents exact questions to be asked in interviews with italic text indicating what I hoped to avoid as a leading question but naturally guide the teacher into discussing:
Interests:

**List to get started**

1st person preference (probably just more natural for that age)

**Use of dialogue**

Questions:

How have you observed students “get started” with a piece of writing?

How have students learned to “get started” with a piece of writing in your classroom?

*Why do some use small bulleted lists—why do those that did have more organized writing?*

How do your students prefer to tell a story—what narrative style/voice are they likely to adopt?

How is storytelling done in your classroom? Is there a commonly preferred narrative voice in class texts?

*Why do the majority of students use 1st person (I, we)?*

How has the role of dialogue in a story appeared in the classroom?

How have students encountered or worked with dialogue as an element of writing?

*Why is there so much dialogue in the Year 2 writing? Were they taught to use it?*

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**Figure F: Interview preparation for Teacher One**

The next step in interview preparation involved a return to the teacher’s folder of writing samples in an attempt to identify and isolate a small number of samples that would, visually, clearly illustrate the concept for which I had hoped to generate a response—no more than five total samples per interview. I selected samples for these concepts that I feel represented an “average” look at a sample within its particular batch (but, of course, hinted at the concept in which I was interested). It was my intention to select a “middle of the road” sample that did not shine too brightly as the best possible example of the concept in question, and did not lack so much substance as to fail to indicate the concept in question. I made photocopies of samples to include with the interview, taking care to remove any indication of a student’s name, class period or section, and any other kind of identifying mark; I included two copies of each sample with each interview preparation so I would have one to look at, as well, when referring to the sample during questioning.
Conducting the interviews was remarkably straightforward. Four of the five required my travel to the teacher’s school and, therefore, took place in the teacher’s classroom. This practice was not only most convenient for the teacher, but also facilitated a look at the teacher’s classroom that provided additional context to the interview. Interviews were recorded on a microcassette audio recorder under permission for later transcription. When asking questions I took great care to ask the question as I had written it in preparation. On occasion some minor wording changes occurred that I would consider natural for anyone reading anything aloud that they had prepared verbatim in advance—something of an on the spot revision, limited only to minor grammatical issues. When sharing samples with the teacher, I generally did not hand immediately over the sample when asking questions, but rather waited until the teacher’s response slowed slightly, or the initial pace of the response struck me as one that quickly required illustration, lest the response trail off quickly. I allowed teachers to spend as much time looking over the sample as they wished, reading it if they preferred, and even commenting and/or critiquing the sample. At no point did it become necessary to ask the italicized version of a question—the “leading” question I had hoped to avoid—because conversational responses to my questions seemed to unfold very naturally, centered on the topics in which I was interested.

Examining Interviews to Inform a Focus Group

By the end of the second interview I was confident that my system of preparation would continue to work with minimal or no changes to my planning process, aside from logistical difficulties making it impossible to interview the sixth (male) teacher. The remaining interviews took place with the same productivity and success of the first few.
Upon completion of interviews, the next step involved a full transcription of the interviews, including my own asking of questions. Though time consuming, this was a simple process involving use of the microcassette recorder and typing out the sum of the interview verbatim. After completing transcription of the interviews, it became necessary to complete two subsequent steps in the process: an isolation of a number of statements in the five interviews that followed another emergent pattern, and a brief discourse analysis of teacher responses to sift out any additional qualitative data of interest.

While transcribing the interviews I came to notice another emerging pattern in the responses. Responses and parts of responses dealing with my five primary issues of interest in the interviews all seemed to coincide with two kinds of interaction in the classroom: teacher/student interaction, and student/student interaction. Spotting this pattern was extremely encouraging at this point in my study in that they strongly echoed with the foundation set by the sources within my reviewed literature. I had not specifically anticipated this exact pattern, but considered it somewhat of a natural development, as the classroom is a social place in many ways. But, considering how clearly this pattern occurred to me while not even halfway through the transcription stage, I thought it prudent to isolate such statements centered on both kinds of interaction for each of the five teachers. As I was planning to conduct a brief round of discourse analysis of the interview results, this also was helpful in that it boiled down the interview content, somewhat, before beginning the discourse analysis. I did not, however, fully discount the remaining portions of the interview and did take them into account, as well; yet, the majority of what was filtered out of the interviews when isolating statements on both types of interaction was typically minimal statements, short answers, etc.
With hopes for a focus group that would further interview the teachers—in the presence of each other—on my larger topics of interest, I felt it necessary to examine the interview data at large in order to refine my goals for the upcoming focus group. Considering the emergent trend on teacher/student and student/student interaction that I so clearly noticed in the interview transcription, I generated a list of conclusions resulting from the interviews that I felt could also be considered hypotheses to be tested in the focus group. Doing so seemed helpful for a number of reasons. First, it allowed me to maintain a focused interest in light of what I considered to be a large quantity of data resulting from the interviews. It also helped to create what could also be considered a “theme” of the upcoming focus group that would keep the group focused on the particular topics of interest but also allow the same “focused conversational” approach as I had established in my interviews. Figure G details my resulting conclusions from the interview, taking on a feeling of hypotheses to be “tested” in the focus group:

Teacher/Student interaction helped students better organize ideas in preparation for writing.

Teacher/Student interaction clarified and strengthened student understanding of steps and procedures in more complicated tasks reflected in the writing samples.

Teacher/Student interaction guided students logistically through the peer editing process applied to some writing samples.

Student/Student interaction facilitated sharing of ideas and improvement of writing quality of those samples through peer editing.

Student/Student interaction made the sharing of classroom products (some of the writing samples) more positive, thus fostering enthusiasm for the activity.

**Figure G: Interview conclusions/focus group hypotheses**
Ultimately, generating the above mentioned conclusions and conducting a discourse analysis not only helped to refocus my direction prior to the focus group, but also to further justify the focus group. Initially, I was somewhat concerned that the focus group might turn out to be merely a slightly more complicated version of the interviews, that the focus group might become my study’s occurrence of “knowledge telling,” generating for the most part much of the same data as the interviews. Considering the emergent trend of statements centered on the two kinds of interaction, I came to consider a greater social interaction among the teachers and myself to be an even greater source of potential data. Considering the larger schools of thought driving my study, it also seemed appropriate to create a situation that would result in a greater number of connections between ideas in hopes of creating knowledge—a kind of professional knowledge transformation.

In addition, from the standpoint of my conclusions generated after the interviewing stage, I felt it very necessary to further identify teacher confidence in the ideas expressed. With the intention of fostering a setting where the assembled teachers could begin and exchange a professional dialogue centered around my topics of interest, it seemed reasonable to assume that they would either further support statements and opinions expressed in their individual interviews, modify them slightly in accordance with a group dynamic, or generate entirely new and different statements and opinions on my topics of interest. In any case, it became very clear to me at this point that assembling a focus group—though the resulting data would be somewhat more difficult to predict than, say, the individual interviews—would at the very least not work against me in this process.
Assembling a Focus Group to Connect All Three Stages

As with the individual interviews, it was necessary to dispatch emails and make phone calls to schedule a time; this was more problematic, as one would assume, due to the necessity to coordinate a number of individuals. This was, also, made further problematic by the time of year—the final month of the teachers’ school year. Despite these hurdles, it was possible to initially schedule four of the five teachers for a common time. Teacher Five was unable to attend for personal reasons and respectfully declined any further participation. Unfortunately, Teacher Four canceled unexpectedly at the last moment for personal reasons, as well.

In much the same way as I had prepared for the individual interviews, I prepared for the focus group by generating a list of the participants and breaking down, as efficiently as possible, the larger traits that this individual would bring to the table. I felt that doing so would serve to reinforce that I had brought together a group of unique individuals that would each bring a unique perspective to the group and, more importantly to my study, a diverse palate of perspective on my larger tops of interest. Figure H lists these notes, including Teacher Four who ultimately was not a part of the actual focus group setting:

Teacher One
• Emphasis on dialogue
• Use of voice and sound effects

Teacher Two
• Biomes, investigation and revision
• Voice contrast with Teacher Four

Teacher Three
• Peer editing work
• Student presentation of work

Teacher Four
• Dialogue and storytelling
• Use of voice

Figure H: Notes on focus group participants’ defining traits, relative to study goals
I also hoped, in looking at this list, that the selection of individuals, who each focused a bit more on particular areas of interest within this study, would create a situation of naturally shifting roles of discussion leadership. This would create a more balanced dynamic, but at the same time allow each member to participate evenly in discussion, since the larger points of interest across this study do clearly apply to each teacher’s work. I also took some time to further refine my larger hopes for the focus group in much the same way I refined my hopes for the individual interviews—generating the questions and “leading questions” to avoid. I did so in a manner that generated a list of discussion points, rather than a list of specific questions to ask. At this point, considering I was planning for a group of four individuals, it seemed unreasonable to assume I could control the flow of discussion with specific questions. Doing so would not only have limited potential directions for emergent dialogue, but also would have placed me in more of a role akin to a classroom manager, rather than a simple facilitator and observer of the focus group—which I hoped to achieve. Figure I lists my note objectives at that point for the focus group:

- Evaluate samples (from these three, and other teachers, anonymously) that demonstrate evidence of elements that brought these three to the Focus Group.
- Specifically, examine elements of: student idea organization, use of voice, resulting quality due to peer editing, value of public presentation of work.
- Allow these three to share/compare ideas in a way not critical of each other’s practice.
- Investigate the role of illustrations in student work (writing samples).
- Assess a measure of confidence in these three that such practices helped them generate better quality writing samples (both through and without SWH).
- Identify areas for further investigation.

