While research is a skill expected of students pursuing graduate degrees, it may not be emphasized as much as necessary within undergraduate curricula. Even within the technical communication (TC) discipline, where previous studies indicate research skills play a vital role in the multiple workplace experiences students encounter upon graduation (Rainey, Turner, & Dayton, 2005; Kim & Tolley, 2004; Dayton & Bernhardt, 2004; Whiteside, 2003; Coon & Scanlon, 1997; Zimmerman & Long, 1993), researchers have noted deficiencies in research instruction and called for increased attention on research within undergraduate programs (Spilka, 2009; Willerton, 2005; Blakeslee & Spilka, 2004). Reports from surveys of TC programs across the United States indicate that only a small minority requires specific courses in research instruction or a substantial research project including empirical research (Spilka, 2009; Ford, Bracken, & Wilson, 2009; Harner & Rich, 2005; Allen & Benninghoff, 2004; Campbell, 2000). With a longstanding senior thesis requirement, a two-semester course devoted to empirical research instruction with the outcome of a substantial and publication-quality independent thesis project, the Bachelor’s of Science (BS) program in Technical Communication at New Mexico Tech is included within that small minority.

In this article we present our model for the two-semester senior thesis requirement with the goal of noting opportunities this model offers for close student-faculty interaction and mentoring. To establish necessary context, we begin with brief background information about our TC program and the senior thesis requirement. Following this background information, we offer a dialogue that illustrates the challenges and triumphs experienced by a former (May 2011 graduate) senior thesis student and the course professor. The framework of the dialogue is thus: the former student, Jessica, shares the experiences and thoughts she had over the course of the project, while the professor/mentor, Julie, provides commentary about and analysis of the student’s process, within the context of undergraduate research as a whole. Through these shared student-mentor perspectives, we demonstrate ways that research skills are learned and applied during a two-semester senior thesis sequence.

Central to our dialogue is our articulation of the benefits of a two-semester research requirement. Through the reflections shared here we bring to light the valuable thinking and writing processes that occur over the course of an academic year. Through work on a single project that is nine months long, students have ample opportunity for individual mentoring via one-on-one feedback and catered instruction. The end product of the thesis requirement is publication-quality original work that calls for the culmination of writing, editing, and presentation skills. In addition, students gain proficiency in their ability to “identify, analyze, and resolve
problems,” an area research indicates “will prove invaluable in professional life and in citizenship” (Boyer Commission).

**Background Information about New Mexico Tech’s Technical Communication Program**

The BS degree in Technical Communication at New Mexico Tech was founded in 1983. The mission of the TC program is to prepare students to be capable, productive, and ethical contributors to the technical communication field, while providing them a firm grounding in communication practices as well as basic mathematical and scientific concepts. Because science and engineering are heavily emphasized at the institution, even students who are not scientists or engineers gain a solid foundation in research skills and analytical thinking. Such a background is often necessary for the technical communicator or technical writer positions in scientific and technical environments our students will enter upon graduation. More information about our program can be found at [http://www.nmt.edu/~tc](http://www.nmt.edu/~tc).

Currently, our program has 25 majors and 12 minors. These numbers translate to fairly small class sizes, with our 100- and 200-level courses having 20-or-so students and our upper-level courses (including the Senior Seminar/Senior Thesis sequence) ranging in size from 4-12 students. Having 12 or fewer students in a research- and writing-intensive course allows close interaction between student and mentor.

**Background Information about the Two-Semester Senior Thesis Requirement**

Ever since our program was established over 25 years ago, our curriculum has included a two-semester senior thesis requirement, which features Senior Seminar offered in the fall and Senior Thesis offered in the spring. Previously published work (Ford, Bracken, & Wilson, 2009) has presented a thorough picture of this two-semester senior thesis requirement. For the sake of brevity, we’ve condensed that picture here, focusing on the key points to provide necessary context for the valuable student and mentor dialogue presented later in this article.

