Reflective Habits of College Freshmen in Different Majors

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For the Classroom

In the essay, "Reflective Habits of College Freshmen in Different Majors," the author focuses primarily on examining the correlation, or lack thereof, between college students' majors and their reflective habits to determine if students in one major are more likely to have a successful transfer of prior knowledge. The study, which adopts a qualitative method of research, gathered data by interviewing two (2) college freshmen: one majoring in political science and the other in electrical engineering. The data was thereafter analyzed to unravel the reflective habits these students developed from classes within their major and test to see if they apply that to a new writing context. The study finds out that political science majors practice more effective reflective methods than engineers mainly because both majors differ in their pedagogical approaches and writing processes.

Generally, each paragraph in this essay tries to bring the main idea of the paragraph into focus. However, you might ask students to reflect on how narrative is incorporated into the argument here.

1. To what extent do you think the narrative that the author begins with makes you want to read further?
2. How does the author connect this narrative to the rest of the argument?
3. What assumptions does the author challenge?

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Introduction

The concept of reflection is typically touched on only briefly in the K-12 classroom, even though studies show it helps students be successful when completing an assignment or task in an unfamiliar context. Metacognition, or thinking about thinking, is a part of the reflection that aids in the transfer of prior knowledge. It is crucial to include reflection in the discussion of the transfer of prior knowledge to new writing contexts. Taczak states, "The combination of cognition and metacognition, accessed through reflection, helps writers begin assessing themselves as writers, recognizing and building on their prior knowledge" (2016, p. 78). Thinking about what they are writing and why they are writing in a certain way allows for the students to "theorize and question" their writing, which may help them in the repurposing of their prior knowledge. The application of such a writing method can be observed in Alice's writing process in *Notes on a Theory of Prior Knowledge.* Alice reflected "in the midst of drafting; at the end of assignments; *and* at the end of the course itself in a reflection-in-presentation." Her continued reflection allowed her to integrate new concepts with her prior knowledge with new knowledge from her composition class. She then applied her reflective practices to her meteorology and humanities classes, therefore integrating the reflective process she learned in her composition class into her prior knowledge. These reflective habits do not come naturally to most students, so they have to be taught. Williams advocates for a greater emphasis on reflection in engineering classrooms for this reason (2002).

What these case studies fail to address is how the reflective habits of different students might change based on their prior knowledge. Students in different majors, for example, come from different backgrounds. The classes they take require different methods of reflection, whether that be in written form or not, and therefore might have different reflective processes when it comes to writing. Since the reflective habits of college students in different majors may differ, are students in one major more likely to have a successful transfer of prior knowledge? In this study, I look at the reflective practices of two college freshmen: one majoring in political science and the other in electrical engineering. I evaluate the reflective habits they developed from classes within their major and test to see if they apply that to a new writing context. I then assess the effectiveness of their reflection in applying prior knowledge to new contexts.

Methods

I chose to interview two students: Frank and Nate. My goal was to find two students to interview with contrasting majors, one being in the STEM field and the other in social sciences. Nate is majoring in electrical engineering and minoring in computer engineering. Frank, on the other hand, is majoring in political science and minoring in trombone performance. Frank took three Advanced Placement English courses in high school and was heavily involved in KYA, the Kentucky YMCA Youth Association. He currently is interning with Councilman Bill Hollander, where he has to analyze data and work on research projects. His background in academic writing has made his college political science classes, such as his honors seminar on urban politics, fairly easy. For this seminar, Frank has to write three papers, each around 17 pages in length, and is required to put his assigned city, Memphis, into the context of broader urban political trends. Nate does mostly data-centered and descriptive writing in his engineering classes in order to "effectively communicate technical things through the means of writing." He is required to write about things he does for class, such as designs and code. His main goal in writing for his major is to communicate data, such as diagrams and graphs, effectively to an

audience. He must keep the audience in mind when writing in order to determine how much context to include to help them understand his data.

I conducted one interview with each participant, each approximately 25-30 minutes in length. The overall goal of the interviews was to identify different reflective habits in contrasting college majors and test their effectiveness in the transfer of prior knowledge. I asked questions about their previous writing experiences both inside and outside of high school (see Appendix). I then wanted to see how their college writing and methods compared to those from high school. I gave each student a prompt to read over from my English 102 class and ask how they would go about completing the assignment. After having each student review the assignment, I had them describe their thought process while reading the prompt and walk me through how they would approach the assignment. I did this to compare their writing process for the writing in their majors to the writing they would be required to do for this prompt and to see if it was a new context. If it was similar, I then asked for examples of when they had to write in a new context. I ended each interview session by asking the students about any challenges they thought they might face when completing the assignment and how they would work to get past those issues.

Findings

In my interviews, I aimed to answer the question "How do the reflective practices of students in different college majors compare?" I interviewed two students: Frank and Nate. Frank is a political science major with a minor in trombone performance. Nate, on the other hand, is an electrical engineering major with a minor in computer engineering. I asked both students about the writing they do in their major, their past writing experience, and how they approach assignments in new contexts.

When asked how this writing related to his past writing experience Frank said, "Thank God for AP Seminar and AP Lang." Although the writing for this seminar is not argumentative like the writing he did in his Advanced Placement classes in high school, the prior knowledge and experience he had with writing argumentative papers helped him with the method of writing the papers for his class. He stated:

 The process of doing research and going through JSTOR and going through
 EBSCO and reading articles, annotating them, taking out important quotes,
 documenting where they're from, and then making an outline of where that
 should go and having an idea of what the whole paper is going to be before it's
 written, and then I owe a lot to AP Seminar for the practice of using MLA format.