**Figure I: Focus group objectives**
As with the individual interviews, I felt it would be helpful to have a number of writing samples available as illustrating examples of the concepts in questions, to share with the group in much the same manner as I had during the individual interviews, as necessary to continue to stimulate the flow of discussion, but not upon initially asking a question or initially mentioning a concept. At this point I felt it appropriate to randomize the use of writing samples used as examples during the focus group by returning to the body of SWH writing samples at large and including a number of samples that would be unfamiliar (perhaps familiar in concept or even topic, if the sample was of SWH curriculum origin). I also included several samples that were generated by the attending focus group participants; some of these samples were different from those used during the individual interviews and some were the same. As with the individual interviews, all samples were made anonymous by the removal of name, class section, or any other identifying mark.

Looking back on my list of focus group objectives, I felt it would be helpful to the overall focus group, from a standpoint of setting a kind of goal structure and larger focus for the discussion, to have specifically stated conversational objectives. I wanted to state such objectives in as general a way as possible that would be supportive of as diverse a body of responses as possible. I also wanted to avoid unnecessary tangential conversation. It seemed to me that it would also be appropriate, considering that I had noted “leading” questions to avoid in my individual interview questions, to also note larger issues I was hoping to guide the group into discussing without actually stating the issue outright, in much the same way as with the “leading” questions. Figure J lists my five greater discussion topics with the core issues (to avoid stating outright but hopefully explore) noted in parenthesis:
Greater Topics
Student idea organization (planning)
Use of voice/dialogue (storytelling)
Illustration/multiple forms of communication (depth)
Peer interaction editing/revision (quality)
Public presentation of work (confidence)

Figure J: Focus group discussion topics

I should also note that these five greater topics do bear a striking resemblance to a somewhat formal view of the writing process. Considering that writing, and the writing process, was certainly a valid part of this investigation, the focus group, and the classroom work of the focus group participants, I felt allowing this structure to exist in this form without significant change would preserve something that might seem familiar—a natural model of discussion for teachers—and also, if all else failed, offer additional stimulation for discussion.

I also considered it appropriate to generate a rough plan of topic flow after discussing each of the greater topics, one by one. I believed this would be a supportive crutch to fall back on in case discussion on the greater topics was light; I also felt it would not necessarily be critical to the outcome of the focus group that I follow this plan step by step, though it would be useful to have it available if, in my judgment, the group dynamic or my own confidence level as moderator called for its use. Figure K lists this plan of topic flow:

Topic Flow
Examine Samples
How do you see it, see it happening, see its value, in the sample on display?
Return to Topic in general, in practice as teachers
How has implementing this topic (and examining it via the writing sample) impacted your thoughts as a practicing teacher on the topic?

Figure K: Focus group topic flow “plan”
I included the final question in case I thought it might be helpful to offer participants a way to offer a type of feedback on their SWH participation without making the SWH itself the specific focus of the question, or even a larger part of focus group discussion. I also considered the weight of the five greater topics of discussion. I debated assigning a weight to the topics, or prioritizing them in case the time remaining for the unfolding focus group grew scarce. Considering that they all seemed equally relevant and already in an intentional order, I left them intact and felt that, at this point, planning was adequate and conversation would unfold in the best possible way.

The focus group gathered in the early afternoon, prior to dinnertime. Conversation was recorded on MP3 digital audio using and Apple iPods, as well as a pair of digital video cameras, in order to ensure redundant coverage of all data in support of eventual transcription and analysis. Conversation unfolded in much the same way as with the individual interviews, occurring naturally without directly pointing toward topics of interest, but illustrating them clearly enough so that participants were given structure, but freedom to respond as they wished. Writing samples, in much the same way as the individual interviews, helped to support discussion but did not form the foundation for discussion. The fourth item in the focus group topic flow plan, designed to generate an informal opportunity for SWH feedback, proved useful, as well.

Analysis of the focus group data took much the same form as the individual interviews. As with individual interviews, it was necessary to transcribe focus group discussion. Ultimately, as I will show in my full Analysis section, analysis of the focus group data will facilitate an effective basis for comparison of the results with both my initial impressions of the writing samples and patterns identified in the individual interviews, while
also serving as an effective illustration of the knowledge construction model. Larger conclusions in this study will relate to the practice of constructing knowledge, the role of writing as a vehicle for knowledge construction, and the impact of SWH teacher attitude toward the implementation of such a methodology.
Analysis

This study is built upon the theoretical base of the knowledge construction process and the inclusion in that process of writing as a means of facilitating knowledge construction. In addition, the interconnectivity of ideas, with the aim of constructing knowledge, has driven the methodology of this study. Specifically, this study examines writing samples produced by teachers, and the resulting interview and focus group discourse of assembled teachers when examining a selection of the writing samples. This analysis will illustrate how elements of the focus group discourse indeed connected with the original analysis of the writing samples and especially comments made during the interview portion of my data collection. The connections to these earlier patterns—which informed my decision-making process when structuring the focus group—certainly caused me to “flash back” to the original patterns. My goal, when originally structuring the focus group, was threefold:

• To facilitate discussion that would both activate prior knowledge of the participants, and also set the course for examining in detail several writing samples from the earliest phase of my investigation

• To examine several writing samples in the context of the activated prior knowledge, hopefully, connecting earlier ideas in new ways

• To open the table for broad discussion about all elements of the focus group structure—its concepts, the samples, evaluating the samples, and anything else tangential that the participants mentioned—as a sort of “backup” section of the focus group to the examination of the writing samples
In this analysis I will overview three primary elements of the focus group conversation: the writing/revision process, the presentation of student work, and use of voice in writing. I will examine both the initial, larger bulk of discussion surrounding each element, mainly from the first phase of activating prior knowledge, and also a number of smaller occurrences of the topic that permeated other points in the focus group discussion. While doing so for each element I will draw upon the same patterns in the earlier analysis of the both writing samples, but mainly from the interviews with participants. By looking back upon these elements in the earlier analysis from the perspective of the focus group I will illustrate how the focus group discussion supports the earlier patterns and, ultimately, how the earlier patterns justified the topic and question structure of the focus group in accordance with a theoretical understanding of knowledge construction.

The Writing and Revision Process

It turned out that the evaluation of the writing samples was much more valuable to the overall process. The final stage of the focus group yielded general comments that deviated a great deal from the overall prior topic flow. Yet, it was actually in this later stage that I had my first indication of what I would be looking back upon in my data analysis. In regards to revision and the writing process, Teacher Three called it a struggle, and even added, “It’s so hard because I’m not sure if I have the tools to bring them to that writing piece, or to make it better for them without really giving them some of my ideas.” I was quite taken by this comment because as teacher of the overall writing process, an initial quality in Teacher Three that attracted my attention, she is one of the finest I ever come to know. I was very surprised to see her express such a statement of doubt. This statement is even more powerful when
taken in connection with something she said at the start of this particular line of discourse, regarding the writing process:

I enjoy it being on the other end as an editor with kids. Because it’s like, ‘oh, tell me more’ or ‘I like this part of it’ but I don’t like it, personally, myself. I never have.

She even added, furthermore, that she loves the creativity in kids, but wasn’t sure if she “always totally [followed] them in.” And yet, due to the joy they get out of the process, “you don’t ever want to squelch it.” This was a powerful moment, the variety of which that came to serve as my “viewing lens” during this analysis.

Such interesting and questioning moments are known as moments of aporia. Nicholas Burbules (2000) calls aporia (a concept of Socrates and Plato) “the moment where a misconception has been exposed, stripped away, and where a certain terrain now exists for the reconstruction of true knowledge” (Burbules, 172). Such misconception can even be one’s misconception about oneself. Kevin LaGrandeur (1991), likewise, called it “the point at which a text (which for our purposes we have defined as the result of any play of language—including the classroom dialogue) that tends toward the inscription of meaning) no longer quite makes sense” and soon occurs “the encounter with an ‘aporia’ or impasse” (LaGrandeur, 72). He is quite careful here to clarify what he means by a “text”—essentially, any use of language, discourse, or writing. Both of these authors also examined doubt—including self-doubt—as questioning process of great value, one where the connection of ideas occurs and, thus, knowledge is created.
Initially, I inquired as to their thoughts on the role of peer interaction through editing or revision of student work; they subsequently focused almost entirely on the editing and revision portion of the question. As one might expect, the teacher I considered to be stronger in the writing and revision process was the first to respond to my question about it in the first phase of the focus group. Thus, Teacher Three quickly noted that, “you very quickly find out who is a good editor and who possesses the conventional mechanics of writing” when teaching writing and revision. She noted her strategy of pairing kids strong in this area with those weaker in the area. Yet, she was critical of the process—critical of the shortcoming of those of her practice—and noted:

Although, even when they peer edit, there are so many mistakes when the papers come in to me that I want to say ‘are you sure you read this aloud and did you hear it?’ So, I don’t think we do that well and we need to teach kids to do it better. We can have checklists, and I do have checklist, and even that goes by the wayside sometimes.

As a final note to this line in her initial response she added that teachers of this kind are “still not proficient yet.” The above passage from her dialogue highlights her concern with the importance of the process, surely, but her thoughts that the “teaching” of the process is still very much a work in progress for teachers and, for a veteran teacher, something of concern. Teacher One struggled with this, as well, in her initial interview, when talking about modeling this process. She stated in her interview: “At the beginning I model how to get the middle to sound like you’re going in order and how to close it up. I’m constantly modeling.” And then, despite all her practice at modeling this, she confessed: “And not that I’m a perfect
writer.” She later mentioned her views on the importance of practicing the revision process, as I will cover in this section of the analysis.