**Senior Seminar**

The purpose of Senior Seminar is to provide senior-level TC majors a firm grounding in the TC discipline’s recent and relevant research and then guide students as they propose their own research topics. It is important to note that all students taking the course have had prior exposure and experience with research, as nearly all of the courses included in our program’s curriculum have research skills as a stated learning objective. In this course, students build upon this prior foundation and gain a more developed understanding of particular quantitative and qualitative research methods. While it is beyond the scope of the course to teach extensive quantitative methods, students are taught to consider effective survey design, sample sizes, and the benefits of triangulation. The course textbook, Hughes and Hayhoe’s *A Research Primer for Technical Communication* (2008), includes an overview of common quantitative measures such as chi square tests and analysis of variance. The textbook and course activities also emphasize common qualitative methods within TC research such as interviews, focus groups, usability tests, and document analyses.

The assignments for this course are carefully structured so that they serve as building blocks (Julie’s term) or chunks (Jessica’s term) for the thesis project. Each block or chunk in the first half of the course plays a crucial role in ensuring students have a keen understanding of research methods and techniques for proficiently communicating research processes. Through reading assignments (both from the textbook and through supplemental articles from our field’s leading periodicals) and in-class discussion, students receive exposure to crucial and relevant topics and are armed with useful examples to which they can later refer as they move through the stages of their own research projects. Assignments such as a research journal, an article review, and student-led class discussions provide
opportunities for students to analyze and critically engage with texts and develop students’ skills in analyzing, evaluating, and commenting on research.

While students are reading and thinking about prior TC research, they submit thesis idea memos and engage in brainstorming activities to identify potential thesis topics early in the semester. The mentor works closely with individual students as each begins to articulate areas of interest, and by mid-semester students have settled on tentatively approved topics. At this point, course assignments serve as blocks that help facilitate students’ transition from analyzers and evaluators of research to designers of their own research projects. These blocks include the annotated bibliography and literature review assignments, which ensure students are making progress in locating and critically analyzing relevant research in their topics of interest. The fall semester culminates in the proposal assignment where students propose to the mentor their intended area of research for the senior thesis, along with an outline, literature review, discussion of methodology, and tentative work schedule.

Senior Thesis

The Senior Thesis course serves as a culmination of our program’s stated outcomes by requiring students to present and produce a substantial project (theses range in length from 20-40 pages, including visuals) that demonstrates their knowledge and skills in research, problem-solving, writing, editing, document design, graphics, speaking, and project management. Students begin the semester ready to continue their research beyond the literature review. Rather than attend regular class meetings, students meet individually with the course professor and must account for their progress through graded bi-weekly status reports and intermittent drafts of the thesis, some of which are graded as well. At the end of the semester, students submit multiple bound final copies of the thesis project (one is graded and returned to students while the other is kept for display and reference by future thesis students) and present their work orally in a research colloquium open to the entire university and outside guests. As an additional requirement, once they receive final feedback from the course professor, students revise and submit their work for possible publication in a peer-reviewed journal. Information about this requirement is detailed in Ford and Newmark’s (2011) Journal of Technical Writing and Communication article.

Dialogue

To capture the true spirit of this significant undergraduate research experience, Jessica’s student voice is the leading one in this section, with Julie’s interjections in blue offered to discuss more thoroughly or analyze the points she deems most consequential to the thesis process. We view the insights we provide here as a genuine and useful articulation of the benefits this research project offers for students, while at the same time conveying the challenges students (and faculty) are likely to face—including the solutions engineered to meet those challenges. We hope that these reflections also highlight the gains experienced by devoting an entire academic year to a substantial student research project. As our following words show, within this timeframe, students have ample room to define their projects (with close professor interaction), can clearly identify and adeptly navigate the necessary stages in large research projects, and are afforded the flexibility to move back and forth between these stages in sometimes recursive ways. While our experience offers a portrait of student-faculty interaction at one particular university within a single discipline, the following insights can inform readers across disciplines and at various institutions who aim for a model that will strengthen students’ research and communication skills through a mentoring relationship.

