

SOCIAL INTERACTION AND DESIGN  
IN AN ONLINE MULTILITERACY CENTER

by

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Social Interaction and Design in an Online Multiliteracy Center

Thesis directed by Associate Professor Bridget Dalton

This qualitative study investigates tutor and student interaction in an online multiliteracy center (the Hub) at a major public research university. This study addresses a gap in the current literature on how writing centers transition to multiliteracy centers and prepare their tutors for consulting with students around aspects of design. There is also a lack of knowledge concerning the digital tools and mediating practices that people engage in during online tutoring sessions. At the Hub, tutors and students met through a video call and within the shared composing medium Google Slides; the environment was synchronous and multimodal. Participants included two tutors and eight students. The conceptual framework focuses on a sociocultural view of learning that brought together key tenets from writing center scholarship, multimodality theory, and Vygotsky's (1978) notion of the Zone of Proximal Development (ZPD) as the space where learning occurs. The main research question of this study was as follows: *What is the nature of the interactive processes of students and tutors, as situated in an online multiliteracy center and mediated by digital tools and modes?* Data included screencast recordings of entire sessions and pre- and post-session report forms filled out by tutors and students. I analyzed data through coding session transcriptions of both talk and other simultaneous modal interaction, then writing qualitative session summaries to reveal salient patterns across sessions. The main findings were as follows: 1) the student and tutor talk within the online Hub provided the modal foundation to the learning interaction process; 2) the social, multimodal exchange within the digital Hub online

tutoring environment offered affordances and constraints; and 3) the Hub virtual conferencing environment supported the embedding of customized mini-lessons using the product as the context for learning. As a result of this study, there are implications for practice regarding the role of the multiliteracy center at the institution and the training of tutors for such services. Implications for further research include the opportunity to investigate how learning occurs in online environments and how educational research strategies must remain agile in a continually shifting 21st century technological landscape.

I dedicate this to my mother, Carol, a nontraditional student who always inspires me;  
my husband, Adam, for being my rock and shining star;  
and my son, Arley, for being my sunshine.

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## CHAPTER 1: Introduction, Background and Questions

### **Introduction: Outline of the Chapter and Argument**

In the introductory chapter to this study, I start by introducing an important and emergent theme in this study of social interaction within an online multiliteracy center, that of *beginnings*. I then discuss my role in starting an online composition support service for the Division of Continuing Education at a major state university and how this service, known as the Hub, emerged as a site of research. Early influences in the creation of the Hub site and the training of tutors included Vygotsky's (1978) concept of the Zone of Proximal Development (ZPD) and the New London Group's (1996) explication of Design in relationship to multiliteracies. The broad goals of this study are to investigate the meaning-making practices that students and tutors engaged in within an online multimodal environment, especially the beginnings of features that may indicate interaction within a ZPD.

To unfold the beginnings of these threads, I focus on context and background information in this chapter. In the following sections, I: 1) discuss expanding access and support to continuing education students through an online writing center and how the development of the Hub<sup>1</sup> met these goals, 2) discuss the need and rationale for the integration of multiliteracies<sup>2</sup> into the Hub, and 3) discuss how two online instructors integrated multimodal assignments into their teaching and how this led to my study. At the end of this chapter, I close with a discussion of my positionality as researcher, and lastly, how my interest in the concepts of the Zone of Proximal

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<sup>1</sup> I received IRB permission to use the site's name in this study.

<sup>2</sup> I borrow from the New London Group's (1996) definition of multiliteracies as including: 1) an understanding of the importance of digital and semiotic multimodal

Development (Vygotsky, 1978) and Design (New London Group, 1996) have shaped my research questions.

### **An Anecdote: Need for an Online Writing Center**

In the spring of 2012, I was finishing my second year in the Literacy doctoral program in the University of Colorado (CU) at Boulder's School of Education and preparing to teach an online upper-division summer course for CU's Program for Writing and Rhetoric that I had taught before. I was also working as a writing consultant at the CU Writing Center, which served continuing education students. One day at the Writing Center, a student brought me a paper with which he had been struggling. The paper was for an online class, and the student explained that he did not ordinarily come to campus: "I had to take a day off to come here because I work full time to pay for school," he explained; "Not everyone is just able to come to campus during the day. I wish there was some sort of online service so that I could do this in the evening, at home."

This student's words resonated with me for several reasons. As an online writing and rhetoric instructor, I knew firsthand that many students enrolled through CU's Division of Continuing Education had a non-traditional story to tell. From international students taking summer classes from their home country, to students working day jobs to get through school, to full-time caregivers needing to stay home, to persons with disabilities who could not come to campus easily, many of my online students simply were unable to take advantage of in-person campus resources like the CU Writing Center.

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communication and 2) awareness of the saliency of diverse dialects and languages in a globalized world. This definition and others are available in Appendix A.

## **Expanding Access and Support Through an Online Writing Center**

From my own reading and professional development as a writing center practitioner, I also knew that writing center work was shifting, and that increasingly, online writing labs (OWLs) were becoming important features of writing centers (Harris & Pemberton, 1995; Hewett, 2010; Inman & Sewell, 2000). Still contemplating the online student's dilemma, I spoke with my boss Geoffrey Rubinstein, the Director of Independent Learning at The Division of Continuing Education, about the fact that students taking online classes at CU lacked an official composition support resource. Dr. Rubinstein agreed and empathized with my concern—though people had suggested something of the sort in the past, he told me, no one had been forthcoming in proposing a solution. I gingerly suggested that I would be willing to design an online writing center, and discussed my past experiences with such work (which I will explain later in this chapter). By the end of our conversation, Dr. Rubinstein decided to give me a new charge: *Draft a proposal for an online writing center, and we'll see if we can make it work.* Within a matter of weeks, the proposal was both prepared and accepted, and I began my new role as the designer and coordinator of the Division of Continuing Education's online writing support service.

**21st century literacies as theoretical underpinnings.** Getting the green light on this project was exciting for several reasons. While I was eager both to have a coveted new job in a supportive department and to work on addressing an issue of access and equity, I also had been pursuing doctoral studies that emphasized the cultural and social complexities of digital and new literacies.

I had just completed Dr. Kris Gutierrez's specialty literacy seminar "Sociocultural View of Literacy," which had impacted my view of the nature of literacy in the 21<sup>st</sup> century. Through studying key literacy research studies, I gained a deeper appreciation of the theoretical principles

of a sociocultural approach to literacy as a set of social and cultural practices and felt equipped to expand on these ideas in my own work. In taking on a Vygotskian (1978) perspective of the social nature of learning, I agreed with Sylvia Scribner's (1984) assertion that literacy is a social achievement and that "individual literacy is relative to social literacy" (p. 8). Through conversations in class, I came to understand that various specific literacies any individual participates in within a given society are bound by the context of culture; and likewise, as the culture changes and adapts over time, so do the practices that constitute literacy in that society.

In addition, I thought a lot about how Brian Street (1984) also saw a singular, skills-based view of literacy as an inherently limiting Western construction; in arguing for an ideological model that pays more attention to social contexts, his argument, in conjunction with Scribner's (1984), made it clear how typical literacy practices in the United States are readily homogenized into constructed binaries of correct vs. incorrect or literate vs. illiterate. When viewed from a sociocultural perspective, literacy is more accurately conceived of as a plural noun, *literacies*, or as I like to think of it, as a verb—constantly in process and evolving through daily social interaction in a particular culture (personal communication, Gutierrez, spring 2012). Thus, as I developed an online writing support service, I was increasingly appreciating the social and cultural complexity of literacy practices.

**Hub: Project design and influences.** As I designed the Division of Continuing Education project with my theoretical underpinnings in mind, it certainly helped to have a visionary administrator and a team of colleagues who were especially tech savvy. Although it was a lot of work to put the Hub—as I named it—together, we were able to move quickly with the project over the summer of 2012. Looking for models and sources, I had immersed myself in the literature on online writing centers. Inman & Sewell's (2000) book *Taking Flight With*

*OWLs: Examining Electronic Writing Center Work* was helpful in thinking about program logistics but was already quite dated in terms of system technologies and design, as were the network technologies discussed by Harris & Pemberton (1995); both sources viewed online writing-center work as an adjunct activity to a physical writing center space. Thus, while these sources left me wondering about writing centers that focused their activity online, these sources served as practical guides for creating the Hub service. The CU Writing Center was funded through the College of Arts & Sciences, whereas the Hub would be funded by The Division of Continuing Education, a separate entity, so the two services would remain separate but friendly.

Because the Hub was to exist only online rather than in any physical space, I had to get creative in thinking about platforms and ended up taking inspiration from Beth Hewett's (2010) suggestions about synchronous (real-time) sessions in *The Online Learning Conference: A Guide for Teachers and Tutors*. I incorporated Hewett's advice, sociocultural approach, and suggestions with my own intuition and experience in teaching online. I wanted to ensure that the synchronous sessions could allow for interaction that might more closely resemble a face-to-face session, which could provide a clearer window into specific learning interactions than the impersonal chat boxes that Hewett (2010) describes in her work. It was important to me that students and tutors be able to speak with one another, and preferably see one another as well, while working on the student's product, because I had personally found these technological abilities helpful in connecting with students in my online courses. Having taught with synchronous meeting technologies, I knew that free, easy-to-use programs existed that could help act as mediating tools for student-tutor sessions, and I was interested in pursuing these technologies further.

**Synchronous technologies, logistics and sustainability.** With an Instructional Designer colleague, Fenimore Johnson, and the oversight of Dr. Rubinstein, we designed the Hub as a Wordpress website using the university-approved web address [www.composition.colorado.edu](http://www.composition.colorado.edu). I selected the software program WOnline to serve as our scheduling service that we embedded into the site; this software choice was attractive because of its ease of use and the fact that the CU Writing Center already used it, which would provide consistency for students who used both services. I then created procedures for the sessions themselves to take place virtually in the Google Drive platform, which included Google Docs (for collaborative writing and revision), Google Slides (for presentations) and Google Sheets (for managing data). I chose Google specifically because the university was moving to Gmail as its official email host in 2013, so all affiliated faculty, staff and students would have built-in access to Google Drive through their university email addresses. Products created in Microsoft Office could be uploaded and converted into Google Drive, and products could be created directly in Google Drive, which boasted a free 15GB storage capacity for Gmail users. In addition, Google Drive served as a synchronous collaborative space; a user could “share” a product in Google Drive with another person via email, and once shared, both people could view the product simultaneously and make changes to the product that both could see in real-time.

I knew from previous work with the local school district that Google had been officially adopted as its email host as well and that several K-12 teachers in the district had begun routinely using Google Drive in their teaching; therefore, incoming students from the local community would be familiar with the platform already. I had also taught with Google Drive in my upper-division courses for CU and felt that the collaborative nature of the composing tools were useful and aided student learning in my courses. Thus, the choice to use Google Drive was



based on several factors: built-in accessibility from university Gmail, previous familiarity for some students, convertibility from Microsoft Office to Google Drive, and synchronous sharing and editing capabilities between users in Google Drive. Combined with a synchronous video call to facilitate “face-to-face” conversation, Google Drive provided a space for virtual collaboration.

Thus, after designing the program and putting together the logistics of the website and scheduling system, creating tutor training modules for online consulting work, and gaining the support of my boss and our team, we officially launched the Hub in the fall of 2012 as a resource for all students taking courses through CU’s Division of Continuing Education.

### **Multiliteracies and Expanding the Hub**

**Transition to multiliteracy center.** As the Hub progressed through its pilot phase for the 2012-2013 academic year, during which it offered 25 hours a week of composition support across three tutors (myself included),<sup>3</sup> Dr. Rubinstein was pleased with the service. However, during a planning meeting for the following year in the spring of 2013, my boss and I discovered our mutual interest in multiliteracies as discussed in the seminal article by the New London Group (1996), which soon changed the future of the Hub. During this meeting, Dr. Rubinstein enthusiastically recalled a discussion he had with a faculty member who included a multimodal digital storytelling project into her online course with great success, and we agreed that it would

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<sup>3</sup> My boss assigned two other graduate students (doctoral students in English) to work at The Hub, and I put together some training sessions (based on my own training I had received over 10 years as a writing tutor at two institutions and in consultation with the CU Writing Center), which were later developed into a more full-fledged series of training workshops.

be a great boon to students and instructors if the Hub offered the ability to tutor multimodal projects. As we talked, I realized that the New London Group's idea of multiliteracies--and especially its conception of "Design"—would be important guiding principles of the Hub's evolution.

**Designing research and shifting to a multiliteracies focus.** I was thrilled to discover that my boss was familiar with the New London Group's (1996) concept of multiliteracies and that he was eager to support instructors' use of multimodal assignments in their teaching. As we continued talking that day, I explained how the concept of multiliteracies had been applied to writing centers and gave him a short summary of my work on the subject. Drawing on Murphy and Sherwood (2011), I had written "Validating the Multiliteracy Center: Dreaming 21<sup>st</sup> Century Composition and Collaboration" with a colleague and fellow writing center practitioner about how the shift from writing center to multiliteracy center could help promote institutional sustainability and progressive praxis in rhetoric and composition as a field (Feltenberger & Carr, 2011). Dr. Rubinstein was quick to see that the Hub could re-brand itself as an online multiliteracies center and begin supporting students with multimodal compositions. He saw this as a way to support more students across a greater variety of online course offerings, and I agreed that this was possible.

I knew that Google Drive contained a presentation tool, Google Slides, which could be utilized synchronously in the same way that the Hub had been using Google Docs. Tutors would need to be retrained to consider visual rhetoric as part of the compositional elements they could discuss with students. By starting small and expanding our existing offerings based on the available platforms and resources, Dr. Rubenstein decided that it was the right time for re-branding; this entailed updating the website and promotional materials with language about

offering multimodal tutoring services, emailing students, faculty and staff of this change, and providing support materials on the website to aid students with multimodal composition and visual rhetoric. The re-branding also involved designing a new tutor-training series of workshops, totaling over 15 hours of instruction, discussion and hands-on practice with Google Slides. I also met with instructional design colleagues who suggested that I work with individual instructors who had expressed interest in teaching with multimodal platforms such as Google Slides, but who desired guidance in creating new multimodal assignments. Thus, I began another summer filled with the excitement of possibility; the Hub would be re-envisioned as an online multiliteracies center, with a pilot to begin during summer term of 2013.

Although most of my activity in establishing the Hub as an online multiliteracies center had to do with programmatic concerns, these were fueled by my convictions about the social nature of literacy learning and the importance of understanding literacy as a complex hybrid of contemporary communicative options and elements. I could not help considering what was going on in the sessions and how people chose to making meaning in the context of the online environment. This seed of interest was further fed by literacy courses I took the following academic year and my own reading as Hub coordinator. I found myself turning to organizations such as the International Writing Centers Association for the latest news and events in the field and continued to read not just the *Writing Center Journal* and writing center scholarship, but also *Computers and Composition* and other affiliated sources of educational research on new and digital literacies to fuel my thinking.

In redesigning the Hub to incorporate a multiliteracies focus, I read and reread literature that could aid me in the process of achieving these programmatic goals. I focused on a growing body of literature about *multiliteracy centers*, or writing centers that take up an interpretation of

the New London Group's (1996) definition of multiliteracies by helping students with conceptual design issues and multimodal assignments as well as traditional papers. The idea of multiliteracy centers began with the *Writing Center Journal's* special millennial issue about the future of writing centers, which included John Trimbur's (2000) article "Multiliteracies, Social Futures, and Writing Centers." Indeed, Trimbur (2000), Sheridan (2006) and other writing center scholars after them were inspired by the New London Group (1996) to re-brand writing centers that supported students with multimodal work as multiliteracy centers. This re-branding maneuver allowed multiliteracy centers to broadcast their services beyond the interests of English departments to other areas of the institution that dealt with more expanded notions of composition. For example, a multiliteracy center could appeal more directly to business or computer science departments to provide support with professional presentations and web design; this move broke with the traditional academic papers that writing centers typically saw (Murphy & Sherwood, 2011; Trimbur, 2000). Another important argument for the evolution of writing centers into multiliteracy centers was to help writing center work stay relevant in a world where digital literacy was rapidly becoming a crucial part of a student's education (National Writing Project, 2010; Trimbur, 2000). Connecting multiliteracy centers to ideas of program sustainability (Feltenberger & Carr, 2011; Murphy & Sherwood, 2011) helped to build a persuasive argument that writing center administrators should become enthused about multiliteracy centers.

I continued to read multiliteracy center scholarship in search of helpful models for program implementation, but I found that this literature did not provide the direct guidance I sought. I read David Sheridan and James Inman's (2010) *Multiliteracy Centers: Writing Center Work, New Media, and Multimodal Rhetoric*, which provided a broad overview of everything

from space and logistical concerns to tutoring tips I found this work very similar to other discussions about writing centers, with little information specific to multiliteracies. Editors Christina Murphy and Steve Sherwood (2011) devoted the last section of *The St. Martin's Sourcebook for Writing Tutors* to “Explorations: The Multimodal Writing Center,” including four essays (two of which previously appeared in *Multiliteracy Centers* (Sheridan & Inman, 2010) that, interestingly, collectively employed the concepts of a multimodal writing center and a multiliteracy center interchangeably, further adding to confusion in terminology within the field while promoting the need for digital and/or multimodal tutoring. These pieces wove compelling arguments for what multiliteracy centers could be and why they would be important—again, with little practical guidance for how to start and implement such a service.

I found that since 2011, additional articles had been published pertaining to multiliteracy centers with regard to in-person tutoring situations, which, while interesting, did not speak to the considerations of online work. Editors Sohui Lee and Russell Carpenter put together the promisingly titled *Routledge Reader on Writing Centers and New Media* (2013), which was less than a year old when I undertook this study and data collection. However, I felt that Lee and Carpenter (2013) had produced a book that was actually an excellent reader on the evolution of writing centers in relation to new media and the advent of multiliteracy centers; all 19 chapters were previously published works, with the oldest first originally published in 1994 and the most recent published in 2010, and two of these reprints had already appeared in *Multiliteracy Centers* (Sheridan & Inman, 2010). Therefore, *Writing Centers and New Media* (Lee & Russell, 2013) was a thorough compilation that traced a history looking backwards, but fell short in pointing to the future, or even in revealing new work that had been done in researching multiliteracy centers within the past several years. Therefore, while multiliteracy center scholarship definitely

constitutes an important and growing new section of writing center scholarship, I did not find many preexisting sources that directly aided my study design.

*Training tutors: multiliteracies, design and resources.* As I redesigned the training meetings for the Hub tutors, I knew I would need to incorporate strategies and resources that would help tutors work with multimodal products. I turned to my colleague David Underwood, who I had previously worked with in designing a workshop on digital literacy for Division of Continuing Education faculty. Underwood had developed a series of informative and user-friendly instructional videos about principles of design based on classroom lectures that he had refined over the course of several years as an academic counselor at the university. The five videos were each roughly half an hour or less in length and provided lessons and examples about design principles related to the use of white space, contrast, framing, etc. within a rhetorical context. Underwood's instruction matched design principles with rhetorical argumentation strategies such as pathos, ethos and logos to clearly make a link between visual rhetoric and textual communication. Underwood's conception of composition as comprised of multiple modes aligned perfectly with the multiliteracies goals of the Hub, so I decided to utilize these videos as part of tutor training (Appendix E). Tutors watched the videos and engaged in discussions about practical applications of these ideas such as white space, balance, and the rule of thirds, among others. They gained experience in platforms such as Google Slides to help prepare for sessions that would revolve around multimodal products.

### **Beginning a Dissertation: Online Multimodal Assignments as Context for Study**

As the 2013-2014 academic year began, it seemed the right time to make my desire to conduct dissertation research at the Hub a reality. I gained the support of both my dissertation

advisor and Dr. Rubinstein, and I also obtained IRB approval for up to 20 total participants at the site.

### **Digital Tools and Selecting a Research Focus**

As a part of my job at the HUB in the fall of 2013, I began working with two online instructors in the Division of Continuing Education who wanted to develop multimodal composition assignments in Google Slides; this was significant because it gave me access to instructors who were planning to teach using the same multimodal platform that the Hub had adopted. These instructors had both taught online courses before and were seeking guidance in both the logistics of using Google Slides as well as connecting the tool to learning goals and multimodal assignments. They were also acquainted with the Hub service and seemed eager to rely on the tutors as an additional resource for their students. Therefore, when my boss asked me to partner with these instructors and provide them with support, I recognized that practical urgencies were aligning with the conceptual complexity of designing a study. I gained the consent of these instructors to participate in research that would involve observing their students' sessions with Hub tutors in regards to their specific multimodal assignments in Google Slides. After consulting with my advisors, this course of action resulted in a study of the nature of the meaning-making practices and the beginnings of features that might indicate students' ZPD. I will elaborate further on the study design, data collection and proposed analysis in my Methods chapter.

As I began working with the two instructors, I also looked at additional research that involved studies of multimodal pedagogy, which proved helpful both as I consulted with the instructors and as I continued thinking about my own research. For example, I found work researching the use of online strategies for language learning quite interesting. Regine Hempel's

(2013) “Making Meaning Online: Computer-Mediated Communication for Language Learning” promotes “a pedagogy of multiliteracies” in adopting sociocultural and multimodal theoretical lenses to examine second language learners’ communication in online environments. Furthermore, Hempel and Stickler (2012) employ methods of multimodal transcription and analysis to study second language learners’ interactions in videoconferences in “The Use of Videoconferencing to Support Multimodal Interaction in an Online Language Classroom.” In the latter, Hempel and Sickler (2012) write that although multimodal teaching is becoming more popular and several desktop videoconferencing web applications are in existence, “there is a lack of research that examines the impact of this combined use of tools on interaction and analyses multimodal communication in an online language classroom” (p. 119). I recognized this sense of “newness” that Hempel and Sickler (2012) described was also echoed by scholars who used video recordings to conduct research on students’ non-academic composition practices (Lam, 2009). I knew I wanted to try out some of these new video technologies and methods in collecting data, as I had become interested in the emergent use of screencasting as a tool in research (Bezemer & Mavers, 2011; Coiro, 2011; Dalton, Smith & Jocius, 2012; Jewitt, 2012; Lam, 2009), which seemed to be the most effective means to record and observe tutoring sessions at the Hub that took place entirely online. Studies of students’ classroom and non-classroom multimodal digital activities were being analyzed via multimodal transcription to code and analyze data (Bezemer & Mavers, 2011; Jewitt, 2012) inspired me with ideas about how to capture detailed moments in interactions.

Perhaps the sense of “newness” across a range of scholars and technological tools and modes were part of what drew me to this research as well. I set out to investigate social practices as people made sense of composition together through a unique digitally mediated environment;



and in recognizing the lack of studies about my specific topic, I also recognized the rich terrain in which this work could make a true contribution. In designing this study on the Hub, I hoped to push the multiliteracies conversation forward in regards to online multiliteracy center environments.

### **Role of Researcher**

I now come to the last leg of my argument, about myself, which I will expand on in the last section of my Methods chapter, but which I want to mention here as well: my combined experience with the Hub and training in my doctoral program allowed me to shift from designer to researcher in undertaking this study, and my research questions emerged from my unique context of practice and leadership. Of course, I kept several issues in mind in this work. I realized that choosing the Hub as the site of my research meant that I must remain mindful of my own inevitable biases and pay attention to disconfirming sessions. However, despite my biases as the program founder, primary administrator, and tutor at the site, there were certain affordances to this circumstance as well. First, I had insider access to the site, which eliminated issues in gaining entry. In addition, comparable access at a site that provided similar services was extremely difficult to discover, for I had not come across other online multiliteracy centers that positioned their services in the same way (see Appendix B for a list of other university and college online writing centers and multiliteracy centers). The existence of IRB approval afforded the ability to continue studying the site while drawing on existing data as necessary. I had been trained in social science research methods and had already conducted two qualitative studies on two different writing centers for the purposes of qualitative research courses at CU Boulder's School of Education—one study on student/tutor relationships at the CU Writing Center in Spring 2011 and another study on student interactions at a regional high school writing center in

Spring 2012. I had studied methods of multimodal analysis that I employed in this study, which I will explain in my Methods chapter.

As I embarked on this work, I had ten years of combined experience working with writing centers: first as a tutor at my undergraduate alma mater Ohio University, then in starting a high-school writing center in Brooklyn, NY, then in working at CU's Writing Center, then in consulting with a regional Colorado high school in creating a writing center, and finally in founding the Hub. I had been producing work on writing centers and rhetoric and composition for many years and had both published and presented at national conferences such as The Conference on College Composition and Communication (CCCC), The Rhetoric Society of America (RSA), The National Council of Teachers of English (NCTE), and The Literacy Research Association (LRA). I believed I had a deep knowledge of the ethos of writing centers as well as a strong theoretical foundation of the sociocultural nature of learning, and I had experience teaching with online digital tools. Perhaps most importantly for the purposes of a dissertation study, I possessed excellent and knowledgeable advisors who allowed me to consult with them on the various stages of my work and analysis. Therefore, I am confident that what follows will represent a balanced and focused dissertation study at the Hub.

### **Research Questions**

Although there are many features of the Hub that are compelling and might serve as an interesting topic for study, I chose to focus specifically on the nature of the interactions between students and tutors. By inquiring into the processes that each individual engages in to communicate and collaborate in this online learning environment, I chose a focus that aligns with a sociocultural view of learning. Focusing on social interaction was especially apt given the *beginnings* that characterized the various elements of the study. The field of writing centers was

still going through a new shift to multiliteracy centers and the Hub was at the start of a new transition from online writing center to online multiliteracy center. The tutors were newly trained in principles of design and visual rhetoric, and the students had new assignments in their courses and most students were new to using Google Slides. I wanted to investigate whether activities at the Hub revealed features that constituted the beginnings of a ZPD (Smagorinsky, 2011) between students and tutors, and I used this concept as a starting point from which to develop a deeper view of design and designing in this context. With these considerations in mind, I investigated the following research question and sub-questions for this study:

Research Question: What is the nature of the interactive processes of students and tutors, as situated in an online multiliteracy center and mediated by digital tools and modes?

How does this interactive process suggest the ‘beginnings’ of working within each student’s ZPD?

Sub-questions:

- How do students and tutors in a virtual environment communicate as they conference about the students’ Google Slide Show compositions? What is the nature of their talk and how does talk interact with non-verbal, on-screen interaction? How do tutors and students use the digital tools and modes available to them to communicate and engage in design of their compositions? How do the tools and modes support and constrain the participants’ interactions?

## CHAPTER 2: Theoretical and Research Foundation

### **Introduction**

Recent years have witnessed an extraordinary national shift toward digital literacies and online learning, and academic support remains a concern for students adapting to these new educational terrains (Hewett, 2010; Jewitt, 2006; National Writing Project, 2010). The creation of the Hub online tutoring service coincided as a deliberate response to these growing shifts. At the same time, research on writing practices has continually deepened as researchers build on earlier studies and incorporate evolving theory and new technological methods of data collection and analysis. As the notion of what counts as “literacy” has expanded, studies both in and out of the classroom are looking at a wide variety of composition practices that include and diverge from common academic practices.

My purpose is to expose conversations in the literature related to my interest in investigating notions of the ZPD and Design in a study of social interaction at the Hub. These conversations will include research on literacy, and composition in particular, as well as practitioners’ personal accounts and observations and more formal qualitative and mixed-methods research practices stemming from anthropology and linguistics. This historical development in research has both contributed to and resulted from advances in theory, and therefore I will discuss the historical context of research on writing in order to provide a larger sense of the ideological development of what literacy research looks like and how it serves to deepen the praxis of teaching and theorizing writing. I will then turn to a more contemporary discussion of research pertaining to multiliteracies, as I define it, which stems from the New London Group’s (1996) recognition of both the technological and multimodal importance of literacy as well as the diverse dialects and languages that have contextual communicative

significance in the modern world. I then retrace the same timeline, focusing on writing centers as institutions and sites of scholarly activity. I do this to investigate the evolution of writing centers' support roles and how research has been conducted within writing centers and to provide context for the relatively new shift to multiliteracy centers. I argue that research in writing centers has continued to remain more anecdotal and practitioner-based, in general, in contrast to the more methodologically rigorous research on literacy and composition in education. I conclude this chapter by discussing gaps in our understandings of multimodal, online writing/multiliteracy centers and how this dissertation study will address them. I then reflect on these sections together and how this review of the literature has led to my dissertation study and my research questions.

My goals for this chapter are: 1) explain the sociocultural theoretical considerations from which I understand learning, and the ZPD in particular, 2) investigate the role of multiliteracies, especially the New London Group's (1996) conception of Design, as it applies to multimodality and this study, and 3) touch on elements of writing centers and rhetoric and composition theory that clarify my ways of viewing collaborative practices in writing center-oriented spaces.

### **A Sociocultural View of Learning**

#### **Vygotsky and the Zone of Proximal Development**

I situate my work within a sociocultural theory of learning, a backdrop that provides basic understandings about the nature of learning that I then build upon when later discussing more specific theories. Lev Vygotsky (1978, 1986) wrote about education and learning in what came to be called sociocultural theory, which posits that learning is embedded in social interaction. He produced his work in the early half of the twentieth century through observations of children in Russia; it was not until after his death that his work was translated and gained

international attention. Therefore, somewhat problematically, Vygotsky's ideas come to many American scholars who do not speak Russian through available translations (Smagorinsky, 2011).

Though many tenets of Vygotsky's (1978, 1986) sociocultural theory of learning are useful in providing a lens through which to view social interactions in my study, I will particularly draw on the concept of a Zone of Proximal Development (ZPD) to discuss the liminal place in between where a learner can do something for herself and where she cannot. In recognizing the ZPD as a space where a learner can accomplish a task through the assistance of another, usually more experienced, person, a learner's capability expands as a result of this social interaction. The concept of the ZPD can be represented by a basic Venn diagram, though in actuality, the borders of these learning spaces are fluid and constantly shifting as a learner gains new knowledge and skill. For my purposes in researching an online multiliteracy center, the idea of a ZPD provides a beginning framework for thinking about the nature of the student-tutor relationship, for the setting of the institutional space provides a motive—to collaborate in support of the student's work—that is known to both individuals.

Therefore, sociocultural theories of learning and the concept of the ZPD in particular help to form a basic framework of how I understand learning and view interactions at a site such as the Hub.

**Interpretations of the Zone of Proximal Development.** In this study, I do not seek to instantiate a full-fledged notion of what the Zone of Proximal Development (ZPD) is in the virtual learning space of the Hub—in my view such claims would require a different study focused on longitudinal and ethnographic data. Therefore, I want to be clear in how the concept of the ZPD relates to my work. Given the scope of my study, in which students and tutors are engaging in initial interactions around newly created assignments and newly learned concepts,

and within a newly introduced multimodal tutoring environment, my focus is on beginnings. All participants were engaging with each other in ways that involved ideas, technologies, and strategies that were previously unfamiliar to them, and from a research perspective, these circumstances provide a unique opportunity to investigate interaction and meaning-making from the understanding that such activity was novel, in some respect, for everyone involved. Within this context, the idea of the ZPD relates to the beginnings of understanding competency in design and composition skills, as these ideas are co-constructed and negotiated, through the resource-rich environment of the Hub.

Because the ZPD is a familiar Vygotskian concept in many academic circles and has been taken up in myriad ways, I feel the need to provide a short examination of how it is utilized in some relevant literature and how the concept of the ZPD is relevant to my work. I will provide a discussion of how I used the ZPD concept in training tutors, as well as how some literacy studies scholars utilize the ZPD in different ways. I will also explain how I conceived of the ZPD as I approached data analysis; in particular, I look to Smagorinsky's (2011) discussion of features of the ZPD to inform my conception of the "buds" or beginnings of learning (Vygotsky, 1978, p. 86) that might be developing in tutor/student sessions.