Teacher Two asked Teacher Three at this point if she considered the student perspective on this issue “developmental” and identified similar experiences with her own students. Before Teacher Three could answer, Teacher One called it an “expectation” and added:

I think I let them slide by, because it’s just easier for me to do the corrections and let them make them and publish them. I think if I held them more accountable, and I slap myself every year, because I should be handing it back and say, ‘nope, you got some more to do.’

Again, concern by a focus group participant at the current state of the practice of teaching the writing and revision process. When looking back on this from my later moment of aporia, this is of great interest because these three teachers do a truly excellent job in the classroom—one would imagine a great deal less concern and a great deal more confidence among the three, regarding writing and revision. At this point in the conversation, the three teachers each shared their current “technique” by turns: Teacher Three having opted to circle mistakes for her students to figure out, Teacher Two writing her count of their number of mistakes to find at the top of the paper, and Teacher One taking a similar approach and making it a consistent use of their “Daily Oral Language” class time.

A final point of concern that the participants raised in this initial phase of the focus group, which, along with the other concerns, would return during the evaluation of the
writing samples, was the “warm fuzzy” that occurs too often when their students peer-edit. Teacher Two first mentioned this, when stating that “when they do the peer revision, or if they’re doing conferencing with their peers, it’s filled with a lot of warm fuzzies, where they read each other, and ‘that’s a good story.’” Teacher One agreed and noted that it was “accepted” that they “don’t get mad at each other.” This slight indication that peer interaction could be problematic to the overall process of revision was interesting, but unfortunately it did not develop much further, but rather returned in focus to these teachers and their practice.

Still, this impasse in the writing and revision process here becomes most clear as an element of concern to these teachers. Teacher Three offered that she has shared “good” examples of writing with her students, noting that she will “read them one that’s really good” and “they hear the difference, but then, you’re right [directed at Teacher One], the warm fuzzies come out when they peer edit each other.” This was not the first time that Teacher Three specifically stated that another member of the focus group was “right,” which I will further illustrate in the third section of this analysis. This strongly supports Teacher Three’s view that hearing examples aloud can increase quality; along these same lines, she mentioned in her earlier interview that “sometimes when [her students] read their story aloud they can catch their own errors.” She further supported this in her interview when mentioning the impact of a word processor’s spell-checker, which catches some of those errors prior to peer-editing. She expressed gratitude for the technological aid in the writing and revision process, but concluded this statement in her interview, perhaps questioning her use of technology in a moment of self-doubt, with: “So, I’m hoping that they see they were errors to begin with.”
Ultimately, for all their frustration with teaching this process, two of the three teachers only briefly offered up more positive prognoses for their practice. Teacher One stated that she wants her students “to cut out the bologna stuff and just have the stuff that’s powerful” (see the third section of this analysis, specifically Teacher One’s discussion of “powerful words”). To this end, Teacher One confessed in her earlier interview that she had “been known to actually give them a topic.” Although she preferred not to do so, Teacher One further elaborated in the interview, “If they can’t do it I give them a thought that just might be useful.” Teacher Three, at this point in the focus group conversation, noting her own work with grammar, stated that “it depends on what you bring in with grammar, the language aspect,” and that the revision process can always be connected with the current topic in her grammar teaching (adjectives, for instance). Teacher One touched upon this same grammatical connection in her interview, but didn’t seem to suggest an emphasis on it to the extent of Teacher Three. Teacher One added, as a final thought to this topic in the first phase of the focus group’s discussion, that “practice helps,” repeating the word “practice” three times.

As mentioned, the issue of writing and revision permeated other points of the entire focus group setting. Interestingly enough, it first did so before the issue of writing/revising student work had even formally commenced. Two minutes into the focus group, when the teacher briefly took a turn at commenting on the concept of idea organization, Teacher Three deviated from the topic and, somewhat in frustration, implied that the current state of student learning of writing and revision made them, essentially, the same process. She noted that some students have “no idea” about revision, further adding that:
It’s writing it again. They just want to write it again. Or, ‘what’s wrong with this?’ It’s hard for them to peer-edit.

This initial concern, which would later return in greater force, she quickly followed up with her strategy of having students write passages on index cards to move and rearrange visually. Due to this shared strategy, this concern with the process did not express itself to an extent that it aroused my curiosity; however, when the topic of writing and revision came up next in the first phase of the focus group, it unfolded much in accordance with this first, early example.

Two additional examples from their evaluation of the writing samples connected the writing and revision process with idea organization. The topic was the first general topic discussed in the first phase of the focus group. It, like the third topic of illustration, and otherwise multiple forms of communication, lacked the aporia of the three more fruitful examples that comprise this analysis. Student idea organization, to these teachers, was much more cut-and-dry—something that was, simply, a necessary and standard step. What attracted my attention to these two examples, besides two of them making clear statements that identified them as SWH participants, was the clear link demonstrated between initial organization and the later stage of revision. In the first of these two examples, all three teachers felt that the sample in question—one titled “Science” about a student’s various experiences in science class—did not adequately explain the student’s experience with a selected class experiment. Teacher Three quoted the sample, reading where the student said: “‘I did these things, and I understand so much more;’ ” Teacher Three followed with her own statement: “I just want them to explain to me what they understood. I still want details.”
Yet, regarding how to accomplish this, Teacher One jumped in asking Teacher Three if it needed to be more organized—specifically directing her statement to Teacher Three with the follow up question, “don’t you think?” Teacher Three responded in the affirmative. Although neither went into more detail on their feelings on organization here, they at least identified it as an area of concern. And a reason for this, perhaps, was Teacher Two shifting the focus somewhat. She pointed out that the author was “telling everything” and that it wasn’t “even in a large order.” And then, at this point, she became the second in the group to specifically identify her status as an SWH implementer. I will later discuss Teacher One’s first instance of this in the third section of this analysis. But it was this second instance, brought about by Teacher Two, further was of interest to me to the extent that, as known colleagues and SWH participants, it was my speculation that SWH participation might either dominate the conversation topics as a very common experience among the teachers, or would go largely unspoken as simply a commonly understood aspect of their practice. Teacher Two stated here that “sometimes it’s parts of SWH, like the big idea, and then sometimes it’s a unit that they’ve studied.” Teacher Two defended this particular piece of writing, as poorly composed as the group consensus felt it was, as successful due to its illustration of its main idea. “I think that’s what he meant,” Teacher Two said, “even though he’s clearly not confused.” At this point the direction of the conversation shifted to statements very much pertaining to the presentation of student work and this example here continues directly into the second additional example, which I will discuss in the next section of this analysis.

Toward the end of the focus group’s evaluation of the same sample, Teacher Three again brought up the need for greater organization:
I think, and I knew what was going on here. But I needed more information. So I think the organization, I think he had a start, but I think he could pull things out.

Teacher Three viewed the problem as a matter of superfluous information—suggesting the connection between organization and revision, suggesting that greater organization prevents need for revision or greater revision can compensate for lesser organization. Before Teacher three could continue, Teacher One asked her if felt this sample would make a good example for other students to view, that it “would be a good piece to use when talking about choosing one idea to write about.” Teacher Three responded in the affirmative and then made her own identification of herself as an SWH participant; she stated: “when we submitted pieces [i.e. to the SWH team], we didn’t necessarily always edit them. Sometimes it was their first write, which is kind of interesting.” As a follow up to her comments that concluded this portion for the group before moving on to the next writing sample, Teacher Three speculated if the sample (from a student of a first year SWH-participating teacher, and not necessarily that student’s “first write”) was a “first write” for the student.

Presentation of Work

The second element of particular interest within the overall focus group is one that I originally thought of as extension of the writing process, or an “unofficial” step that—among its other clear payoffs of in the communicating of ideas among students and teacher—would help foster enthusiasm for the learning process in students. With that in mind, I introduced it as the fifth and final topic in the first phase of the focus group, simply asking about the role of public presentation of work. It did not take much time at all to see how passionate these
teachers were about student presentation of work. Teacher Three’s lead at the start of this portion of the focus group began the longest discussion among the three topics covered in this analysis—just over five minutes. She called presentation “the grand finale.” She suggested that a great deal of the significance in student presentation of work is related to the effort and means used to compose the work. She stated:

I think they love working in the computer lab, typing their piece, that’s the creativity that they want to use different fonts, or they want to bring in pictures. This is what they like. They’re very proud of it, I think, when they type it. When it’s written I don’t think they feel that sense of pride as much.

This is an interesting statement in that it also adds creativity as a factor in presentation. She notes a number of elements supporting creativity and then, as noted, specifically claims that it’s what “they like.” It is also interesting that she further clarifies her statement through the supporting contrast she shares on handwritten work.

Teacher One added that she had students present “in different ways.” She continued: “Last year I used PowerPoint and they had to have four or five slides. This year I didn’t do that, but I think last year they took more ownership and pride in their product.” Teacher Three, at this point, enthusiastically interjected: “Mine are just finishing up their PowerPoints that were just due today.” Although she may have said this to support her colleague’s use of technology, Teacher Three might have also said this to express her own ability to integrate technology into her teaching—she did, however, note that she did not limit their quantity of slides. In her earlier interview, Teacher Three also spoke a great deal about her PowerPoint
work and its impact on student creativity and subsequent presentation. She noted in her interview that her student “do an oral presentation [with the PowerPoint] and they really get into the creativity of that.” She even added that she “unfortunately, or even fortunately,” depending “on what side of the coin you’re on,” gives students a great deal of creative freedom. She overviewed the somewhat chaotic sound effects and screen transitions that students use, but reaffirmed that “they really have fun with it; it makes it fun.”