A (Former) Student’s Initial Impressions about Senior Seminar

I had heard that seminar was primarily the process of writing the literature review. It turned out to be more than I had expected. For two years prior to my own thesis experience, I had watched my colleagues and
classmates struggle with their own thesis projects. I even helped with some of them. Seeing their problems made me more nervous about my own thesis. The nervousness expressed here by Jessica is common among Senior Seminar students. On the first day of class, I ask them to share aloud what they've heard about the thesis requirement, and their responses almost always suggest a sense of fear and dread.

There was ultimately no real reason to be nervous: with the exception of the then-nebulous surveys, nothing about this project was new to me. I am very familiar with the writing process. Even as early as high school I had two major research projects of 20 and 30 pages, respectively — not to mention the countless shorter papers written while in college. I already knew how to use databases and evaluate sources. I had even written an annotated bibliography and literature review already for prior courses.

Regardless, I viewed my thesis — the culmination of my student career — with no little trepidation. Looking back, there were two reasons: 1) I saw my peers struggling with their theses in prior years, as well as in my own seminar, and 2) it would be a lot of writing during two writing-heavy semesters. Fortunately, I would come to discover both fears were largely unfounded.

Choosing a Topic

I knew I wanted to study wikis. I'd worked with them in both my coursework and my job and found them interesting, and I wondered why they were mostly unutilized for collaborative work. I even vaguely knew I wanted to create a survey, thanks to a previous thesis student I had assisted. I did not know I would create a monster. A well-controlled monster, granted, but a monster nonetheless.

Other than the notion of the topic, and my experience using wikis, I had no idea how much secondary research would be available. For all I knew, everything about the topic had been researched — or nothing. Hedging against this possibility, I came up with a poorly developed backup topic: crowdsourcing. I freelance edit on a crowdsourcing platform and have looked at other crowdsourcing platforms like elance.com. As a topic that was important to me, and one that was just emerging, it seemed a likely thesis candidate. To prevent students from going too far down a path of an unviable thesis topic, they have to propose at least two ideas of interest early on.

However, in my preliminary research, I discovered two things: 1) crowdsourcing had almost no direct relevance to my discipline, and 2) there was little literature available from a useful perspective (most of it was about corporate outsourcing and the like). It was a poor topic overall and really nothing more than a last-minute backup plan.

Fortunately, my research also revealed that there was just enough literature about “digital collaboration” (my working topic after wikis alone appeared to be too narrow) on which to base a thesis topic, while still allowing for the subsequent discovery of the all-important knowledge gap, a concept we had been discussing in class as a vital strategy to help authors transition from the previous literature to framing their own study. Digital collaboration also turned out to be a rather relevant and current topic in the field of technical communication. A survey would contribute valuable knowledge to the field.

So the topic that had been simmering in my brain for almost two years finally became fully realized — but not yet fully developed. Many students do begin thinking about potential topics in advance. Because they have seen classmates deliver final thesis presentations and have some understanding of the thesis requirement, the most conscientious students consider potential thesis topics (and sometimes even meet with me to discuss them) well before their fall semester of senior year begins. My initial plan was to simply create a survey to determine who (students versus practitioners) was using wikis. This idea later developed into a more exhaustive survey that not only answered “who,” but also “what,” “when,” and “why.” I even decided that this topic would be relevant and current enough to attempt publication in one of the major journals in my discipline.

But first, I had to prove that such a project would not only fill a knowledge gap but also
contribute to the field in a practical way. My worst fear at this point was that I would be unable to find a gap and illustrate that my research was both practical and relevant. Many students possess this fear. At the time, I had asked, “Is it acceptable to fill a gap just for the sake of filling it, or should one justify the effort by figuring out how the knowledge and research benefits the profession as a whole?” From a professor’s point of view, the latter is ideal.