***Mind in Society and other interpretations.*** In Vygotsky's *Mind in Society* (1978), the Zone of Proximal Development (ZPD) is first introduced in Chapter 6, "Interaction Between Learning and Development"; this introduction to the concept has garnered several readings in various contexts since then. Vygotsky's (1978) definition of the ZPD is: "It is the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" (p. 86). This definition has been interpreted and used in a

variety of ways in research and scholarship and is generally recognized as a classic text in education theory.

As I mentioned in the Introduction chapter, I included Vygotsky's (1978) chapter "Interaction Between Learning and Development" as part of the training materials for the Hub tutors, in addition to other readings pertaining to composition theory and tutoring practice. My use of the idea of the ZPD in training was intended to remind tutors that their work is grounded in theories about how people learn, which have in turn influenced practices of interaction. Tutors discussed the ZPD in conjunction with the idea that individuals learn socioculturally, and the two concepts seemed to complement each other. In particular, the ZPD specifically helped tutors develop an ongoing sense of their tutoring role; when we discussed what Vygotsky might mean by "more capable peers," (1978, p. 86) I encouraged tutors to see themselves as occupying this role in a negotiated way, as having several strategies, such as listening and questioning, to provide support to the student. Though Vygotsky's definition of the ZPD might be read as emphasizing power relationships between the more and less experienced participants, conversations among the tutors during training often turned towards how they could be non-directive in sessions, acting as a helper in sessions rather than experts. Therefore, in this context, "more capable peer" meant that tutors began to recognize both their own skills and their capacity to participate thoughtfully with students in working towards session goals, which is a more open framework than the child/teacher dynamic that Vygotsky was primarily referring to in his work.

While I utilized Vygotsky's definition to initiate conversations with tutors, I also recognize that scholars have instantiated the concept of the ZPD in very different ways in scholarship, which has an impact on how I personally utilize the notion of the ZPD in this dissertation project. There is a longstanding reciprocal relationship between literacy research and



Vygotskian theory, in which, as Lee and Smagorinsky (2000) point out, “modern applications of Vygotsky have contributed to research in literacy practices and development, which in turn have contributed to the evolution of Vygotsky’s theory of human development” (p. 1). For example, Cazden (1996) outlines three major interpretations of the ZPD employed by writing educators and researchers. Cazden calls the first interpretation of the ZPD one that focuses on inner speech and tacit knowledge. In developing this interpretation, she draws from Britton’s (1970/1992) idea of inner speech and the Goodmans’ (1990) whole-language approach to show how this reading of the ZPD rejects “explicit teaching” (Cazden, 1996, p. 172). The second reading of the ZPD Cazden discusses focuses on scaffolded assistance. Educators in this camp borrow Bruner’s idea of instructional scaffolds as applied to writing (Langer & Applebee, 1982) and extend scaffolding to what is known as the genre teaching of writing (Gray, 1987; Gray & Cazden, 1992; Cope & Kalantzis, 1993). The final interpretation of the ZPD that Cazden analyzes focuses on the politics of culture. Cazden specifically refers to Burgess (1993), who argues for a more expanded notion of “social” to include cultural/historical considerations as well, particularly paying attention to different challenges that learners from diverse backgrounds may encounter (Goodnow, 1993; Dyson, 1993). Cazden (1996) concludes by calling for an interpretation that reconciles the three notions, one that could “at least consider how the teaching of writing can be more than a ‘trade school’ and how it might contribute to the development of transferable capabilities of ‘awareness, abstraction, and control’” (p. 181). Cazden (1996) succinctly describes the place of the ZPD in literacy scholarship while also acknowledging how implicitly problematic it can be to have such varied definitions in the field under the same term.

Referencing Cazden’s (1996) piece in his work, Smagorinsky (2011) draws on other scholars as well as Vygotsky’s own writings to discuss and define the ZPD. In particular,

Smagorinsky (2011) also notes the difficulty in claiming a Vygotskian perspective amid so many different and often conflicting interpretations of key concepts like the ZPD. Smagorinsky (2011) warns:

if the ZPD is invoked without attention to issues of culture, intersubjectivity, the historical role of tool-mediated action in the setting of teaching and learning, and other issues that tie his ideas together, any reader ought to view the reference with skepticism. Otherwise, as is now the case, Vygotsky's work will continue to be treated superficially and misappropriated to suit authors' purposes and not to advance scholarship within the framework of his ideas (2011, p. 5).

In particular, Smagorinsky investigates both Vygotsky's own words on the ZPD as well as crafting a critique of what he sees as misappropriations of the ZPD in literacy research (2011). Because I draw heavily on Smagorinsky's (2011) interpretation of the ZPD, I will provide a detailed look at the components involved in this view. Smagorinsky (2011) often refers to the cultural context as crucial to understanding features of a ZPD, which he defines as "the setting.... [of] human interactions that are grounded in recurring patterns among people over time" (p. 289). Smagorinsky (2011) acknowledges that cultures can be conceptualized on either a large or a small scale, and that smaller idiocultures "may develop within particular small groups in classrooms" (p. 289). Given the scope of my study, I utilize the term cultural context within this narrower understanding of the settings and ideocultures of the Hub and the respective courses that the students are members of.

***Features of the Zone of Proximal Development.*** For the purposes of this study, I draw on Smagorinsky's (2011) understanding of the ZPD, which takes a sociocultural perspective in cultivating awareness of interrelated contextual considerations. Towards defining the features of

a ZPD, Smagorinsky (2011) writes, “I do not see a ZPD interpretation available unless the teaching and learning issues are broadened to include a social-cultural-historical grounding and perspective that takes into account issues of setting, telos, prolepsis, explicit mediation, goals, motive, intersubjectivity, [imitation] and other factors” that collectively tie Vygotsky’s ideas together (p. 261). While my study did not have a broad enough scope to sufficiently include a fully instantiated social-cultural-historical perspective, I could investigate several of these component features of what constitutes the ripe conditions for—or beginnings of—a ZPD. Indeed, I will later show how several of these features were visible in the one-on-one sessions between tutors and students; such features comprise the necessary conditions, or beginnings, of an interaction that might be considered a ZPD, which Smagorinsky (2011) discusses more fully in his work. Mentioning Cazden’s (1996) analysis, Smagorinsky (2011) rejects the scaffolding metaphor used in Bruner, Wood, and Ross (1976) because scaffolding can be viewed as inflexible. In the literal interpretation of a physical scaffold, Smagorinsky (2011) claims that such a view only implies one possible direction to proceed as well as placing too much focus “on the teacher as expert” (p. 53). Instead, Smagorinsky (2011) aligns with Dyson’s (1990) metaphor of weaving, which preserves the alive and mobile nature of learners in a fluid structure that can move and change, providing a more democratic and collaborative context for interaction.

Acknowledging that Vygotsky’s conception of the ZPD is broad and includes a variety of factors, Smagorinsky (2011) argues that composition scholars have tended to emphasize particular aspects and interpretations of the ZPD. Much like Cazden’s (1996) review of interpretations of the ZPD, I shall briefly touch on scholars’ work that contributes to the features of Smagorinsky’s (2011) understanding that influences my work. In particular, I will discuss

these features a few at a time in order to make distinctions between them and to show which ones are likely to be most relevant to my work.

*The social context (setting) for learning.* In determining when individuals are in a ZPD, one must take into account the setting in which the interaction, and hence the learning, occurs. According to Smagorinsky (2011), the setting “assumes the intersection of individual potential and cultural mediation” (p. 54), which draws directly from Moll’s (1990) conception of the ZPD, posits that a ZPD is not limited to a narrow view of teacher-learner dyads but rather has to do with the learner’s conscious awareness of cultural tools as the learner works toward mastery of such tools in their social context. The etymology of the term “context,” as discussed by Cole (1996), fits nicely with the “weaving” metaphor suggested by Dyson (1990) in viewing the ZPD as flexible and involving several paths and progressions toward a learning goal, as opposed to a rigid view of the ZPD as a scaffold with specific stages and paths.

In line with this weaving metaphor is Rogoff’s (2003) work, which recognizes the shared knowledge among participants in sociocultural activity as a key feature of the setting in which learners thrive. In emphasizing the importance of cultural context, Smagorinsky (2011) points out that understanding the ZPD as part of a “sociocultural perspective enables researchers to study people’s use and transformation of cultural tools and technologies and their involvement and participation in the social, discursive, and cultural practices of their families and communities” (p. 57). Importantly, such practices are not fixed; the learner’s mind is “elastic...[and] cognitive development [is]... unbounded in terms of its scope and potential for growth” (Smagorinsky, 2011, p. 57). In my work, I shall view the setting for a potential ZPD in this same manner, as flexible space for the use and transformation of tools and technologies, as

understood within the situated social and cultural context of the individuals' tutoring sessions and respective classes.

*Tools with specific values and uses.* Building on the above discussion of the setting for learning, the tools and technologies within the setting are imbued with specific values and uses by tutors and students that may be subject to change given the tools' and technologies' sociocultural appropriations. Vygotsky's student and collaborator Leont'ev (1981) built on Vygotsky's (1978) view of tools as primarily speech signs associated with cognitive development, wherein the learner "acquires the ability to create structures of a certain type, regardless of the diverse materials with which she is working and regardless of the particular elements involved" (p. 83). The focus remains on the learner's development, but Leont'ev (1981) builds on this idea of "the diverse materials" with which the learner works, extending Vygotsky's ideas to establish a broader conception of mediating tools as both psychological tools such as language and genres as well as tangible tools that the learner physically manipulates. Smagorinsky (2011) points out that this shift from Vygotsky's narrower conception to Leont'ev's (1981) explicitly broader view of mediating tools in the ZPD formed a "theoretical bridge" that allowed scholars to investigate the "ways in which social action produces changes in consciousness" (Smagorinsky, 2011, p. 55). In my study, I will be interested in how these sessions constitute the beginnings of new forms of social interaction and to what extent changes in consciousness are occurring or not around mediational tool use.

In adopting Leont'ev's (1981) view of mediational tools within the ZPD as connected to the larger scope of societal interaction, researchers such as Rogoff (2003) recognized the powerful ways that individuals' learning extends as a sociocultural process of situated development. As I extend these understandings to my own work, then, I view activity involving

mediating tools as comprising engagement with corporeal or digital objects (texts, computers, etc.) as well as the invisible structures of language, including grammatical, semantic and genre-specific conventions that carry rhetorical significance. In the Hub setting, tools are multiple and sometimes unfamiliar for individuals as they engage with each other to make meaning within the situated context of the session, the assignment and the student's class. As I engage in analyzing data, it will be important to remember that "tools have no inherent value and use, but take on meaning as tools with specific values and uses through the cultural-historical functions that members of a society have found for and attributed to them" (Smagorinsky, 2011, p. 59). Tools do not inherently signify as useful in a learning process until the individuals imbue them with useful significance in the context and goals of the interaction. In my study, I draw on the New London Group's (1996) notion of Design as an additional lens to understand how tools, both physical and intellectual, invite individuals into certain practices. In the context of my data, tools fall within categories and include Available Designs (New London Group, 1996) that are physical, such as the instructors' exemplars and the David Underwood design principles video lectures, as well as intellectual, such as concepts of rhetorical conventions and the theoretical applications of the composition platform in Google Slides. An important part of coding and data analysis in this study is to unpack and articulate the various tools utilized in Hub sessions.

*Goal congruence and intersubjectivity between participants.* Another element of a ZPD that Smagorinsky (2011) argues must be considered is the degree of goal congruence that exists between individuals in an interaction. For example, Newman, Griffin and Cole (1989) point out that in a classroom context, not all students may interpret the teacher's goals in the same way due to individual and cultural differences that may coexist in a particular learning environment; furthermore, the teacher may hold assumptions about how the students understand the teacher's

goals. Smagorinsky (2011) builds on Newman et al (1989) to explain that goal congruence works on both broad and specific levels of the learning context: “goal congruence refers to the degree to which teachers and students share broad dispositions toward school and its value, and thus participate willingly in instructional activities with reasonably similar understandings of why tasks are carried out in classroom settings” (p. 63). In my work, I use goal congruence to refer to a state of tutors’ and students’ shared understanding of the goals pertaining to the task at hand.

Goal congruence is actually a component part of a larger concept of intersubjectivity, or when participants are “on the same page” in relation to one another. According to Smagorinsky (2011), intersubjectivity is when “different people share a construction of the setting and understanding of the basis for how the setting is interpreted by others,” which becomes especially important “in understanding cross-cultural communication in which different interpretations of the same material and ideas are at work” (p. 292). Though this study does not focus on cross-cultural communication due to the narrower focus on the idiocultures of the Hub and the online courses and assignments, I realize that all individuals involved in the study are members of broader cultures as well, and I do not want the scope of this project to potentially flatten those differences and how they may impact tutor/student interactions. Rather, I recognize that intersubjectivity and goal congruence are crucial elements of a ZPD because individuals must communicate with one another within the context to imbue tools and activity with shared meaning. There are varying degrees of intersubjectivity that take place throughout an interaction as participants discover more about each other and negotiate meaning in real time, and goal congruence is a specific kind of intersubjectivity that can be achieved in an interaction. New understandings rather than false assumptions between individuals are promoted when different constructions, experiences and beliefs are made explicit whenever possible.

*Explicit mediation, prolepsis and imitation.* As tutors and students interacted in Hub sessions within a potential beginning of a ZPD, the nature of the mediation, or medium that facilitates development, could vary; forms of mediation could be different or multiple. Explicit mediation is often associated with the teacher or more experienced person and their efforts to engage the learner explicitly with tools and activities (Heath, 1983; Smagorinsky, 2011). For example, Freedman, Delp and Crawford (2005) showed that students can operate within a ZPD when the teacher's explicit mediation is either at the whole-group level or in teacher-student interactions. In contrast to explicit mediation, prolepsis describes "forms of mediation that are implicit or difficult to trace" (Smagorinsky, 2011, p. 295), which shape the social trajectory of the interaction without having explicit rules or other traceable means. Learners in a ZPD may be influenced by both explicit mediation and prolepsis, perhaps simultaneously; these complex mediational means are evidence of why a critical awareness of the sociocultural context and setting of an interaction are important in researching ZPD interaction.

Whether or not mediation is explicit, there is also room within the ZPD for individual agency, which Vygotsky described through the concept of imitation. Rather than to think of imitation as thoughtless mimetic activity or training, as one might train an animal, Vygotsky (1987) thought of imitation as an active opportunity for the learner to experiment with new ideas and learn something "fundamentally new" (p. 210). Van der Veer and Valsiner (1991) build on Vygotsky's discussion of imitation and see it as an opportunity for the learner to engage with new material in insightful ways as part of their cognitive development. Smagorinsky (2011) further clarifies that "this capacity for insightful imitation is illustrated by the role of play or experimentation as a way of helping to create a zone of proximal development" (p. 51). Here play has less to do with fun and more to do with purposeful experimentation within certain



parameters of existing models. In my research, the concept of imitation may prove especially useful as learners examine and manipulate existing resources for their given assignments.

*Telos and evidence.* Lastly, in investigating the features in which a ZPD can be understood, the researcher must be aware of assumptions involving telos and evidence, which Smagorinsky (2011) discusses as different from goal congruence. Just as the researcher must be aware of individuals' assumptions related to goal congruence, the researcher must also be aware of the assumptions around telos, or the optimal outcome of a given situation as implied through cultural context (Smagorinsky, 2011). Assumptions of telos are connected to assumptions about what counts as data in educational research and what is viewed as evidence of learning. For example, Heath (1991) pointed out that assessments in schools should be in some way congruent with prior learning experiences that would help them meet academic goals. Heath's (1991) point recognizes that assumptions of optimal performance may flatten differences between individuals and result in biased and inaccurate assessment. This example connects to other studies of students from nondominant communities who have been unfairly represented as deficient due to this lack of awareness on the part of educators (Moll & Greenburg, 1990), revealing that telos is an issue of broad implications. Likewise, because educational research influences practice, researchers must be aware of telos in establishing data and evidence in their studies and avoiding bias. For example, Luria (1976) has been critiqued by other scholars due to his implied ideas of optimal performance when he described his study participants in denigrating terms, which showed that his Russian middle-class background was the norm or optimal perspective in his view (Smagorinsky, 2011). Such bias can lead to research conclusions that in turn create inappropriate policies for groups of people. Rather, as Smagorinsky (2011) suggests, "Researchers need to acknowledge the social construction of the mediational tools provided for

learning... and reflect on how their own implication in the research process affects teaching and learning and the evaluation of both” (p. 73-74). This awareness is a feature of a ZPD, as discussed by Smagorinsky (2011), that may be important as I analyze my data at the Hub.

***The ZPD and my study.*** I have provided a discussion of how Smagorinsky (2011) has identified features of a ZPD in interaction between learners, and I feel that these features were important to keep in mind as I created specific categories and codes for examining data. Given the narrow scope of my study in which data captures only single sessions between tutor and student, I am interested in the various beginnings present in my study—how students approached new course assignments that asked them to take up new lessons in design and multimodal composition in collaboration with tutors who are likewise new to this kind of tutoring. I entered into the data curious about the nature of the tutor/student interaction, their talk and semiotic communication, and tool use as they engaged with artifacts and resources. Thus, I recognize that my research context is different from previous literacy studies about the ZPD that either sought to reveal a ZPD or did not break the ZPD concept down into these component features. A major accomplishment of this study will be to simply reveal features of session interactions as representing beginnings in an understanding of what a ZPD might look like in a digital, multimodal, synchronous learning environment.

### **Multiliteracies Theory, Design and Multimodality**

My work in researching the Hub grows out of the concept of multiliteracies, and in particular Design, (New London Group, 1996), which leads to a broader conception of composition within multimodality theory (Bezemer and Kress, 2008). Therefore, a brief background is necessary to establish these theoretical perspectives and to define my terms.

## **Literacy as Plural**

Literacy, as I broadly conceive it in my work, is a malleable collection of social and cultural communicative practices shared by group members as they make meaning. Research on writing and reading has led to expanded notions of literacy, or more accurately understood as literacies, whether written in the singular or plural form (Sperling & DiPardo, 2008), and more recently, research has taken a broader view of composition to indicate works of communication that include multiple modes, such as visual, aural, spatial, etc.; therefore, a person may be said to be “literate” across domains and subject areas. Digital multimedia and students’ utilization of various technologies, in particular, are of increasing interest. Given that new technologies are rapidly changing the landscape of literate environments, 21st century individuals must be adept at communicating within and between varieties of meaning making modes (Lankshear & Knobel, 2003; National Writing Project, et. al., 2010). According to The NCTE Position Statement on 21st Century Literacies (2008/2013), contemporary learners must “develop proficiency and fluency with the tools of technology” in order to participate in a wide variety of literacies and activities. By delineating the goals of 21st century literacy education, the NCTE makes an official stand that draws together more than two decades of research and theory on emerging technologies and literacy (Bezemer & Kress, 2008; Burn, 2009; Cope & Kalantzis, 2000; Gee, 2000; Kress, 2003; Lankshear & Knobel, 2003; Sanders & Albers, 2010; Street, Pahl, & Rowsell, 2009; Street, 2003). Thus, when I refer to literacy throughout this project, it is within this contemporary understanding that implies plurality and digital and semiotic tools as well.

**Multiliteracies and the New London Group.** Another term closely knitted to literacies as I describe it above is multiliteracies—a theoretical concept proposed by The New London Group (1996) that has had an important impact in education literacy research as well as writing

center scholarship. The term multiliteracies has a dual definition: “the multiplicity of communications channels and media, and the increasing saliency of cultural and linguistic diversity” (New London Group, 1996, p. 63). Thus, multiliteracies means both recognizing the importance of diverse cultural dialects and languages as well as multimodal and digital semiotic forms of communication in the modern world; both definitions should have an impact on the design of education (New London Group, 1996). Throughout my work, I use this same definition of multiliteracies, both in its noun form and also as an adjective, as in multiliteracy center—which is a common usage in writing center scholarship.

Because multiliteracies is both a compelling and loaded term as it is defined by the New London Group (1996), some of the authors of that article continued to write about the concept to further clarify its meaning. For example, Mary Kalantzis and her co-authors (2003) further draw the two definitions of multiliteracies in line with each other, for “not only do local diversities/global proximities mean that communication is increasingly a matter of negotiating discourse differences. The new technologies of the ‘virtual’ also allow the creation of ever-more dispersed and differentiated discourse communities... requiring new communicative competence in an era of cultural pluralism” (p. 18). By referencing virtual technologies and establishing the contemporary context of multiliteracies, Kalantzis et. al. (2003) make a compelling argument for a revised notion of “basic” skills in pedagogy, which later aligned with the NCTE’s Position Statement on 21st Century Literacies (2008/2013) after over a decade of research added to the saliency of the New London Group’s (1996) work.

Indeed, as the New London Group (1996) article attracted wide interest, research on literacy and composition exploded with a variety of studies that explored the “fluid, globally distributed spaces that compose the milieu of digital literacies” (Sperling & DiPardo, 2008).

Researchers have been investigating the wide variety of students' meaning making and identity representation through many digital and multimodal tools and platforms (Dalton et al, (2015); Gutierrez, Bien & Selland, 2010; Lam, 2009; Pahl, 2009; Paris, 2010; Stornaiuolo, Hull, & Nelson, 2009) as well as how these might be utilized in the classroom and assessed (Alvey, et. al., 2011). Students' wide-ranging participation in digital literacies—or literacies that involve the use of digital tools and media—suggest that such activities lend a sense of connectedness, purpose and motivation (Knobel & Lankshear, 2007), which can have clear implications for classroom practices (Hull & Nelson, 2005). Such implications circle back to the New London Group's (1996) call for a pedagogy of multiliteracies that reimagines what role communication and English classes have within institutions, though the hard work of truly designing and implementing these concepts are still emergent in the field. As Sperling & DiPardo (2008) point out, “efforts to understand and address the challenges and opportunities of these new technological, social, and global contexts are meanwhile beset with questions as old as the field of English education” (p. 89-90). These questions have to do with what the activity of school literacy classrooms should include, given an era of high-stakes testing and conservative standardization, as well as the larger social question of who educators want students to become as they learn the skills that hopefully equip them for active participation as citizens of a global community. Although the answers are emergent and unclear, it is certain that the field of literacy research, just like the literacy practices it studies, will remain fluid and dynamic as researchers and practitioners pursue online and multimodal learning spaces such as the Hub.

**Semiotic Metalanguage of Design.** The New London Group (1996) called attention to the semiotic metalanguage—specific language used within the context of a larger concept—of design that is inherent in crafting and working with multiliteracies; the term design (as opposed

to Design, which I will discuss shortly) was chosen “to describe the forms of meaning because it... is a sufficiently rich concept upon which to found a language curriculum and pedagogy” (p. 73). The concept of design, in calling attention to the semiotics of composition, “had a felicitous ambiguity: it can identify either the organizational structure (or morphology) of products, or the process of designing” (New London Group, 1996, p. 73). In becoming more specific about the idea of design as it relates to multimodality, the authors provided a figure labeled “Multiliteracies: Metalanguages to Describe and Interpret the Design Elements of Different Modes of Meaning,” (the New London Group, 1996, p. 83) to serve as a conceptual model of the metalanguages of multimodality. The New London Group (1996) employs multimodality as part of multiliteracies, but to avoid the danger of conflating these two terms, it is important to remember that multimodality theory (Kress, 2010; Kress, 2003; Kress & van Leeuwen, 2001; Sanders & Albers, 2010) refers to the semiotic modes of meaning making, including linguistic, visual, gestural, audio, and spatial elements (Kress, 2010). A multimodal perspective acknowledges that different modes have different affordances for composition, and the interaction between modes is significant for communication. Building on this, multiliteracies refers to multimodal and digital forms of communication as well as an attention to the saliency of diverse cultures and languages (Kalantzis et. al., 2003). However, just because a product is described as multimodal does not necessarily imply its inclusion in the concept of multiliteracies; the terms are therefore not synonymous, just closely related. I make this distinction because I also use the terms multimodality and multiliteracies in closely related but separate ways in my work.

**Design with a Capital D: Available Designs, Designing, and the Redesigned.**

Stemming from the above discussion of multimodal semiotics and design more broadly, I also see the New London Group's (1996) more theoretical notion of Design as a key feature of how composers make meaning in a multiliteracies context. Because Design can signify either a noun (structures, features) or a verb (the process of Designing) (New London Group, 1996, p. 73), it becomes an important way to both discuss and engage in the intellectual practices of composing and the semiotic multimodal activities of making meaning. This theoretical concept involves three components: Available Designs, Designing, and the Redesigned. Available Designs serve as pre-existing models and include orders of discourse and works within an intertextual context (New London Group, 1996, p. 74-5). Using Available Designs, individuals engage in Designing, which is productive and makes use of new materials through reading, composing, seeing, listening, etc. (New London Group, 1996, p. 75). The outcome of the Designing process is the Redesigned, "a new meaning, something through which meaning-makers remake themselves" based on their own personal subjectivity and agency, never a reproduction of an Available Design (New London Group, 1996, p. 76). Thus, as learners draw on Available Designs to engage in a process of Designing, their transformation of meanings is inherently part of a social process—the Redesigned, or a "sedimentation of meaning" that is both new and old as the learner draws on and refigures the known in a unique way (New London Group, 1996, p. 81). The Redesigned then becomes a new Available Design as the process of Design continues.

As a theoretical model, Design is useful in my work as I examine the beginnings of how participants in the Hub interact with models and resources as they utilize new tools to create their products. While Smagorinsky (2011) indeed provides a comprehensive understanding of a ZPD,

I borrow the flexibility inherent in his discussion of the ZPD and combine it with the New London Group's (1996) concept of Design; importantly, I will not take on too-ambitious understandings of the ZPD that otherwise might seek to assume a ZPD from being established in this context. Rather, I am only interested in how sessions may reflect a variety of *beginnings*—beginnings for the service's work, beginnings for the tutors' roles as multiliteracy tutors, beginnings for the students' proficiency with online multimodal work. Thus, my analysis will speak directly to beginning ways for looking at emerging ZPDs.

### **Writing Centers**

Given that the setting for my work is an online multiliteracies center, I would be remiss to neglect the important influence that writing center scholarship and the field of rhetoric and composition has had on my intellectual trajectory. I have been a longtime participant at conferences and in professional networks that focus on writing centers, and I recognize how the history of the field has been so deeply formative in ongoing writing center theory and practice as directors and practitioners begin to move towards the notion of multiliteracy centers. Therefore, in the below section, I will touch briefly on the rich history of writing centers in general (which is more fully elaborated in the work of Barnett & Blumner (1996), Christenbury (2010), Kelly, (1980), Lerner (2009), Murphy & Law (1995), Myers (1996) and Smagorinsky (2006), among others), before moving to a discussion of multiliteracies (New London Group, 1996) as taken up in multiliteracy centers.

### **Historical Context of Writing Centers**

Writing centers are chameleonic in their ability to fit the different contexts and opportunities of their respective institutions (Feltenberger & Carr, 2011; Lunsford, 1991/2010). As a social environment shaped by the people who dwell there, writing centers adapt as different



theories, pedagogies, research and demographics change over time. Because writing centers are spaces where composers can receive help with their work—often in a one-on-one student-tutor format—it stands as a unique space in the educational institution, a contact zone between students and their instructors where focused learning can take place. As support services “on the ground,” writing centers also act as a window onto a changing landscape of literacy in the 21st century. While scholars and researchers theorize about the affordances of new literacies, writing center practitioners are among the ones who actually employ new strategies with composers.

The roots of the writing center’s development stem back to the educational climate of the turn of the twentieth century. During this time, unprecedented numbers of immigrants were arriving in the United States, and Eastern cities like New York were undergoing rapid social change; schools quickly standardized expectations in an effort to keep up with an overwhelming influx of students with a wide range of English proficiency and educational attainment (Christenbury, 2010). Originally seen as progress and a way to create an equal bar for all students, the changes in school standards resulted in rigid pushback reforms, though teachers did begin to confer with students despite restrictions on time, space and resources (Lerner, 2009; Gere, 2010). After the National Council of Teachers of English (NCTE) was born in 1911 (Christenbury, 2010), what is now known as current-traditional rhetoric (CTR) was the prominent theoretical foundation for teaching writing (Berlin & Inkste, 1980; Berlin, 1980), which focused on grammatical correctness, sentence structure, word choice and other technical elements so that writers would not make careless errors (Berlin, 1987). CTR remained the dominant theoretical approach to the teaching of writing until the 1980s, despite Dewey’s experiments with experiential learning, minor interest in emotion and the writer’s self, and

during the 1930s-1960s, through shifting political periods that privileged epistemological research on composition (Berlin, 1987).

The very first writing centers as they are recognized today began to develop inside universities and colleges in the mid-20th century and have continued to evolve and change (Barnett & Blumner, 1996; Kelly, 1980; Lerner, 2009; Myers, 1996; Murphy & Law, 1995; Smagorinsky, 2006). Though there are also examples at other institutions (Lerner, 2009), one early writing center started at The University of Iowa in the 1930s with Dr. Carrie Stanley, who met one-on-one with her writing students in “conferences” to offer advice and work on the writing through a dialogic practice that would later become standard in writing centers (Kelly, 1980). Unfortunately, as the university adopted Stanley’s program as an official service, Iowa’s Writing Lab came to be seen as a “fix-it shop” that was supposed to focus on remedial skills (Kelly, 1980). United in the general CTR concerns of the time, similar remedial writing center services developed in other institutions. However, beginning in the late 1960s and throughout the 1970s and 1980s into the 1990s, an epistemological shift occurred as rhetoric and composition emerged from English as a distinct field of scholarship (Carino, 1995; Kelly, 1980; Lerner, 2009; Smagorinsky, 2006). In tandem with this shift in the profession and influenced by teachers’ practice (Emig, 1968), expressivism, with its emphasis on voice, personal narrative, and expressing the self (Atwell, 1987; Elbow, 1973; Emig, 1968; Murray, 1972), led to thinking of writing as a process, just as the sociocultural turns in literacy research led to evolving conceptions of the nature of writers’ processes (Erickson, 1984; Scribner & Cole, 1981). This historical context reveals the chameleonic nature of writing centers in institutions and how they have shifted over time, as impacted by the politics of the academy, rhetorical theory, and

practical urgencies. This context is important to my study because it reveals how practitioner and director lore of best practices have shaped the current literature of the past two decades.

Starting in the 1990s, there was an increasing professional awareness that interdisciplinary work and new technologies had shifted conversations about the nature of literacy. Literacy research in the field of education had already revealed that literacies comprised complex, socially mediated activities (Erickson, 1984; Heath, 1983), and rhetoric and composition scholars became attuned to the growing importance of multimodal digital communication and diverse language practices promoted a pedagogy of multiliteracies (New London Group, 1996). However, research in writing centers was slower to catch on, for practitioners continually felt at the “margins” of their respective institutions (Harris, 1982; Lunsford, 1991/2010; Brannon & North, 2000) and research on writing center work continued to privilege anecdotal evidence over social science methodology. Heading into the 21st century, process approaches still remained at the forefront of writing center pedagogy, but eventually interdisciplinary theoretical perspectives began to reframe the landscape of writing center scholarship; in particular, social constructionism and Vygotsky’s (1978) sociocultural ideas of the social nature of learning were also influential in how process approaches were enacted (Hewett, 2010).