This reminded me of Eugene, one of the subjects in the Robertson et al.'s case study. Eugene makes use of prior knowledge in a method referred to as assemblage, which is when:

 students maintain the concept of writing they brought into college with them,
 breaking the new learning into bits, atomistically, and grafting those isolated 'bits'
 of learning onto the prior structure without either recognition of differences
 between prior knowledge and current writing conceptions. (Robertson et al.,
 2012, p. 7)

 For example, Frank stated, "I take the parts of MLA format and the parts of academic writing that are helpful, and it makes these briefing sheets so much easier." Although Frank transferred his prior knowledge from academic writing to writing briefing sheets, he did not transform his prior knowledge by incorporating anything he learned while writing in that new context. Parts of his new knowledge were simply incorporated into the knowledge he had from academic writing.

Frank's writing process for his current research projects consists of taking informal notes when conducting interviews and going through political policies, refining those notes by seeing which information is useful, making an outline, writing the paper, and then revising the paper. When writing papers and briefings, he practices metacognition by thinking about the audience he is writing for and making the main points of his paper or speech appealing to them. Frank reflects before, during, and after writing. He reflects on the sources he has chosen, the quotes

he has written, and past writing assignments before writing the paper. He also employs a holistic approach to writing papers by first writing down his main goals and knowing the foundation of the paper before writing it. He keeps his goals in mind when writing and works to reach that end goal. Then, he reflects on what he has written and does mainly holistic revisions to make his writing more cohesive. Frank did ask me to stop recording during the interview so he could show me some examples of his revision process. He kept multiple drafts of his writing, along with his notes, in a series of Google Documents. He often made changes to the structure of each speech or paper instead of minor, local changes such as replacing words.

When asked about having to write in new contexts, Nate mentioned writing about literature. He stated, "As long as I include the full extent of my knowledge and verify that everything I know is true and I convey in such a way where people can understand what I'm trying to say, the writing is good." He believes that as long as he can write cohesively, he can most likely be successful in writing in any context. This idea most likely comes from what he has learned from his Engineering 110 class, where the entire assignment is communicating effectively. Nate also always keeps the audience in mind when writing, which is similar to what he is required to do for the writing in his major. In addition, Nate is overconfident in his ability to write in unfamiliar contexts. This can hinder the amount of reflection he does because one may only begin to think critically about their writing when faced with "confusion or ambiguity" because that is when "tacit knowledge is challenged and metacognition...begins" (Kaplan et al., 2013, p. 8). Although he does think about the audience and how that differs between contexts, I do believe that Nate is a boundary guarder. Reiff and Bawarshi define boundary guarders as "those students who were more likely to draw on whole genres with certainty, regardless of task" (Robertson et al., 2012, p. 314). Nate applies the same methods and techniques from his engineering classes to new contexts and approaches them with confidence, instead of assessing which techniques are applicable to the writing situation.

Nate, unlike Frank, does more small-scale revisions rather than more holistic revisions. He stated, "Changing a word can make a big difference," which can be true; however, he does not reflect on the overall structure of his writing. He also does not reflect as frequently as Frank. Instead of reflecting throughout the writing process, he mostly does it at the end. He does reflect on previous assignments, but only to assess any "mistakes" he made along the way, not to apply any techniques to a new writing situation. As Taczak stated, reflection allows for writers to "theorize and question" certain aspects of their writing (2016, p. 78). The less Nate reflects, the less likely he is to realize that he cannot approach every context the same way.

The correlation between engineering majors and reflecting less is in line with what Williams states in her case study:

> Reflection is not something [students] do naturally, and the rigors of an engineering curriculum leave little room for it. In fact, the traditional engineering curricula encourage just the opposite behavior; students are rewarded for memorizing formulas and spitting back the lecture notes, rather than making connections, reflecting on what their learning means, and deciding which areas in their learning need development. (2002, p. 205)

Since reflection is a learned practice and is not typically taught in engineering classes, engineers may be less likely to reflect and therefore be less successful in transferring their prior knowledge to new contexts.

Both Frank and Nate had been given prompts in previous and current classes similar to the one I had them read. Frank had written similar research papers in his Advanced Placement English classes in high school and also for his honors seminar and internship this year. Nate is currently working on putting texts in conversation with each other in his English 101 class this year.

Conclusion

The purpose of my research is to identify a correlation, or lack thereof, between a student's major and their reflective habits. The data from my research shows that college students in different majors may reflect differently. It seems that Frank, the political science major, incorporated the new knowledge into his prior knowledge better than Nate, the engineer. However, Frank did not *transform* his prior knowledge. He simply incorporated pieces of it into his prior knowledge. These results suggest political science majors practice more effective reflective methods than engineers. Nate uses the same method for almost every context. He does take the audience into consideration when he writes, but his approach is the same. This may be because engineers use a lot of equations in their practice, which may result in them using an algorithm for writing.

The findings may be useful for instructors to take into account when formatting their class. They may want to include reflective practices in their lessons. I interviewed two students from different majors; however, there is more research to be done. Multiple students from different areas of study (STEM, social sciences, music, etc.) should be interviewed to see if students in the same major have similar reflective practices. Do the majority of students in one major reflect similarly? Were the reflective practices that they bring to college learned in the classroom or in an extracurricular activity? The answers to these questions, in addition to my research, may be used to help teachers incorporate reflection into their lessons.

References

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Appendix: Interview Questions
Before Prompt:
1. What kinds of writing do you do in your major? Can you give an example of a typical prompt?
2. How would you approach a writing assignment in your major?
3. What does your writing process look like? Can you walk me through the steps?
4. Do you think you struggle when writing in new contexts? Please elaborate.

After Prompt:
1. How would you approach this assignment? Walk me through the steps.
2. How does this assignment compare to other assignments you have done for your major? Be specific.
3. What challenges do you think you would face if you were to attempt this assignment?