The importance of discovering and filling a knowledge gap over the course of our research was not understated. After all, the purpose of research is best served when it is contributing to the knowledge of the field. Therefore, discovering the gap became the main focus of early research during the first semester of the project. Subsequently, filling the gap became the crux of the research project and the focus of the later part of the first semester (Seminar) and early in the second (Thesis). One of my earliest research goals was to discover, within my field’s research, a gap in the knowledge and literature that I could fill through my own primary research. Fortunately, my research was very accommodating in this regard...

Research Part 1: Finding (and Filling) the Gap

I am a Google ninja. My friends come to me to find information about just about any topic, because if I don’t know the answer, I usually know where to look. I also know my way around book indexes, and databases are no mystery to me. Many of our students have similar research prowess. It is an emphasized skill in our program, and for professional technical communicators who often have to search in multiple places for information and then synthesize that information, it is vital.

So I found it quite surprising when I encountered difficulty finding secondary research for my topic, which by then had evolved into the users of online collaboration tools — and, of course, anything about the tools themselves. Despite a wide variety of relevant keywords (digital collaboration, groupware, virtual teams, etc.), I initially found only four to five articles and a few books that were about online collaboration in general and online collaboration tools specifically. The vast majority of the documents I found was about managing teams, sharing collaborative workspaces, and the like. I figured some of the problem was that wikis and similar technologies are relatively new — an idea disproven by my discovery of early-'90s articles on groupware, or software used to facilitate collaboration.

Worried about this lack of research, I approached my mentor and explained my concerns. She informed me that it was a good thing — I had found my knowledge gap. She also told me that I was being too specific and picky about my secondary sources. The management sources, for example, were fine because they showed the topic was relevant, despite the gap. Technical communication often requires a willingness to look outside to other disciplines. I often share with students anecdotal information about my dissertation-writing process, which involved me physically traipsing across my campus between the science and engineering library and the humanities library to emphasize that our field bridges multiple disciplines.

Now that I had found (and more importantly recognized) the gap, it became easier to identify the sources I’d need to further support the presence of the gap and justify my means of filling it. The more and more sources I found, the more defined and refined the gap became. It was like choosing a topic, then having the research deign to arrange itself neatly around it, thereby simultaneously forming and filling the gap. I honestly became quite suspicious. I started to think I was being biased in picking my sources by picking only the ones that supported my topic and its importance.

The suspicion grew even worse as I started composing my annotated bibliography. Fortunately for my peace of mind, there were some sources that were ultimately useless or mostly useless. In addition to summarizing each source, I appraised the elements of each that would be useful either in my research directly or in justifying it. When we discuss reading and organizing strategies in class, included are strategies for evaluating sources
and categorizing the future use of sources in research writing.

Indeed, some excerpts from the annotated bibliography made it into my literature review mostly unchanged. **Students are required to write qualitative annotations for the bibliography assignment, including their judgment regarding how useful the source would be in supporting their potential thesis topic.** I also created a Word document specifically to record the choicest quotes from each source as I found them. The quotes were sometimes relevant statistics or other data, but more commonly they were phrases that supported my gap and justified some of the choices I made in both my literature review and my surveys. Having these quotes readily available to cut and paste went a long way toward turning the annotated bibliography into the literature review. Additionally, the analytical nature I chose for my annotated bibliography helped me pinpoint the themes I later identified for use in my literature review. **It is truly wonderful when students figure out how to work efficiently and devise their own system of organizing. Jessica’s thoughts here also attest to the confidence she is assuming.**

Even worse than the suspicion that I was subconsciously manipulating my own search for secondary research was the fear that my research would find my topic already in the literature — the fear that I would find an article or a study that filled the gap that had so generously presented itself to me. **This concern is one many researchers experience, myself included. Jessica’s articulation of this concern serves as a reminder for me to discuss it with future thesis students.** After all, the gap was so obvious that surely somebody had recognized it and addressed it. Fortunately, continued research and analysis of my sources (and the reassurance of my mentor that my research was fine), showed that not only was the gap legitimate, but also it had not yet been filled. Even as I approached the final submission date, I got nervous digging deeply into the literature, with the sneaking suspicion that if I dug deep enough, my own work would already have been completed by somebody else.