Writing centers continue to be flexible spaces that fit the needs of their respective institutions, and writing center practitioners continue to engage in both conversations of administrative concerns, such as best practices in training new tutors, as well as scholarly work concerning writing center theory and research (Murphy & Sherwood, 2011). Praxis is still largely informed by process-movement conceptions, but other theories and frameworks are increasingly taken up in writing center work from across different disciplines such as education,

linguistics, English literature, and anthropology. Major trends in writing center scholarship, aside from the administrative conversations mentioned above, include: English as a Second Language (ESL) concerns, applications of interdisciplinary theories and their affordances, and a focus on multimodality and multiliteracies. As someone who is very familiar with writing center scholarship and engaged in the professional field, I remain aware that the considerations and trends I have described above all have a bearing on my intellectual history and approach to my work in researching the Hub.

### **Issues and Gaps**

As I revisited writing center scholarship in general and multiliteracy center work in particular in designing the Hub, I noticed that one thing is nearly always taken for granted: the multiliteracy center or space itself is a physical location and the interactions that take place between tutor and student are face-to-face in real time (Sheridan & Inman, 2010). Yet, online writing centers are simultaneously gaining traction as virtual extensions of physical writing centers. Though scholarly work devoted to online writing center spaces is less common, Beth Hewett (2010) is among the lead authors discussing online consulting practices, as in her book *The Online Writing Conference: A Guide for Teachers and Tutors*. Although this text does not specifically focus on online writing centers, it does address several problems that those who tutor online sometimes face, such as the possibility of miscommunication in print-based synchronous conversations or the danger of editing too much in asynchronous sessions conducted via email. Hewett (2010) uses specific examples from real tutoring sessions, and from these data, she sets forth recommendations for both the training and practice of online writing tutoring. For my purposes, I draw on Hewett (2010) as a relatively contemporary example of work on what have historically been referred to as OWLs, or online writing labs. Older work on OWLs tends to

discuss problems with technology and describe sessions that take place predominantly asynchronously, where the student paper is emailed back and forth with comments (Harris & Pemberton, 1995; Hewett, 2010; Inman & Sewell, 2000). While this scholarship is still relevant and useful in some ways, it largely does not support the designing of online writing centers that use new synchronous digital tools, such as Skype and Google Drive, to create synchronous sessions, or sessions that occur with real-time communication between students and tutors (for clear definitions of how I use the terms synchronous and asynchronous, see Appendix A). My work will address this gap in revealing how such digital synchronous tools can be utilized in the design of online learning environments and how tutors and students in these environments engage with compositions.

### **Need for Systematic Research**

In addition, because contemporary research on online multiliteracy centers pertinent to this study was difficult to find in the current literature, and related pieces on multiliteracy centers and online writing centers were few in number and frequently reprinted (Lee & Carpenter, 2013; Murphy & Sherwood, 2011), it seems that online multiliteracy center scholarship is a niche that is still in need of building critical mass in published works. The general rhetorical maneuver in many of the aforementioned texts on multiliteracy centers and online writing centers is to point out that a given scholar's work has implications for future research without actually citing or producing any studies or social science research. For example, in his introduction (2010) to *Multiliteracy Centers*, Sheridan remarks that “nearly every sector and institution is participating in a shift that involves more capacious embrace of semiotic possibility: an embrace that comprehends images, words and sounds” yet then poses the rhetorical question to his writing center practitioner readers, “how far are we willing to go?” only to answer his own question:

“this collection *is an attempt* to explore that question” (p. 4-6, italics mine). Perhaps as a response to the type of scholarship that “attempts,” Babcock and Thonus (2012) state that “writing center scholarship has been largely artistic or humanistic, rather than scientific, in a field where both perspectives can and must inform our practice” (p. 3). In *Researching the Writing Center: Towards an Evidence-based Practice*, the authors work toward social science models of research rather than simply making praxis-oriented suggestions based on anecdotal evidence from the authors’ own teaching, stories overheard from colleagues, or generalized retellings of situational incidents (Babcock & Thonus, 2012; DiPardo, 2013, personal communication).

Therefore, I agree with Babcock and Thonus’ (2012) statement of the need for more balanced sources of research, and their book presents increased institutional viability as the goal of an extended argument for how and why writing center scholars should be doing “scientific” research. Yet, Babcock & Thonus (2012) produced guide with their text, rather than a book that actually presents the results of an extended study with explicit methods. The scientific research usually conducted in the social sciences (that which requires IRB approval and a clear methodology and analysis) is rarely found in the literature on writing center work, and this silence is both noteworthy and problematic for a field that is constantly trying to reinvent itself as a peer to other scholarly disciplines (Babcock & Thonus, 2012; Feltenberger, 2012). Though there are likely logical reasons for this silence—such as a perpetual disconnect between what writing centers hope to do and the “fix-it” shop institutions perceive them to be, the lack of time writing center administrators have to conduct research and juggle other pressing concerns, or the circumstance of many writing center practitioners coming out of English literature-based humanities where social science research is uncommon—for whatever reason, the field is lacking

research studies that explore the effectiveness of online multiliteracy centers and reveal how learning may occur in such spaces. In conducting this dissertation study, my work directly addresses this gap.

### **Research Trajectory**

As Sperling and DiPardo (2008) note, “just as the term literacy has shifted to the plural, so too is the ‘research-practice relationship’ more appropriately cast as a diverse range of intellectual stances, enacted strategies, and nuanced patterns of effect” (p. 96). In addition, Babcock and Thonus (2012) state, “writing center scholarship is a young field, and the direction(s) in which we will grow depend upon the decisions we make today about the definitions of and the connections among theory, inquiry, and practice” (p. 3). With these statements in mind, I drew upon the milieu of my professional training, theoretical views and experience, my access to the Hub, and the facets of my positionality to inform my research questions (Chapter 1). In particular, I used my interest in the concept of the ZPD (Vygotsky, 1978) and the multiliteracies notion of design (New London Group, 1996) to narrow my field of inquiry to examining tutor and student interactions within the context of an online multimodal composition session. I worked to establish sub-questions for my research that reflected specific features of the ZPD that led to categories and codes for data analysis as I will discuss in the Methodology chapter.

## CHAPTER 3: Methodology

I conducted a qualitative study of the meaning-making practices tutors and students engaged in while working with design-based assignments in the multimodal context of the Hub. In particular, the main research question of the study was: What is the nature of the interactive processes of students and tutors, as situated in an online multiliteracy center and mediated by digital tools and modes? How does this interactive process suggest the ‘beginnings’ of working within each students’ ZPD?

Sub-questions:

- How do students and tutors in a virtual environment communicate as they conference about the students’ Google Slide Show compositions? What is the nature of their talk and how does talk interact with non-verbal, on-screen interaction? How do tutors and students use the digital tools and modes available to them to communicate and engage in design of their compositions? How do the tools and modes support and constrain the participants’ interactions?

To help me focus on the *beginnings* represented in the interactions at the Hub, I collected screencast video data that captured entire sessions; I then designed two phases of data analysis that allowed me to hone in on key elements pertaining to the multimodal nature of the interaction. The following chapter will provide an overview of the background of the study, research participants, data collection, data analysis, and the role of the researcher.

### **Background of the Study**

#### **Brief History of the Hub**

The primary research setting for this study was the Hub, an online multiliteracy center



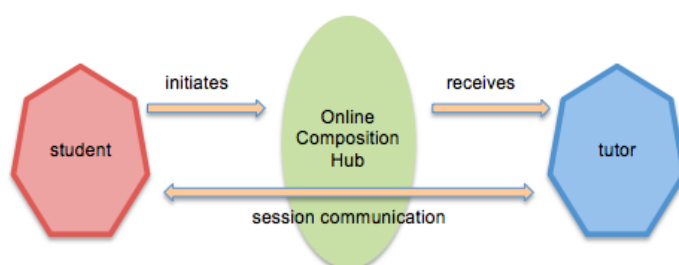
provided by CU Boulder's Division of Continuing Education that exists virtually rather than in a physical location. This site was a perfect fit for the focus of the study and the nature of the research questions for several reasons. First, the Hub employed synchronous online tutoring and multimodal interaction with the ability to capture sessions in real time through screencast videos. Second, as the service began to be known as an online multiliteracies center in Spring 2014, tutors helped students with both content and design of compositions, depending on the students' needs. Lastly, I selected this site because of my role as coordinator of the program at the time and the support and access I had as a result.

As discussed in the Introduction chapter to this dissertation, I played a key role in creating this service for the Division of Continuing Education. I worked with Director of Online Learning Geoffrey Rubinstein to establish the Hub through a website that housed how-to resources and a scheduling software, WOnline, that would facilitate students' appointment-making. Initially, the pilot version of the service, which ran from Summer of 2012 until Summer of 2013, assisted students with textual assignments through the use of Google Docs and Skype. During this time, the Hub employed three tutors including myself--I worked as both a tutor and the coordinator. I wrote an IRB to begin gathering data on this service beginning in the Fall semester of 2012, and the same IRB was amended with exempt status to cover this dissertation study. In the Fall of 2013, the service expanded and employed five tutors, including myself, during the period in early 2014 when the study took place.

Because the Hub is an online tutoring service and there is no dedicated physical space where interactions occur, students and tutors have the ability to meet wherever they have consistent access to the Internet to engage in sessions using laptop or desktop computers. The physical flexibility of the Hub to meet its users' needs is an affordance of its service. Therefore,

the setting of the proposed study was primarily virtual, with a secondary physical setting of the main campus library for in-person meetings with course instructors or tutoring staff.

A broad description of Hub procedures is as follows: students visit the website [www.composition.colorado.edu](http://www.composition.colorado.edu) to make an appointment, the tutor receives a confirmation email that the appointment has been made, and then tutor and student meet at the appointed time in a shared online document in Google Drive to engage in the session. Below is a diagram of the directions of communication necessary to facilitate sessions:



*Figure 1: Diagram showing the directions of communication at the Hub in order to engage in a session.*

The Hub functioned via the website [www.composition.colorado.edu](http://www.composition.colorado.edu), where students learned about session procedures through detailed instructions on the “‘How-To’ Support for Our Sessions” page. Clients could choose a tutor to work with on the “Meet Your Tutors” page and access additional web resources under the “Resources” page. Clients could locate the coordinator’s email address under the “Help” page and connect to the Hub’s social media presence via the “Like Us on Facebook” link. The front page included “About” information concerning services provided and showed a sample screenshot image of what a session typically looks like on a student’s computer screen.

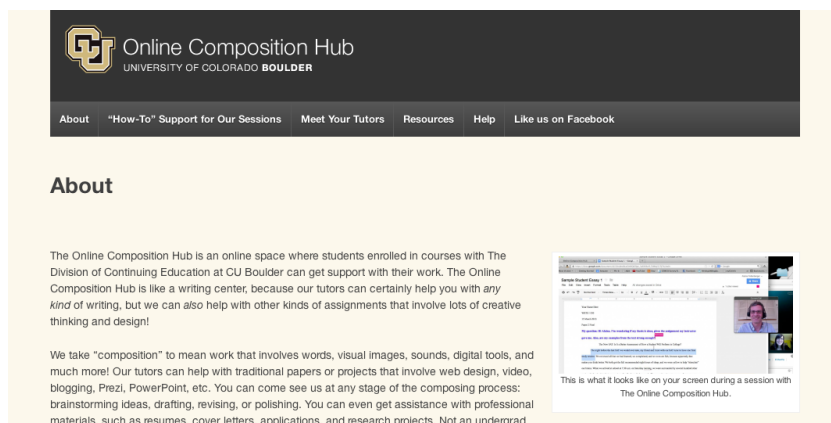


Figure 2: Screenshot of the Hub's home page.

As students scrolled down this opening screen of the Hub's webpage, there was a large screencast video embedded in the site that provided detailed instructions on how to use the service. This video walked a prospective student through the process of navigating the website, finding out about the types of sessions offered (synchronous or asynchronous), creating an account on the scheduling system and booking an appointment.

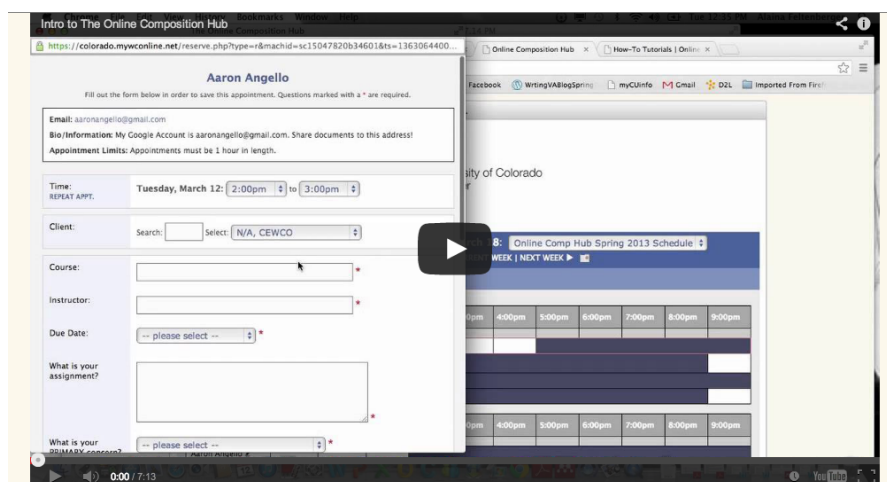


Figure 3: Screenshot of how-to video on the Hub's home page.

Additional information about both the website and the scheduling system, including tutor forms, student forms and surveys, is available in Appendix C.

**Tutor training.** Tutors at the Hub were trained through a series of workshops and

activities. The coordinator assigned readings pertaining to education and composition theory and facilitates structured conversations around these readings. Tutors attended workshops to learn new digital tools and a variety of tutoring strategies, such as methods of working with students who speak English as a foreign language. Tutors gained hands-on practice providing feedback on sample student works and role-play sessions to help gain confidence in their tutoring practice. Ongoing professional development for tutors occurred on a monthly basis and included additional readings and group discussions of questions about their work. The coordinator also engaged in monthly check-in conversations with each tutor via Skype to discuss any questions or concerns.

### **Going Multimodal**

Beginning in the Spring 2014 semester, the Hub began advertising itself as an online multiliteracy center, or a service that could help students with multimodal works. To increase the number of students with multimodal compositions utilizing the service, I began working directly with online instructors employed through the Division of Continuing Education to provide support in creating multimodal digital assignments. The design of this study was purposely timed for the beginning of these instructor/Hub relationships to investigate the meaning-making processes of instructors, tutors and students as they negotiated the goals of these assignments, as detailed later in this chapter.

The Hub's ethos as an academic support service was based on the traditional "help the writer, not the writing" mantra that has guided many writing centers' approach in consulting with students (Brooks, 1995; North, 1984); therefore, as a digital multiliteracy center, the idea was to "help the composer, not the composition" by focusing on long-term ideas and skills rather than correcting or editing the compositions, which takes the focus from the student and places it on

the product. Because Google Slides was a new technology for students and instructors, tutors at the Hub were trained to help troubleshoot some important and basic technology concerns, such as “sharing” their work in the appropriate folder or inserting images into slides.

**Supplemental tutor preparation.** In shifting to an online multiliteracy center, I invited a guest design expert at the university, David Underwood, to attend a staff meeting and present on principles of design; I facilitated discussion afterwards on potential best practices for tutoring students with multimodal assignments. I designed a follow-up workshop on the use of Google Slides to help increase tutors’ familiarity and confidence in working with the program and its tools. The workshop was self-paced and required fifteen separate actions on the part of the tutor to gain practice making changes and manipulating a sample product. I provided feedback on tutors’ completed workshop compositions and engaged in dialogue to answer their questions and discuss options of tutoring both design concepts and technology issues.

## **Research Participants**

### **Instructors**

Two instructors in the Division of Continuing Education consented to participate in the study. These instructors participated in a training session I conducted on the Hub services and were interested in integrating multimodal assignments into their courses. The instructors are white females in their early 30s with experience teaching upper-division courses. Instructor Davis has an MA in Literature and adjuncted while pursuing a writing career. She taught a “Writing on Business” course for the Program for Writing and Rhetoric. Her multimodal assignment was to create a short Elevator Pitch that successfully communicated a personal branding image. Instructor Evans has a PhD in Communications and had a three-year Instructor contract with the Program for Writing and Rhetoric. She taught a “Writing on Food” course for

the Program for Writing and Rhetoric. Her assignment was to create a Food Bio that connected to the larger theme of the course and communicated a compelling personal anecdote.

### **Hub Tutors**

Two tutors are included in this study, though The Hub employed four tutors in addition to myself at the time of the study. One tutor was a graduate student, a white female in her 30s earning a PhD in English Literature. The other tutor was an undergraduate white male senior majoring in English. The other two tutors also consented to participate in the study, but they did not have students who both consented to participate in the study and whose sessions produced a full data set (recorded with both visual and audio data of what occurred during the session).

Tutor participants in the study were selected based on their employment at the Hub. Tutors had the opportunity to not participate in the study with no negative repercussions. I personally did not have the power to terminate the tutors' employment, and I had to mitigate any concerns of coercion to participate in the study. I made it known that tutors could have withdrawn at any time without penalty or fear that their jobs may be compromised. All four of the tutors provided IRB consent forms with their signatures. They indicated verbally and via email exchange that screencasting sessions did not disrupt their processes of online tutoring.

### **Hub Students**

All students enrolled in the two online classes were invited to participate in the study, following IRB guidelines. Data was collected from all students who consented to participate. For the purposes of this study, a purposeful sample of eight students was selected from among those students with complete data sets, including recorded screencasts of their online tutoring sessions. Four students per class were selected so that the two different types of multimodal composition assignments could be examined. In addition, students were selected that

represented a range of tutoring session experiences as evidenced by their product completeness. There were three categories of product completeness, Stage 1 (less than 25% complete), Stage 2 (between 25% and 75% complete) and Stage 3 (more than 75% complete). Of the eight sessions selected as part of the study, two were at Stage 1, four were at Stage 2, and two were at Stage 3. Lastly, each tutor was involved in four sessions, so there was an even division between the two tutors for the purposes of the study.

### **Multimodal Assignments**

The two instructors I partnered with each taught different online courses through the Division of Continuing Education, and we collaborated to create assignments that would meet the learning goals of their respective courses. I had known each of them professionally for over two years at the beginning of the study. The partnerships began during November and December of 2013 and concluded by June of 2014. My role was to provide one-on-one support and feedback in assisting instructors with utilizing a new digital tool, such as Google Drive, in their courses. Due to the time and energy associated with incorporating new elements into currently existing courses, my supervisor, Director of Independent Learning Geoffrey Rubinstein, offered a \$250 development stipend to each instructor for incorporating a multimodal assignment using a new technology into their Spring 2014 semester courses. These instructors were being compensated by the Division of Continuing Education, and not by me or my study. We were working together already through our respective job positions, so I invited each one to participate in my research, and they accepted. The instructors knew that they could discontinue their participation in the study at any time without penalty from the Division of Continuing Education or risk of losing their \$250 development stipend. I was not their boss; I was their colleague. If an instructor selected to withdraw from the study, I would have continued to work with them and

support them in my capacity as a digital pedagogical coach through my job.

Through meeting with me individually, the two instructors each decided to create a multimodal assignment using Google Slides on Google Drive. One of the assignments was an “elevator pitch” based on a personal branding message for a Business Writing class, and the other assignment was a “food bio” based on a personal relationship with food for a Writing on Food class. Each instructor chose to frontload their assignment early in the semester so that students’ experiences with multimodal composition could later serve as scaffolding for additional multimodal assignments later in the term. The assignments were each substantive and required critical thinking as well as an attention to visual rhetoric and design principles. Each instructor took my suggestion and used a series of online lectures on design (also by David Underwood, the expert who guest lectured during tutor training) as early content in their courses to prepare students for the respective assignments; this provided consistency because tutors and students in the classes all had been exposed to the same expert’s materials (Appendix E). For each assignment, students were asked to demonstrate an understanding of one or more design principles such as creative cropping, contrast, broken borders, white space, rhythm, cool palettes, playfulness, tension and sublimation) while also communicating content particular to the assignment’s learning goals.

I asked each of the instructors to complete their own version of their assignments; I did this to provide instructors experience with Google Slides, which none of them had worked with before, and to give their students an exemplar of each respective assignment. I met with each instructor either in person or via Skype and communicated many times via email to work on these exemplar assignments. This was intended to help each instructor feel more confident teaching with Google Slides and understand the respective assignments thoroughly and make any



changes as needed. Instructors' exemplars were completed by Jan. 28th, 2014.

Each instructor created a requirement in their classes that students must visit the Hub at some point during the semester, but they were strongly encouraging their students to make appointments early and visit a tutor for support with their respective multimodal presentation assignments. Each instructor had also made the IRB consent forms for my study available to their students, but students are also allowed to choose whether or not they participated in the study. They had instructions to email their consent forms with their electronic signatures directly to me at my university email address. I maintained a list of student students participating in the study and alerted tutors prior to sessions with these persons so that those sessions could be recorded via screencast.

## **Data Collection**

### **Data Sources**

#### **Primary data sources.**

***Tutoring session screencasts.*** Screencasts were initiated by the tutor engaging in the session with the student. Both of the tutors understood how to utilize at least one of several screencasting programs (such as QuickTime, Kaltura, or Camtasia Relay) and enabled screencast recordings as soon as the session began. While the session progressed, the recording continued automatically. At the end of the session, the tutor ended the recording, saved the screencast video file, and uploaded it to a shared, secure Dropbox folder. I then moved the recording to a private Dropbox folder for storing study-related screencasts.

***Products.*** The students' products, created in Google Slides and of a digital multimodal nature, were made available in two ways. Products could be viewed in-process in the screencast videos. The products were also available in end-of-session form in the Hub Administration

folder on Google Drive.

### **Secondary data sources.**

***Tutor and student forms and student exit surveys.*** The WOnline system required that students and tutors use several forms for record-keeping; I had access to these forms for all appointments. In student appointment forms, students stated primary goals and concerns for their appointments in addition to providing information about the assignment. In tutor appointment forms, tutors evaluated the session immediately after it occurred and provided information about what was actually discussed during the session. Clients also filled out an exit survey that provided information about their level of satisfaction with the Hub and feedback on their experience with their tutor. All three of these forms served to member check my observations of sessions.

### **Data Collection Strategies**

The tables below outline the data collection strategies I employed in this study, as separated by groups of participants.

**Data collection for tutors.** Data collection involving the two tutors in this study is presented in Table 1.

*Table 1: Data collection strategy for tutor participants.*

<b>Data Source</b>	<b>Type</b>	<b>Storage</b>	<b>Timeline</b>
Screen-recorded tutoring sessions between students and tutors, working with multimodal projects in Google Slides and interacting via Google Hangouts or Skype	Video; provided visual and audio records of tutors and students as well as real-time records of products in transition	Saved as video files in the researcher's secure Dropbox account	Data collection of these multimodal assignment sessions continued from January to February, 2014
Tutor forms from the Online Composition	Written; short answer and numeric	Archived within the Hub's subscription to WCOonline, accessed via administrator code available to the researcher	Available from the beginning of the research period until the conclusion of the study
System use data from tutor and student activity in the WCOonline program, the scheduling software for the Hub	Statistical; reports of system use were able to be automatically generated by the WCOonline program based on desired parameters	Archived within the Hub's subscription to WCOonline, accessed via administrator code available to the researcher	This data has been previously utilized to generate semester progress reports on system use for use by The Division of Continuing Education since Fall 2012

**Data collection for students.** Data collection for eight students, selectively distributed between the two assignments and three stages of completion, is presented in Table 2.

*Table 2: Data collection strategy for student participants.*

<b>Data Source</b>	<b>Type</b>	<b>Storage</b>	<b>Timeline</b>
Screen-recorded tutoring sessions between students and tutors, working with multimodal projects in Google Slides and interacting via Google Hangouts or Skype	Video; provided visual and audio records of tutors and students as well as real-time records of products in transition	Saved as video files in the researcher's secure Dropbox account	Data collection of these multimodal assignment sessions continued from January to February, 2014
Client-created products for their respective assignments	Multimodal assignments created in the program Google Slides; including visual and textual design elements	Final versions of products post-tutoring session were archived within the Hub's Administrative Google Drive folder and were available to the researcher; versions of the products pre-tutoring session and mid-tutoring session are available for view via screencast tutoring sessions	January to February 2014; student products included in this study were collected simultaneously with screencast recordings of tutoring sessions, and were also copied at the end of each session by the tutor to store in the Hub's Administrative Google Drive folder, which acts as an archive
Client forms and exit surveys from the Hub	Written; short answer and numeric	Archived within the Hub's subscription to WOnline, accessed via administrator code available to the researcher	Available from the beginning of the research period until the conclusion the study
System use data from tutor and student activity in the WOnline program, the scheduling software for the Hub	Statistical; reports of system use were able to be automatically generated by the WOnline program based on desired parameters	Archived within the Hub's subscription to WOnline, accessed via administrator code available to the researcher	This data has been previously utilized to generate semester progress reports on system use for use by The Division of Continuing Education since Fall 2012

### **Data Analysis**

I began data analysis concurrently with data collection, both in order to allow for grounded theory (Charmaz, 2006; Glaser & Strauss, 1999) to shape my perceptions of the meaning-making occurring in these tutoring sessions as well as the ability to engage in a method of constant comparison between coding and analysis (Glaser, 1965/2008).

For the purposes of this study, I divided my data analysis strategies into two phases: Phase 1 had to do with creating multimodal transcripts that captured the simultaneous multiple modes of interaction and communication as they occurred, while Phase 2 had to do with putting all of the detailed Phase 1 multimodal transcripts into conversation with one another and crafting a qualitative analysis of major themes, trends and features of potential ZPDs. For the purposes of this study, multimodal transcripts included the full transcript of the talk with time stamps and

indications of when other modal activity took place in separate columns; these were composed in Excel spreadsheets. Throughout the two phases of data analysis, I attended to Erickson's (1985) reminder that qualitative research is, in itself, a process of inquiry.

Through a method of constant comparison, I continually coded units of data in all applicable categories and constantly compared them to other units that I had given the same codes; this process helped me remain focused on the research questions of this study. Such strategies also allowed for emergent findings as well as additional questions that formed sub-questions for this study.

### **Phase 1 of Data Analysis**

During Phase 1 of data analysis, each session was analyzed through a process in which utterances were transcribed and coded according to the features of talk and interaction outlined in the code book (see Figure X below). At the beginning of Phase 1 data analysis, I repeatedly viewed the screencasts of entire sessions of interactions and developed an initial coding scheme by writing analytic memos for each video where I began to hone the units of analysis (i.e., moments in the video where something "significant" happens, such as uptake in the participants' talk or changes to the product) as specific codes. Throughout this memo-writing practice, my thinking evolved and allowed me to refine the codes into a specific code book for transcribing and coding the multimodal data.

Type	Interaction Code
Interaction T1, S1	1=talk initiating, 1.1=question, 1.2=response, 1.3=suggestion, 1.4=lesson, 1.5=banter, 1.6=other, 1.7=design, 1.8=text
Interaction T2, S2	2=vocalizations, 2.1=affirming, 2.11=yes, 2.12=active listening, 2.2=dissenting, 2.21=no, 2.22=skepticism, 2.3=neutral/filler
Interaction T3, S3	3=physical comm., 3.1=smile, 3.2=laugh, 3.3=directed gaze, 3.4=scowl, 3.5=hand movement, 3.6=other
Product T4, S4	1.1=textual; 1.2=design
Tools T5, S5	cursor 1=draw attention; 1.1=textual; 1.2=design; 2=sourcing; 3=other; 4=pacing
Tools T6, S6	Chat tool 1=procedure; 2=function; 3=colloquial
Tools T7, S7	Comment balloon tool 1=question: 1.1=textual, 1.2=design; 2=suggestion: 2.1=textual, 2.2=design; 3=lesson: 3.1=textual, 3.2=design; 4=response: 4.1=textual, 4.2=design
Tools T8, S8	Video call platform 1=Calling; 2=screen share: 2.1=instruction, 2.2=help
Resources T9, S9	1=Davis assignment, 1.1=Davis exemplar; 2=Evans assignment, 2.1=Evans exemplar
Resources T10, S10	tutor 3=Design features: 3.1=fonts, 3.2=whitespace, 3.3=repetition, 3.4=images, 3.5=layout, 3.6=other; 4=Dave Underwood
Researcher Thoughts/Memos	

*Figure 4: Category type and interaction codes for Phase 1 data in multimodal transcripts.*

To determine categories, I met with a trusted advisor in my department and discussed my memo notes from repeated viewings of the screencast videos in conjunction with Smagorinsky's (2011) conception of the ZPD to narrow down the features of the ZPD to four that were particularly relevant to my study: interaction (talk, vocalizations or physical communication), product (the student's artifact), tools (physical tools such as buttons in the digital environment and cognitive tools such as design principles), and resources (the instructors' assignments and exemplars and the Dave Underwood lectures). These categories were repeated to account for observations of the tutor ("T") and the student ("S"). From the categories, I then created specific codes that provided options of a type of behavior or observable trait. For example, changes made to the product were coded as either textual (1.1) or design-related (1.2) in nature.

I transcribed the spoken language by turn-taking behaviors in two separate columns on an Excel spreadsheet, skipping rows when the other person was speaking. For the purposes of this

study, utterances were determined by turn-taking behaviors in speech to capture the natural cadence of the interaction and the flow of talk from topic to topic. Multimodal transcripts provided raw counts of utterances across a variety of factors, from types of talk to body language to on-screen changes within the product.

Using this coding scheme, I created multimodal transcripts of the videos using Excel spreadsheets. I am aware that transcription can be a powerful force in setting up the conditions for analysis (Ochs, 1979), so I consulted with an expert in the field to remain mindful of my design choices in creating my multimodal transcripts. My strategy in working with the screencasts was adopted from other scholars' work on video and multimodal transcription (Bezemer, in press; Bezemer & Mavers, 2012; Flewitt et al., 2009; Jewitt, 2012; O'Halloran, in press). Figure X shows a screenshot example of a multimodal transcript.

1	TIME	INTERACTION	INTERACTION	INTERACTION	INTERACTION	INTERACTION	INTERACTION	INTERACTION	PRODUCT	PRODUCT	TOOLS	TOOLS	
2		Tutor	Codes 1=talk init	2=vocalizations,	3=physical comn	Student	Codes 1=talk init	2=vocalizations,	3=physical comn	Tutor-initiated	Student-initiated	Tutor's cursor	Student's cursor
3	24:07:00	okay great [clicks	1.2			3.3			3.6			4	4
4			1.8			okay		1.2				1	
5	24:13:00	and then, so you	1.8			3.5			3.3			1.1	
6			1.7			3.3	okay		1.2			2	
7	24:41:00	I'm going to call t	1.7						3.1				
8			1.5			okay		1.2					
9	24:48:00	and they should :	1.3										
10	24:49:00					I think they might		1.7		3.2			
11		okay, yeah you w	1.7			3.5		1.3		3.1			
12			1.3			yeah, I think		1.2					
13	25:02:00	and I can tell by,	1.7			3.5		1.7					
14						yeah		1.2		3.6			
15		okay [typing]	1.2										
16	25:09:00					with the transpar		1.7					
17		oh great	1.2			3.1			3.1				
18						definitely		1.2					
19	25:13:00	great [publishes	1.3			3.5						1	

Figure 5: A screenshot of a section of a multimodal transcript used in Phase 1 data analysis.

For each screencast video, I transcribed the talk by turn-taking in the flow of the speech to capture the natural conversation between participants. I time-stamped the dialogue and used additional columns to capture activity in other modes: gestural action, movement onscreen,

changes within the product, utilization of chat and video tools, etc. This approach resulted in large, detailed spreadsheets of 24 columns (A through X) in which numbers entered in a particular column represented a particular code. Multiple numbers in different columns in the same row indicated co-occurrences within the multimodal activity of the session. In glancing at concentrations of numbers in these transcripts, it becomes clear where there were loci of activity in the sessions; therefore, this approach to data analysis and coding was conducive to fine-grain analysis.