Returning to Teacher Three’s comments on PowerPoint in the focus group conversation, Teacher Two then asked her if she had computers or laptops for all students—how she accomplished this. Teacher Three noted her school’s computer lab. But then, the conversation interestingly shifted to a focus on the logistics of the technology—specifically, who teaches the students how to use it. Teacher Two asked Teacher three if she had a teacher in the lab with her, or if she had to teach it. Teacher Three noted that she had to teach it; then, at the curiosity of Teacher One, Teacher Three explained in detail how she scheduled her lab time and her process for teaching students how to use PowerPoint. Her extensive use of lab resources, as she also noted in her interview, required her students to “become the expert so when they give their presentations, there’s an oral as well as a written paper.” Looking back on this interview statement, from the perspective of the focus group is especially interesting because this interview statement clarifies her dual use of electronic and handwritten final products intended for presentation. She even further defended presentation of work in her earlier interview twice noting student reaction to presentation: “they really enjoy the last part, the sharing;” and, even though they don’t necessarily like “the editing part,” they “love the last part [presentation] the best.”
Here the conversation paused, nearly beginning the second sample-evaluating phase of the focus group, but Teacher Two, who had been largely quiet through this portion of the conversation (aside from asking Teacher Three if she had laptops/computer for every student), stated: “this question [referring to my own introduction of the topic of presentation], it made me think in our fifth grades section, of our flag project.” She outlined a rather time-consuming project where students write in connection with Character Counts pillars and place their writing on flags displayed in the gym for their Fine Arts Night. And, she was careful to note: “it’s a public presentation where parents walk around the gym and read them.” Teacher Three here interjected on a project of her own meant for public display in the school gymnasium. Though she completely shifted the focus from Teacher Two, Teacher Three did interestingly note: “Although some kids I would think aren’t quite as proud of their work and maybe it helps them see that it is important for them to do their best.” This would seem to shed some light on what she feels is at the heart of student presentation—emphasizing to students that they “do their best.” Teacher Two, however, returns to her description of the flag project—a project that Teacher One defends—and concludes with: “I guess that was as public as I was thinking.” This is very interesting to note that “as public” as she was thinking was likely “as public” as student work could be within the school building. Yet, unlike Teacher Three, she did not as fully open up on what she felt was a core reason for publicly presenting student work (though she did hint at it, nothing that the project was “very special” to her students).

Additional statements pertaining to the presentation of student work are a great deal more varied than the other two topics upon which I have focused in this analysis. These three teachers do indicate in their dealing with the topic of presentation of student work that a
great deal of point of presentation is derived from the intended audience, the specific category of the type of writing, and the quality of the information in the piece intended for presentation. During discussion of a sample about a “Rabbit Ecosystem,” a discussion which proved even more fruitful relative to the use of voice in student writing, Teacher Two was not convinced that the author had reached his/her target audience and, thus, it was not as suitable for presentation. “It would be for a higher level,” she asserted, “because he did not explain symbiotic relationships and mutualism. So his audience has to be someone that would understand at that level.” She added that her fifth graders would not understand, and then trailed off somewhat after concluding with: “Now, if we studied that and read it….” Teacher Three supported these statements with an affirmative. Teacher Two then made an interesting statement to this effect in her own earlier interview when discussing a wildlife biome project with her students, where they research biomes and construct “travel brochures” to advertise their biomes. After identifying the project as one of her most “in-depth” she commented on the role it plays within her classroom, summing it up with: “Because, again, the research and then writing it and sharing it.” This statement, taken along with her comments in the focus group on the writing sample in question, further supports that proper preparation to reach a target audience justifies presentation.

Teacher One, however, after a self-doubting “I don’t know,” defended the sample as useful—perhaps suggesting that there is always some value in presenting, justifying so. She stated:

Maybe fifth graders, if they read through this, would get a little something. I’m sure the purpose of this paper was to, if they’d
studied the consumers and decomposers and stuff, was to write what they learned. But I think fifth graders would enjoy reading that.

She makes a clear speculation as to the purpose of the sample—“to write what [the student] learned.” Twice in her statement she defends the value of the sample as something students would enjoy; it is interesting to note the degree to which she defends this sample, each time with a “maybe” and “I think” respectively. At the end of this statement she did turn to Teacher Two and ask, “You don’t think so?” Teacher Two did was unconvinced and responded: “At most they have an understanding for it.” Perhaps Teacher One’s opinion that some degree of value exists in presentation would, for her, trump any concerns like those of Teacher Two.

The second supporting example, within the realm of presentation of student work, stemmed directly out of comments regarding the writing and revision process. Teacher Two had previously pointed out in the first of this analysis’ three sections that the author of the “Science” writing sample was clearly “not confused” about his/her topic, albeit unclear as to the intended audience. Then, continuing with this line of dialogue that shifted into presentation, Teacher One noted that she thought the purpose was different from doing a published piece, indicating one of the other samples—a typed sample. “Whereas,” she continued, “this was something [where] they had 10 minutes to write out your new understanding about what was done in science.” Despite the debated purpose of the sample, she further defended the author: “He enjoys the experiments, they’re fun, he’s not confused.”

At this point, Teacher Two pointed out the three samples viewed so far—“The Pole,” “Rabbit Ecosystem,” and “Science”—sliding them to separate positions on the table in front
of her; she then respectively identified them: “This is a personal narrative; this is a report; this is reflection.” Teacher Two seemed to indicate it was more a matter of original assignment objective, presentation notwithstanding. Teacher One, before Teacher Two could continue further categorizing the three samples in front of her, reiterated and concluded the moment of conversation with: “I think you have to keep that in mind when you’re discussing, you know, the purpose for each of these.” Though she did not further elaborate on “the purpose” she mentioned, it is possible she considers a potential purpose of any of Teacher Two’s categories to be presentation.

Another sample seemed, to the three teachers, unfit for presentation. Appropriately, their views on it, since they considered it so, shifted to what could be done to raise its quality. Interestingly enough, it was the only time Teachers One and Two joked about a writing sample; Teacher One joked that it “might be a month-long project” and Teacher Two added that it “may be a year-long project.” Teacher Three quickly interrupted this with a number of suggestions:

Maybe with this one I could use illustrations. Because I would make a poster or something, and just say, ‘this is what the planet looks like, this is what it’s like in relation to the earth.’ You know, the temperature. I mean, I don’t know. You could make this into a brochure or something, so not just a report. But I think you could incorporate this and do it in a different fashion and make it more interesting and right. Come, take a trip with us to Mars!
Considering that the three teachers had a great deal of concern about this “Report About Mars” sample—both due to writing quality, as well as content they could not verify—it is interesting to note that her suggestions as to improving the sample and making it more fit to present revolve around visual elements that would take the place of narrative information. She is quite clear when she notes that the author could “make” the sample into something else—“not just a report.” She even notes the end result to be not only “more interesting”—hinting at the goal of presentation—but also “right,” which continues with the original controversy surrounding this sample’s information. Teacher One responds to Teacher Three with an affirmative and then Teacher Three further notes that it ultimately “depends on the format that was asked.” She then notes that “[they]’re judging it but—” and Teacher One concludes her statement before the line of conversation concludes: “-yeah, we don’t know.”

**Writing With Voice**

Perhaps most interesting of the three elements of focus group discourse upon which my analysis has focused is the use of voice in student writing. This was, in fact, one of the first facets of the writing samples that caught my interest during my initial analysis. It was also one of the first things I was compelled to ask teachers during the interviews that preceded the focus group. When the focus group participants considered this discussion element, second of the five topics in the first phase of the conversation, their initial thoughts on the topic covered only three minutes out of over 75 minutes. On several occasions this topic connected with points in the discussion of the writing samples, indicating to me a particular interest among the participants in this element, relative to the other elements.
Ultimately, a number of other unique factors in the participants’ discussion of this element make it stand out as the most unique of the topics on hand for the focus group.

My initial statement of the question for this part of the focus group sparked an immediate conjecture. I asked the group about “the role of dialogue and use of voice in student writing,” and mentioned that it was something with which I already had chatted with the three of them. Teacher One quickly pointed out to me that I just offered them two different questions. I added that they could freely split it up, if they preferred. Teacher Two immediately stated, “Dialogue is when you use quotation marks; voice is when it sounds original and has feeling.” Considering that the topic of revision of student work was yet to come, this was a hint that grammar and mechanics was very much a part of their thinking. This certainly became apparent, as shown earlier in my analysis of that portion of the focus group. At this point, Teacher One jumped back in and—quickly connecting the subject with SWH methodology—offered the following, her breakdown of the difference between voice and dialogue:

That’s one of the 6+1 writing traits that makes your piece more interesting when you use powerful words to make it come alive. To give it some kind of spark. We try and instill that in the kids. That’s important when you’re writing, that it’s passionate and they get lots of voice. Conversation, I really don’t encourage a lot of that because it become a whole paper about ‘he said’ this, ‘she said’ that. And then about description. So I go for more of the voice coming from them, and the passion.
I found it very interesting that Teacher One made an immediate reference to the 6+1 writing traits and, thus, her status as an SWH participant. One could argue that such a reminder of that status was not necessary, as all three are, of course, SWH participants. It is also interesting that she equates passion—feeling, emotion, attitude—with voice, and that conversation rather strictly equals dialogue.