**Research Part 2: Themes**

I had an annotated bibliography. I needed a literature review. **The literature review assignment builds upon the annotated bibliography by requiring students to translate their annotations into a synthesized summary of prior research while identifying the gap that their proposed research will help fill. It also provides students with a start toward a necessary piece of their proposals and the actual theses themselves.** In theory, the transition shouldn’t have been too difficult — yet it still haunted me months after it was turned in and graded. I had two main options when writing the literature review: follow the examples given to the class or follow the example of another literature review I had found and incorporated into my research. **A few years ago, at the request of students, I began sharing literature review examples from previous senior thesis students. The majority of students found these examples helpful, but I am aware that a drawback to showing prior student examples is that some students will assign them elevated importance and go beyond viewing them as models to attempts to closely emulate them.**

I originally took the former route because the format of my annotated bibliography initially seemed to better fit that format. “That format” was something like a laundry list of sources, with the authors drifting from one source to the next, loosely identifying the knowledge gap they sought to fill. Because of the way I had written my annotated bibliography (one paragraph for summary, one for analysis and/or benefit to my research), it was very easy to convert it from a list to list-like prose. Too easy, in fact. And I did not like the end result.

It felt to me like it was simply a list — a longer annotated bibliography. It told readers what I wanted them to know, but it didn’t show them. The lit review example I found (Thompson, 2001), showed the readers information, rather than telling them, by illustrating themes and showing evolution within the field. Instinctively, I liked this format much better. So I scrapped my laundry list and started over. **Students do not always have the**
luxury of a published literature review example. In this case it was fortunate.

I mimicked that article as much as possible given my limited resources. The author discusses in excruciating detail her methodology for both choosing articles and analyzing them — and similar aspects (such as listing my search terms and the databases I used) made it into my literature review. She also focused on frequency over time, which I also adopted in terms of my themes. I was subsequently told by my mentor to remove many of these adoptions because they focused too much on numbers. The emphasis on numbers was problematic. When I introduce the sample in the future I’ll caution students against mimicking that aspect of the review. Rather than focusing on the number of times a subject has been published, the more important piece for students to pick up on is the role and value of different approaches toward a given subject.

Additionally, the textbook gave me the idea to develop a very primitive coding system to help isolate the themes I was beginning to see. Through the strategies for coding offered in the textbook, students have starting places for mapping patterns. This was the real turning point for my research, and the step that made it possible to go from laundry list to analysis.

So I killed a few trees and printed out all of my articles, placing them in a three-ring binder. To make them easier to find, I labeled them by their author and publication year. Then I coded — meaning I assigned codes to each article based on the themes that showed up within them. I had begun to recognize three main themes: education vs. industry, tools vs. management, and collaboration vs. communication. I made a coding scheme with highlighters according to these themes (and some subthemes that would show up). Using this scheme, I marked up the first page of every article.

Then, instinctively expecting to see patterns if I lined things up, I listed all the authors alphabetically on a sheet of paper and listed each article’s codes in columns according to the major themes. I was horribly disappointed. All I saw were some columns with seemingly random highlighter marks. I felt like all the work I had done on my coding had been pointless, and maybe I should have saved a draft of that original laundry list literature review, after all (oops!).

Dejected, I threw some highlighters across the room and swore never to delete a document again. I went away, did work for another class, and came back to stare blankly at my highlighter marks the next day.

On a whim I decided to try making a new list. This time I would list the articles chronologically, earliest first. And when I had all those highlighter marks in place, something amazing happened: the patterns I had instinctively expected actually showed up! The themes were dichotomous in nature, and they very kindly shifted from one side to the other over time. With this information in hand, I could show my readers the evolution of these themes over time and illustrate how my research not only fills a gap but also dovetails into those evolutions.

I was finally able to compose a literature review with which I was pleased. Unfortunately, it was a standalone piece that would later refuse to incorporate itself into anything else without a fight. With a two-semester span of time, there is room for false starts in our thesis sequence. The process Jessica describes here emphasizes the iterative nature of research and writing, something for which the structure of the thesis component allows time.