### **Phase 2 of Data Analysis**

In Phase 2 of data analysis, these transcripts were utilized in developing descriptive tutor-student session summaries that provided overarching trends and patterns in the data supported by detailed description of key events in the interactions. I then conducted a cross-session analysis, drawing on these data sources and consulting with an expert in my department, to determine main findings and sub-findings, which will be discussed in the next chapter. Through writing out qualitative analyses of these sessions, I was able to identify common themes and pull out examples of interesting patterns of behavior and tool use, which mapped back onto my research questions regarding the social interaction at the Hub.

I began Phase 2 of data analysis by viewing and discussing the multimodal transcripts with an expert in the field. These conversations allowed me to step back from the fine details of the sessions to view overarching patterns that were emerging from the interactions I observed; from these patterns, I created analytic summaries of each session, which brought salient examples to the fore. Each session summary followed a consistent organization, starting with factual information (participants' names, the stage of product completion at the start of the session, duration of the session, numbers of words spoken by each participant, etc.) and then



focusing on the participants, goals and context of the session followed by detailed examples of key moments in the interaction and concluding remarks. All eight of these session summaries that comprised the output of Phase 2 of data analysis are included in Appendix F. The practice of completing these analytic session summaries allowed me to obtain detailed description of carefully selected moments of emerging interest while also analyzing overarching patterns and trends; taken together, these led to the findings that I will discuss in the following chapter.

### **Role as Researcher and Chapter Conclusion**

I was a participant in the study environment during the process of data collection. I fulfilled my role as the coordinator of the Hub in training tutors, I worked as a digital pedagogical coach for instructors with the Division of Continuing Education, and I also worked as a tutor at the site, engaging with students in both synchronous and asynchronous sessions. Therefore, I do not want to underestimate my influence at this site. I am aware of my own subjectivity, which is “simultaneously enabling and disabling” (Peshkin, 1985, p. 287) as it allowed me to attend some elements of analysis easily while perhaps restraining me from seeing other perspectives. I took steps to minimize the impacts of my influence as much as possible by admitting my own biases and meeting consistently with an expert adviser to discuss and process patterns in the data, emergent findings, and examples of disconfirming evidence.

While as the coordinator of the program I had an interest in its success, I am clear that as a researcher I was conducting a study of the dynamics of social interaction at this site rather than program evaluation. Though my subjectivity and position in this research had potential constraints, it also provided several affordances, for I have deep institutional knowledge of the Hub service and years of experience as a composition tutor; combined with my training as an education researcher, I brought expertise to this study that allowed me to investigate the research

questions of this dissertation. As with many qualitative studies, my methods of analysis shifted and evolved as the study progressed. This chapter has provided a description of the background of the site, research participants, data collection, data analysis and my role as researcher.

## CHAPTER 4: Findings

### Overview

This study explored the nature of the social interactions between students and tutors in the Hub, an online synchronous tutoring environment for writing and multimodal composition. The goal was to learn how tutors and students interacted within this virtual tutoring space to achieve their composition goals. I was especially interested in examining the interaction in relation to how the participants' communication and work was mediated by the tools and modes available to them within the Hub environment. Drawing on Vygotsky's (1978) concept of ZPD, I also looked for ways in which the verbal and non-verbal social interaction of the tutor and student might be constructed as "beginnings" of working within a ZPD for each student.

Two tutors conferenced online with eight college students about their Google Slides presentations. Half of the students created a food blog slide show for a Writing on Food course; half created an elevator pitch to communicate a personal branding message for a Business Writing course. Each student participated in an individual session of up to 50 minutes' duration, in addition to completing session appointment and evaluation forms. Screencast video of each session and the forms were the major data sources for analysis, supplemented by course assignments and design tutorials.

I conducted two phases of data analysis as described in the previous Methods chapter. In Phase 1 of data analysis, I created detailed multimodal transcriptions of all eight Hub sessions in Excel spreadsheets, focusing my coding specifically on features related to interaction, tools, resources and product. In Phase 2 of data analysis, I combined descriptive statistics with qualitative analyses of what took place in the sessions by composing eight analytic tutoring session summaries; these summaries allowed me to develop an understanding of patterns and

interesting features that emerged in comparing across the sessions. In drawing from both Phases 1 and 2 of data analysis, the following findings emerged as most salient, given the nature of my specific research question and sub-questions.

The findings from this study are organized into three main findings, as well as related sub-findings that provide greater detail and nuance to the three main findings. Relevant support from the data analysis is provided for each finding and sub-finding below. The findings are situated within the context of the research questions of this study, which are as follows:

Research Question: What is the nature of the interactive processes of students and tutors, as situated in an online multiliteracy center and mediated by digital tools and modes? How does this interactive process suggest the ‘beginnings’ of working within each students’ ZPD?

Sub-questions:

- How do students and tutors in a virtual environment communicate as they conference about the students’ Google Slide Show compositions? What is the nature of their talk and how does talk interact with non-verbal, on-screen interaction? How do tutors and students use the digital tools and modes available to them to communicate and engage in design of their compositions? How do the tools and modes support and constrain the participants’ interactions?

Several findings have emerged from this study, which taken together, address the overarching question: What is the nature of the interactive processes of students and tutors, as situated in an online multiliteracy center and mediated by digital tools and modes? How does this interactive process suggest the ‘beginnings’ of working within each students’ ZPD?

I highlight each key finding below and then expand on them in the following sections:

- 1) Student and tutor talk within the online Hub provides the modal foundation to the learning interaction process;
  - 1.1) Ratio of student and tutor talk is related to product completeness, with students talking more during initial stages;
  - 1.2) Student and tutor talk is focused on aspects of design across sessions;
- 2) Social, multimodal exchange within digital Hub online tutoring environment offers affordances and constraints;
  - 2.1) Boundaries of learning space are permeable and allow for digital practices not possible in print-only environment;
    - 2.1.1) Digital practice of inserting comments within the student's product provides permanent artifact of conferencing suggestions for revision;
    - 2.1.2) Digital practice of modeling a mini-lesson within the student's composition offers opportunity to contextualize and personalize the learning.
  - 2.2) Online conferencing environment and digital tools/features offer affordances and constraints in relation to process and product;
    - 2.2.1) Ability to make changes to digital products is an affordance in interactive conferencing and production of a multimodal composition;
    - 2.2.2) Obstacles in technology use within the Hub environment and within the Google Slides authoring tool are constraints in interactive conferencing and production of a multimodal composition; For example, confusion is caused by the mismatch between the tutors' view of cursor

hovering that accompanies their speech and the students' inability to see cursor hovering on their screen.

2.2.3) Technical difficulties and tool constraints provide opportunities to build tutor-student rapport;

3) The Hub virtual conferencing environment supports embedding of customized mini-lessons using the product as the context for learning.

3.1) Tutoring style impacts focus in mini-lessons;

3.1.1) Zander as teacher: big-picture topics, no changes to products;

3.1.2) Sara as editor: sentence-level topics, changes to topics related to mini-lessons

These findings are based on analyses across conferencing sessions. Before presenting these findings in detail, it is helpful to understand the general context and process of an online conferencing session. I present an analytic summary of one tutoring session between Student Erin and Tutor Zander. Appendix F presents similar session summaries for the other 7 students.

### **Analytic Summary of an Online Tutoring Session**

Session: Student Erin and Tutor Zander.

Assignment: Food Bio

Tool: Google Slides

Composing Stage: Stage 2 (between ~25% to ~75% completed)

Active session time: 19 minutes

Digital Hub Environment: Student and tutor viewed the student's Google Slides product simultaneously; they did not use the Skype screenshare feature, and thus could not see each other's full screens outside of the shared Google Slides product.

## **Participants, Context, and Goals**

**Participants and context.** The active time in this session lasted just over 19 minutes, after nearly ten minutes of the recording documenting the Google chat within the student's Google Slides product as the student and tutor worked on getting connected in Google Hangouts. The student, Erin, told the tutor, Zander, that she had never used Google Hangouts or Google Slides before, and he reassured her that this was a common predicament for other peers in her class who were working on the Food Bio assignment.

Erin's product was near the upper end of a Level 2 completion (between 25% to 75% complete). Perhaps because Erin seemed to be nearing the end of the composing phase of working on the assignment, she was selective in how she engaged with Zander, only speaking 783 words (~28%) throughout the session compared to Zander's 2048 words (~72%).

**Goals.** Prior to the session, Erin indicated in the dropdown menu on her appointment form that "design and creative concerns" were her primary concern with the product, while "organization and flow" were a secondary concern. After the session, the tutor indicated in the dropdown menu on the tutor report form that "design and creative concerns" were indeed the primary focus of the session, while "assignment clarity and focus" was the secondary focus of the session.

Soon after they connected on Google Hangouts, Erin confirmed that she was interested in visual aspects of the assignment and wanted to make it "look good" while providing a clear narrative, stating "I just kinda wanted to tell a story about a certain meal that I have in my family." Shortly thereafter, within the first three minutes of their conversation on Google Hangouts, Zander established that Erin was familiar with the class resources by David Underwood on visual design, and several of these concepts—particularly consistency, white

space, and font and images as related to layout—became shared terminology between them throughout the rest of their conversation.

### **Learning Interaction**

**Establishing shared knowledge of design and seeking validation: white space and images.** The learning dynamic was established as Erin and Zander went through the product together, as evidenced by both their talk about specific slides and their shared cursor movements in the same slides. Visually, when Zander would progress on to the next slide, the outline view of the slides in thumbnail view on the left side of the screen would show a highlighted pink box around the slide that the student was viewing; when he would click a slide, a second or two later, the student would click the same slide as evidenced by the pink highlighted box's movement, thereby signifying that they were viewing the same slides.

As they proceeded through the product, Zander made several remarks related to the design of the slides, but Erin typically did not take up these comments, choosing to respond predominantly with one word answers such as “okay” or “yeah.”

During this time, Zander's talk served to determine Erin's familiarity with design concepts; he was, it seemed, mapping her familiarity with design concepts to see where she might want help or advice. Early on in the session during a conversation about white space, Zander specifically asked if Erin was familiar with the David Underwood resources: “it's trapped space, I think is the way David Underwood talks about it and—did you watch any of those, uh-” to which she replied quickly, “yeah I did.” A minute or so later, Zander referenced her familiarity with those design resources as he clicked on the text boxes of the slide and said, “it looks like you are playing around with some of the font ideas that he had on there... using a serif font for the smaller stuff, and using a sans serif [in the title],” and Erin said, “yeah.” Erin listened



politely, and then occasionally interjected with her own specific questions about white space and transitions, which further helped to establish where her learning needs were in this session.

In general, Erin seemed to feel confident in her design because several of her questions elicited Zander's support or opinion rather than pertaining to something she did not understand. At one point, they were discussing her pattern of slide layout in which text was juxtaposed with a single image on the slide. During this exchange about white space and images that lasted about a minute, she asked, "so, in terms of like the white space, do you think I should just add- like- more pictures?" and then immediately clarified, "I tried to like make the pictures bigger, but if I widened them, then you know, it doesn't look right," to which Zander said, "got it."

Erin created almost a confidential tone around shared knowledge in saying "you know," which further established rapport and encouraged Zander to provide feedback. Rather than simply answering the question of adding more pictures as yes or no, Zander walked Erin through options to consider: "see if you can't parallel what you did with the actual text, where you have a little space but not quite as much.... the other option which would be kind of interesting would be to move [the column of text and the vertically aligned image on the slide] both kind of in further, maybe." As he spoke, he clicked on the text box in question to further draw Erin's attention to that area of the slide, as her eyes move and she nods in the synchronous video view of her. Providing more than one "option" revealed Zander's effort to keep the decision-making power in Erin's hands.

Throughout the session, during pauses in Zander's speech Erin provided neutral listener commentary, repeating "okay," which encouraged him to continue talking when she did not take up an idea with anything else to say. He concluded the exchange about images and white space by suggesting that she "play around" and reminded her that "those rules just exist as guidelines,

they're not there to tell you what is and is not," to which she responded, "right." Perhaps due to Zander's recent training on visual design, which emphasized how ideas can be transferrable beyond just the individual assignment, he spent time talking through principles more generally, which Erin may already have been familiar with and therefore chose not to engage further.

**Student requests that tutor take the lead: Problem solving a technical design issue.**

There was one instance during the session in which Erin requested Zander provide specific technical support; this exchange took place towards the end of the session and lasted for approximately two minutes. While Erin was viewing slide eight, she explained a problem that she was having with the transitions in Google Slides: "I've had problems when I was doing transition, with something like for fade in fade out with some of them, but I didn't see that option."

Zander clarified her question, "you're saying that some of the transitions aren't showing up?" He immediately scrolled up to the top of the presentation and then hovered his cursor over the "Present" button and looked at the drop-down menu next to it with presentation options.

Erin responded, "well, some of them gave me the option to fade in, and then for the last couple it didn't give that as an option, so I feel like I remember right and it didn't fade in as the other ones did... so I don't know if you know how to do that, but I got confused."

Zander leaned closer to the screen and went to the "Slides" drop down and clicked on "Animations" and tried clicking on the options for transitions; these movements were in the "Tools" portion of his own screen and were not visible to Erin. He then remarked, "it looks like I can get it to do it from here," to which Erin requested, "okay, yeah, could you?" and laughed.

As he clicked on different options about the speed of the transition, Zander followed up with additional questions to ensure that the changes were what she had in mind. He said, "there's

fade and like a speed setting, but I don't see fade from a direction.” Again, because the drop down menu options with the settings Zander was viewing were not part of the shared screen, Zander and Erin collaboratively described what they were seeing to try to achieve Erin’s desired result.

She responded, “okay yeah, I think some of them were ‘fade,’ so fade would be ideal.” After another minute or so when Zander was ultimately likewise unable to make the change, they collectively speculated that something might be wrong with the program, or perhaps with Google, and Erin concluded “I can just keep playing with it.”

**Session resolution.** After this instance, they spent the last three minutes of the session discussing options for how Erin might finish her conclusion slide by expanding both the text content and the design layout, and Erin made two small changes in the presentation to this end.

### **Concluding Remarks on Erin’s Session**

Overall, it seemed that Erin had clear goals for what she wanted help with in the session, namely, confirmation that her design looked good and support in resolving a technical difficulty that was impacting her design. The session began with the tutor’s quick check on Erin’s design knowledge. Zander tried several strategies to engage Erin around issues of design, including questioning her directly and providing options for different design choices, and he was quick to investigate options when Erin requested his help. Because her presentation seemed to be on a steady path toward completion, the conversation centered on changes that would provide finishing touches to the product, such as the alignment of images and transitions between slides, rather topics that might require global changes regarding content or design; both their talk and their activity was a product of this circumstance. Although both reported that they were relatively inexperienced users of the Google Slides platform, they both quickly found ways to

troubleshoot problems by talking about what they were seeing on their respective screens, though using the screenshare feature in Skype could have also helped to clarify the situation because they would have been able to see what the other was seeing and not just the shared space of the product itself. Erin seemed pleased with the interaction overall as evidenced by smiling at the end and thanking Zander for his feedback, and she indicated that she would keep playing with the product to put the finishing touches on it before submitting it later that week. Zander was likewise friendly and thanked Erin, and said “I hope I was helpful,” to which she replied, “you were.”

**Finding 1: Student and Tutor Talk Within the Online Hub Provides the Modal Foundation to the Learning Interaction Process**

In each of the eight online conferencing sessions, talk was the dominant mode by which students and tutors communicated with one another. Though talk was primary, as each session involved nearly constant spoken conversation for the duration of the session, it was integrated with other modes of interaction. For example, participants could see and hear each other via the synchronous video chat (either Google Hangouts or Skype depending on the session), they could use the cursor to focus attention, and they could make changes to the shared product. In particular, the visual mode was quite important in meaning making, for participants were able to see each other’s image, facial expressions, and body language in real time, as well as see the shared Google Slides product. However, talk remained the consistent mode by which students and tutors engaged with one another. Students always spoke fewer words than tutors, with the average proportion of student talk to tutor talk ranging from a high of 41% student talk to 60% tutor talk to a low of 16% student talk to 84% tutor talk, as shown in the bar graph of Figure 1 below. However, the total number of words was relatively the same across sessions, with

participants engaging in a turn-taking behavior that remained constant even as the ratio of words spoken on those respective turns varied.

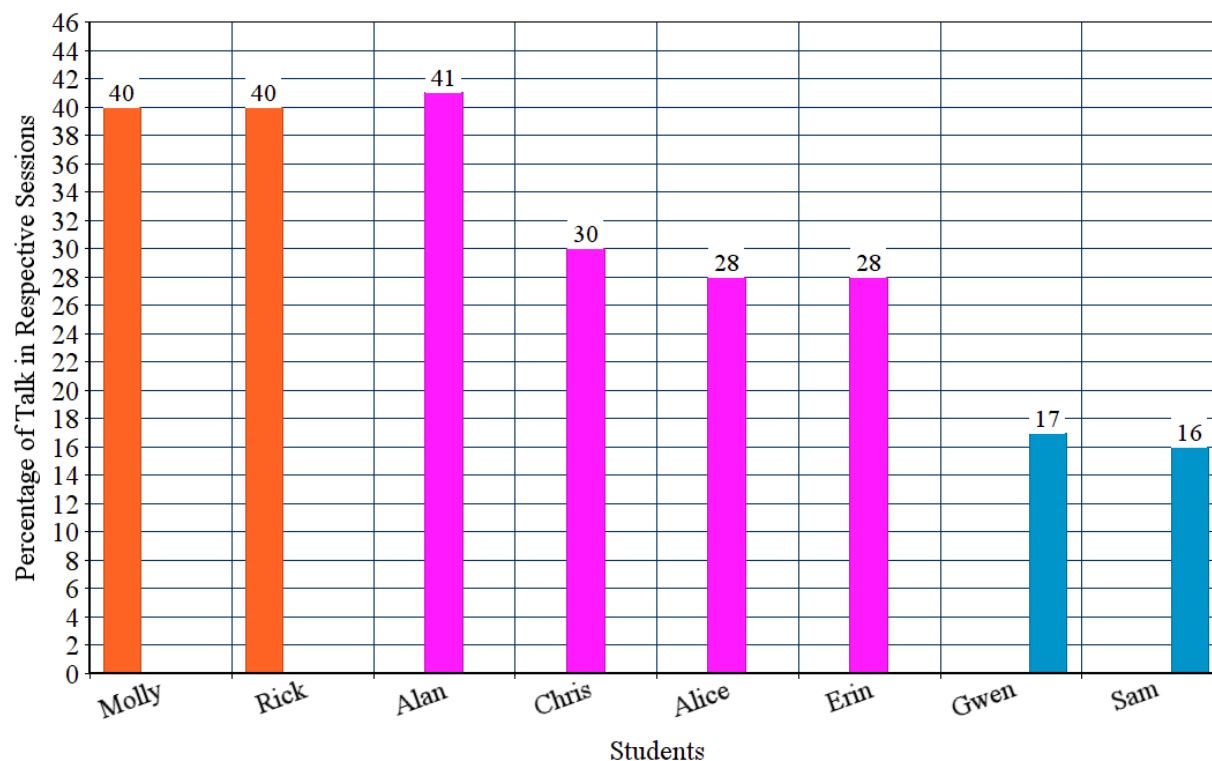


Figure 6: Percentage of student talk in Hub conferencing sessions as related to stage of product completeness: Stage 1 (orange), Stage 2 (pink) and Stage 3 (blue).

### **Sub-finding 1.1: Ratio of Student and Tutor Talk is Related to Product Completeness, with Students Talking More During Initial Stages of Composition**

For each online tutoring session, the number of words spoken by the tutor and the student were computed and percentages of student and tutor talk were computed. In addition, I developed a coding scheme for students' products whereby Stage 1 indicated a product that was less than 25% complete, Stage 2 indicated a product that was between 25% and 75% complete, and Stage 3 indicated a product that was 75% or more complete. Figure 1 displays the relationship between students' talk in their respective sessions and the level of completion of their respective products.

Across all eight online tutoring sessions, a pattern of talk emerged that was consistent, with the exception of one student. Students talked more during sessions in which the product was less complete and spoke less in sessions where the product was more polished and closer to being “done.” More specifically, students 5 and 6 were in Stage 1 sessions, students 8, 4, 3 and 1 were in Stage 2 sessions, and student 6 and 7 were in Stage 3 sessions. Student 8 provides disconfirming evidence for the trend in the relationship between stage of product completion and student talk. Student 8, Alan, was different in several ways from the other students. He identified himself within the session as a non-traditional student, having returned to school after years away, and he appeared to be similar in age, if not older, than Sara, the graduate student tutor. Alan seemed to have a very specific design aesthetic in mind, and he and Sara disagreed on several points related to color scheme and slide layout, which were two of the main design topic foci of the session. Alan spent a good deal of time explaining and defending his design choices to Sara as the session unfolded. All of these factors may have contributed to Alan’s higher percentage of student talk at Stage 2 of completion.

As might be expected, the focus of student and tutor talk also varied, depending on the stage of product completeness. Students who were in an early phase of composition generated textual and/or design content in the product and talked through possibilities and solicited feedback, whereas students whose products were closer to a final version were mostly interested in having specific questions answered rather than being open to global or substantive changes.

Tutor talk was responsive to students’ goals and stage of composition completeness. They focused more on big-picture topics during Stage 1 sessions and more on polishing features in Stage 3 sessions. Stage 3 sessions also featured tutor talk that focused on what was working well in the product, a sort of think-aloud where the tutor touched on elements of the product and

noted the student's choices. For example, when working with student Sam in session 7, tutor Zander looked at the slides overall and said, "I like the cleanliness that you have going throughout these slides... I mean, your color scheme is simple, your pictures really... integrate that white a lot" (Student 7, Appendix F).

### **Sub-finding 1.2: Student and Tutor Talk is Focused on Aspects of Design Across Sessions**

Across all eight online Hub sessions, both tutors and students talked about aspects of design during their sessions, regardless of the stage of completion of the products. All students had indicated "design and creative concerns" as either a primary or secondary concern when filling out their appointment forms, and the tutors had all confirmed that "design and creative concerns" was indeed either a primary or secondary focus of the session. Transcript analysis in Phase 2 across the eight online Hub sessions revealed that the three most common subtopics around design involved: slide layout (specifically involving white space and contrast on individual slides), font choices (such as sans serif versus serif fonts and their rhetorical impact), and consistency and coherence of the multimodal composition (design and content together).

Table 3 presents the design foci by sub-topic, across sessions, as arranged from the Stage 1 session summaries (students 5 and 6) to the Stage 3 session summaries (students 2 and 7).

*Table 3: Design talk foci across sessions by product completeness, from Stage 1 (light grey) to Stage 3 (dark grey).*

Design Topic:	Content Creation	Images	Color Scheme (overall)	Slide Layout (white space, contrast)	Font Choices	Consistency (needs help)	Consistency (working well)
Erin (Stage 1)	X	X	X			X	
Rick (Stage 1)	X	X	X			X	
Alan (Stage 2)			X	X		X	
Chris (Stage 2)		X			X	X	
Alice (Stage 2)				X	X	X	
Erin (Stage 2)				X	X		X
Gwen (Stage 3)				X	X		X
Sam (Stage 3)				X	X		X

As displayed in Table 3, the Stage 1 session summaries (5 and 6) focus on design topics that have to do with broader composition choices such as the creation of content and global decisions regarding color scheme, images, and consistency overall. The Stage 2 session summaries showed the most variety in terms of design topic foci, and included three sessions in which the overall consistency of the look and feel needed help (session summaries 8, 4 and 3) and one in which consistency was working well (session summary 1). Stage 2 session summaries focused on some “big picture” issues as well as some “polishing” issues, as seems fitting to interactions around products that were roughly halfway completed. The Stage 3 session summaries (2 and 7) both involved discussion of how the overall consistency of the product’s look and feel was working well, and the design talk that concerned areas of improvement seemed to focus on polishing choices, including decisions about font and individual slide layout.

In addition to the broad strokes of conversation about design as revealed in Table 3 above, students and tutors also engaged with talk about design through the use of the word “play.” In



75% of the sessions (6 out of 8), students and tutors made some reference to planning for the future through the concept of “playing” with the design, either in the short term future (within the session) or the slightly longer term future (after the session has ended but before the work is submitted). For example, in session 6, student Rick and tutor Zander used play frequently as they collaboratively engaged in active composition; at one point, Rick asks “how can we play with the color here?” as he began trying out options regarding font color on a slide. In other sessions, the promise to ‘play with the product a little more’ served as a transition out from the current design topic or as a means of reassuring the tutor that the student would try out some of their advice. For example, in session 1 Erin told Zander, “yeah, I'm totally gonna play around with it more in terms of the design” as they concluded their conversation regarding slide layout and white space. While the word play was used in this kind of manner consistently in all four of Zander’s sessions, Sara only mentioned “play” in this kind of capacity in two of her sessions, Stage 2 sessions with student Chris and student Alice. The word “play” was not used in this kind of context in Sara’s Stage 3 session with student Gwen or in Sara’s Stage 2 session with student Alan. In contrast, the word “play” came up as a means of indicating future design work in all of Zander’s sessions.

**Finding 2: Social, Multimodal Exchange within Digital Hub Online Tutoring Environment  
Offers Affordances and Constraints**

The overall interactions in online tutoring sessions between tutors and students were social, multimodal exchanges in a digital environment, and while talk was a primary mode of exchange, talk was often connected to the other modes of communication available within the online tutoring environment. The tutor/student interaction involved the audio ability to speak with one another in real time as well as several visual modes: the view of each other in the live video chat, the view of the shared product in Google Slides, and the view of the personal features

of their own screens outside of Google Slides in their Internet browser windows. The key feature of the online Hub context is that, during a given interaction, the participants always experienced something to view and something to hear, either as representation or expression. This multisensory digital context of meaning making in the online tutoring environment formed the background for the respective interactions. In particular, as described in the following sub-findings, there were affordances and constraints associated with the digital environment, and specific tool use was observed to have an association with particular behaviors, such as cursor movement and talk (an example of which will be discussed in sub-finding 3.2).

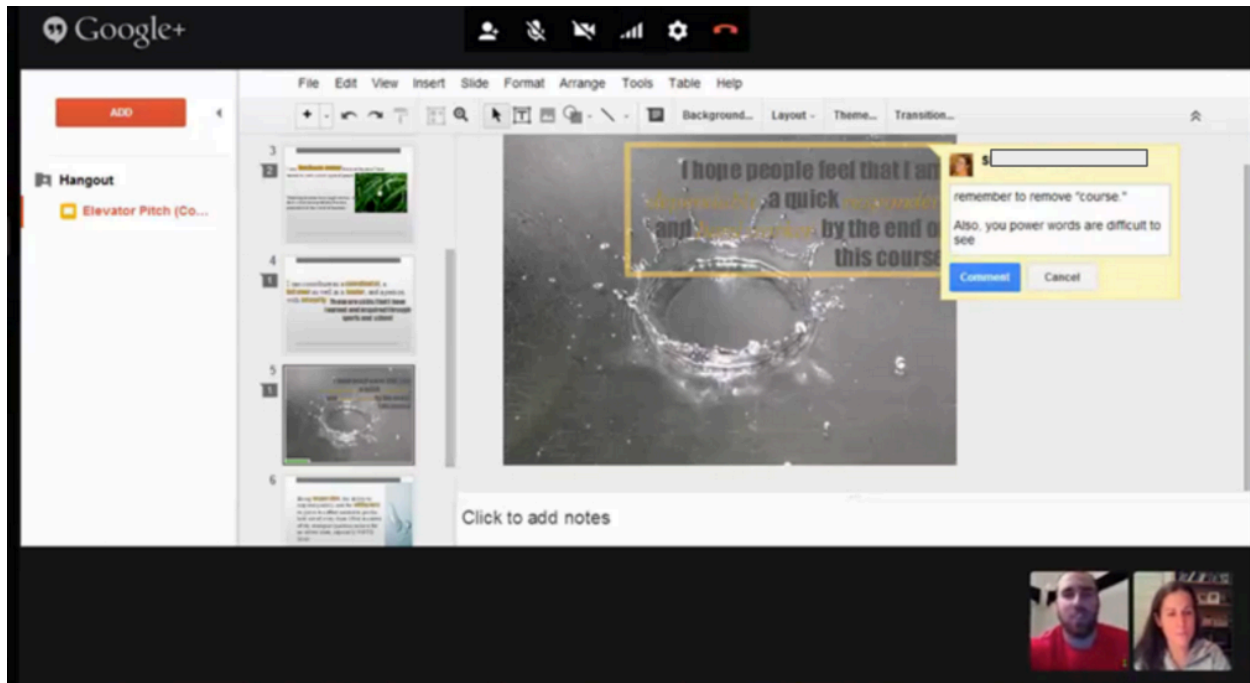
**Sub-finding 2.1: Boundaries of Learning Space are Permeable and Allow for Digital Practices not Possible in Print-only Environment.**

Both tutors and students engaged in practices during their sessions that revealed the affordances of the digital environment. During each session, participants engaged with digital tools that enabled actions that would not have been possible in a face to face session with a non-digital product. For example, tutors could demonstrate mini-lessons and make changes within the product to support the topic of the demonstration in real time; students could likewise make changes within their products either in response to what they learned in mini-lessons or as part of textual or visual content creation. These behaviors demonstrate the affordances of the synchronous shared product in the digital environment. The boundaries are permeable and flexible because changes could be made in real time that were either temporary or permanent, and at the same time the participants had the opportunity to utilize tools outside of the shared product--for example, instructor exemplars that were sometimes called upon as references or the physical paper and writing utensils that some students took notes with during the progress of the sessions. Because such activities often occurred in quick succession or even simultaneously, it

led to participants engaging in digital tool use that flowed with and facilitated their talk and responses to one another.

For example, two practices that tutors engaged in that were not possible in a print-only environment and revealed affordances of the digital environment were: 1) insertion of digital notes into the product using the comment balloon tool, and 2) conducting a demonstration of a mini-lesson within a product (mini-lessons will be discussed in greater detail in Finding 3 in this chapter). Detailed descriptions of these practices follow.

**2.1.1: Digital practice of inserting comments within the student's product provides permanent artifact of conferencing suggestions for revision.** Tutor Sara often inserted comments into the product using the comment balloon tool which served to remind students of important points they had discussed; she did this more frequently when the student was not seen to be taking notes, such as in session summary 4, which was a Stage 2 session that focused on the need for overall consistency in the look and feel of the product's design. This example was about halfway through the session and shows Sara's use of the comment balloon tool to insert a comment in the digital context that could be referenced or manipulated later.



*Figure 7: Sara, on the right, finishes typing in a comment balloon to provide a reminder for Chris as to how he will revise the background design of the slide.*

About halfway through the session, student Chris and tutor Sara had an exchange about design, specifically the contrast between a background image and the readability of overlapping text, in which Chris indicated his knowledge of the Google Slides tools he would need to use to make the changes (see Figure 2). This exchange is important because it established a baseline of his knowledge and allowed the conversation to move forward quickly, and Sara inserted the comment balloon to serve as a digital reminder of the problem for him to address the next time he opened the digital product. Chris and Sara were viewing slide 5, which was comprised of a close up gray scale image of a droplet splashing into liquid, and on top of the image there was text in two kinds of fonts: a sans serif in dark gray, and a few key words in a serif orange color.

The words in serif font were meant to stand out, but in this case they were difficult to read. Sara pointed this out by saying “oh, you might want to look at these... your power words here, I'm going to call them power words though that's probably not right, they're a little difficult

to see.” Chris replied, “I think they might show up more if I change what's in the background.”

Sara gestured and responded, “okay, yeah you wanna make those words, probably even easier to see than the other words, right?” Chris nodded and said, “yeah, I think so.”