During the initial interview with Teacher One, she stated, “We encourage them to have a voice in their story, and a voice means the excitement of the author’s idea coming through in conversation.” Her statement in the focus group discussion, that voice is very related to feeling—passion—is consistent with her earlier interview statement. The language of her above-mentioned focus group response is very first person oriented; Teacher One speaks very directly from her experience base and the experience base of her colleagues (likely indicated by the “We”), one of which is Teacher Two. Teacher Two (who, interestingly, admitted in her interview that Teacher One spends a great deal more time in writing—and use of voice in writing—than she does) immediately asked her if she said it the same way to her students, to which she replied:

Because at our building that’s how it is. Voice is the feelings that you put into the paper and it can’t just be ‘oh, I’m so happy,’ you know, that it needs to sound like a child wrote it. And we talk about dialogue as quotation marks.

Again, she speaks from the perspective of her collegial team and further emphasizes her equating of dialogue with the quotation mark—the structure of her spoken sentence even doing so with the “as.”
Teacher Three supported this distinction between voice and dialogue, as well. Interestingly enough, she placed in the context of reading an example aloud:

But there are times when I look at my kids papers and I almost know who they are by the way they start. Because they talk the way they speak. And so, to me, that’s the voice, that they want to convey.

Again, another focus group participant draws upon personal experience base and personal opinion. This comment is not entirely surprising, when considering that Teacher Three makes presentation of work to the class a very active part of her writing process—a final step, even. Her comment that students talk (write dialogue) the way they speak is an interesting one in that, like Teacher One who noted that the passionate voice also comes from students, it indicates that these teachers are mindful that the content of student writing can come from within the students.

Teacher Three continued by separating expository writing from this category and, in addition, indicating that this focus group element of use of voice is sometimes in conflict with the task of writing. She noted that it could cause work to become less formal. She speculated that perhaps that makes it necessary to stress that a research paper should be more formal. She quickly, after noting this, mentions a Halloween writing assignment that she does where students view a picture book with no writing and must supply the written component of the story on their own. She further explained:
And they have to come up with twenty-some pages of a story. And it is all the dialogue, with the quotation marks. And the first thing I do is that there are more words besides ‘said.’”

(Laughter) “So we look at other words besides ‘said.’ Because you’re right, it is ‘he said,’ ‘they said.’

She, also, is mindful of repeating patterns in student approach to the use of dialogue—and she clearly notes that her assignment produces writing “with the quotation marks.” Teacher Three touched upon this in her interview, noting that she did work with “more vivid words, more verbs” and frequently asked students what else they could say besides ‘she said’ and ‘he said.’ Interestingly enough, this is also very similar to something that Teacher One mentioned in her interview, stating that “sometimes they, their story, is just all dialogue and we have to go back and fill in the details for the reader” and also, in the same line of talk, that “again, if it’s all dialogue, we encourage them to go back and add the details that are missing.”

I should also note that Teacher Three concluded her above-mentioned comments on dialogue in her Halloween stories with the sentence: “But I see a difference between voice and dialogue, too.” This would be the first instance of her very specifically agreeing with the other participants in the focus group. I cannot say if she, personally, felt the need to make a statement to facilitate a connection with the other two teachers; however, comments like this, and the others noted in my analysis certainly do foster personal connection among the three.

The topic of voice in writing continued to permeate discussion when these three teachers viewed several writing samples, several examples of which I will share to further illustrate the importance of the topic within the focus group conversation. Teacher Three
immediately noticed dialogue in the sample “The Pole,” stating that it was the first thing she noticed. Interestingly enough, she mentioned that she thought the author “wanted it presented and [was] proud of the fact that it was public.” This was a very interesting occurrence in that Teacher Three immediately made this comment as the sample was displayed, without waiting to read it in its entirety, and made a strong connection to the focus group discussion element of presentation of student work. Regarding the same sample, Teacher One later noted that she liked the way the author didn’t use “said” every time and added that the author “tried to find more powerful words: exclaimed, yelled, screeched, all kinds of things.” And, as was consistent with Teacher Three’s consistent perspective on mechanics, Teacher Three added that the author seemed “to also understand when to change paragraphs, you know, when the next person is speaking.”

The second writing sample of the focus group generated some debate, further illustrating the participants’ separation of voice and dialogue, and identifying the sample as lacking both—and, thus, as more expository. Teacher Two noted that she didn’t “see a lot of voice, and of course there’s no dialogue.” Teacher Two then called it a research report and Teacher One, looking back at the first sample, commented: “a research report versus the first piece, which was a memory, which came from a person’s soul.” This is a very interesting statement in that, though she deviated from the writing sample at hand, further supported her statements that use of voice is more a matter of feeling, emotion—from “a person’s soul”—as compared to what she saw in the second sample. Near the end of the discussion on this sample, Teacher One remarked on one interesting point where the author used an occurrence of what she called “kid language,” which “messed up” the phrase. Teacher Three commented that she didn’t like the use of the phrase and that it was in contrast to the rest of
the sample. Teacher One reasserted that she considered it “kid language,” but then added, consistent with her earlier statement, that the author should have “chosen a more powerful word.”

The final of the four samples examined by the focus group caused some confusion in that its topic, the planet Mars, contained a great deal of information that the participants could not verify from their own memory—and this inability authenticate it upon sight seemed to make them a bit uncomfortable. But, more importantly, was Teacher Three’s reaction to the sample:

It’s just matter-of-fact. And there really isn’t much of a voice here at all. It’s just, and like I said, I’m not sure about the facts, so that’s something I’d have to look up myself. I don’t know. (Teacher One asks her if she, at least, likes the beginning; Teacher Three pauses to continue reading for a moment.) To me it’s just matter-of-fact.

The sample in question does, indeed, lack a great deal of what the group would consider voice and dialogue and is much more factual. I included the sample in the discussion agenda with the hopes that the group might discuss ways voice could be used in the sample; however, the factual nature of the piece and the confusion about several of the facts which the three teachers could not verify seemed to interfere with their examination of it in the context of the focus group topics.

Ultimately, my interest in including this element in the focus group agenda stemmed from the fact that I saw a great deal of writing samples that were not, as Teacher Three pointed out, so “matter-of-fact.” I saw a great deal of narrative voice and use of dialogue in
“the quotation marks.” I saw these elements as a deviation from a “matter-of-fact” style and, when interviewing the teachers, came to know a great deal more about Teacher One’s enthusiasm for more “powerful words,” and Teacher Three’s strong practice of grammar and structure of the writing process—but understanding that voice has its place, considering her distinction between its place and more “matter-of-fact” writing. This element clearly dictated a place in the focus group, which I took care not to make first so as to give what was personally my topic of greatest interest a biased location in the conversation. Yet, the teachers surprised me by taking my focus group element and breaking it down much more succinctly, clearly defining rules for its role, and sharing examples of its use from their practice. They also returned to the concept, which they had further qualified, in several interesting and unexpected ways—successfully connecting other portions of the focus group content, as well as their own interviews, in the process.

Summary

The ultimate goal of this analysis was to illustrate how focus group discourse connected with the original analysis of the writing samples, but especially comments made during the interview portion of my data collection. This analysis also illustrated how the connections to these earlier patterns—the root of the focus group design—indeed caused me to “flash back” to the original patterns. In this study’s Conclusions, I will overview how this analysis helps to support its underlying theory of knowledge construction and how knowledge construction also serves as a useful mindset when structuring this study’s methodology. This study’s Conclusions will also overview and also how the nature of aporia warrants consideration within the theory of knowledge construction, as well as the need for
further investigation into several areas addressed by several of the focus group’s primary topics of discussion.
Conclusions

Reflections

When preparing for the focus group I did not anticipate that the second phase of the discussion, looking over writing samples with the original hope of identifying connections between this part of the discussion and the prior interviews, would connect so well with the first phase. As I outlined in my discussion of the methodology of this study, it was necessary to adjust my approach with each step, remaining mindful of patterns and identifying new patterns as they emerged. If anything, my only concern was facilitating a discussion that would either derail exploration of patterns or reveal random discourse. Fully mindful of my theoretical understanding of knowledge construction, as discussed in this study’s relevant literature, I hoped the focus group participants would address this in their classroom work relative to the primary topics of the focus group discussion.

The first phase of the focus group discussion served its purpose. It activated the prior knowledge of these teachers and reminded them of their common community of practice. This phase offered them an ideal setting for their own moments of knowledge telling. The second phase of the focus group discussion, when looking over writing samples, allowed the focus group participants to connect their ideas from the first phase, and also their own interview responses, in different ways. This was their phase of knowledge transformation. Though a possible situation, considering my plan for the focus group, I did not anticipate that this would happen so clearly; considering the risk of factors such as tangential conversation, conflicting ideas, or argument, I felt it more likely that these focus group participants would
address knowledge telling and transformation of their own students, and in their ideas relative to evaluation the writing samples discussed.

And I did have my final phase of the focus group when, ultimately, I considered a fallback. I offered the focus group participants a chance to address “these topics” en masse. I considered it too broad a question, too chaotic an option, despite the desire for something to tie the larger discussion together and, if necessary, attempt to salvage what might otherwise have become a fruitless discussion. This third phase became something of a philosophical final thought from each of these teachers, a statement from each on their own overall view on their teaching of writing. Although this third phase did not specifically connect with the earlier two phases, did not transform knowledge, it did ultimately offer my moment of aporia. I had the lens that brought those two phases of the discussion into clarity, and enabled me to look backward at the focus group and the writing samples in a meaningful and insightful fashion.