Drafts, Encouragement, and Chunking Assignments

The thing that kept me going throughout the fall semester was constant encouragement. For example, when I said I wanted to aim for publication in one of our field’s leading journals, I didn’t hear about how unlikely it would be for an undergraduate to get published in such a prestigious publication — my own thoughts at the time. What I heard was, “Good idea. Let’s work toward that.” The topic had enough merit, and Jessica, like most students who are close to finishing their undergraduate degree in a Humanities-based discipline, is an
accomplished writer, so in my mind the possibility was realistic.

Laid back deadlines and partial drafts made this project much less stressful than it could have been. On the due date for my literature review, I decided I was completely displeased. I scrapped the whole thing. By my thinking, even if I got a lower grade for turning it in late, the final product would be much better. My goal was a piece good enough for publication, not a good grade. So I deleted what I had, reexamined my research, and wrote a lit review that was not only better but also more meaningful and ultimately more useful for my finished thesis. It was a lot of extra work, but I was not penalized for turning it in nearly a week late. It almost seemed like a reward. With this statement, Jessica is displaying a key goal for the senior thesis experience — the transition from student to professional. Her priorities have shifted from attaining good letter grades to producing quality final outcomes, something all of us hope for in our students. Prior research has identified this shift as one of classroom culture, noting that capstone experiences like the thesis have the power to transform students from “receivers into a culture of inquirers, a culture in which faculty… and undergraduates share an adventure of discovery” (Boyer Commission, 1998).

Not only was it a huge stress reducer to know that deadlines were flexible given the right reasons, but a confidence booster: I now knew that following my initial instinct inclining me toward a better product was the correct action. It also told me that my mentor’s priority was also the product, rather than the deadline. My priority was the role that this assignment played in the overall learning experience. That realization is probably the largest departure from “traditional” teaching I have ever seen. And that, in turn, helped me realize that the thesis is much more than an inordinately long homework assignment.

Deadlines aren’t as flexible as Jessica portrays here. I had a judgment call to make, and influencing my decision was my familiarity with Jessica’s quality of work on previous projects on which I’ve supervised her. Also, because of the small class size (there were six students in this particular group), I was afforded the luxury of adjusting deadlines to accommodate student needs at my discretion. Obviously, such a practice would not be feasible in a much larger course, but this example illustrates the benefit of working closely with a small class of students over the course of an academic year. As students are making their own transitions into professionals, faculty can shift the role we play with students into one that includes mentoring. Rather than assume the “stickler professor” who won’t accept anything past deadline, when appropriate, I can take an approach that is more accommodating if I think it will benefit the students and their work.

Partial, rough, and ungraded drafts were also amazingly beneficial to both my writing progress and my sanity. When a draft was due, in most cases it meant in most cases, “Turn in enough of a draft to get meaningful feedback and show that progress is being made.” For me, it generally meant a draft about two-thirds done, on average. For others it seemed to mean as little as a well fleshed-out outline. Most importantly, these drafts were ungraded, so we could focus on producing meaningful content for feedback rather than wasting our time on perfection. It was another indication that the product was more important than the grade. Rough, rough drafts are essential, as they hold students accountable. They also can serve as a kick in the butt for students who haven’t been keeping up. Feedback is from the course professor and the other students.

The review of these partial drafts was a vital part of the process. Since some drafts might be far from complete, it was an essential chance to get feedback before making too much progress. Changing direction is much less painful when you’re only partway done with something. Again, the fact that this senior thesis project is spread out over two semesters creates room for direction changes. The draft process also provided benchmarks. Even the worst procrastinator can’t put everything to the last minute when there are regular due dates on which progress must be demonstrated.
The cumulative nature of the course’s products/assignments really served to break both the intimidating and large literature review project and the proposal into digestible chunks. The fact that the chunks got larger each time is a testament to this nature — which is to say that the chunks, which started out small, combined over time in a snowball-like fashion. The smallest, yet very important, chunk was the topic choice. Research was the next chunk, which snowballed in and of itself as more sources were found — leading to the next chunk of gap identification.