Sara said, “and I can tell by, you have this water thing, it shows that you know how to do backgrounds.” Chris nodded again and said, “yeah... with the transparencies, and the move to back, and-”

“Oh, great!” Sara replied. “Definitely,” Chris said. Sara finished editing a comment she had made earlier on the slide, adding the words “Also, your power words are difficult to see” and she said “great” again and published the comment, adding, “just so when you're going through this and revising more.” Because Chris had already established that he knew how to make changes to the product to achieve a desired effect, Sara simply noted what the problem was that they had identified. Because the session involved discussion of Chris’s ideas and changes that might be helpful, and Chris was not otherwise observed to be taking notes, Sara included comments such as this one in the product for Chris to view later when he returned to work on it again. Even though Sara was the one inserting the comments, often the content of the comments was mutually constructed, as in this example where Sara checked with Chris about his intent regarding the “power words” before publishing her comment.

After this exchange, Sara changed the topic of conversation to ask Chris why he was using water as a metaphor in his personal branding, which continued to shape the session’s focus as a generative discussion of design ideas and how they “work” with the content that Chris wanted to communicate. Sara continued to utilize the comment balloon tool to point out specific elements of the product; sometimes she even reopened and edited comment balloons and reinserted them. This practice of using the digital comment balloons, which can easily be

“resolved” or “reopened” by the student as needed, is a practice afforded by the digital context. A comparable activity might be writing, erasing, and rewriting on a physical print copy, however, it may then become lost or damaged before the student has the opportunity to revisit the digital product and make any changes.

**2.1.2: Digital practice of modeling a mini-lesson within the student’s composition offers opportunity to contextualize and personalize the learning.** In order to facilitate the examples of a mini-lesson, tutor Zander once made changes directly within the student’s product, then changed the product back to how it had originally been to let the student decide what permanent changes to make.

**Recipe for Kimbap**

The great thing about kimbap is that you can put anything you want into the rolls and create your own style of kimbap!

- Dried Seaweed
- 2 Cups of cooked rice
- 2 tsp. sesame oil
- 2 tsp. salt
- 1 carrot, cut into long pieces
- 1 cucumber cut into long pieces
- 3 eggs
- ½ pound of spinach, parboiled
- Pickled Radish, cut into long pieces
- Imitation Crab
- Any other desirable filling!

S



*Figure 8: Zander, on the right, highlights the "R" in the title of the product to emphasize features of serif font.*

This occurred in session 7 with student Sam, a Stage 3 session, nearly eight and a half minutes into the interaction, during a mini-lesson on serif versus sans serif font, which was a topic related to polishing a product that was already in its final stages of composition. A few minutes earlier, Sam confirmed he had seen the Dave Underwood videos on design, and Zander referenced that this content might be familiar since it was a topic that was covered by the Dave Underwood resources.

Zander said, “basically the idea is just how, like on slide 5,” and he paused to click into the title of the slide that read “Recipe for Kimbap” and highlighted the capital R as he continued, “the R here has like, ledges?” Sam replied, “yeah.” Zander continued, “um, that’s a serif font, and the idea is it’s supposed to help your eye track, and so it’s good in small fonts to have those, because it makes it easier to read, in theory.” Sam replied, “okay.”

Zander continued on, “whereas your larger material you could kind of experiment with a sans serif which would be, like, I’m just going to temporarily change this to Arial for a second...” and he highlighted the title of the slide and changed it to Arial, then asked, “just to show, see that doesn’t have those ledges at all?”

**Recipe for Kimbap**

The great thing about kimbap is that you can put anything you want into the rolls and create your own style of kimbap!

- Dried Seaweed
- 2 Cups of cooked rice
- 2 tsp. sesame oil
- 2 tsp. salt
- 1 carrot, cut into long pieces
- 1 cucumber cut into long pieces
- 3 eggs
- ½ pound of spinach, parboiled
- Pickled Radish, cut into long pieces
- Imitation Crab
- Any other desirable filling!

The slide also features a photograph of a kimbap roll, which is a cylindrical roll of rice and seaweed filled with various ingredients like carrots, cucumbers, and imitation crab.



*Figure 9: Zander, on the right, changed the title of the slide to Arial, sans serif font, as Sam watched.*

“Right,” said Sam. Zander added, “and it creates just a little bit more visual contrast? um, I really think playing with color there could also be, perhaps more effective, but definitely different fonts have just a different look.” Sam said, “okay,” and then looked down and began taking notes on pencil and paper outside of the product.

While Sam was taking notes, Zander was looking at the different fonts available through Google Slides, which is an action that Sam would not have been able to see; Zander then remarked, “oh Comic Sans is terrible, never use Comic Sans!” and he laughed. Sam looked up from writing and smiled widely as the joke and then went back to finishing his notes. Zander



changed the title font on the slide to a different serif font and said, “uh, yeah, this is another serif, but it, even that has a different look than...” Sam said, “yeah.” Zander then finished his sentence in saying, “the other one, that you’re using.”

Given that Sam did not say anything else, Zander then concluded the mini-lesson: “so, it’s just something to play with, really. A lot of it’s a matter of personal preference, but definitely anytime you can create more contrast, it’s usually better than a shortage of it.” Zander then changed the font in the title of the slide back to how Sam had it originally. Sam was still quiet, so Zander added, “but no, I think otherwise you’re really satisfying the requirements of the assignment.” Sam then said, “okay.”

Zander wanted to provide a visual demonstration of the lesson that Sam could see, and thus he made changes within Sam’s product so they could view them together. This digital practice occurred in real time right before the student’s eyes and literally gave Sam the opportunity to see what changes in the product would look like as a part of the learning interaction, which was an affordance of working within the digital product. However, Zander was careful to go back to Sam’s original choice so that Sam could decide for himself later what he would like to do with the font.

In both of these instances across session 4 and 7, the tutors engaged with tools in the digital platform as affordances of the online environment. In Session 4, the affordance was experienced as the ability to insert and edit comments synchronously in the product, whereas in session 7, the affordance was experienced as using the product to demonstrate “how” and “why” in a mini-lesson. The digital environment also facilitated productive visual and textual content creation by the students in sessions 1, 2, 3 and 6 as an affordance of the digital environment.

## **Sub-finding 2.2: Online Conferencing Environment and Digital Tools/Features Offer Affordances and Constraints in Relation to Process and Product**

Changes within the digital products did not occur across all sessions, and when they did occur, changes were made for varying reasons that were contextually dependent. However, as discussed in sub-finding 2.1, the ability to make real-time changes within the digital product was an ability that was unique to the overarching synchronous digital context of the online tutoring Hub environment. The processes of making such changes to the digital products, and the participants' abilities to interact in productive ways by answering questions and addressing concerns, likewise had associated affordances and constraints.

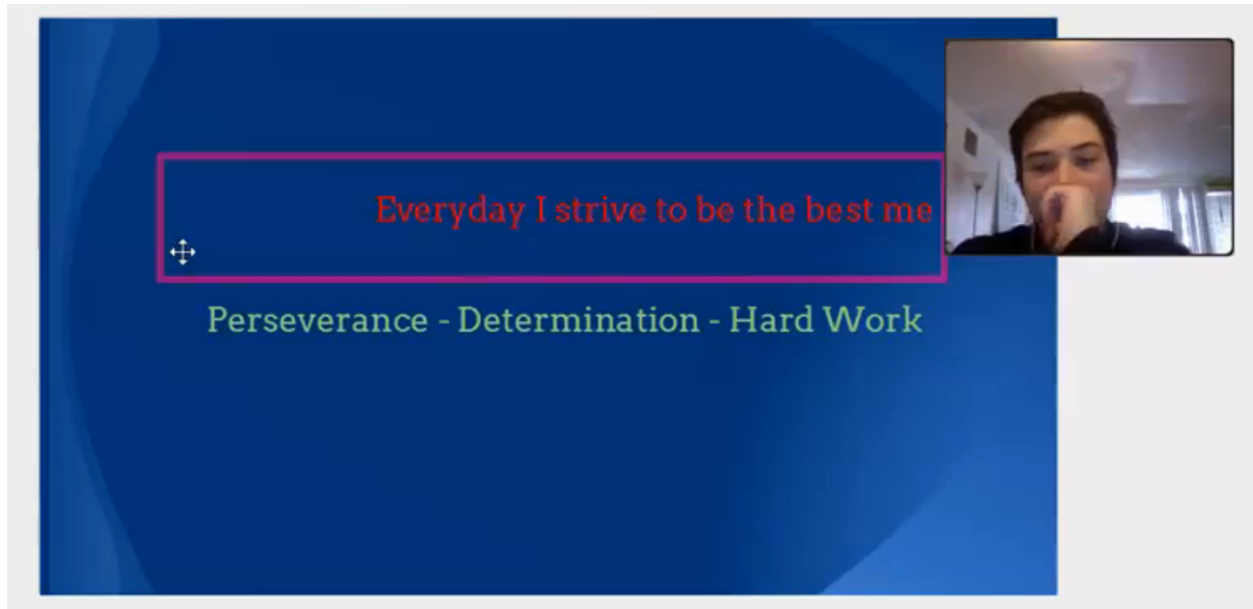
**Sub-finding 2.2.1: Ability to make changes to digital products is an affordance in interactive conferencing and production of a multimodal composition.** In Stage 1 sessions, students and tutors utilized tools in the digital environment to make changes to the product, which was an affordance in allowing the student active time to create textual and visual content and get real-time feedback from the tutor. An example of this was in session 6, a Stage 1 session, in which student Rick, as supported by tutor Zander, spent the majority of the session working actively on his project.

Rick was interested in getting general feedback on his overall design approach for his Elevator Pitch, but in practice it seemed he wanted to have a sounding board for exploring ideas as he used the session as an active work time. Zander engaged with Rick in a collaborative discussion about the overall look and feel of Rick's design, including a mini-lesson about serif and sans serif fonts, and Zander also provided several long periods of wait time while Rick worked on the product. There seemed to be an overarching sense of productive flow, as the conversation evolved in a "chained" fashion, where one topic led fluidly into another and was

mostly driven by Rick's questions or ideas. The two of them also slipped into an interesting use of the pronoun "we" to refer to authorship of the product, which was used consistently, though not exclusively through the middle of the session when the majority of changes to the product were made.

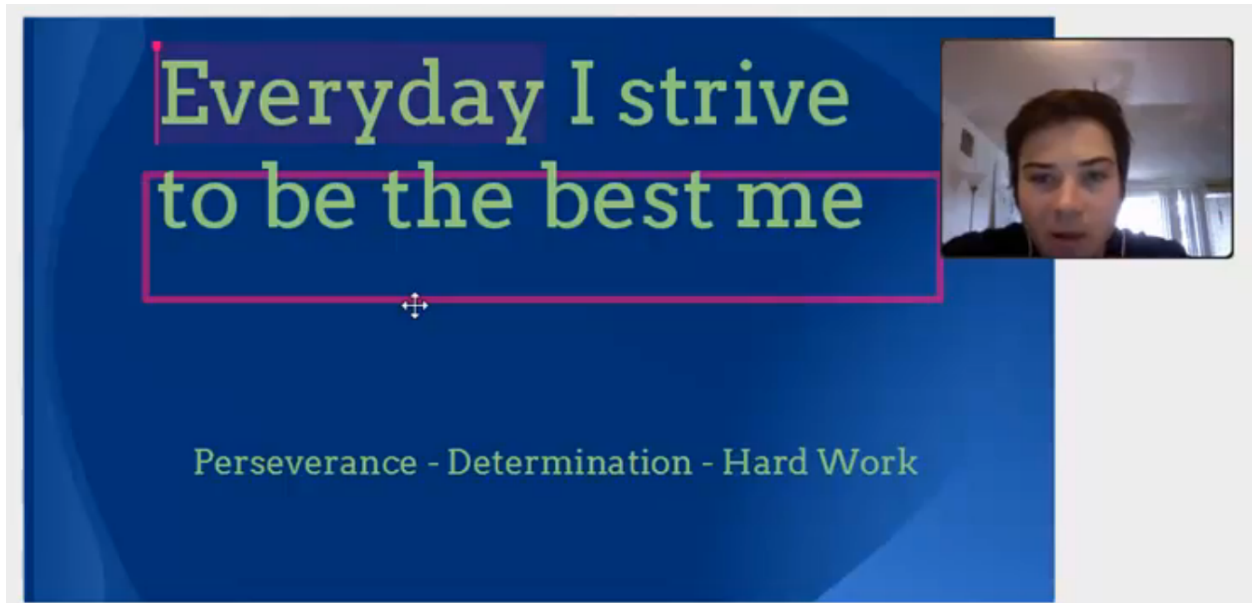
In one example of changes in the product as an affordance of the digital environment, Rick and Zander explored the visual impact that font color and placement had on meaning and aesthetic sensibility. Rick had already made five changes to the product by the time they were nine minutes into the session, and it seemed that a friendly and trusting rapport had been established between the two of them during that time. Rick asked, "what do you think I could do to liven up the third slide a little bit? What colors do you think I could use for maybe the bottom three words?" Zander replied, "well, since it seems you have the heavy blue in the back," and Rick interjected, "yeah, I really like the blue color for the background." Zander said, "oh yeah, no definitely. So you could go, I think, a couple different directions with the rest of it, um you could harmonize colors that are kind of close to blue, so like purple, or green.... but you could also go for heavy contrast and go for something like a red."

Rick's response was a precursor to making changes in the product. Rick nodded and said, "yeah, that's what I was thinking, either like a red or a green." He changed the top text to green and then to red, then put his hand to his mouth contemplatively and said, "let's see, I kind of like the green color a little better than the red." Zander replied, "yeah, no definitely, I think I agree."



*Figure 10: Rick decided that he did not like how the red font looked on the blue background.*

Rick changed the font color back to green then asked, “alright, so then, how do you think we could format this to, obviously, be more visually pleasing? Maybe I should go with a centered outline, or like all to the left and then throw in a picture?” This question led to a natural “chaining” of one topic to another, progressing as a build of conversation in which new topics were based on the foundation provided by previous ones. Rick changed the font size of the text in the upper text box as Zander responded, “even within text boxes, you can emphasize something... like the word ‘everyday’ could be emphasized... by having it in a different color, or a different font.” At the mention of the word “everyday,” Rick had highlighted it, which revealed how closely Rick was listening to Zander and how receptive he was in trying out new ideas. (Later in the session, Zander did point out that it should be two words, “every day,” given Rick’s intended meaning, but Zander did not mention it at the time that they were discussing design.)



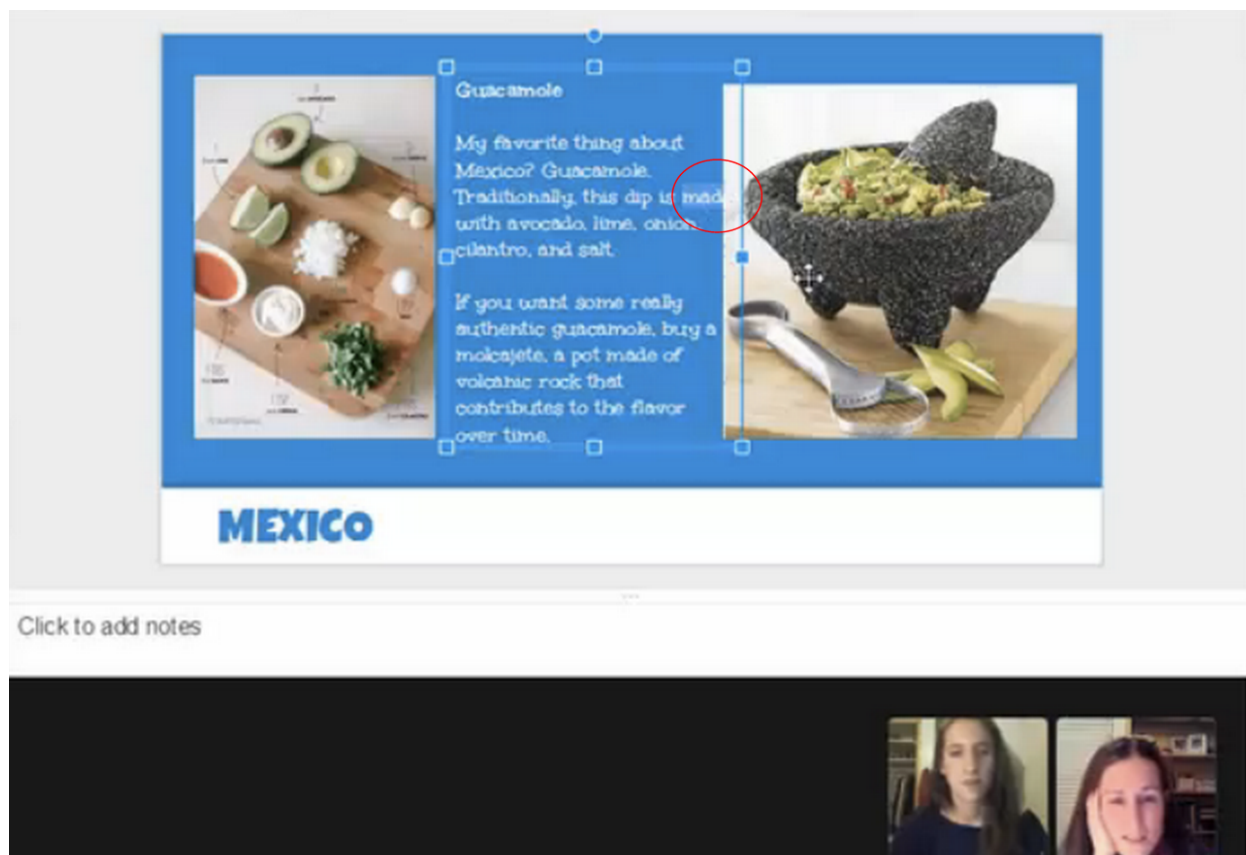
*Figure 11: Rick highlighted the word "everyday" on his slide and leaned in toward the computer during a moment of making changes to his product. His cursor movements appeared in pink on Zander's screen.*

By the end of the session, Rick had added four new slides to the presentation, after having begun with only three. Both Rick and Zander seemed satisfied at with the changes that Rick had made to the product and they both remained friendly as the session came to a close. This session in particular provides a strong example of how the digital context was an affordance in allowing the student to actively compose as the session progressed.

**Sub-finding 2.2.2: Obstacles in technology use within the Hub environment and within the Google Slides authoring tool are constraints in interactive conferencing and production of a multimodal composition; For example, confusion is caused by the mismatch between the tutors' view of cursor hovering that accompanies their speech and the students' inability to see cursor hovering on their screen.** While the ability to make changes to the products in the digital Hub context held certain affordances, there were also constraints; most participants admitted to being novice users of the technology, and students and tutors across all eight sessions experienced some form of challenge or obstacle that was due to

the digital environment and tools available. In some of these sessions, a change was desired but unable to be executed, and at other times, a minor change was needed to resolve a problem stemming from the digital environment. Technological obstacles impacted sessions by slowing down progress in working on the product; impact ranged from slowing the flow of a session by a few seconds to many minutes. Such instances were often experienced as confusion or sources of frustration.

One example of an obstacle had to do with an inconsistency in the synchronous display of the Google Slides product that necessitated a minor change in the product. Because of the confusion caused by the technological obstacle, both participants dwelled on this topic for several seconds without continuing their prior conversation on the textual and visual content of the slide, essentially halting productivity in moving the product towards completion.



Click to add notes

*Figure 12: Sara, on the right, leaned in and looked closely at her screen, having highlighted the word "made" (circled in red), which overlapped the image on the right so that the "e" was not visible in her recorded view of Gwen's product.*

Approximately halfway through session 2, a Stage 3 session, student Gwen and tutor Sara were looking at slide 4 when Sara pointed out a place where the full text of the content was not fully visible because of the layout of the slide. She said, “okay, your word ‘made’ here, for this dip--I’m looking at slide 4--the word ‘made’ is bleeding over, so you can't really see the ‘e’” and she highlighted the word and hovered her cursor over it as she talked.

When Gwen asked, “oh really?” Sara added, “yeah the font is white, and then the picture is white on the right. It looks like ‘the dip is mad.’” Gwen replied, “oh, mine is like separate. They aren’t overlapping.”

Sara, who had clicked on the image on the right and moved it slightly, laughed and said, “now it’s not overlapping! I just moved it a little.” Gwen responded, “Weird!... For me, it’s on the next line, so it’s the first word of the 4th line.” This confirmed that they were encountering a technological problem with the tool that had to do with the display of the text in the text box itself.

Sara expressed her surprise and said, “really? That’s interesting, and weird at the same time, huh?” at which point they both laughed a little. Perhaps at a loss to explain this inconsistency in the view display of the Google Slides product, Sara paused, then added, “but honestly, that is strange.” Gwen then suggested, “yeah, I edited it, so maybe it just hadn’t gone through yet?” implying that if Sara refreshed her browser page they might see the same thing. Sara said, “okay, maybe while we were sitting here? Okay,” and then shrugged and continued reading the text aloud. She did not try refreshing the browser page and chose to simply move on

rather than investigate the issue further, perhaps because they had been making collaborative changes to the product that may have impacted the real-time display onscreen.

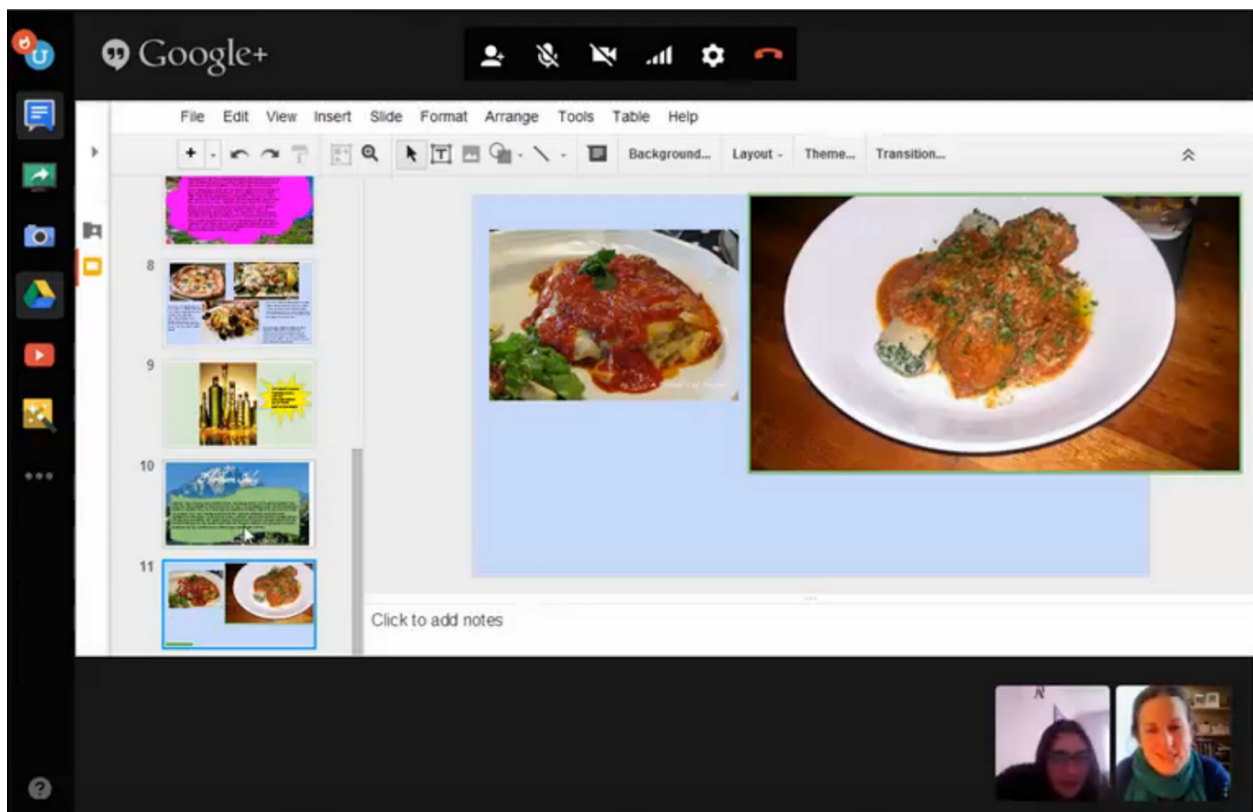
As another example of a technology obstacle, in several sessions tutors made movements with their cursors in which they hovered above a portion of the product and spoke about it. However, the student was unable to see where their cursor was hovering until an item was clicked in the shared Google Slides product. Thus, the cursor movement on the part of the tutors was a reflection of how their gaze (and hence cursor movement) linked to their thought and speech, but they seemed to have forgotten that the student could not see their cursor motions. This phenomenon occurred with each tutor in more than one session, and perhaps could be considered a holdover activity from face to face teaching, where any action is viewable by both participants. Such occurrences also point to a limitation of the digital platform, since the tutor's physical/sensory experience does not match that of their student.

In the Google Slides platform, both parties see each other's movements in a given slide only when the cursor is clicked and literally moved within the slide. If either person simply moves their mouse and the arrow hovers over a place on the slide, the other party cannot see that motion until the slide is clicked. Though tutors hovered their cursors over objects in every session, it only caused confusion in a few sessions; one such example was in session 3, a Stage 2 session (full text of session 3 analysis can be found in Appendix F). Towards the end of the session, the student, Alice, and the tutor, Sara, were discussing one of the last slides, which was unfinished, and Sara asked a question that was unclear to Alice due to Sara's cursor usage.

On slide 11, there were two images of plates of food, one on the right side of the slide and one on the left. When Sara first clicked to the slide, she looked at it for a moment and asked, "is this something you have cooked?"



Alice squinted at the slide and said, “um?” Sara then hovered her cursor above the image on the right but did not click it and said, “in slide 11.” She continued to hover the arrow above the image without clicking it. A moment later Alice guessed which image Sara was referring to, and said, “oh, yeah- this is really unfinished, this is just where I was playing around, but yeah I cooked that one.” She clicked on the image on the right and moved it slightly twice, which created a green box that matched Alice’s cursor color throughout the session in Google Slides, which let Sara know that Alice was back with her in the conversation.



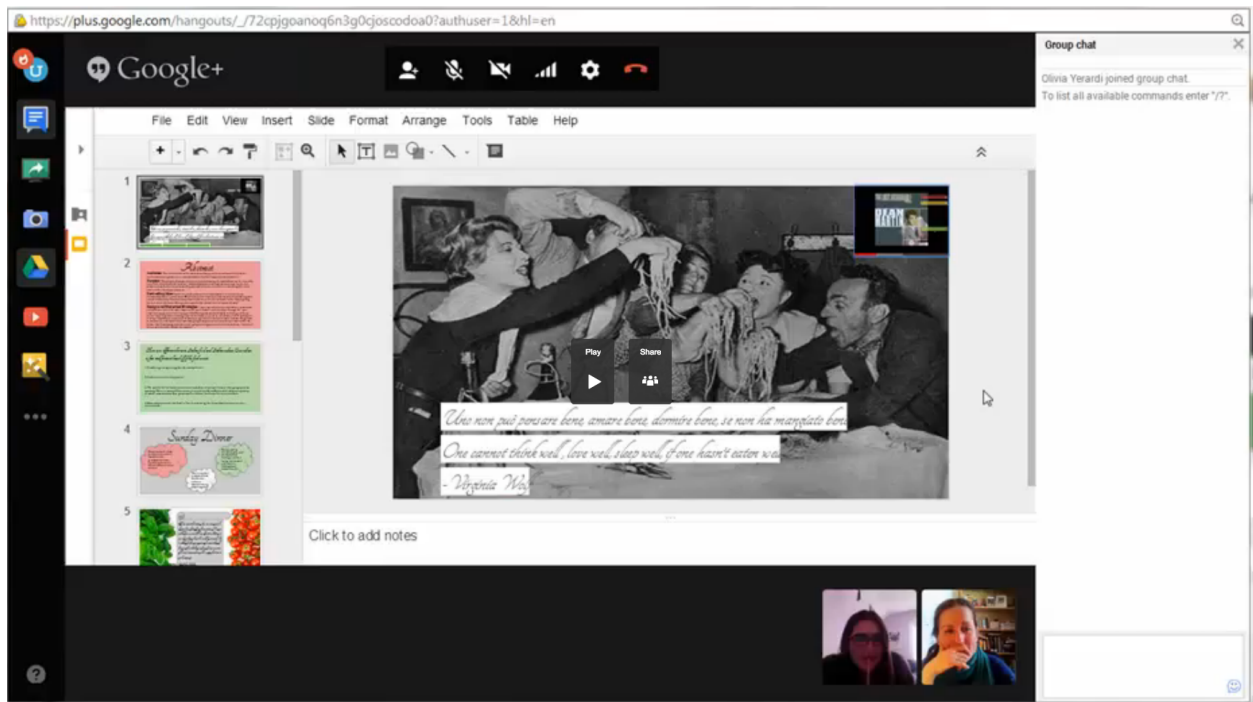
*Figure 13: Alice, on the left, clicks on the image on the right to show that she knows which one Sara is referring to, and a green box forms around the image to show Alice's actions.*

Sara smiled and replied, “alright, yeah,” and then they continued to discuss the slide’s layout. Choices around slide layout comprised one of the design topics of focus in this session.

While Sara's behavior only caused a moment of confusion for Alice, it is interesting to note that Sara did not seem to notice her action was confusing; rather, she let a moment of silence pass until Alice figured out the question of which image was a personal photograph of food she had prepared herself and then continued the conversation from there.

Thus, although the tutor's hovering cursor use only caused temporary confusion, this unconscious activity does present a constraint of the digital online tutoring session environment because the tutor and student cannot see each other outside of the video chat window and each other's cursors when moved and clicked within the Google Slides product or during a screen share. Both participants must ask appropriate questions or make contextual inferences if they need additional information aside from the visual input provided by the synchronous experience of the session.

**2.2.3: Technical difficulties and tool constraints provide opportunities to build tutor-student rapport.** While the technology did create obstacles during sessions, at times the obstacles themselves were often opportunities for the student and tutor to build rapport and empathize with one another. For example, during session 3, a Stage 2 session, student Alice and tutor Sara bumped up against a technological limitation of the Google Slides program that caused both of them frustration, due to an inability to make a change that would have resolved the issue. One of Alice's early questions had to do with adding music to her presentation. Within about three and a half minutes of the session beginning, and before Alice had even successfully shared the product with Sara yet, Alice asked "can you add sound to these presentations? 'Cuz I was figuring it out and I saw that I could add video and I wanted to add sound to the first slide... but I want it to linger for all the slides and right now it only plays for like, that one slide."



*Figure 14: Sara, on the right, listened to Alice explain what she had wanted the song to do as the music played softly in the background.*

Sara knew the answer to Alice’s question and said, “okay, yeah, as far as I know I think it is slide specific.” Alice responded, “oh, okay,” and Sara clarified, “as opposed to, you mean like narrating from behind for the whole thing?” When Alice said yes, that this is what she’d wanted, Sara responded empathetically: “Yeah.. I don't think so. I felt a little restricted with the videos as well in that regard.... cuz I'd really love to take a YouTube video and put it in the slide and have it be like half of the video, or you know what I mean?”

Alice nodded and moved her hand for emphasis as she replied, “yeah, no, I totally, I agree, that's how I felt as I went.” A minute or so later, once they were viewing the first slide of the product synchronously in Google Slides, Sara asked “okay, and then what is this in the corner here?” and clicked on an image in the upper right corner of the slide.

Alice answered, “that’s the little video I added, and I tried to shrink it down, but I might end up deleting it since when you press play, it starts, but then when you go to the next slide, it just stops anyway, so I don’t know.”