**Resulting Findings**

The three primary discussion topics of the focus group, peer revision of student writing, public presentation of student writing, and use of voice in student writing play important roles within the larger body of SWH thinking. The study by Hand, Wallace, and Yang (2004) to examine the impact of the SWH on a textbook writing activity, aptly illustrates the roles of these concepts within the SWH. The authors noted that peer interaction, which, in a writing activity, often includes the revision of student work, helped to facilitate student learning of concepts and, more specifically, “the majority of students attributed increased conceptual understanding to hearing their peers’ explanations and having
an opportunity to share their ideas” (Hand, Wallace, and Yang, 143). Their study further noted that, due to the necessity of greater comprehension of concepts in order to publicly present material, “changing the audience to peers instead of the teacher requires students to examine their understandings, the gaps in their knowledge and to translate the technical language into more everyday language” (Hand, Wallace, and Yang, 148). And, regarding the use of writing, which, for the teachers in this focus group, included the use of voice, these three authors noted that, “one half of the students specifically mentioned the act of writing as a useful learning tool, when asked which features of the SWH helped them learn” (Hand, Wallace, and Yang, 144). As an approach to teaching and learning, the SWH clearly makes these three primary focus group topics important when considering the nature of knowledge construction.

The focus group participants made a significant deviation in the realm of revision of work. They largely spoke about student interaction as a part of this process much less that I had hoped they would. Although they certainly addressed students reviewing each other’s writing, they viewed the stage of revision as more important in the realm of their direct interaction with students. The three focus group participants were very connected to grammar concepts, mechanics, and the teaching of such technical specifics of writing. As teachers, they seemed very mindful and even concerned about correcting errors in student work. Although they suggest that peer interaction had its place in revision, revision ultimately fell under the task of teacher feedback to a student when returning the writing. Their responses certainly seem to suggest a desire to explore peer revision more, but also suggest a desire to prevent unpleasant peer feedback from damaging student interest in writing and student opportunity to learn through writing.
All three teachers in this focus group considered public presentation of student work to be a “grand finale.” They considered this step of the writing process to be of great value to the overall process—a stated step, even, on Teacher Three’s “writing racetrack”. Though they seem to suggest that much of its importance is due to the enjoyment students find in presenting their work, they also implied their awareness of the fact that classmates of presenters do continue learning as a result. It is interesting to note the variety of means these teachers consider when structuring presentation, often relying heavily on technology. Often their form of presentation takes the form of publishing. Since these teachers considered presentation an unofficial step of the writing process, they connected it very directly to revision; they suggest that shortcomings in presentation connect with shortcomings in revision. It is also interesting to note their mindfulness of intended audience when considering the effectiveness of material being presented.

Most surprising to me was the rather immediate separation of voice and dialogue and the impact of that separation on the resulting conversation. These teachers view the “powerful words,” as noted by Teacher One when mentioning the “6+1 writing traits,” as something that can elevate writing to a much more effective level and something in which students will find greater interest as they attempt the task. Considering their mindfulness of grammar and mechanics, it is very interesting to note these teachers’ attention to what falls inside quotation marks and what does not. Dialogue to these teachers, clearly belongs to the quotation marks. But, of most importance to the theoretical underlings of this study, these teachers considered the “powerful words” and “passionate voice” of students to be something that came very specifically from within the students.
With all three of these primary topics of focus group discussion, these teachers certainly demonstrated an understanding of the topic’s role in the overall writing process, but more importantly, an awareness of student writing connecting with other parts of the overall process in different ways, and students interacting all the while. Their opinions on and approaches to these topics suggest that they do not consider them isolated activities, but part of a larger process. It appears important to these teachers that students share and connect ideas in multiple ways, using the particular vehicle of writing as critically important part of that process. In addition to revealing the presence of these knowledge-constructing processes in their instruction, these teachers were even able to articulate ideas and connect them in interesting ways. The importance of these topics to these teachers on multiple levels reveals its importance to them both within their “communities of practice” as teachers and also as SWH implementers.

The theoretical framework for this study offers a sound understanding of the construction of knowledge—offers a sound method for learning. This theoretical framework clearly points to the connections between ideas as the key element in the knowledge construction process. Yet, this theory of knowledge construction needs to further account for the “trigger” event or moment that creates the connections between ideas, or activates the connections. Granted, writing and other forms of discourse serve as a vehicle for establishing these connections—but wherein lies the ability of discourse to trigger such connections? For students to write and communicate may not be enough. Aporia may offer this further factor in the knowledge construction process. As a moment of inspiration, aporia contains the power to fuel moments of idea exploration sure to interconnect with ideas. And
aporia is, in essence, a metacognitive experience that will drive a learner inward to form additional connections, as well.

In much the same way that the theoretical framework of this study influenced focus group interaction, it also offers a similar process for the analysis of this study’s data. The SWH makes use of a similar theoretical framework in its approach to learning. With that in mind, this study sought out to explore SWH teacher interest and opinion surrounding elements of SWH implementation, as demonstrated in their returned writing samples—specifically the three primary topics of discussion in the focus group. This study’s analysis shows that these teachers do indeed have an interest in such SWH elements, that they do consider them important, and that they do situate these elements in ways that take advantage of knowledge-constructing processes. These teachers demonstrated their own moments of aporia, which also helped drive this study’s analysis.

The SWH is an approach to learning built upon a theoretical framework for knowledge construction and use of writing as a knowledge construction process. Not only is this theoretical framework sound, but it also seems to ask these teachers in their implementation to do that in which they are interested and that which they believe is useful. As this study reveals such interest and belief among the focus group participants, it further supports the validity of this theoretical framework and, ultimately, supports the SWH as a successful approach to learning. In addition, this study also suggest the need for further exploration of aporia’s impact on this theoretical framework of knowledge construction—and exploration that may add additional value to both the understanding of knowledge construction and teacher implementation of SWH methodology. Thus, in summary, this study’s findings:
• Teacher Emphasis on Grammar over Student Revision of Work
• Public Presentation of Work as a “Grand Finale”
• Importance, Yet Separation of Voice and Dialogue
• Teachers Connected Ideas on Writing to Multiple Parts of the Writing Process
• Importance of Their “Communities of Practice”
• Connections Between Ideas as the Key Element in the Knowledge Construction Process

**Known Limitations and Future Implications**

Of greatest consequence to this study is the impact of the size of both interview participants and also focus group participants. Logistical difficulties make larger number problematic in this regard. Clearly, more interview participants would yield more material upon which to base focus group discussion and more focus group participants would yield more avenues of connection between ideas. It would even be useful to compare the results of a focus group of SWH implementers against the results of a focus group of teachers completely unfamiliar with the SWH. This would, however, also require building a strong understanding of a non-SWH group’s on “community of practice” and taking it into account. This would be more ethnographic and time-consuming in nature. Future study of this nature would certainly include a larger number of participants and should explore ways to make feasible non-SWH teacher participation for comparison.

As noted earlier, this study would benefit from greater diversity among participants. Greater diversity does not necessarily imply complicating the reality of accounting for “communities of practice.” Greater diversity among participants, including gender, ethnicity,
socioeconomic nature of participants’ schools, and even a mixture of rural and urban participants, may yield still further patterns for analysis and connection between ideas. Although greater homogeneity of a focus group, such as this study’s nature of multiple colleagues within the same school, common gender, and common ethnicity, seems to expedite the group’s realization of its “community of practice” and, thus allow it to “get down to business faster,” the payoff of greater diversity may be well worth the tradeoff when their group complexity and greater logistical needs reveal richer data for analysis. Ideally, a study such as this should consider a multitude of ways to take advantage of the nature of its own theoretical foundation—to create multiple possibilities for knowledge transformation.

Considering the importance that aporia came to hold in this study, further investigation of aporia’s role in connection with the writing process would be of great value. As writing is a process used in the construction of knowledge, and aporia may hold value as a trigger of connections between ideas, aporia therefore should be further investigated as potential starting point in the writing process—be it explored as a kind of inspiration or a an unofficial “pre-first step” in the writing process, much as public presentation has here been considered an unofficial final step. Along those same lines, peer-editing could be further examined as a way to interconnect aporias, as peer-editing is built upon student discourse and offers still further opportunities for knowledge construction.

This study also suggests the need for two other areas of investigation, as revealed by two of the primary topics of discussion in the focus group. First, it suggests need for further investigation into the role of grammar in the writing process. Specifically, who should address them and to what extent? Would it be of value to the writing process for students to be more fluent in their understanding of grammar, thus freeing teachers from some portion of
their role of grammar and mechanics correction? And, if grammar becomes the dominant concern in the revision process, what is the impact on larger factors of content and ideas, perhaps even those that are a direct result of aporia? And second, this study suggests the need to further investigate why these teachers considered voice and dialogue so strictly separated, and denoted by the use of quotation marks. Does this mean that which lies outside the quotation marks should be strictly a neutral form of narrative? Does this mean that a creative voice should fall only within quotation marks? To what extent are teachers of writing comfortable with “bending the rules” in this regard in order to support student creativity and use of writing, all the while preventing a grammatical and mechanical chaos?

A Final Thought

In the concluding moments of the focus group discussion that Teacher Three declared that she and the other two were all veteran teachers. She then added, “And I think, you know, we’re just like our students.” She noted the importance of she, as well as her colleagues, practicing in order to better themselves. “And so,” she continued, “I just make myself go through some of the books and things to get ideas to help myself as a teacher, because I was not a writing teacher—I was a math teacher.” I find it very interesting that Teacher Three here revealed perhaps her own goldmine for knowledge transformation—her own changes as a teacher. Teacher One then jumped in and noted that one never becomes the perfect person to teach writing. She said something new always enters the classroom, like a new idea, a new methodology, a new approach. “So,” she said, “just when you think you have it all put together, something snags you in and you start over.” She, as well, seems blessed with an equal goldmine. I take great comfort in this attitude, as it suggests an
enthusiasm and willingness to try something new in their teaching. And that, ultimately, means the possibility of testing new research-based methodology in the classroom with the hope of improving education.\textsuperscript{7}
I initially planned the final phase of the focus group to serve as that “backup” to a possibly unproductive second phase of writing sample examination. I felt that I needed some way to open the floor to any kind of comment that, as it was the final phase, might at least be inspired by all that came before the final phase of the focus group. But, as it turned out, it was the examination of the writing samples that was a great deal more fruitful than I imagined.