Then came the article review, which was the smaller-version chunk of the much more intimidating annotated bibliography. Even having done an annotated bibliography before, I found it extremely useful to review a single article and get feedback. It’s much easier to review 15+ articles when you’ve had a “practice run” with one, giving you the chance to figure out the professor’s expectations for the rest, as well as what works for you as a reviewer (especially within the context of the topic). And having one of those reviews finished offered a solid starting point for the remainder. Chunks is Jessica’s description, but as stated previously, I see them as building blocks.

The annotated bibliography then built into the literature review, with some parts of the former being incorporated into the latter, in addition to incorporating other aspects of the previous steps’ research. The literature review was then, in turn, incorporated into the thesis proposal.

While the thesis as a whole could be viewed as a daunting entity composed of looming deadlines, it wasn’t this way for me at all. Breaking it up in to increasingly larger chunks enabled me to see it as a series of manageably sized steps, rather than one giant panic attack waiting to happen. Additionally, this means of looking at the larger project has prepared me for writing the thesis itself by using this technique.

The Survey/Methodology (or “Where will I find enough respondents?”)

Composing the survey itself was an evolution. Using information from the literature review (justification for students/practitioners, use of “online collaborative writing tools,” etc.), I jotted down some questions. Got feedback (from other students and the course professor). Revised. Ad nauseum.

The methodology students propose for their projects varies widely. While some students choose to complement previous research in their area of interest through a small-scale study of their own that involves human subjects (and corresponding approval from our university’s IRB) and a combination of qualitative and quantitative methods, other students choose to extend previous research on their topics through textual analyses and interpretation, or application of theoretical frameworks to their particular issue.

I do wish I had waited a little longer and revised the survey a bit more, but I really wanted to get it running as far and as fast as possible during the winter break, so I had to get it approved before the fall semester concluded.

I was terrified about analyzing the responses. I don’t do math. Ergo, I don’t do statistical analysis. I was surprised by this statement, as our curriculum requires students to take (and pass) math courses up through calculus, with additional mathematical experience coming from chemistry and physics courses that require labs involving computations. Many of our TC majors don’t rank math as their favorite subject (after all, they have chosen to major in a humanities-based area of study), yet the fact that they are receiving their degree at a science and engineering institution with a rigorous mathematical and scientific general education curriculum leaves them in a much more capable position to perform quantitative research (and subsequent analysis) than many students receiving liberal arts educations.

While my quantitative results were daunting, for quite a while I outright refused to look at the qualitative responses (the open-ended questions) included in my survey. I was pretty sure I opened a Pandora’s Box with those responses. More than anything, I hoped I would get something meaningful out of it. I
wanted to be able to draw some conclusions and make some recommendations, like, “Practitioners are using it, so students should too!” However, I was worried that it would be more like, “Practitioners are using it, and so are students. How nice.” However, in the end, I realized I should not have been afraid. While coding and analyzing the responses was a great deal of work (I had to utilize trial and error to get a system I would work with—and with no similar examples of prior student work to inspire me, it was more error), my experiences in scientific research, and the rigors thereof, served me well. The fact that Jessica didn’t have an existing student example to consult was not a tragedy in my mind, as it allowed for her to try out several approaches and fail before finding the right approach. That mode of learning, through discovery, is priceless.