Sara clicked on the video to hear an Italian ballad begin to play, and she smiled and brought her hand to her mouth and swayed to the music slightly before she responded, “yeah, and if you go to the next slide it just stops, right, but you wanted more of a continuous...”

“Right,” Alice said, holding the end of her pencil to her mouth. Sara nodded and moved her hand to her mouth as though she was thinking about the problem, then slowly said, “yeah, I can understand that.” After another pause, and without anything more that either of them seemed to be able to contribute to the topic, Sara then changed the conversation to discuss the text on the slide. While Sara and Alice were not able to come to a solution for the technological obstacle, they were able to build rapport over their shared frustrations with the multimodal limitations of the Google Slides platform tools.

### **Finding 3: The Hub Virtual Conferencing Environment Supports Embedding of Customized Mini-Lessons Using the Product as the Context for Learning**

Every session exhibited at least one instance of a mini-lesson. For the purposes of this study, a mini-lesson is defined as an instance in which the tutor provides information that is transferable beyond the context of the specific product in question and either demonstrates or describes an example related to the lesson’s content. Mini lessons are teaching moments initiated by a problem (e.g., a grammatical error in textual content) or something the tutor sees that the student needs to know how to do (e.g., how to save a Google Slides product as a pdf). Within a mini-lesson, such as the tutor initiating a conversation about comma use, the tutor would teach the student that commas normally precede the conjunction in a compound sentence and may

either describe an example verbally and/or click within the product to visually point out the error. Whether or not a change in the product occurred as a result of a mini-lesson varied across sessions.

### **Sub-finding 3.1: Tutoring Style Impacts Focus in Mini Lessons**

Although mini-lessons were largely dependent upon the context of the individual session and the students' needs, there was a loose pattern in mini-lesson focus between the two tutors. Both tutors approached their sessions from a collaborative perspective, but as the activities of the sessions played out, there were differences in their approaches to mini-lessons; therefore, I am characterizing their approach to mini-lessons specifically here, not their overall approaches to tutoring. In general, Zander tended to focus on *teaching*, primarily on topics that had to do with bigger-picture issues, while Sara focused on *editing*, primarily topics that had to do with specific, sentence-level issues. Zander consistently made no permanent changes (changes that remained in place at the end of the session) to the products, while Sara did make permanent textual changes to products as part of her mini-lessons, as well as minor design changes as part of clarifying a technological problem.

*Table 4: Changes to product, note-taking and mini-lessons arranged by tutor.*

By tutor											
	Student	Stage	Student changes: textual content	Student changes: design content	Tutor changes: textual content	Tutor changes: design content	Student notes	Tutor notes	Mini-Lesson	Mini Lesson topics	
Zander	Molly	1	no	no	no	no	no	yes	yes	sharing files in Google Slides; downloading Google Slides to pdf; alignment of textual and visual content	
Zander	Rick	1	yes	yes	no	no	no	no	yes	serif vs. sans serif fonts; everyday vs. every day; organization of text on slides (chunking)	
Zander	Erin	2	no	yes	no	no	no	yes	yes	download presentation to pdf	
Zander	Sam	3	no	no	no	no	yes	no	yes	serif vs. sans serif fonts; image search (free to use or share)	
Sara	Alice	2	yes	yes	yes	yes*	yes	no	yes	comma use	
Sara	Chris	2	no	no	yes	no	no	yes	yes	that vs. who; consistency of font use/size	
Sara	Alan	2	no	no	no	no	yes	no	yes	alignment of textual and visual content; comma use	
Sara	Gwen	3	yes	no	yes	yes*	no	no	yes	comma use	

*\*Changes made in these instances were due to technical difficulties and did not constitute a significant change in design.*

### **Sub-finding 3.1.1: Zander as teacher: big-picture topics, no changes to products.**

Zander exhibited greater variety than Sara in the types of mini-lessons that he gave, and in general he taught mini-lessons that focused on “big picture” topics. Zander gave a mini-lesson on the difference between serif and sans serif fonts twice in two different sessions (session 6 and session 7), and in both instances the purpose was to demonstrate the impact that font choices and contrast can have in the overall look and feel of a presentation’s design. Zander focused on the overall design of the product in two of his other mini-lessons (alignment of textual and visual content in session 5 and organization of textual content in session 6). Zander also was able to provide mini-lessons regarding the Google Slides platform and its functionality, which was contextually appropriate given that these occurred in sessions in which minutes-long technical

difficulties were occurring (session 5 and session 1). Zander's only sentence-level mini-lesson focused on a common spelling error ("everyday" vs. "every day" in session 6), and this lesson occurred late in the session after bigger-picture topics involving design were already discussed; he came back to this relatively minor error after discussing other aspects of the slide that seemed more important.

In discussing big-picture topics having to do with design and considerations of the product as a whole, Zander does not make permanent changes in the students' products. In general, he provides verbal description of examples or directions in how to do something (sessions 1, 5, and 6) and in other instances he uses the screenshare feature in the synchronous platform to model an example using his own screen (sessions 5 and 7). In one instance in session 7, he demonstrated a mini-lesson using the student's product, but then undid the changes and reverted the product back to how the student had it originally, where he changed text from serif to sans serif within the context of the lesson and then back to serif. Zander seems to recognize that such choices about the overall design of the product are the student's to make and respects the student's space by not leaving a permanent trace; a factor in this decision could have been the fact that the student was taking notes using a pencil and paper outside of the space of the product.

**Sub-finding 3.1.2: Sara as editor: sentence-level topics, changes to products related to mini-lessons.** Sara tended to provide mini-lessons regarding punctuation and grammar use (sessions 2, 3, 4, and 8), and only twice did she deviate from this pattern to provide a lesson about the consistency of font use and font size in creating a coherent design (session 4) and about the alignment of visual and textual content in design (session 8). Sara perhaps fell into this "editing mode" with a focus on sentence-level issues due to her role as a graduate student and English instructor; it's possible that such issues constituted a pet peeve for her and she felt

compelled to point them out, even at the risk of derailing a conversation about bigger-picture design (as in session 2). After providing a lesson on a sentence-level issue, such as comma use to clarify clauses in sentences (session 2), she would point out the same mistake if she saw it later in the session, and the student would either correct the issue or take a note during that time.

In discussing sentence-level issues in mini-lessons, Sara would often demonstrate the concept by making a change within the student's product and then leave the change in the product rather than undoing it. Perhaps because the changes were fairly low-priority as sentence-level issues Sara felt that her changes served as examples of the lesson and therefore were permissible to leave behind. Indeed, Sara taught these kinds lessons by modeling and made corrections to the textual content in three of her four sessions (sessions 2, 3 and 4). In session 8, Sara did not make any changes within the product, but the student did take notes with pencil and paper outside of the product when a sentence-level issue was discussed. When Sara did discuss bigger-picture topics on two occasions (once in session 4 and once in session 8), she did not make any changes within the product. It should also be noted that, although Table 3 shows that Sara made changes to the design of students' products in two instances, sessions 2 and 3, both of these were very minor and due to technical issues related to the conversion of the products from PowerPoint to Google Slides; therefore, these changes were not made in relation to a mini-lesson and did not seem to have had a significant impact on the respective sessions.

### **Conclusion**

Overall, the findings of this chapter have to do with the nature of the interactive processes of students and tutors; taken together, these findings address my research questions as stated in the beginning of the chapter. Finding 1 indicated that talk provided the modal foundation to the learning interaction process in the Hub, and that the ratios of student and tutor talk were related



to product completeness and focused on aspects of design in composition. Finding 2 indicated that the social, multimodal exchange within the Hub allowed for certain affordances and constraints. Certain digital practices, such as utilizing the comment tool and modeling mini-lessons in real time, were affordances of the Hub digital practices, while other affordances and constraints had to do with process and product. Finding 3 indicated that the digital context of the Hub supported customized mini-lessons that used the product as the context for learning, and that within mini-lesson practices, personal tutoring style impacted the focus of how such mini-lessons unfolded. Additional examples to support the findings may be found in Appendix F, which includes the analyses of each of the eight session summaries of the study. In the following Discussion, Chapter 5, the findings will be situated within the context of the relevant theories and literature related to the questions of this study. Implications for further research and concluding remarks are presented in Chapter 6.

## CHAPTER 5: Discussion

### **Introduction**

In this dissertation study thus far, I have provided my background and context for engaging in this study (Chapter 1), set forth my research question and sub-questions as framed by theoretical understanding and support from relevant literature (Chapter 2), explained my methods in gathering and analyzing data (Chapter 3), and reported the findings of my analysis (Chapter 4). In this chapter, I will revisit Chapter 2's theoretical concepts that have been instrumental to my work on this project; these include Vygotsky's (1978) Zone of Proximal Development (ZPD), the New London Group's (1996) Design and multiliteracies, and Kress' (2009) role of multimodality in meaning-making. I will revisit these ideas in light of the main findings of the study to consider how my analysis of this multimodal online tutoring environment connects to broader themes in literacy research and multiliteracy center practice. However, I remain mindful of the limited scope of this particular study; I do not suggest that my results are generalizable. In the following chapter, I conclude this dissertation with a discussion of implications for further research. My intention is to expose and connect salient findings within this study to larger conversations. I will provide insight into how meaning-making occurs in the one-on-one digital online synchronous interactions at the Hub and how the ZPD remains a useful lens within a sociocultural view of learning to provide suggestions for both online tutoring practice and online multimodal tool use.

As one of Vygotsky's (1978) most well-known concepts, the Zone of Proximal Development describes a range of performance in learning that is co-constructed and mutually achieved, which made it a particularly attractive lens for this study, in which tutors and students engaged in unique interactions around the particular needs of their respective tasks. I became

very interested in whether these sessions contained elements that are component parts of establishing a ZPD, as described by Smagorinsky (2011). Through cultural practices and social interaction, an individual's "development consists of using socially mediated assistance to move toward the higher levels of the range [of what one can do with assistance], with that range itself developing into a new and more complex state" (Smagorinsky, 2011, p. 58). Elements of the ZPD as clarified by Smagorinsky (2011) include: the social context/setting for learning; goal congruence and intersubjectivity; tools with specific values and uses; explicit mediation, prolepsis and imitation; and telos and evidence. In order to investigate the 'beginnings' of what constitutes the ZPD, I developed a methodological approach that allowed me to code specific multimodal interactions and then step back to look across analytical summaries of sessions to view larger trends. In this chapter, I revisit features of the ZPD (Smagorinsky, 2011) and show how the findings and sub-findings of this study map loosely onto them; this discussion collectively reveals the beginnings of various ZPD-like interactions that occurred in the sessions. In the sections that follow, by also incorporating other theoretic elements from the literatures relating to design and multimodality in a natural conversation with the findings, I reveal the richness of the learning interactions at the Hub.

### **Multimodal Setting Connects to ZPD Features: Social Context, Goal Congruence, and Intersubjectivity**

**Social context for learning in the Hub.** The sociocultural context of a setting and the shared knowledge built between participants in that setting are key features to keep in mind (Cole, 1996; Rogoff, 2003;) when discussing the social context of the ZPD (Vygotsky, 1978). Because the Hub was a digital, multimodal environment that included a variety of representations (e.g., each other's images, the shared product on screen, other screen stimuli, the

sound of each other's voices, other aural stimuli in their respective environments, etc.), participants were utilizing multiple modes within the social context of the Hub to make meaning (Bezemer & Kress, 2008). These modes included talk (verbal and aural), visual bodily cues, the visual display of the shared product in real time, and the physical ability to manipulate the product (kinesthetic). In this kind of multimodal social context, participants had a variety of options to pursue different paths toward engaging with each other and their task, which resulted in flexible sessions where conversations were woven together due to the needs and interests of the participants (Dyson, 1990). My Phase 1 data analysis of multimodal session transcripts revealed that student and tutor talk within the online Hub provided the modal foundation for the learning interaction process (Finding 1). Although, as Kress (2013) points out, language is just one of multiple modes of expression, talk was the mode that dominated the interactions in these sessions.

***Talk as modal foundation within the social context feature of the ZPD.*** Turn-taking behaviors in talk allowed for conversations to unfold in which students and tutors explored a variety of topics related to the student's concerns with their work; these interactions revealed a shared understanding of the *task*, or the impetus for their engagement with one another (Vygotsky, 1978), in this social context. The shared social context is an important feature of the ZPD (Smagorinsky, 2011), and therefore the Hub's social context, mediated by talk as the primary mode of communication, may have provided the groundwork for the beginnings of a ZPD. The ratio and content of tutor and student talk were related to the student's phase of product completion (sub-findings 1.1 and 1.2) and helped to build and maintain social rapport (sub-finding 2.2.3). In general, the level of completeness of a student's work became a crucial factor in how the session progressed because it brought the shared task of the session to the

forefront. Because in all sessions the task was understood to be to complete the product, the stage of a product's completeness impacted which design elements the student wanted to focus on (sub-finding 1.2) and likewise impacted the tutor's feedback (sub-finding 3.1). If students were at Stage 1, or still in the very beginning stages of composing their work, then the students were more active in speaking and brainstorming new textual or design content. In a sense, students perhaps perceived that because there was still much to "do," they needed to be more active in the session to brainstorm ideas for their work with their tutor. Students in Stage 1 sessions each spoke 40% of the respective words of dialogue in their sessions, which is quite different from the other Stages, with the exception of the disconfirming session with student Alan. In the other three Stage 2 sessions, roughly students spoke 29% of the words in the sessions, and in Stage 3 sessions, roughly 17% of the speech was by students. The pattern appears to be that, the less students felt they needed to "do" on their work, the less they spoke.

Session 8 with student Alan is a disconfirming piece of evidence in the relationship between stage of completion and student talk, because Alan talked the most out of any students in the study; he spoke 41% of the dialogue during his session, and his product was at Stage 2 of completion. session 8 was a bit unusual in that there was a fair amount of disagreement between the student Alan and the tutor Sara, which did not occur in other sessions, and unlike other students in the study, Alan self-identified in the session as a non-traditional college student who was closer in age to Sara. To what extent Alan's age and self-perceived student status had an impact on this particular session is unclear, but this provides an excellent reminder of how a student's personal identity remains an important feature of their learning interactions and processes (Moll, 1990). Had this been a longitudinal study that focused on Alan and analyzed the additional interactions he had with Sara (he had two more sessions with her that semester, though

they were not recorded as part of this study), then I might have some additional insight into how his age and personal experiences impacted his interaction and meaning-making during tutoring sessions. Despite their disagreement in session 8, Alan did choose to work with Sara again later in the semester, so perhaps some good-natured conflict was generative for him. While these factors cannot be known given the context of this study, I do think there were enough differences between his session and the others that it does not wholly discount the observed trend in the relationship between student talk and stage of product completion.

**Goal congruence in the Hub.** As revealed through finding 1 and analysis of major themes across session summaries, students and tutors achieved a level of goal congruence in their sessions in which both parties worked toward the same goals in the session, which could be modified as the interaction unfolded *goal congruence*, as a feature of the ZPD, is the shared understanding of the task between participants in a given particular social context for interaction (Smagorinsky, 2011). In these eight sessions, the presence of goal congruence therefore indicates that there may have been the beginnings of a ZPD forming.

Through analysis of patterns of talk in Phase 2, it became clear in finding 1 and related sub-findings that tutors sought to engage students in conversations rather than to make big decisions for the students regarding content. Students did not simply sit back to wait for their work to be “corrected” by the tutor, regardless of the differences in student talk across product completion. As revealed in sub-finding 1.1, tutors and students set goals around the stage of product completion of the product, which became visually apparent at the start of each session and as the talk between participants unfolded. Therefore, sub-finding 1.1 connects to the writing center literature in upholding the classic idea of a writing center as more than just a “fix it shop” (Kelly, 1980). Rather than operate as “editors” (Kelly, 1980), both tutors held to their training as

supporters and collaborators, the “more capable peers” (Vygotsky, 1978) that were content to let the students make their own choices regarding major alterations in content. Indeed, as elucidated in finding 3, tutor Zander made no permanent changes in student products, while tutor Sara made changes in textual content in relation to mini-lessons and changes in design content only when the change was a minor editing issue, and resolved a technical issue in the display of the product (having little to no impact on visual aesthetic).

Just as the stage of completion of the product formed a social context for each session and honed the nature of the task at hand (sub-finding 1.1), the focus on “design and creative concerns” as a goal on the intake appointment form (sub-finding 1.2) became an opportunity for students and tutors to form goal congruence (Smagorinsky, 2011). The shared conception of the task is key here, for a lack of goal congruence can lead to different understandings of the task (Newman, Griffin, & Cole, 1989). Across sessions, these goals related to design were identified by both talk within session mediation and by the indicated goals on the students’ appointment forms. When signing up for their appointments, all students in the study indicated that the option “design and creative concerns” was either a primary or secondary focus of the session in the drop-down menu on the intake form; after the sessions, tutors indicated on their report forms that “design and creative concerns” was indeed either a primary or secondary focus in the actual activity of the session as it occurred. This consistency reveals that goal congruence was perhaps achieved within the mediational context of the sessions. If goal congruence was indeed at work, then students and tutors were interacting with overall shared understandings of key tools and ideas related to the task and product; this state of shared understanding of overarching ideas within the learning context is a concept Smagorinsky (2011) describes as intersubjectivity.

**Intersubjectivity in the Hub.** As another feature of the ZPD, intersubjectivity arises when participants' engagement within the social context of the interaction leads to a shared understanding of the situation more broadly (Smagorinsky, 2011); findings 1 and 3 reveal evidence of intersubjectivity in this study. In my use of these terms, intersubjectivity is the broader notion of people having basic shared understandings of their situation and purpose in a social context, of "being on the same page," while goal congruence is actually the more specific term, relating to consensus around purpose of the task in the interaction. In this study, students were perhaps primed to work collaboratively and seek intersubjectivity due to features of the session form they had to fill out. In order to finalize their appointments, they had to check two boxes that stated "I agree to work collaboratively with my tutor" and "I understand that the Hub is not an editing service" (see forms in Appendix C). Such statements may just be a cursory nudge toward building rapport, and their impact cannot correctly be ascertained in the context of this study, but agreeing to an imperative of collaboration, as all eight students did, may have had a subconscious impact on the interactions. Indeed, as a feature of the ZPD, intersubjectivity emphasizes the social system in which learning occurs, allowing participants to engage "in collaborative activity... with the understanding that this social system is mutually and actively created by [tutors] and students" (Moll, 1990, p. 11).

In this study, intersubjectivity extended from the forms of the sessions to the talk centered on ideas of design and decision-making related to multimodal activities in the products (finding 1). As displayed in Table 1 in the Findings chapter, the stage of product completion was related to the types of design foci that the participants discussed in their sessions. In general, the Stage 1 sessions included a focus on big-picture topics, such as content creation and improving the overall consistency of the products. The Stage 3 sessions, in contrast, focused on topics that



were more related to polishing the product and adjusting finishing touches, such as font choices and individual slide layout, with an acknowledgement that the overall consistency of the products was working well. This pattern is significant because it highlights the role that the product itself has in determining the focus and flow of conversation between participants, yet completely aligns with the idea that product, task and interaction are deeply intertwined (Smagorinsky, 2011). Because the product was in itself the task and goal of the sessions (for the students to complete their work), the product had a direct impact on the nature of the interaction and the extent to which students and tutors understood that they were ‘on the same page’ in discussing particular aspects of design (finding 1).

Likewise, both participants seemed to share an investment in the social context as one of support, where the tutor could embed mini-lessons into the flow of the session and the student would acknowledge these mini-lessons (finding 3). The implied agreement in the value of such mini-lessons, and collaborative support in general in working on the task, reveals the presence of intersubjectivity. In this sense, intersubjectivity relates to having faith in the broader value inherent in the interaction, rather than the idea that both participants must be in agreement throughout. Thus, while student Alan and tutor Sara had some disagreements pertaining to the choices of design aesthetics (session summary 8, Appendix F), they still operated within intersubjectivity due to a shared fundamental belief in the value of working collaboratively together in the Hub environment. In addition, while talk was the modal foundation of the interaction throughout sessions, the visual was also a key mode in meaning-making to communicate mini-lesson content (Kress, 2010); therefore the multimodal interaction in mini-lessons was crucial in allowing students and tutors to proceed in a state of intersubjectivity throughout the sessions (finding 3).

### **Tools with Specific Values and Uses in the Hub**

Just as the primacy of talk within the social context comprised the modal foundation for interactions at the Hub and indicated an important feature of the ZPD, the shared cultural setting also included both physical and cognitive tools (Leont'ev, 1981), as revealed in finding 2. The mediation of tools is a key feature of how learning takes place from a sociocultural perspective. Smagorinsky (2011) aptly connects the social setting to the tools and signs of the ZPD: "If development is socially mediated, then commerce with other humans does not contaminate or corrupt the natural mind but rather provides the tools and signs through which the inherently social mind develops according to particular cultural codes" (p. 58). In this sense, the digital context of the Hub then provides opportunities for new tool and sign use based on participants' meaning-making practices and encounters with each other and the environment. Tools may serve multiple purposes that have affordances and constraints that contextually change (Smagorinsky, 2011; Vygotsky, 1978). In discussing the digital tools available in the setting of the synchronous Hub interactions, affordances and constraints emerged that were indeed contextually dependent (finding 2 and associated sub-findings).

Discussing tools in particular helps to view multimodal practices at work in the Hub setting while examining the nature of tool use as a relevant feature of a potential ZPD. The boundaries of the learning space of the Hub allowed for digital practices that may not have been available in print-only environments (sub-finding 2.1). Because the task was to create a digital, multimodal product in Google Slides, working within Google Slides during the sessions inherently allowed for practices with tools unique to the digital environment. In addition to Google Slides, the video chat tool was also used in each session to facilitate audio (talk) and visual (body language) modal communication (Kress, 2013). The student and tutor, each on their

own computers, were able to see changes to the product in real time in Google Slides; the user experience was also fluid because they were using video chat while looking at the product simultaneously, which allowed them to discuss changes as they were made. Used in conjunction as the digital Hub context, Google Slides and video chat allowed for each person to engage with each other and the product seamlessly, without ever having to take their eyes off the screen. These tools were therefore inherently valuable by both tutor and student, for they comprised the essential means of communication in the online Hub environment.

The user experience of utilizing tools and participating in the Hub environment is important because it suggests the larger social impact of tool use, which may reproduce or change activity over time. As Smagorinsky (2011) points out, Vygotsky's student Leont'ev (1981) "was concerned with the ways in which social action produces changes in consciousness. This emphasis in turn requires attention to... the particular tools and ways of using tools sanctioned in different settings" (p. 55). Tools and tool use therefore connect to participants' cognitive understandings, which likewise are open to remediation based on the social context in which such tools are utilized; a tool's value or use may change through the course of social engagement with that tool (Vygotsky, 1978), as seen through some examples that support finding 2.

**Affordances of tool use in the Hub.** One unique tool in the Google Slides platform is the comment tool, which creates comment balloons to the side of the slides in the product that can be inserted, changed, resolved or deleted by either participant. A prime example of this tool's affordances was tutor Sara's leverage of the comment balloon tool to track conversation and ideas around particular aspects of design in the product (sub-finding 2.1.1). To use the comment tool, a person would highlight textual or visual elements on a slide in the product and insert a

comment balloon that could be edited or built upon by additional comments to create a threaded discussion within the comment balloon. This tool was not used in every session but was utilized extensively in session 4, when the tutor began inserting comments into the product so the student could “refer to them later” (session summary 4, Appendix F). Within the multimodal activity of the session, Sara would let the student Chris know that she was inserting a comment, and then she would often stop talking and look intently at the screen as she typed her textual content into the comment balloon. After publishing a comment, if they discussed additional topics that Sara wanted to make note of on a given slide, she would click within the comment balloon and edit it to include new information. The affordances of the comment balloon tool are unique to the digital environment and impacted the meaning-making in the session as a productive interaction (sub-finding 2.1.1).

Another digital practice that resulted from the affordances of the digital tools in the Google Slides platform involved the ability to model a mini-lesson within the product in real time and use changes within the product for instruction. In session 7, the tutor Zander led a mini-lesson on the difference between serif and sans serif fonts, and to do so, he used the digital text manipulation tools in Google Slides to make changes that he knew the student Sam would be able to see in real time (sub-finding 2.1.2). Sam thus was able to experience what his product would look like if he changed his titles on his slides to a sans serif font while the body of the text remained in a serif font, because Zander demonstrated these changes using the font tool in Google Slides and the product was updated synchronously to display the changes for both parties. Zander then changed the font back to the serif that Sam had chosen originally. This practice of demonstrating a lesson about the visual impact of font as a design choice, so that the student can

see their options and the rhetorical effect of those options, was a productive affordance of tool use in the digital environment (sub-finding 2.1.2).

In building on the importance of the digital tools and their affordances, a ZPD may be indicated by instances of content creation within sessions through the utilization of tools in particular or new ways for a desired effect. For example, the student Rick in session 6 engaged seamlessly with the tools of the Google Slides platform to create visual and textual content throughout the session, which was regarded positively as productive interaction by both Rick and the tutor Zander (sub-finding 2.2.1). In this particular session, it is important to note that Rick already seemed to be able to manipulate the digital tools well; he knew how to change font colors, insert and move images on slides, etc. Much of the modeling that occurred in that session had to do with use of the conceptual tools (Leont'ev, 1981) of the design principles from the Dave Underwood resources (Appendix E). Zander brought up the idea of a coherent look and feel in terms of color scheme, and introduced the idea of using highly contrastive (red) or complementary (green) colors with the background Rick had chosen (blue). Rick then experimented with this idea by changing his text red and then green, and evaluated the visual impact of each of these options through his conversation with Zander (session 6, Appendix F). In this example, Rick already knew how to use the digital tools in the platform to make the desired changes; rather, the conceptual tools of color contrast and visual coherence were the tools that Rick was utilizing with Zander's support (sub-finding 2.2.1). Thus the physical manipulation of the digital objects was in service of experimenting with a new set of cognitive tools (Smagorinsky, 2011), which may have been within the beginnings of Rick's ZPD related to employing design principles from the David Underwood resources.

**Constraints of tool use in the Hub.** While tool use is an important feature of what constitutes socially-mediated learning (Vygotsky, 1978), available tools may provide constraints on interaction, especially if tools are unable to produce the participants' desired actions. However, constraints experienced by users of tools do not mean that the learner is not experiencing a ZPD; rather, constraints pose turning points that often necessitate choices for the participants. Within the setting of this study, technological limitations were evident in the available tools of the Google Slides platform (sub-finding 2.2.2). For example, in session 2 student Gwen and tutor Sara used valuable time to discuss a technological anomaly that neither had a resolution for, aside from just ignoring it and moving on. In this instance, the knowledge gained does not necessarily help in composing the product, and hence, moving toward the goal; rather, the information is anecdotal (that the Google Slides product might not display exactly the same on every computer, therefore resulting in minor changes between viewers) and could potentially help troubleshoot future issues with the platform (like refreshing the page to see if the display changed). It is only natural that tools have values or uses that provide both affordances and constraints in a given situation (Smagorinsky, 2011). In learning interactions where other factors are working well (clear goals are set and understood by both parties, a positive rapport exists between participants, there are other available tools with which to work, etc.), constraints take up time but do not necessarily impede overall learning.

Furthermore, constraints in tool use may impact the social dynamic of the interaction in a potential ZPD in unexpectedly positive ways (sub-finding 2.2.3). For example, in session 3 student Alice was experiencing a constraint of the Google Slides platform—she wanted music to play continuously in the background as her slides advanced, but the music would turn off after leaving the first slide, where the song was embedded as a tiny YouTube clip she had inserted

(session summary 3, Appendix F). The tutor Sara expressed her disappointment as well and explained that this issue was indeed a limitation of the available tools and not a feature that Alice simply had not known about. Sara listened to part of the song and took time to empathize with how the tool's limitation was changing Alice's vision for her Design. In expressing the same emotions as Alice—frustration, annoyance, yearning—Sara built rapport that allowed the interaction to proceed with intersubjectivity (Smagorinsky, 2011): they were both of the same opinion as to why a tool in Google Slides should operate differently, which by extension, put them on the same team. This encounter with a constraining tool allowed the participants to engage personally, for individuals must mediate their own emotions, just as identities impact learning environments in myriad ways (Moll, 1990).

Constraints of tool use, like affordances, provide opportunities for participants in a social context to make choices based on available tools and materials; in this sense, tool use connects to the idea of Design as productive meaning-making (New London Group, 1996). It is no surprise that such instances provide opportunities for empathy, for when the shared task in an interaction is to engage in Design around a task, people cannot help but be changed in the social dynamic: “Designing transforms knowledge in producing new constructions and representations of reality. Through their co-engagement in Designing, people transform their relations with each other, and so transform themselves. These are not independent processes” (New London Group, 1996, p. 76). Thus, as participants engage with tools (and therefore themselves and each other), it is important to remember the ways in which the social context helps to blend features of the ZPD together.

### **Mini Lessons and ZPD Features: Explicit Mediation, Prolepsis, and Imitation**

Through linking of themes that emerged in Phase 2 data analysis across all eight session studies, I found that the tutors consistently engaged in opportunities or “teachable moments” for at least one mini-lesson per session that had broader application than just the context of the session itself with its specific task, as revealed in finding 3. Although the tutors in this study had different tutoring styles, they both engaged in similar practices that revealed their training as tutors for the online Hub service. One of the tenets of their training had to do with the importance of mini-lessons, which are moments of explicit mediation, or purposeful facilitation of the interaction (Smagorinsky, 2011), on the part of the tutor. A long-held belief of writing center work is to avoid editing behaviors and instead move toward modeling and teaching behaviors (Lerner, 2009; Lunsford, 1991/2010). Writing center lore has commonly held the idea that tutors should teach students to fish rather than handing them the fish, and centers typically create a culture and associated practices to help manage students’ expectations in this regard (Harris, 1986). Indeed, students often receive explicit instruction about how to encourage students to take a more active role in sessions (Brooks, 1995), and a sociocultural approach to learning is at the core of this wisdom. At the Hub, the tutors in this study engaged with selections from Vygotsky’s *Mind and Society* as part of their tutor training to deliberate how “what a child can do with assistance today she will be able to do by herself tomorrow” (Vygotsky, 1978, p. 87). Whenever possible, “instruction should therefore be pitched to the upper threshold so that it leads development toward culturally valued knowledge and concepts that the [student] may ultimately be able to apply independently” (Smagorinsky, 2011). Tutors discussed the ZPD and were aware of this concept of active learning as they took on the tutoring role in this online multiliteracy center.



**Explicit mediation in the Hub sessions.** Because mini-lessons are important features of tutoring practice, it then becomes relevant to look at how tutoring style impacts mini-lessons and how they fit within the idea of explicit mediation as a feature of the ZPD. One-on-one explicit mediation practices indeed promote student learning (Freedman, Delp & Crawford, 2005), so examining specific practices and circumstances are likewise important. Within this study, the two tutors, Sara and Zander, had very different tutoring styles in that they approached mini-lessons differently and often focused on different aspects of students' products (sub-finding 3.1). These differences seem to be due to their own personal biases, preferences and backgrounds, which is unsurprising, given that personal identities are inherent features of learning environments (Cazden, 1996; Cole, 1996). Though their tutoring styles differed, they both adhered to their training and engaged collaboratively with students, and the students seemed to have had good experiences overall within the sessions. Each mini-lesson constituted an example of explicit mediation (Smagorinsky, 2011) because there was a clear topic or lesson, which was supported by either a demonstration or a discussion of a specific example.

Zander's tutoring style, if it could be characterized in a single word, would be that of a teacher; he consistently focused on big-picture topics pertaining to the overall design of the products before looking at sentence-level issues (sub-finding 3.1.1). He also left made no permanent changes, and was good about announcing the changes that he did make, as in his mini-lesson in session 7 on serif vs. sans serif fonts: "I'm just going to temporarily change this" (session summary 7, Appendix F). This style seems to be a digital approximation of the tutoring practice of asking the student to hold the pencil so as to make any marks on the paper for herself (Brooks, 1995).