I found this statement quite interesting, when taken in the context of No Child Left Behind, one considers Teacher Three’s use of the word “proficient.” Though No Child Left Behind and its impact on education is in no way the focus of my study, I think this comment hints that No Child Left Behind has clearly taken its place as a common element in these teachers’ “community of practice.”

Coming from a teacher so devoted to the writing and revision process, I found it very interesting that Teacher Three would defend a largely unrevised piece. This is not entirely surprising, however, when considering a statement from her interview that she made about revision—a statement actually made when discussing student presentation of work in her interview—suggesting that it is not a step in the process that students prefer. “I think they don’t like necessarily the editing part,” she said. “You know, they don’t mind reading it to someone else, but they love the last part [presentation] the best.” In hindsight, I wish she had gone into more detail here (or that I had prompted her for more, though that would not have been typical of my facilitation of the focus group). It may very well be that her perception of
this step as something students do not prefer (to the extent of presentation of work) has contributed to her aporia generating feelings.

4 At this point in the focus group, she did not clarify this with multiple and repeated specific examples, but rather more greatly emphasized her use of the technology, until prompted by Teacher Two. I found this side discussion on the logistics of using PowerPoint very interesting, as it revealed a potential lack of a support system in that area, that these teachers were expected to instruct students in its use. Aside from the digression into the logistics of PowerPoint implementation, I found this portion of the focus group discussion rather interesting in the sense that it did clarify Teacher Three’s view that electronic publication was not necessary for presentation of work. She did actually reiterate this in her interview: “The publishing, sometimes we’ll do it on the computer and sometimes we’ll just write it in, you know, very nice cursive handwriting.”

5 As I mentioned, I endeavored to select writing samples for the focus group that did not overwhelmingly demonstrate the presence of a particular trait for discussion, but did not lack it so much that the example would not stimulate discussion on the particular trait. I selected the “Rabbit Ecosystem” sample because of its first person voice and typed presentation. I also hoped that its opening line would stimulate some interesting reaction.

6 This was a very good indication of discussion to come. I learned in my earlier interview with Teacher Three, visiting with her in her own classroom, that presentation was her final step much of the time, and that it was as important in her classroom as the other steps in the writing process. I had hoped, going into the focus group, that her thoughts on this would become evident.
Considering that the focus group was “fighting the clock” at this point, and that the smell of a nearby crock-pot permeated the air, it was here that conversation concluded. The group offered smiles and nods to one another after over an hour of active, productive conversation. It was then that, in thanks for their participation, I served them my homemade sloppy joes and we all dined together.
Appendix A: Impressions Of Writing Samples

Teacher One Year 1

Great deal of contrast. Lots of good examples of idea organization (122057, 122031, etc.)

The list clearly was a useful strategy in getting ideas organized—126060

Did the ones who skipped lines need to skip lines, and those who wrote on every line not need to skip? Non-skippers seemed to have better quality work.

Still, a strong effort on the narratives. Spelling errors don’t seem to discourage them—much similar to other 5th grade narrative batches described above…seems a bit weaker overall than the others?

Also difficult for me to evaluate.

Teacher One Year 2

Good to know this was student-choice, draft only, no teacher assistance.

Lots of emotionally emphatic parts, as well as organization. Majority in first person (I and We very, very common). Easier for them to tell a story from their point of view?

Dialogue! Impresses me the most—add a different dimension to the work. I’m surprised to find so much of it, considering what I know about the topic guidelines. I would think this much dialogue would be more typical of a case where a teacher would say to include it.

Teacher Two Year 1:

Going from [Teacher Four] 2 to [Teacher Two] 1 was like taking off my glasses!

PM group—very creative—they can clearly see and experience in their minds what they are trying to write about. Paragraph organization of some degree was rare, yet those without still managed to progress somehow from idea to idea. Emotionally emphatic parts—caps, exclamation, sound effects, etc.
AM group—very similar to PM group. Perhaps a bit more organization/paragraph structure?

Teacher Two Year 2:

Very creative, full of details. Seemed to have greater paragraph/organization in the PM group this time? Strong attempt to tell a story.

Teacher Three Year 1:

Rather short letters to teacher.

Very similar reactions to [Teacher Three]’s DARE as to [Teacher Six]’s DARE samples. Strong organization.

Erosion…good specific examples of what they observed. Some brief (do they see the question as an implied chunk of the answer?), some detailed. Same question about concept maps—does the format click for some and not click for others?

Great animal papers. Organized, information in sequence. How much time spent on revision? How much of the 5-step writing process did they cover before arriving at this? Did they choose their animal (a favorite animal likely more motivating)?

Teacher Three 2:

What it means to be an American: Some brief, some much more detailed. Do some see it as a very multifaceted concept, some see it as being very concrete? Lots of “we” in these—the kids understand that they are speaking for a larger whole. [Specific Student’s Name], for example, opted for list of 5, rather than 5 paragraphs describing each of the 5…interesting.

Same reactions to [Teacher Three]’s scrip/plays as to [Teacher Six]’s. Great dialogue and facts shared via dialogue.

Diary approach to “When I lost a limb…” seems to have worked very well. Great job putting themselves in the position of that “character,” as with the body organs. Some like [Specific Student’s Name], had TONS to say, and in strong paragraphs. How was the Peer Editing moderated? Did they have a structure/goals for the Peer Editing?
Same form in Final Sample as [Teacher Six], yet they wrote so much more. How much more was 6+1 emphasized in the interim compared with [Teacher Six]? Didn’t seem as intimidated by the form sheet.
Appendix B: Interview Preparation (Interests and Questions)

Note

Issue of primary interest

Underlying question not to be asked (to avoid leading question), but hopefully answered in response

Teacher One

Interests:  List to get started
1st person preference (probably just more natural for that age)
Use of dialogue

Questions:

How have you observed students “get started” with a piece of writing?

How have students learned to “get started” with a piece of writing in your classroom?

Why do some use small bulleted lists—why do those that did have more organized writing?

How do your students prefer to tell a story—what narrative style/voice are they likely to adopt?

How is storytelling done in your classroom? Is there a commonly preferred narrative voice in class texts?

Why do the majority of students use 1st person (I, we)?

How has the role of dialogue in a story appeared in the classroom?

How have students encountered or worked with dialogue as an element of writing?

Why is there so much dialogue in the Year 2 writing? Were they taught to use it?

Teacher Two

Interests: PM group vs. AM group impressions
Emotional quality to writing
Image and writing in brochures
Questions: Describe the differences in writing skills of your PM group compared to the AM group in Year 1.
What kinds of discussions, lessons, or examples did students encounter that centered around the organization of ideas?
Why was paragraph organization (sometimes even use of tab) rare, yet students still progressed through a line of thinking?
How did students prefer to show emotion in their writing? How were they instructed to do so?
Why do some use such exclamation, emphatic parts, caps, sound effects, etc.?
Describe the structure of the brochure activity and the student approach to creating them.
Did students draft out the writing and add it around the art? Just add it in? Or did students draw art in/around their writing?
Did the art serve as a prewrite, or a further expression of the writing?
Which came first—and what was the impact on the quality of the sample?

Teacher Three

Interests: Letters to teacher
Animal Papers
When I lost a limb
Final Example

Questions: Describe the assignment, requirements, lead-in for the letter to the teacher.
How comfortable were students with the idea of a “claim,” considering they have likely heard words such as “theory” and “hypothesis” from peers in other science classes or in TV/movies, etc.?
What are impressions on the impact of nature of science, which seemed very evident in this particular writing sample?
How did students select their topics for the animal papers?
How was the peer editing moderated/conducted during the “When I lost a limb” writing activity?
Did the students have any goals/structure/expectations?
Were they told to “go peer edit” or did they have a guided or practiced
process?

*What happened during peer editing?!*

Describe the atmosphere during work on the final year 2 sample.

*Why were they so good—and why was [Teacher Six]’s way shorter?*
Appendix C: Interview Teacher/Student Interaction Statements

Teacher One

#1 And I did a lot of modeling. That’s the most excessive stuff I model. At the beginning I model how to get the middle to sound like you’re going in order and how to close it up. I’m constantly modeling. And not that I’m a perfect writer, but at least the kids have a chance to see a good example of that.

#2 …Talking with kids and doing a lot of conversations in small groups if someone gets stuck on a topic that is something that they generally have some questions on. I have been known to actually give them a topic; if they can’t do it I give them a thought that just might be useful.

#3 Well, we encourage them to have a voice in their story, and a voice means the excitement of the author’s idea coming through in conversation. And that’s done through narratives that we want them to have in place. The students are encouraged to write all different kids of examples of different genres, and we model those. Most of the samples that you have are narrative examples.

#4 My kids tell me a lot of stories *laugh* but it’s not necessarily to the whole class. I’m not sure the organization is there when they’re speaking, because I’ve not modeled that. Though they would when they go through the retell and the reading part of it.

#5 Sometimes they, their story is just all dialogue. And we have to go back and fill in the details for the reader. Because they understand that the reader has to know what’s going on all the time. Sometimes one will read it to me, and I’ll read it back to them, and I’ll say “that’s okay, but I’m still not sure where you are or what’s happening and what’s going on around you.” So I’ll do this a couple times before they want to jump in and add some narration. So, um, we model dialogue, but we try to write stories, picture stories, that have a lot of dialogue in them. And then we teach them how to set up a paragraph. And again, if it’s all dialogue, we encourage them to go back and add the details that are missing.