Conclusion

A week before we submitted this manuscript in its original version, Jessica submitted a “rough rough” draft of her thesis. (As previously described, intermittent drafts, even incomplete ones, help to hold students accountable and provide room for the course professor to give constructive, but not graded, feedback.) Julie responded to an electronic version of Jessica’s draft with the aid of Microsoft Word’s Track Changes and Insert Comment tools, but we also met in person later in the week so that Julie could answer follow-up questions and provide guidance for remaining portions of Jessica’s research analysis and write-up process. While discussing the Methodology portion of her draft, which included far more detail than was necessary or appropriate, Jessica explained that her approach to writing this section was to include and justify every step in her process, as she had done in numerous science laboratory classes throughout her college career. The following excerpt from Jessica’s draft illustrates her overuse of detail and justification in regard to describing the survey she used:

“I chose to publish my survey using the online survey site Zoomerang (www.zoomerang.com). I chose Zoomerang because it had a twelve-question limit, while other survey sites (such as SurveyMonkey) limited questions to ten. I felt that the more questions I had available, the more detail I would be able to get from respondents. Although Zoomerang offers more questions than other survey sites, I still found that I had more than twelve questions. My solution to reducing the number of questions without losing detail was to split the single survey into two separate surveys: one for TC students and one for TC practitioners. By splitting the survey this way, I was able to ask both groups questions specific to their experience. For example, Question 5 on the student survey asks respondents to compare their use of online collaborative writing tools in class versus outside of class.

While Jessica understood my comment on her draft, which instructed, “You can make this section more concise. The important points for readers to know are that your surveys were online ones through Zoomerang and that you had separate ones for practitioners and students,” discussing this part of her draft during our face-to-face meeting was enlightening for both of us. For Jessica, it was a chance to receive verification from Julie that while she needed to clearly describe her research methods, she did not have to reveal every single detail of her process. For Julie, it was a chance to understand why Jessica (and other Senior Thesis students) may approach the writing of the Methodology section in a manner that resembled prior experiences writing lab reports. We share this example because it illustrates the way the senior thesis process acts as an exchange that facilitates not only students engaging in learning and...
reflection along the way but also faculty. As professor of this course sequence for the last six years (and likely several more to come), Julie continues to adapt and modify the curriculum to best address student needs, experiences, and deficiencies.

Close mentoring between professor and student is a prevalent model within graduate education, but these one-to-one relationships are less frequent among professors and undergraduate students. We believe they are just as important and valuable to students' overall development as academic citizens and essential for preparation for future work environments. With enough time devoted to the process, as our year-long thesis sequence illustrates, students are afforded the opportunity to mature intellectually and develop several crucial skills that will advance them toward becoming adept researchers, problem solvers, and communicators. These three areas will help students succeed no matter what disciplines they emerge from or gravitate toward. With a final requirement that extends beyond the classroom, such as our requirement to submit the thesis for peer-reviewed publication, the bar is raised for students, and students adapt accordingly. They move beyond the goal of making a passing grade to that of sharing their research to an audience outside the university.

In closing, the experience the senior thesis requirement affords students of planning, designing, conducting, and presenting (through written and oral means) their own research projects provides them excellent preparation as they graduate and transition into professional spheres. In fact, many of our former students get in touch and cite the thesis experience as pivotal in helping them make the transition from student to professional. While the senior thesis process does not come without challenges, we believe these challenges can translate into invaluable learning experiences. As we have shown in this dialogue, faculty and students alike can learn from the close interaction between students and mentor afforded by the yearlong thesis process.

In this article we have demonstrated the ways that our two-semester senior thesis requirement within the Technical Communication program at New Mexico Tech facilitates close student-faculty mentoring. Through the dialogue we share, we illustrate the challenges and triumphs experienced by both student and professor. Our hope is that readers, regardless of academic discipline or institutional context, identify with the practices we outline here and see connections to mentoring practices and experiences that may be achievable in their own settings.

To provide some final considerations for elements from our story that can translate to successful mentoring experiences in other contexts and at other institutions, we offer the following takeaway points:

- Devote sufficient time to develop the mentoring process.
- Recognize inherent challenges are a valuable part of the process.
- Incorporate self-evaluation and reflection as part of the process to overcome challenges and improve future experiences.
- Use multiple modes of communication (e.g., email and face-to-face meetings) to facilitate feedback, guidance, and answers to questions.
- Look for opportunities to work on projects with value beyond the context of the institution that include actual audiences or stakeholders.
Works Cited