In contrast to Zander's tutoring style, Sara could best be characterized as an editor; she would often focus on sentence-level topics as she encountered them within the flow of the session (sub-finding 3.1.2). Sara's tutoring style was not to literally edit the product or to do things for the student; however, she would take opportunities to seize teachable moments as she encountered them organically, with the result being that she would often interrupt a conversation about a big-picture idea to discuss a sentence-level issue such as a punctuation error. This style resulted in an organic yet sometimes disjointed flow of conversation, as students would absorb the mini-lesson and either observe Sara making changes or her pointing errors out for them to fix before moving on. Sara's attention to sentence-level errors could perhaps be due to her background; as a former classroom teacher of English as a second language, she had been perhaps more trained to look for sentence-level errors and other features of "correctness" that fall under the current-traditional rhetoric of writing instruction (Berlin, 1987).

**Proleptic behavior in Hub sessions.** For both tutors, their personal tutoring styles impacted their mediational behaviors and the mini-lesson moments of instruction that occurred within the sessions, but tutoring style also had an impact on proleptic behavior as well (sub-finding 3.1). Prolepsis, as a feature of the ZPD described by Smagorinsky (2011), involves the implicit social traits and behaviors that impact participants' understanding of one another, especially in planning for the future. As members of the same society at large, participants in a ZPD implicitly share some conventions or understandings that are preexisting; assumptions that a person might make about whether their partner "gets" a particular figure of speech, for example, are due to prolepsis in the social context and may be unconsciously true until proven otherwise through explicit interaction. Prolepsis also has to do with the future planning that participants do, which can be impacted by the present interaction. Because prolepsis is about subconscious

assumptions, it cannot be proven in this study; however, a possible outcome of prolepsis in this study could be found in examples of rapport that were established between tutors and students through banter as well as future-tense language that students used in referring to “playing” with their products.

All sessions demonstrated at least some degree of banter, characterized by language that was colloquial often utilized to either open (“hi, how are you?”) or close the session (“have a good day, and enjoy that sunshine!”). Taken as individual utterances, not all banter suggests the assumptions of shared cultural context and future planning that provide an example of prolepsis. However, the impulse to engage in banter revealed shared cultural norms having to do with politeness and friendliness, which created personal rapport that facilitated other states of communication, such as goal congruence. Sara’s banter was more chatty and often focused on personal anecdotes (“I had a similar experience when...”) while Zander’s banter was more humorous and often focused on details related to the session (“Oh, Comic Sans is terrible, never use Comic Sans, ha!”) (Appendix F). In this regard, both tutors seemed to establish a degree of shared proleptic understanding with the students, which is important in allowing students to trust tutors and feel that their advice is valuable.

Furthermore, both tutors also made reference to the students’ ongoing engagement with their products in the future, and students also took up this forward-thinking discourse through the language of “play” as an example of prolepsis. Indeed, a majority of the sessions in the study utilized the word “play” in relation to design, and this usage was always connected to a discussion of next steps (“I’m totally gonna play around with it more in terms of the design” “How can we play with the color here?”) (Appendix F). In connecting the idea of “playing” with the design of the product to activity that needs to happen in either the short or long term future,

either later in the session or later on the students' own time, participants were engaging in talk that indicated prolepsis based on contextual mutual agreement and planning for the future. Because there were examples of communication that may indicate proleptic understandings in these sessions, this suggests that tutors and students co-mediated the social interaction and environment to achieve learning goals.

**Imitation in Hub sessions.** In the context of a ZPD, productive interactions between participants demonstrate “a capacity for insightful imitation” such that “the role of play or experimentation [is] a way of helping to create a zone of proximal development” (Smagorinsky, 2011, p. 51). In this sense, “imitation” is understood to refer to the ways in which students are attempting something new with the guidance of their more capable peer, much in the sense that “play” does not literally mean fun games but a freedom to experiment with new ideas (Smagorinsky, 2011). Through Phase 2 analysis across sessions, I observed that the mini-lessons often had to do with a specific, concrete skill or idea that could be taught and demonstrated in just a few minutes (finding 3). The topics themselves were concise and discrete, such how to use commas within clauses accurately, and such mini-lessons would then support the larger overall design focus of the session, such as how to make the look and feel of the overall product more consistent. At other times, a mini-lesson would lead directly to active Designing, such as in session 6 with student Rick. Zander led a mini-lesson on chunking content across several slides rather than packing too much dense content onto one slide. This mini-lesson then led Rick to map out his next several slides based on the overall ideas he was hoping to convey with them, thus immediately experimenting with the take-away ideas from Zander's instruction (session summary 6, Appendix F). Therefore imitation in these sessions was experienced as productive interaction that could be a space where a ZPD would form.

### **Telos, Evidence, and the Role of Researcher**

The last feature of a potential ZPD as described by Smagorinsky (2011) that was evident in this study was that of telos and evidence. What sets these features apart from the others, however, is that Smagorinsky touches on the role of telos and evidence for both the participants in the interaction as well as the researcher.

Smagorinsky (2011) points out that teachers often have a sense of telos, or a preconceived idea of an outcome, about learning interactions. Just as “the learner’s construal of the task” is “key to any consideration of the role of a task in teaching and learning” (Smagorinsky, 2011, p. 63), the educator’s construal of the outcome of the session, before it even begins, is an important consideration (p. 64). While telos can help participants achieve goal congruence in a given interaction, teleological assumptions may also cause an educator to pay more attention to some details over others—in other words, they may look for certain *evidence* of learning because it aligns with what they expect and ignore other features of learning. In this study, the appointment forms that students and tutors filled out perhaps played a role in creating teleological assumptions for the tutors as to what the sessions would entail; and indeed, in this study, the tutor’s report forms indicated that the sessions focused on elements of design that students had wanted to focus on. However, because students and tutors had a limited number of options from which to choose to describe the primary and secondary foci of the session, there could be a limiting of the scope of the sessions just due to the limitations of the forms.

Just as educators hold teleological assumptions about the outcome of a potential learning interaction, Smagorinsky (2011) criticizes researchers as having similar biases, for “the instruments of data elicitation are never neutral; they are instead always mediational” (p. 68). Rather than designing studies around finding out a specific set of outcomes, Smagorinsky (2011)

reminds us that data within social science must be understood as contextually bound: “Data can only be ‘pure’ in a sterile environment, and human development takes place in a teeming social milieu” (p. 68). Therefore, it is important for researchers to recognize the reflexive nature of the ZPD when studying the ZPD, and acknowledge their own role in their work as well as the elastic nature of data and tools of data analysis as being an “appropriation and implementation of a culture’s psychological tools” (Smagorinsky, 2011, p. 68). To account for this complexity, I created open-ended research questions and sub-questions and continually consulted with an expert throughout my data collection and analyses processes.

### **The ZPD and The New London Group**

Through looking at the elements of the ZPD (Smagorinsky, 2011) in conversation with the findings from this study, there are also several salient connections to make to the New London Group’s (1996) notion of Design. According to the New London Group (1996), “Semiotic activity [is] a creative application and combination of conventions (resources— Available Designs) that, in the process of Design, transforms at the same time it reproduces these conventions.... That which determines (Available Designs) and the active process of determining (Designing, which creates The Redesigned) are constantly in tension” (p. 74). Therefore, another way of looking at the relationship between product completeness and student talk on design (finding 1) may be to think about how much “tension” remained to be resolved to complete the task. Through Phase 2 data analysis of sessions, there is a sense that Stage 3 sessions were much closer to being Redesigned, with the process of Design being much closer to completion. The choices surrounding Available Designs had largely already been made by the students prior to their learning interactions with the tutors, which resulted in the necessity of making fewer big choices. In Stage 3 sessions, the tutors did more of the talking as they strove to reveal additional

Design details that could still be discussed (such as polishing issues related to font choice). In contrast, sessions in earlier stages focused on products that still had a variety of Available Designs open to them, as students actively discussed and generated visual and textual content (big-picture issues) in their Designing during the sessions. Tutors and students were more likely to view and discuss the resources provided by their instructors, namely the instructors' exemplars of the assigned product (sessions 4, 5, and 6). This suggests that, in the beginning stages of collaborative Design, learners experience more "tension" as they sort through and keep, discard, or modify ideas from Available Designs as they develop their own work (New London Group, 1996). This tension Designing and the Redesigned, especially when goal congruence is present, is experienced as a productive state of intersubjectivity that may be an indication of a ZPD.

Kress (2009, 2010, 2013) later extended the New London Group's (1995) discussion of the social relationship between participants in a Design-based interaction. Kress (2013) indicates it is partially the newness of Design that impacts the participants of the social setting: "The 'look,' the layout, [and] the arrangement of the site of appearance is a graphic/visual realization of a new social relationship between the social participants in educational environments" (p. 3). Indeed, even as the Designer experiments—or *imitates*—within the social interaction, their mediating actions are "done from the perspective of a... *rhetor*, who has an eye equally on 'own interest,' on 'audience,' 'phenomenon to be communicated,' 'broader social environment,' [and] 'effect of the arrangement'" (Kress, 2013, p. 3, italics in original). For students who were in the beginning stages of composing assignments that were new features of their respective courses, utilizing new tools such as the Google Slides platform, they were very much enmeshed in the "newness" of their Designing experiences.

## **Chapter Conclusion**

Taken together, the findings from Chapter 4 worked toward answering the main research question of this study: What is the nature of the interactive processes of students and tutors, as situated in an online multiliteracy center and mediated by digital tools and modes? How does this interactive process suggest the ‘beginnings’ of working within each student’s ZPD? Elements of the ZPD as clarified by Smagorinsky (2011) include: the social context/setting for learning; goal congruence and intersubjectivity; tools with specific values and uses; explicit mediation, prolepsis and imitation; and telos and evidence. This chapter took features of the ZPD and put them in conversation with the findings and sub-findings of this study to reveal the ‘beginnings’ of what might be the students’ ZPDs. In the next chapter, I present several implications for further research that are generated as a result of this Discussion Chapter.



## CHAPTER 6: Implications and Conclusion

This dissertation study examined the interactions that took place between students and tutors at an online synchronous multiliteracy center; through two phases of data analysis, several findings emerged that had relevance to the literatures of literacy learning and writing/multiliteracy centers. In this final chapter, I will conclude this study with a brief discussion of implications for practice and for further research. Two decades ago, the New London Group (1996) concluded their classic article with a statement for their hope of what a “pedagogy of multiliteracies” would inspire, to “strive continually towards reformulations of theory that are of direct use in educational practice” (p. 89). This study focused on sessions that took place within the Hub soon after an organizational shift from an online writing center to an online multiliteracy center, and the sessions in this study reflect the range of “beginnings” that were at play--new online multiliteracy center practices, new multimodal composing platforms, and the beginnings of features of a Zone of Proximal Development. Therefore, the findings, discussion and implications of this study are situated in the context of the newness that existed across the various levels of the study. My hope is that this study has taken up the New London Group’s call in a small and practical way, to begin pointing at new routes for examining interaction within multiliteracy centers and how these centers could be organized, for how Design composition is mediated in synchronous digital environments, and for how learning is conceived of through the ZPD and understood in a digital landscape filled with new tools and socially mediated practices.

### **Implications for Practice**

**The design of multiliteracy centers.** Given the richness of my multimodal data, this study has broader implications for future studies on multiliteracy centers, and online

multiliteracy centers in particular, as sites for research. Writing center practitioners have indeed been moving slowly towards embracing the multimodal shift in composition, for “the new digital literacies [have] increasingly [been] incorporated into writing centers not just as sources of information or delivery systems for tutoring but as productive arts in their own right” (Trimbur, 2000, p. 30). As evidenced by this study, multiliteracy center work is a ripe environment for the study of interaction in dynamic environments with multimodal products. With educational practices increasingly taking place in the digital realm, it behooves educators and scholars to inquire deeper into the following:

- Institutional leadership should consider working with multiliteracy centers to promote services and support for faculty who create digital literacy and multimodal composition assignments in their courses. In this particular study, the assignments were situated at the beginning of each course and were intended to be basic compositions with a straightforward visual rhetorical purpose to communicate a personal message. However, multimodal compositions vary in genre and sophistication, and are evolving dynamically in concert with new digital tools and social media. This adds a layer of complexity to the design of multiliteracy centers, since the needs of tutors, faculty and students are constantly evolving. For example, preparing tutors to work with students who are composing digital storytelling would involve different rhetorical goals, composing tools, and distribution platforms. Tutoring in this context may very well change the nature of student/tutor interactions. If institutions encouraged faculty communication with multiliteracy centers as to the nature of assignments, then centers could prepare their tutors so that they would be better equipped to support students in relevant and meaningful ways.

- Such collaborations between faculty and multiliteracy centers could help establish a flexible interdisciplinary canon of resources on visual, aural, and multimodal rhetoric and design to serve as indicators of quality. In this study, quality indicators included the parameters of the assignments, the instructors' exemplars, and the David Underwood resources on design principles and visual rhetoric. What counts as quality in multimodal composition is not fixed; it will be mutually constructed by professors, students, and tutors as students engage in multimodal design, situated in, and influenced by popular culture and academic worlds. Other institutions and multiliteracy centers will need to consider what counts as quality in a particular context, for this shapes tutors' recommendations and students' learning.
- As multiliteracy centers are designed, additional research should be done on affordances and constraints of the digital realm of the multiliteracy center. When designing mediating digital platforms for online multiliteracy center use in particular, it will be helpful to consider the tools and practices that are intuitive and enabling versus those that may cause confusion and require extra training or support.
- Student multimodal composition assignments should address the affordances and constraints of the digital conferencing platform and the composing tools so that they are prepared to use the platform and tools to meet assignment criteria. Faculty will need to understand the features and limitations of digital platforms to help them situate the rhetorical goals of a task. In turn, multiliteracy centers will need to consider how to support faculty who are learning new technology that they plan to incorporate into their teaching.

- The development of the multimodal composition assignments in this study were a result of the institutional unit providing additional professional development to support instructors in redesigning their courses to integrate technology and media. Multiliteracy centers should consider the ways in which they might support faculty in designing new course material that utilizes new and socially relevant technologies, with multimodal composition assignments as just one aspect of their course design.

**Implications for training online composition tutors.** There are several implications for tutor training as a result of this study, including topics that require additional research and topics that tutors might want to be aware of to potentially become more mindful in their own practice. Some of these topics include:

- Additional research should be done on the relationship between student talk and product completeness. If tutors were aware that students might be likely to talk more about their work during the early stages of composition, then they might better anticipate the flow of a session based on the state of the product at the beginning of the session. Tutors might also develop other kinds of questions or strategies to engage students more fully in conversations pertaining to polishing concerns for products that are nearing completion, and to broader planning goals and design during early to mid-stage phases of composition.
- Tools offer options for tutor notation during sessions. For example, within Google Slides, it was observed that tutors created notes within the product when students are not taking notes themselves. The notes were intended to remind students to attend to a composition issue, revise, edit, etc. In some cases, the notes were quite specific as to what should be accomplished, and at other times, they were more general. The

- capacity to capture tutor recommendations, as well as students' notes to themselves, is an affordance of some composing tools that merits further study. Is this an aspect of the conferencing process that should be developed so that students are better supported in working on their pieces after the sessions. It would be interesting to investigate the degree to which these notes were helpful to the students, which could provide feedback as to tutoring practices that should be engaged in consciously.
- Some aspects of tool use may operate differently for the tutor and student, introducing potential complications. For example, it was observed that tutors would often use their cursors in such a way that caused confusion for students, because the cursor was only visible to the tutor. Tutors ought to be made aware of the limitations of the digital environment to become more conscious of behaviors that create unintentional confusion for the student. For example, if a tutor is used to “talking with their hands” in person, then they should be aware that, should they move the cursor emphatically as an extension of this behavior in the digital realm, a student will not see it (at least in online environments similar to the one used in this study). A future study may wish to explore the nature of “hold-over” activities from in-person teaching or tutoring and how these manifest in the digital world in ways that are no longer understandable.
  - As tutors receive training on topics such as design principles and multimodality theory, there ought to be an ongoing awareness or attention to indicators of what counts as quality. Tutors, and the multiliteracy center, should have a repository of resources that provide support as to standards in multimodal rhetoric and design. Such resources and tutor knowledge can help support conversations of students' products moving from a novice form to a more polished form.

## **Implications for Theory and Research**

**The Zone of Proximal Development.** Additional research should be done on observing the features of the ZPD in short-term interactions such as those that happen at a multiliteracy center to help further understand how learning occurs in such environments.

- Additional research would need to be done on using the features of a ZPD as described by Smagorinsky (2011) to determine future directions for examining the ZPD across a variety of learning contexts, especially in the digital realm of online conferencing centers. Indeed, it is possible that Smagorinsky's (2011) conception of the ZPD provides a foundation on which a new theoretical conception of the ZPD that includes practices within digital environments can evolve.
- Additional theoretical work would need to be done on the New London Group's (1996) framework of Design as it relates to the ZPD. The early stages and final stages of Design may provide an opportunity for investigating the idea of working with Available Designs as a space where a ZPD would form.

**The study of learning in digital environments.** Technology and digital tools are continually changing at a rapid pace, which poses challenges for educational researchers who study how learning occurs in digital contexts. Some considerations related to this topic are as follows:

- Additional research needs to be done on the variety of strategies that are used in teaching with technology as it evolves. Digital contexts are multimodal with varying degrees of intuitive usability for participants. New methodologies for both teaching

and research in these contexts are necessary for investigating the rich nature of the interactions that 21<sup>st</sup> century technologies make possible.

- Just as methodologies in the digital realm must evolve, so too must theory for conceiving of interaction in these contexts. This study suggests that there is certainly room for new theoretical frameworks for analyzing interaction in the digital realm.

### **Concluding Remarks**

Overall, this study provides insight as to the nature of the interactive processes of students and tutors. Among the multimodal milieu of these interactions, talk emerged as a modal foundation, and that the ratios of student and tutor talk were related to product completeness and focused on aspects of design in composition—both findings that signal directions for new research. The social, multimodal exchange within the Hub allowed for certain affordances and constraints regarding digital practices, processes, and products, which suggest new openings for study of the design of such learning spaces. Because the digital context of the Hub supported customized mini-lessons that used the product as the context for learning, and that within mini-lesson practices, personal tutoring style impacted the focus of how such mini-lessons unfolded, much remains to be investigated regarding pedagogy for the digital realm and training of online tutors and educators more broadly. Multiliteracy centers need to move forward and offer services to support students in composing and producing multimodal compositions. At the same time, advances are required in the theoretical and research base for the design and enhancement of multiliteracy centers. The implications of this study will hopefully galvanize the field toward sustained and agile work in making multimodal, collaborative online learning spaces common features of our modern institutions.

## WORKS CITED

- Alvey, T. L., Phillips, N. C., Bigelow, E. C., Smith, B. E., Pfaff, E., Colt, W., ... Ma, J. Y. (2011). From I-Search to iSearch 2.0. *English Teaching: Practice and Critique*, 10(4), 139-148.
- Atwell, N. (1987). *In the Middle: Writing, Reading, and Learning with Adolescents*. Portsmouth, NH: Heinemann.
- Babcock, R. D., & Thonus, T. (2012). *Researching the writing center: towards an evidence-based practice*. New York: Peter Lang Pub.
- Barnett, R. W., & Blumner, J. S. (2001). *The Allyn & Bacon guide to Writing Center: theory and practice*. Boston: Allyn and Bacon.
- Berlin, J. A. & Inkste, R. P. (1980). Current-traditional rhetoric: paradigm and practice. *Freshman English News*, 8(3), 1-14.
- Berlin, J. A. (1987). *Rhetoric and reality: writing instruction in American colleges, 1900-1985*. Carbondale: Southern Illinois University Press.
- Berlin, J. A. (1980). Richard Whately and Current-Traditional Rhetoric. *College English*, 42, 10-17.
- Bezemer, J. & Mavers, D. (2011). Multimodal transcription as academic practice: A social semiotic perspective. *International Journal of Social Research Methodology*, 14(3), 191-207.
- Bezemer, J. & Kress, G. (2008). Writing in multimodal texts: A social semiotic account of designs for learning. *Written Communication*, 25(2), 166-195.
- Brannon, L. and North, S. (2000). The uses of the margins. *The Writing Center Journal*, 20(2), 7-12.
- Britton, J. (1970/1992). *Language and learning*. Oxford: Boynton/Cook.
- Brooks, J. (1995). Minimalist tutoring: making the student do all the work. *Writing Lab Newsletter*, 15(6), 1-4.
- Burn, A. (2009). *Making new media: creative production and digital literacies*. New York: Peter Lang.
- Carino, P. (1995). Early writing centers: toward a history. *The Writing Center Journal*, 15(2), 103-15.
- Cazden, C. (1996). *Classroom discourse: The language of teaching and learning*. Portsmouth,



NH: Heinemann.

- Charmaz, K. (2006). *Constructing grounded theory: a practical guide through qualitative analysis*. London: Sage Publications.
- Christenbury, L. (2010). NCTE and the shaping of American literacy education. In E. Lindemann (Ed.), *Reading the past, writing the future: a century of American literacy education and the National Council of Teachers of English*. Urbana: NCTE.
- Coiro, J. (2011). Predicting reading comprehension on the Internet: Contributions of offline reading skills, online reading skills, and prior knowledge. *Journal of Literacy Research*, 43(4) 352-392.
- Cole, M. (1996). *Cultural psychology: A once and future discipline*. Cambridge, MA: Harvard UP.
- Cope, B., & Kalantzis, M. (Eds.). (2000). *Multiliteracies: Literacy learning and the design of social futures*. New York: Routledge.
- Cope, B. & Kalantzis, M. (1993). The power of literacy and the literacy of power. *The Powers of literacy: a genre approach to teaching writing*. p. 63-89. Pittsburgh: University of Pittsburgh Press.
- Dalton, B. & Smith, B.E. (2012). Teachers as designers: Multimodal immersion and strategic reading on the Internet. *Research in the Schools*, themed issue Literacy and Web 2.0.
- Dalton, B., Robinson, K., Lovvorn, J.F., Smith, B.E., Alvey, T., Mo, E., Uccelli, P., & Proctor, C.P. (2015). Fifth-grade students' digital retellings and the Common Core: Modal use and design intentionality. *Elementary School Journal*, 115(4), 548-569.
- Dyson, A. (1990). Weaving possibilities: Rethinking metaphors for early literacy development. *Language Arts*, 81(2), 100-109.
- Elbow, P. (1973). *Writing without teachers*. Oxford: Oxford UP.
- Emig, J. (1968). *The composing processes of twelfth graders*. Urbana: NCTE.
- Erickson, F. (1985). *Qualitative methods in research on teaching* (p. 119-62). Institute for Research on Teaching.
- Feltenberger, A. and Carr, A. (2011). Framing versatility as a positive: building institutional validity at the University of Colorado at Boulder's writing center. *Praxis: A Writing Center Journal*, 8(2). Web.
- Feltenberger, A. (2008). Opening the door to discourse: cooperation, authority, and the inner-city high school writing center. *Praxis: A Writing Center Journal*, 5(2). Web.

- Feltenberger, A. (2012). Validating the multiliteracy center: dreaming 21<sup>st</sup> century composition and collaboration. National Council of Teachers of English Conference. Las Vegas, NE. Nov. 17.
- Flewitt, R., Hampel, R., Hauck, M., & Lancaster, L. (2009). What are multimodal data and transcription? In C. Jewitt (Ed.), *The Routledge Handbook of Multimodal Analysis* (pp. 40-53). New York, NY: Routledge.
- Freedman, S., Delp, V., & Crawford, S. (2005). Teaching English in untracked classrooms. *Research in the Teaching of English*, 40(1), 64-126.
- Gee, J. (Ed.). (2000). *The New Literacy Studies: From "socially situated" to the work of the social*. London: Routledge.
- Gere, A. R. (2010). The teaching of writing: 1912-2010. In Erika Lindemann (Ed.) *Reading the Past, Writing the Future: A Century of American Literacy Education and the National Council of Teachers of English*. NCTE, p. 93-124.
- Glaser, B. G. (1965/2008). The constant comparative method of qualitative analysis. *Grounded Theory Review: An International Journal*. 3(7).  
<<http://groundedtheoryreview.com/2008/11/29/the-constant-comparative-method-of-qualitative-analysis-1/>>
- Glaser, B. G., & Strauss, A. L. (1999). *The discovery of grounded theory: strategies for qualitative research*. New Brunswick, N.J.: Aldine Transaction.
- Goodman, Y. M., & Goodman, K. S. (1990). Vygotsky in a whole-language perspective. In L. C. Moll (Ed.), *Vygotsky and education: Instructional implications and applications of sociohistorical psychology* (p. 223–250). New York: Cambridge University Press.
- Goodnow, J. J. (1993). The direction of post-Vygotskian research. In E. Forman, N. Minnick, & A Stone (Eds.), *Contexts for learning* (p. 240 -259). Oxford: Oxford University Press.
- Gray, B. (1987) How Natural is 'Natural' Language Teaching: Employing Wholistic Methodology in the Classroom. *Australian Journal of Early Childhood*. 12(4), 3-19.
- Gray, B. & Cazden, C. (1992) *Concentrated Language Encounters: International Biography of a Curriculum Concept*, Joint Plenary Address, 26th Annual TESOL Convention, Vancouver Convention Centre, Vancouver B.C. Canada, March 3-7 1992.
- Gutierrez, K. D., Bien, A. C., & Selland, M. K. (2010). Syncretic Approaches to Studying Movement and Hybridity in Literacy Practices. In D. Lapp & D. Fisher (Eds.). *Handbook of Research of Teaching the English Language Arts*. International Reading Association.

- Harris, M. (1982). Growing pains: the coming of age of writing centers. *The Writing Center Journal*, 2(1), 1-9.
- Harris, M. and Pemberton, M. (1995). Online writing labs (OWLs): A taxonomy of options and issues. *Computers and Composition*, 12(2), 145-159.
- Hampel, R. (2013). Making meaning online: computer-mediated communication for language learning. In Peti-Stantić, Anita and Stanojević, Mateusz-Milan (Eds.) *Language as Information*. Proceedings from the CALS Conference 2012. Frankfurt am Main: Peter Lang, (In Press).
- Heath, S. B. (1983). *Ways with words: Language life, and work in communities and classrooms*. New York: Cambridge University Press.
- Heath, S. B. (1991). The sense of being literate: Historical and cross-cultural features. In R. Barr, M. L. Kamil, P. Mosenthal, & P. D. Pearson (Eds.), *Handbook of reading research: Volume II* (p. 3–25). New York: Longman.
- Hempel, R. & Stickler, U. (2012). The use of videoconferencing to support multimodal interaction in an online language classroom. *ReCALL*, 24(2), 116-137.
- Hewett, B. (2010). *The online writing conference: a guide for teachers and tutors*. Portsmouth, NH: Heinemann.
- Hull, G. A. and Nelson, M. E. (2005). Locating the semiotic power of multimodality. *Written Communication*, 22(2), 224-261.
- Inman, J. A. & Sewell, D. N. (2000). *Taking flight with OWLs: Examining electronic writing center work*. Mahwah, N.J.: L. Erlbaum Associates.
- Jewitt, C. (2012) *An Introduction to Using Video for Research*. NCRM Working Paper. NCRM. (Unpublished) <[http://eprints.ncrm.ac.uk/2259/4/NCRM\\_workingpaper\\_0312.pdf](http://eprints.ncrm.ac.uk/2259/4/NCRM_workingpaper_0312.pdf)>
- Kalantzis, M., Cope, B., & Harvey, A. (2003). Assessing multiliteracies and the new basics. *Assessment in Education*, 10(1), 15-26.
- Kelly, L. (1980). One-on-one, Iowa City style: fifty years of individualized writing instruction. *The Writing Center Journal*, 1(1), 4-19.
- Knobel, M. & Lankshear, C. (2007). *A new literacies sampler*. New York: Peter Lang.
- Kress, G. (2003). *Literacy in the New Media Age*. London: Routledge.
- Kress, G. (2010). *Multimodality: A Social Semiotic Approach to Contemporary Communication*. New York: Routledge.

- Kress, G. (2013). Recognizing learning: a perspective from a social semiotic theory of multimodality. In de Saint-Georges, I. and Weber, J. (Eds.) *Multilingualism and Multimodality: Current Challenges for Educational Studies*. Rotterdam: Sense Publishers, p 119-132.
- Kress, G. & Van Leeuwen, T. (2001). *Multimodal discourse: The modes and media for contemporary communication*, London: Edward Arnold.
- Lam, W. S. E. (2009). Multiliteracies on instant messaging in negotiating local, translocal, and transnational affiliations: A case of an adolescent immigrant. *Reading Research Quarterly*, 44(4), 377-397.
- Langer, J. A., & Applebee, A. N. (1987). *How writing shapes thinking: A study of teaching and learning* (NCTE Research Report No. 22). Urbana, IL: National Council of Teachers of English.
- Lankshear, C., & Knobel, M. (2003). *New literacies: Changing knowledge and classroom learning*. Philadelphia: Open University Press.
- Lee, S. & Carpenter, R. (2013). *The Routledge reader on writing centers and new media*. New York: Routledge.
- Lee, C. & Smagorinsky, P. (2000). *Vygotskian perspectives on literacy research: constructing meaning through collaborative inquiry*. Cambridge: Cambridge UP.
- Leont'ev, A. N. (1981). *Problems of the development of mind*. Moscow: Progress Publishers.
- Lerner, N. (2009). *The idea of a writing laboratory*. Carbondale: Southern Illinois University Press.
- Lunsford, A. (1991/2010). Collaboration, control, and the idea of a writing center. In C.
- Luria, A. R. (1976). *Cognitive development: Its cultural and social foundations* (M. Cole, Ed., M. Lopez-Morillas & L. Solotaroff, Trans.). Cambridge: Harvard University Press.
- Murphy and S. Sherwood, Eds. *The St. Martin's sourcebook for writing tutors*. (p. 70-76.) Boston: Bedford St. Martins.
- McKinney, J. G. (2009/2010). New media matters: tutoring in the late age of print. In C. Murphy and S. Sherwood (Eds.), *The St. Martin's sourcebook for writing tutors*. (p. 344-360). Boston: Bedford St. Martin's.
- Moll, L. C. (1990). Introduction. In L. C. Moll (Ed.), *Vygotsky and education: Instructional*

- implications and applications of sociohistorical psychology* (p. 1–27). New York: Cambridge University Press.
- Moll, L. C., & Greenberg, J. B. (1990). Creating zones of possibilities: Combining social contexts for instruction. In L. C. Moll (Ed.), *Vygotsky and education: Instructional implications and applications of sociohistorical psychology* (p. 319–348). New York: Cambridge University Press.
- Murphy, C., and Law, J. (1995). *Landmark essays on writing centers*. Davis, CA: Hermagoras Press.
- Murphy, C., and Sherwood, S. (2011). *The St. Martin's sourcebook for writing tutors*. Boston: Bedford/St. Martins.
- Murray, D. (1972). Teach writing as a process not product. *The Leaflet*, 11-14.
- Myers, M. (1996). *Changing our minds: negotiating English and literacy*. Urbana, Ill.: National Council of Teachers of English.
- National Writing Project, DeVoss, D. N., Eidman-Aadahl, E. and Hicks, T. (2010). *Because digital writing matters: improving student writing in online and multimedia environments*. San Francisco, CA: Jossey-Bass.
- New London Group. (1996). A Pedagogy of multiliteracies: Designing social features. *Harvard Educational Review*, 66, 60-92.
- Newman, D., Griffin, P., & Cole, M. (1989). *The construction zone: Working for cognitive change in school*. New York: Cambridge University Press.
- NCTE. (2008/2013). The NCTE definition of 21st century literacies. Position Statement. Retrieved from <http://www.ncte.org/positions/statements/21stcentdefinition>
- Norris, S. (2004). *Analyzing multimodal interaction: a methodological framework*. New York, NY: Routledge.
- North, S. (1984). The idea of a writing center. *College English*, 46(5), 433-46.
- Pahl, K. (2009). Interactions, intersections and improvisations: Studying the multimodal texts and classroom talk of six-to-seven-year-olds. *Journal of Early Childhood Literacy*, 9(2), 188-210.
- Paris, D. (2010). Texting Identities: Lessons for Classrooms from Multiethnic Youth Space. *English Education*, 42(3), 278-292.
- Ochs, E. (1979). Transcription as theory. In E. Ochs, and B. B. Schieffelin, *Developmental pragmatics*. (p. 43-71). New York; London: Academic Press.