#6 Regarding students using sound effects in their writing… I think it’s wonderful. It gives the reader an actual sense of what happens and I remember him (referring to sample shown—“The Pole”) telling me this story and he actually said this to me and I said he should actually put this in the story. That comes out of conferencing with the students. It just doesn’t come overnight. They have peer conferences, but also a teacher conference with the writer.
**Teacher Two**

#7 Regarding students showing emotion in their writing... *Laughter* This looks like some of [Teacher One]’s writing. She spends a lot more time doing writing writing than I do. I do a lot of writing in science and I don’t tend to do a lot of writing in the other... I mean, I do what I’m required to do, but [Teacher One] really loves the writing, so I would say she had to do with that. We talk about it and I encourage it. And at some point we talk about good beginnings, like she’s got here, and the purpose of them. Sounds would be a good beginning. But I get them when we write but I don’t necessarily get them in the writing samples.

#8 I asked them to do the writing first. I actually ask mine to do the writing first. Usually we talk about doing an illustration on the front. And the one thing that was the most difficult for them was to realize that if they talked about a particular place that they were going to, the illustration had to match.

#9 And usually I let them pick the biome, but they have to pick their top three, because I don’t want 21 deserts and one arctic. I like to spread it out. So I usually allow them a first, second, or third choice. And them I randomly choose a child and say, what biome do you want?

#10 We also bring in real travel brochures and read it to them, talk about persuasive language. It’s the most in-depth kind of writing that we do. Because, again, the research and then writing it and sharing it. And in the past I’ve had about 27. With some of them it’s a real struggle for them to do this.

**Teacher Three**

#11 They did, they really did enjoy the activity. You know, they kept thinking what happens if the glacier is larger, what happens if it’s smaller. Does it make a difference if it’s jagged? They had different kinds of questions as to its shape, or size and so forth. You know, what happens if it’s heavy, does it pushed down more? So they talk through it about different things. My block of ice was confined to whatever shape I could give them.

#12 Well, we talk about what it actually looks like. We talk about how you want to hook the audience. Because not only do they have to do this, but they do a PowerPoint, as well. So they do an oral presentation and they really get into the creativity of that. And I unfortunately, or even fortunately, I don’t know, it depends on what side of the coin you’re on, I let them go. And I have a shotgun go blaring the difference in sound effects of the next slide, or zooming in from all directions, or whatever, and I just let them play with it. So they really have fun with it. It makes it fun. It’s a good tool for them to know that, you know, it’s a way for them not to have notes in front of them, but to have their PowerPoint with the main ideas. So they can just tell from that.
They’re required to become the expert so when they give their presentations, there’s an oral as well as a written paper.

Regarding [Teacher Three]’s “Writing Racetrack”...

#13 Well, basically, this year I did something different. So we’ve got a writing racetrack that’s up here. It’s a little bit different. Basically what we’ve done is we’ve, ourselves for this year, is write this story and then I ask them to go find two more people to look at their story.

#14 You know, so sometimes when they read their story aloud they can catch their own errors. Or, you know, I should have said “worked” instead of just “work”. You know. Or, I don’t have a predicate here. It may not be that clear, but I mean, they’ll say I need to put “was” in here or something. So that’s what they’re doing.

#15 The prewriting is just basically writing down ideas. And then the first draft, sometimes you saw just a first draft. It’s kind of interesting to see that as well as a polished piece. They will revise and they have questions they have to follow as they move on, as well.

#16 Specific details and specific wording—we want more vivid words, more verbs. We just did one today which went, “their story was…” and they came back and they had to chat with me and one little girl said, “she said, she said, she said, she said” and I said, “is that all you can say? You know, what about replied, or responded, or complained, or whatever.” So, we’re doing that.

#17 So, sometimes the peer editing takes place with a student and they just have to read it to others. You know, find two others and let them hear your story, check it out, they might give you suggestions or whatever, and that’s how we do it.

#18 A lot of them love to type their own and naturally they’re going to use the spell checker, which will catch some of those errors. So, I’m hoping that they see they were errors to begin with.

#19 But anyhow, that’s what we’re going to do more of this year. And they take little cars and they move them around. And they can’t wait until they get to the end. The publishing, sometimes we’ll do it on the computer and sometimes we’ll just write it in, you know, very nice cursive handwriting.

#20 But they really enjoy the last part, the sharing. You know, they just say can we share our stories, can we share our stories with the others.
So they love…and I think they don’t like necessarily the editing part, you know, they don’t mind reading it to someone else, but they love the last part the best.

So, they are encouraged to proofread. And they don’t catch all the errors, you know, even when kids proofread it. But it gives them a chance to speak it, I think. And I think by speaking it they do catch some of the errors more so than looking it over.

(Interviewer: Is that a required part of the process?) Yes. They generally have to at least visit with one, if not two, people. At least when working in the final it is.

And again, just choosing two people to edit. A lot of times when they edit, if I looked at the names and I go, “can you find one more?” without telling them that maybe those people weren’t really qualified to edit the paper, that sometimes you just need to say, “why don’t you find another person to help you?”

I think you just kind of say, “if you have time, why don’t you check another?” And there were some kids that I think were better at peer editing than others. You know, they could really point out things.
Appendix D: Focus Group Questions

Greater Topics for Discussion

How do you view the role of __________ in student work/writing?

- Student idea organization (planning)
- Use of voice/dialogue (storytelling)
- Illustration/multiple forms of communication (depth)
- Peer interaction through editing/revision (quality)
- Public presentation of work (confidence)

View writing sample from The Pole.

- What do you think of this sample in terms of the five discussed topics?

View another sample: Rabbit Ecosystem.

- What do you think of this sample in terms of the five discussed topics?
- More specifically, how do you see it, see it happening, or see its value in the sample?

View writing sample from Science.

- What would you do or how would you work with student(s) to improve this sample?

View another sample from Report about Mars.

- What would you do or how would you work with student(s) to improve this sample?
- More specifically, what might this student need in order to improve?

And finally…

- How has implementing these topics (and examining them via the samples) impacted your thinking as a practicing teacher on the topic?
Appendix E: Focus Group Writing Samples

Writing Sample: “The Pole”

The Pole

Here’s a memory I’ll remember forever.

One day in fourth grade, “Finally it’s recess,” I said.

“Let’s play football,” Logan exclaimed.

We all said “OK.”

We ran off to the big open area and got organized. The game began.

“Nate, got an interception!” I yelled.

“Go long!” He screamed. So I ran and raised my hand to throw it to me. He threw it……….and I caught the ball but right when I turned around there it was…the tall metal pole. BANG! AWWW! B-OI!

I sat there for about 2 min. before I got up to go to the nurse’s office.

They said “What happened?”

“I ran into the pole outside,” I said.

“Set down. Let me take a look,” the nurse said.

“Do you want an ice pack?” she asked.

“Sure,” I groaned. I went back to my class, but I had that bump for two or three weeks.

I’ll never forget that memory in fourth grade.
Rabbit Ecosystem

My dear rabbit friends many of us do not know who we are or what we live in. We are consumers and we live in a community. In our community there is grass and plants, producers, deer which are consumers; and finally there are fungi on trees which are decomposers.

There are three relationships in our community. The first is the relationship between predator and prey. We are prey in most cases and the predators we face are hawks, snakes, and wolves. The second relationship is symbiotic relationship in mutualism. This relationship is where two organisms live together and both benefit. An example of this relationship is an ox pecker and a water buffalo. The ox pecker picks ticks and insects off of the water buffalo and the ox pecker eats the insects. The third relationship is between biotic and abiotic factors. We are biotic which means we are living organisms. Abiotic factors are grass and plants. The relationship between us is we need abiotic factors to survive and if there wasn’t grass or plants we would die and the energy pyramid would get messed up because then snakes, foxes, and wolves would have less to eat then there would be fewer of them.

The most important relationship we rely on is the relationship between abiotic and biotic factors because we eat grass which is an abiotic factor, without it we would die. If you are wondering what the energy pyramid is, it is a pyramid of organisms which shows
Ok listen up my furry friend, I have something really interesting to tell you about use. First of all we live in an Ecosystem the complex of a community of organisms and its environment functioning as an ecological unit. Our community, has species living in one place at one time, is made up of rabbit like you and me and bear and deer. Our community has lots of grass, and bushes, and trees, with a river near by. One of the relationships of our Ecosystem is biotic to abiotic which would be use, the rabbits, to the temperature. Another one was predator, a bear, to prey, us rabbits, and how the bear eats us. Another relationship in our community would be neutralism where us as bunny in the grass no one is affected. We as bunnies rely on neutralism because we don’t want anything to go away if we were affecting it and we wouldn’t want to go away.
Science

We’ve done a murder mystery. Linking / Floating Big Ideas. With the body systems and nutrition of rats. I like doing experiments like the rats and linking / floating them to fun and experiments help me understand more clearly. I am not confused. The reason we have rats is because we’re going to see what happens when we feed one rat junky foods, sugars, and fats and give the other rat a balanced diet.
Report about Mars

Mars is the third smallest planet. The temperature on planet Mars is 60°F. The surface of Mars is about -220°F. Mars is sometimes cold and hot. The saying for Mars is big, red, and dead. At night, Mars is blue and white. And during the day, it is red, yellow, and orange. And there are no faces in the planet Mars that looks like a person's real face when you look at it.
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