- O'Halloran, K. L. (in press). Multimodal analysis and digital technology. In A. Baldry and E. Montagna (Eds.), *Interdisciplinary Perspectives on Multimodality: Theory and Practice*. Campobasso: Palladino.
- Rogoff, B. (2003) *The cultural nature of human development*. New York: Oxford University Press.
- Sanders, J. and Albers, P. (2010). Multimodal literacies: an introduction. In J. Sanders and P. Albers (Eds.), *Literacies, the Arts, and Multimodality*. (p. 1-25). Urbana, IL: NCTE.
- Scribner, S., & Cole, M. (1981). *The psychology of literacy*. Cambridge, MA: Harvard University Press.
- Scribner, S. (1984). Literacy in three metaphors. *American Journal of Education*, 93(1), 6-21.
- Sheridan, D. M. and Inman, J. A., (Eds.) (2010). *Multiliteracy centers: writing center work, new media and multimodal rhetoric*. Cresskill, NJ: Hampton Press.
- Sheridan, D. M. (2006/2010). Words, images, sounds: writing centers as multiliteracy centers. In C. Murphy and S. Sherwood, Eds. *The St. Martin's sourcebook for writing tutors*. (p. 334-343). Boston: Bedford St. Martin's.
- Smagorinsky, P. (2006). *Research on composition: multiple perspectives on two decades of change*. New York: Teachers College Press.
- Smagorinsky, P. (2011). *Vygotsky and literacy research: A methodological framework*. Rotterdam: Sense Publishers.
- Strauss, A. and Corbin, J. (1990). *Basics of qualitative research: grounded theory procedures and techniques*. Newbury Park: Sage Publications.
- Sperling, M., & DiPardo, A. (2008). English education research and classroom practice: New directions for new times. *Review of Research in Education*, 32 (p. 62-108). Washington D.C. & Thousand Oaks, CA: AERA & SAGE.
- Stornaiuolo, A., Hull, G.A., & Nelson, M. E. (2009). Mobile texts and migrant audiences: Rethinking literacy and assessment in a new media age. *Language Arts*, 86(5), 382-392.
- Street, B. (1984). *Literacy in theory and practice*. New York: Cambridge University Press.
- Street, B. (2003). What's "new" in new literacy studies?: critical approaches to literacy in theory and practice. *Current Issues in Comparative Education*, 5(2), 77-91.
- Street, B., Pahl, K., & Rowsell, J. (2009). Multimodality and new literacy studies. In C. Jewitt

- (Ed.), *The Routledge Handbook of Multimodal Analysis* (pp. 191-200). New York, NY: Routledge.
- Trimbur, J. (2000). Multiliteracies, social futures, and writing centers. *The Writing Center Journal*, 20(2), 29-32.
- Van der Veer, R., & Valsiner, J. (1991). *Understanding Vygotsky: A quest for synthesis*. Oxford: Basil Blackwell.
- Vygotsky, L.S. (1978). *Mind and society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.
- Vygotsky, L. S. (1986). *Thought and language*. Boston: The Massachusetts Institute of Technology.
- Wood, D., Bruner, J. & Ross, G. (1976). The role of tutoring in problem solving. *Journal of Child Psychology and Psychiatry*, 17(2), 89-100.

## Appendix A

### Definitions of Terms

**Activity:** I use “activity” as a broad term to describe the interaction between people or between an individual and a product. Activity may comprise a variety of practices that involve looking, seeing, hearing, speaking and doing.

**Asynchronous:** When I refer to “asynchronous” appointments made at the Hub, or to asynchronous appointments at online writing centers in general, it means that these appointments take place without the tutor and student ever interacting in real time. At the Hub, this means that students share their work and questions with their tutors via Google Drive, where the tutor accesses the work and provides feedback within a 24-hour period of when the appointment was set to begin in the schedule. At other online writing centers, different practices regarding how the tutor provides feedback may exist; commonly, students email their tutors their work as an attachment, and the tutors download the attachment and provide feedback, save a new copy, and email the new copy as an attachment back to the student within a given time period.

**Compose:** In this study, “compose” is used as a broad term to refer to the process of creating a work. “Composing” may include writing text, designing layout, arranging images, etc.

**Composition:** In this study, “composition” is used in the same manner as how the Hub utilizes the term, as a product that could include a paper, a presentation, a website, a video, etc. “Compositions” are the products that are requested from multimodal or digital assignments.

**Design:** In this study, design comprises the rhetorically informed choices and practices that students and tutors engage in when interacting online (Sanders & Albers, 2010), usually denoting design principles having to do with aesthetic choices that have rhetorical importance. When I refer to Design with a capital D, I am using this term in line with the New London Group (1996).



**Literacy:** When I refer to “literacy,” I use the term to mean a malleable collection of social and cultural communicative practices shared by group members as they make meaning.

**Multiliteracy:** I use “multiliteracy” to describe a recognition of multiple literacies, including literacies that require the use of multiple modes of interaction as well as the existence of multiple Englishes (outside of traditional academic language), that persons may possess as a result of their own cultural, historical and situated experiences. This understanding extends from the definition of multiliteracies as posed by the New London Group (1996).

**Multiliteracy Center:** I refer to “multiliteracy centers” as writing centers that officially help tutor students with multimodal projects, as well as assignments that may draw on ostensibly non-academic skills or interdisciplinary skills. For example, an assignment that asks students to utilize social media smartphone apps in a business class or design short video projects to achieve specific learning goals in a geography class would be appropriate works to bring to a multiliteracy center.

**Multimodal:** I use “multimodal” to describe activity or products that require the use of multiple modes of interaction, such as aural, visual, verbal, kinesthetic, etc.

**Product:** I will use “product” to refer to actual composed piece (a paper, a presentation, a website, an application, etc.) that the student and tutor work on at the Hub. I sometimes use “product” synonymously with “work,” though I tend to view “products” as physical or digital objects that others can see or interact with, while “work” can sometimes signal a broader process of composition that includes both the intellectual engagement with the occasion for composing as well as the physical or digital object.

**Revision:** When I refer to “revision” in this study, I am referring to changes of the student’s product. Revision is a broad term and such changes may be corrections, expansions, deletions, as well as changes that either positively or negatively impact the product.

**Session:** When I refer to “sessions” in this work, I am referring to the appointments that take place through the Hub. The session encompasses the entire time that the student and tutor work together for a given appointment.

**Share:** When I refer to “sharing” in this work, I am referring to the Google Drive terminology of how one links an item/file within Google Drive to another person. This feature is represented by a blue button in the top right corner of the screen within Google Drive with a lock symbol and the word “Share” in white. Clicking on this button opens a pop-up window where the user then enters the email address(es) of the person(s) the user wishes to “share” the item with. Documents, presentations, pdfs, uploaded images, spreadsheets, etc. can all be “shared” between users in Google Drive. Once an item is “shared,” the user has the option to put settings in place to limit how other invited users access the item (view only, can edit, etc.).

**Student:** When I refer to “students” in this work, I mean undergraduate or graduate college students who choose to utilize the Hub’s services.

**Synchronous:** When I refer to “synchronous” appointments made at the Hub, or to synchronous appointments at online writing centers in general, it means that these appointments take place via the tutor and student interacting in real time. At the Hub, this means that students share their work and questions with their tutors via Google Drive, and the session begins when both parties are viewing the shared work simultaneously at the appointed time. The Hub also encourages students to select a face-to-face video program, such as Google Hangouts or Skype, so that they can talk with their tutor and see their tutor’s face in real time while engaging in the session; however, because not all students have access to video features on their computers, a session is considered to be synchronous when the students and tutors are communicating via chat bar, audio or video in Skype, or a combination of these three options.

**Talk:** All verbal exchanges between students and tutors in Hub synchronous sessions are considered “talk” in this study. “Talk” can include a variety of syntactical forms including statements, questions, exclamations, listener noises such as “hmm,” etc. “Talk” is recorded as

part of the data through screencast synchronous Hub sessions.

**Tutor:** In this work, a “tutor” is a person employed by the Hub to work with students on their compositions. Tutors are trained in pedagogical theories and collaborative work strategies by the Hub and generally operate under the understanding that their job is to help improve students’ skills and critical thinking abilities rather than simply help fix the student’s product.

**Work:** I use “work” a noun to refer to the physical or digital object that a student has brought to the Hub as well as the mental process, or “mental work,” that the student engages in as part of a composing process. I also use “working” as a verb to describe the evolution of the noun “work,” in which both students and tutors can engage with the physical or digital object in visible, verbal or cognitive ways. Therefore, a student might be “working” on their assignment even if no changes to the physical or digital product are evident but the student can articulate their evolving thought process about their assignment.

**Writing Center:** When I refer to “writing centers” in this study, I am referring to the format of student support service that became known in the 1970s and 1980s as a writing center or writing lab, where students at a college or university could get help with their papers from teachers or trained peer tutors. I use “writing center” to refer to the traditional and established form of this service where students and tutors meet in person to go over printed-out, physical copies of written assignments.

- **Online Writing Center/Online Writing Lab (OWL):** When I refer to “online writing labs (OWLs)” or “online writing centers,” I am referring to the shift where the traditional writing center work of tutor and student working on a written assignment takes place virtually online, usually asynchronously via email exchange. OWLs became popular in the 1990s and early 2000s.

## Appendix B

**List of Selected Online Writing Centers and Multiliteracy Centers (at Universities)**

This non-exhaustive list provides some of the top hits yielded with the following Google searches: “online writing center,” “online writing tutoring,” and “multiliteracy center.”

- Arizona State University, online tutoring: <https://studentsuccess.asu.edu/online>
- Community College of Denver, Online Writing Lab:  
<http://www.ccd.edu/ccd.nsf/html/WEBB8CEESG-OWL>
- Front Range Community College, Online Writing Lab:  
<http://www.frontrange.edu/writingcentersubmission/writingcenter.aspx>
- George Mason University, video and email Online Writing Lab sessions:  
<http://writingcenter.gmu.edu/>
- Massachusetts Institute of Technology, Online Writing Consultant:  
<http://writing.mit.edu/wcc/online-consultant>
- Michigan Tech, Multiliteracies Center:  
<http://www.mtu.edu/humanities/resources/mtmc/>
- Mt. San Antonio College, online writing tutoring:  
<http://www.mtsac.edu/writingcenter/OnlineTutoring.html>
- State University of New York, Empire State College, ESC Online Writing Center:  
<http://www.esc.edu/online-writing-center/>
- Texas A&M, online sessions at University Writing Center (can help with “public speaking,” which may include multimodal presentations):  
<http://writingcenter.tamu.edu/>

- The University of Colorado at Colorado Springs, The Online Writing Lab:  
<http://www.uccs.edu/writingcenter/reviseowl.html>
- The University of Colorado at Denver, online tutoring at The Writing Center:  
<http://www.ucdenver.edu/academics/colleges/CLAS/Centers/writing/Pages/TheWritingCenter.aspx>
- The University of Iowa, online tutoring at The Writing Center:  
<http://www.uiowa.edu/~writingc/tutoring/online.shtml>
- The University of Michigan, Sweetland's Multi-Literacy Center:  
[http://www.ur.umich.edu/0203/Nov25\\_02/18.shtml](http://www.ur.umich.edu/0203/Nov25_02/18.shtml)
- The University of North Carolina at Chapel Hill, online tutoring at The Writing Center: <http://writingcenter.unc.edu/>
- The University of North Carolina at Greensboro, The Multiliteracy Centers:  
<http://multiliteracycenters.uncg.edu/>
- The University of Wisconsin-Madison, online tutoring at The Writing Center:  
<http://www.writing.wisc.edu/>
- Western Technical College, Online Writing Center:  
<http://www.westerntc.edu/writingcenter/>

## Appendix C


### Context

The purpose of the information below is to provide a more thorough overview of the digital environment of the Hub and the types of forms that students and tutors utilized in order to make their appointments and to reflect back on their sessions. I want to note that the service software automatically called student forms “client” forms, but I will continue to refer to the clients of the service as students throughout.

#### **Student Registration Form**

Below the embedded video on the home page, students had the option to click on a bar labeled “See the How-To Section Above, Then Click Here to Get Started,” which was what a one must click to enter the scheduling portion of the site. A drop-down window would open with the scheduling system embedded inside it. The Hub contracted with the software company WCOonline, which specializes in providing scheduling systems for writing centers. The WCOonline interface was embedded into the Hub website, which it was designed to do, so there was a seamless transition between the site and the schedule program; most visitors to the site might not even realize that they are separate. If the student wished to make a first-time appointment, then s/he would click on “Click here to register” in blue text under the bolded words “The Online Composition Hub.”

▼ See the How-To Section Above, Then Click Here to Get Started.

 University of Colorado  
Boulder


**The Online Composition Hub**

First visit? [Click here to register.](#)  
Returning? Log in below.

EMAIL ADDRESS:

PASSWORD:

CHOOSE A SCHEDULE:

Check box to stay logged in:  

Welcome to WCONLINE 5! To get started, register for an account by clicking the link to the left.

Figure 15: Screenshot of the scheduling sign-in portion of the Hub's website.

When “Click here to register” was clicked, a separate window opened with the Registration Form, allowing the student to sign up for an account and provide some personal information such as name, contact information, anticipated graduation year, major, student ID, and Google Account and Skype contacts.

**University of Colorado  
Boulder**

### Create a New Account

Fill out the form below in order to create a new account on this system. Questions marked with a \* are required.

Email Address:	<input type="text"/> *
First Name:	<input type="text"/> *
Last Name:	<input type="text"/> *
Telephone Number:	<input type="text"/>
Standing:	-- please select -- * <small>↓</small>
Graduation Year:	-- please select -- * <small>↓</small>
First or Home Language:	-- please select -- * <small>↓</small>
Major:	<input type="text"/> *
Student ID:	<input type="text"/> *
Google Account email (for GoogleDocs):	<input type="text"/>
Skype name::	<input type="text"/>
In my writing in general, I need help with::	<input type="text"/>

Figure 16: Screenshot of the Registration Form to create an account at the Hub.

In addition, the form required that new students indicated their personal opinion as to how they self-perceive as writers. There was a text box where students could indicate their general concerns with their writing and then rate their level of agreement with the following statement: “I think I am a fairly strong writer.” This section of the Registration Form is useful for tutors so that they can understand some basic background information about students before the session begins.



In my writing in general, I need help with::

I think I am a fairly strong writer.:

✓ -- please select --  
 Strongly Agree  
 Agree  
 Neutral  
 Disagree  
 Strongly Disagree

Password:

Re-Enter Password:

REGISTER CANCEL

Figure 17: Screenshot of the lower portion of the Registration Form to create an account at the Hub, showing the drop-down options available as responses to the last item before the password

### Student Appointment Form

Once the student created a new account, s/he could then sign in and view the schedule for the Hub. The schedule was organized as a grid by day and hour, showing tutors' names down the left side of each day and corresponding white boxes across the grid during the times that they had available appointments. Boxes that were a different color were already reserved or unavailable. A student needed to click on a white box during a time that fit their schedule to create an appointment during that time.

▼ See the How-To Section Above, Then Click Here to Get Started.

WELCOME CEWCO! ▼

◀ PREV WEEK | CURRENT WEEK | NEXT WEEK ▶

📄 🗨️ 📅 ✉️ HELP?

10/22: TUESDAY	11:00am	12:00pm	1:00pm	2:00pm	3:00pm	4:00pm	5:00pm	6:00pm	7:00pm	8:00pm	9:00pm
Alaina F. B. ✎					[Orange]						
Bethany M. ✎											
Elizabeth V. ✎											
Shannon R. ✎											
Zachary F. ✎											

10/23: WEDNESDAY	11:00am	12:00pm	1:00pm	2:00pm	3:00pm	4:00pm	5:00pm	6:00pm	7:00pm	8:00pm	9:00pm
Alaina (ASYNCHRONOUS) ✎										[Orange]	
Elizabeth (ASYNCHRONOUS) ✎											
Shannon R. ✎											
Zachary F. ✎											

Figure 18: Screenshot showing a selection of the schedule at the Hub.

Once a white box was clicked, a scheduling form opened for the student to fill out. The student had to indicate specific information about their assignment, including when it was due and the names of the course and instructor.

S

Fill out the form below in order to save this appointment. Questions marked with a \* are required.

**Email:** s lorado.edu

**Bio/Information:** My Google Account is mail.com. Share documents to this address and use it for Google Hangouts. Skype username: s

**Appointment Limits:** Appointments must be 1 hour in length.

**Time:** **Tuesday, October 22:**  to   
REPEAT APPT.

**Client:** Search:  Select:

**Course:**  \*

**Instructor:**  \*

**Due Date:**  \*

**What is your assignment?**  \*

Figure 19: Screenshot of the upper portion of the Appointment Form at the Hub.

After filling out specific information about their assignment and course, the student had to scroll down and fill out the rest of the form. The next portion of the form asked the student to indicate their primary concerns and secondary concerns in general terms using choices from a drop-down menu. The choices for primary and secondary concerns were the same.

Figure 20: Screenshot of the middle portion of the Appointment Form at the Hub, showing the drop-down menu of choices to indicate the student’s concerns.

Lastly, the student had to fill out the bottom of the Appointment Form before they completed the process of booking an appointment. The student had to provide the Google Accounts address that they wished to use for the session, since the meeting between student and tutor took place in Google Drive. The student also had the option of indicating their desire to use a face-to-face video chat program, such as Skype or Google Hangouts, during the session by providing their username if applicable. The student had to then check two boxes: one indicating that they understand that “this is not an editing service,” and another indicating that they “agree to work collaboratively” with their tutor. The purpose of these boxes was to help inform and further emphasize the Online Composition Hub’s ethos as a space where student and tutor would work collaboratively to achieve learning, rather than simply editing and focusing on the composition.

Specifically, what questions do you have?

Do you want to Skype?

If yes, what is your Skype name?

Your Google Accounts/GoogleDoc email:

I understand that this is not an editing service.:

I agree to work collaboratively with my tutor.:

Admin Options: Walk-In/Drop-In:  | Missed:  | Placeholder:  ? | Email Client?  ?

SAVE APPOINTMENT    CLOSE WINDOW

Figure 21: Screenshot of the lower portion of the Appointment Form at the Hub.

Upon clicking “Save Appointment,” the student received an email to the address that s/he used to create their account at the Online Composition Hub confirming that they had made an appointment; likewise, this process also triggered an automatic email to be sent to the tutor whom the student made the appointment with, which notified the tutor that they had an appointment with the student.

**Tutor forms.** Tutors had access to two types of forms at the Online Composition Hub that allowed them to do their jobs fully. They were able to access a student's Appointment Form that allowed them to see specific information about the session and the student who booked an appointment with them; this form was essentially the tutor's view of the student's Appointment Form. From this form, the tutor then accessed another form, called a Student Report Form, which allowed them to fill out a short response form about how the session went.

*Tutor's view of appointment forms.* Once the tutor received an email notifying them of an appointment made by a student, the tutor could log into WCOline and click on the appointment. What opened was a view of the same form that the student used to book the appointment, but with the student's responses filled in.

S [redacted]

Use the form below to modify, view, or cancel this appointment. Questions marked with a \* are required.

**Email:** s [redacted]@colorado.edu

**Bio/Information:** My Google Account is [redacted]@mail.com. Share documents to this address and use it for Google Hangouts. Skype username: s [redacted]

**Appointment Limits:** Appointments must be 1 hour in length.

**Time:** **Wednesday, October 09:** 9:00pm to 10:00pm

Created: Oct. 9, 2013 (6:43 pm) by Elizabeth Vanicelli.

**Client:** E [redacted] [redacted]  
eli [redacted]@colorado.edu

**Course:**  \*

**Instructor:**  \*

**Due Date:**  \*

**What is your assignment?**

I need to write a brief and professional cover letter. I met them at the career fair, and I'm just struggling writing so many unique cover letters.

Figure 22: Screenshot of the upper portion of a sample tutor's view of an Appointment Form from preliminary data.

The tutor could find out key information that would help guide the session, such as a description of the student's assignment and an understanding of when the product is due. The tutor could also see what the student identified as primary and secondary concerns of the session, specific questions that the student had, and whether or not the student wished to use a video chat

interface during the session. This information helped tutors begin the process of mentally planning how to approach the session when they met with the student at the appointed time.

The screenshot displays a form with the following elements:

- What is your PRIMARY concern?**: A dropdown menu with the selected value "Organization/flow".
- What is a SECONDARY concern?**: A dropdown menu with the selected value "Brainstorming/planning".
- Specifically, what questions do you have?**: A text area containing the text "Does it cover enough while being brief? You can film our session for Alaina.".
- Do you want to Skype?**: A dropdown menu with the selected value "Yes".
- If yes, what is your Skype name?**: A text input field containing "va" followed by a cursor.
- Your Google Accounts/GoogleDoc email:**: A text input field containing "ail.com".
- I understand that this is not an editing service.:**: A checked checkbox.
- I agree to work collaboratively with my tutor.:**: A checked checkbox.

Figure 23: Screencast of the middle portion of a sample tutor’s view of an Appointment Form from preliminary data

Lastly, at the bottom of a tutor’s view of an Appointment Form, the tutor was able to click on “View Existing” under “Admin. Options,” which opened a window to show how many appointments the student had previously had, if any. The dates and times of previous



appointments were available in chronological order, and the tutor had the option to click “View CLIENT REPORT FORM.”

<b>09/18/2013</b> 9:00pm – 10:00pm	EI [REDACTED]   RESOURCE: S [REDACTED] SCHEDULE: Online Comp Hub Fall 2013 Schedule	<a href="#">View CLIENT REPORT FORM</a> <a href="#">View APPOINTMENT</a>
<b>09/24/2013</b> 4:00pm – 5:00pm	EI [REDACTED]   RESOURCE: [REDACTED] SCHEDULE: Online Comp Hub Fall 2013 Schedule	<a href="#">View CLIENT REPORT FORM</a> <a href="#">View APPOINTMENT</a>
<b>10/09/2013</b> 9:00pm – 10:00pm	EI [REDACTED]   RESOURCE: S [REDACTED] SCHEDULE: Online Comp Hub Fall 2013 Schedule	<a href="#">View CLIENT REPORT FORM</a> <a href="#">View APPOINTMENT</a>

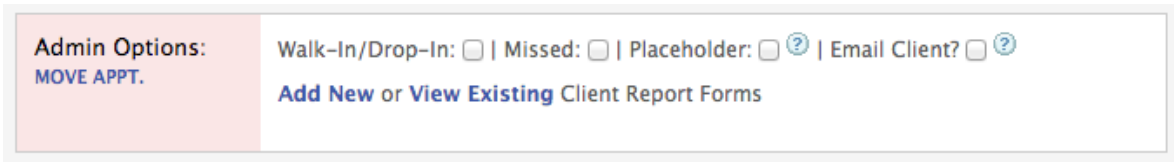
Figure 24: Screenshot of existing student report forms taken from existing preliminary data

When the tutor clicked “View CLIENT REPORT FORM” for any of the existing reports, another window opened that allowed the tutor to see accounts from previous sessions with that student. Having the ability to view past reports allowed the tutor to notice any trends in a student’s work or development and helped the tutor to be better prepared for the session ahead. Student Report Forms will be discussed more thoroughly in the next section.

<b>Date:</b>	October 09, 2013: 9:00pm – 10:00pm
	<b>Actual Length of Session:</b> 60 minutes
<b>Resource:</b>	Shannon R. (Online Comp Hub Fall 2013 Schedule)
<b>Appointment length:</b>	30 minutes *
<b>During this session, we primarily focused on::</b>	Assignment clarity/purpose *
<b>A secondary focus of the session was::</b>	Organization/flow *
<b>S/he learned to make this assignment stronger:</b>	Agree *
<b>S/he learned lessons about writing in general:</b>	Agree *
<b>Comments::</b>	She needed help on writing a cover letter - we discussed the kind of language she should use, how her language needed to be stronger, more specific to the company and the work

Figure 25: Screenshot of a previously completed Student Report Form taken from existing preliminary data

***Student Report Forms.*** After a session had been completed at the Online Composition Hub, the tutor had to fill out a form describing what actually occurred in the session (as opposed to what the student wanted to work on when they filled out the form to make the appointment). At the bottom of the student’s appointment form that the tutor could access, there was an “Admin. Options” box coded with a pink left sidebar, and inside the main box, there was the option to “Add New” in blue font.



The screenshot shows a rectangular box with a light gray border. On the left side, there is a vertical pink bar containing the text "Admin Options:" and "MOVE APPT." in blue. To the right of this bar, the text "Walk-In/Drop-In:  | Missed:  | Placeholder:  ? | Email Client?  ?" is displayed. Below this text, the phrase "Add New or View Existing Client Report Forms" is written in blue.

Figure 17: A screenshot of the Admin. Options section at the bottom of the tutor's view of a student's appointment form, with options to "Add New" or "View Existing"

After the tutor clicked the "Add New" button, another form opened where the tutor reported on the session with the given student; thus, the WOnline software referred to this as a Client Report Form. In the Client Report Form, the tutor could indicate the primary and secondary foci of the session using the same options that the student had when s/he made the appointment.

### Add a New Client Report Form

This form allows you to record post-session information. Questions marked with a \* are required.

Client:	CEWCO N/A
Date:	October 22, 2013: 3:00pm – 4:00pm
Actual Length of Session:	60 minutes
Staff or Resource:	Alaina F. B.
Appointment length:	-- please select -- *
During this session, we primarily focused on::	<div style="border: 1px solid #ccc; padding: 5px;"> <input checked="" type="checkbox"/> -- please select -- *  <input type="checkbox"/> Organization/flow  <input type="checkbox"/> Grammar/spelling/punctuation  <input type="checkbox"/> Assignment clarity/purpose  <input type="checkbox"/> ELL (English Language Learner) issues  <input type="checkbox"/> Brainstorming/planning  <input type="checkbox"/> Citation/Sources  <input type="checkbox"/> OTHER         </div>
A secondary focus of the session was::	-- please select -- *
S/he learned to make this assignment stronger:	-- please select -- *
S/he learned lessons about writing in general:	-- please select -- *

Figure 26: Screenshot of a Student Report Form and the drop-down menu of options for the primary and secondary foci of the session

The tutor then chose from another drop-down menu of options to indicate their level of agreement with the following statements: “S/he learned to make this assignment stronger” and “S/he learned lessons about writing in general.”

S/he learned to make this assignment stronger:

S/he learned lessons about writing in general:

Comments::

-- please select -- \*  
 Strongly Agree  
 Agree  
 Neutral  
 Disagree \*  
 Strongly Disagree

Email Options:

Email Client Report Form to **Client/Student**.  
 Email Client Report Form to **Resource**.  
 Email Client Report Form to **Administrator**.

Other Email(s): [?](#)

Attach a File: [?](#)

No file chosen  
 Allow Client to access this document via the appointment form.

Figure 27: Screenshot of the lower portion of a Client Report Form showing a drop-down menu of options to respond to prompts within the form, as well as other elements of the form

The Client Report Form also has a space for Comments, where the tutor can write a few sentences about their personal opinions and feelings about the session. Although there are options to have WOnline automatically email the “Client/Student,” “Resource” (aka tutor), or “Administrator,” or add in a different email address, this was not typically done with sessions at the Hub. However, the tutor did typically attach a copy of the work in the “Attach a File” area if

the product discussed during the session was on Google Drive and able to be downloaded by the tutor for administrative record-keeping purposes. Then the tutor would click on “Save Report” and the report became part of the student’s recorded file within the Hub’s account with WCOOnline.

**Student Surveys.** Once a tutor filled out a Student Report Form and clicked “Save Report,” it triggered the WCOOnline system to automatically send the student an email to their registered address with a link to a short survey about their experience at the Online Composition Hub. When the student clicked on the link, a survey website opened that was connected to the WCOOnline program for the Hub. The student could then choose which tutor they worked with and indicate their overall level of satisfaction with the session from a drop-down menu.

The screenshot shows a web form titled "Online Composition Hub Client Feedback". Below the title is a thank-you message: "Thank you for visiting The Continuing Education Writing Center Online. Please fill out our anonymous feedback form below and help us to improve! Questions marked with a \* are required." The form contains three questions, each with a red asterisk indicating it is required:

- Who did you work with?** A dropdown menu with the selected option "-- I don't know --".
- I would rate this session::** A dropdown menu with the selected option "✓ -- please select --". The menu is open, showing the following options: Excellent, Very Good, Good, Fair, Poor, and Unacceptable.
- What was most helpful about your session today?** A text input field.
- I will schedule another appointment through The Online Composition Hub::** A dropdown menu with the selected option "-- please select --".

Figure 28: Screenshot of the upper portion of the post-session Student Survey for the Online Composition Hub

There was a text box where the student could write about what they found most helpful about their session, and then they could indicate via another drop-down menu whether or not they would schedule another session through the service or recommend it to other people. Finally, there was another text box where the student could provide suggestions to the Hub as a whole.

The screenshot shows a survey form with a light blue background. On the left, there are three text prompts: "I will schedule another appointment through The Online Composition Hub::", "I will recommend The Online Composition Hub::", and "Comments or suggestions for The Online Composition Hub in general::". To the right of the first two prompts are dropdown menus. The first dropdown menu is open, showing options: "✓ -- please select --", "Yes", "No", and "Maybe". Below it is another dropdown menu with the text "-- please select --". To the right of the third prompt is a large, empty text box. At the bottom of the form, there are two buttons: "SAVE SURVEY" and "CLOSE WINDOW".

Figure 29: Screenshot of the lower portion of the post-session Student Survey at the Online Composition Hub

All students who completed sessions received an email with the link to the survey if the tutor had filled out the Student Report Form for the given session. When students take the survey and click “Save Survey,” their responses were automatically recorded by WCOonline and became available for automatically generated statistical reports on system use. Students’ responses are also anonymous, so their written responses were presented as a list without identifying information attached.

## Appendix D

## Phase 1 Code Book

Type	Interaction Code
Interaction T1, S1	1=talk initiating, 1.1=question, 1.2=response, 1.3=suggestion, 1.4=lesson, 1.5=banter, 1.6=other, 1.7=design, 1.8=text
Interaction T2, S2	2=vocalizations, 2.1=affirming, 2.11=yes, 2.12=active listening, 2.2=dissenting, 2.21=no, 2.22=skepticism, 2.3=neutral/filler
Interaction T3, S3	3=physical comm., 3.1=smile, 3.2=laugh, 3.3=directed gaze, 3.4=scowl, 3.5=hand movement, 3.6=other
Product T4, S4	Changes made to product that are: 1.1=textual; 1.2=design
Tools T5, S5	Cursor movement: 1=draw attention; 1.1=to text; 1.2=to design; 2=sourcing/finding outside information; 3=other; 4=pacing/necessary session navigation
Tools T6, S6	Chat tool 1=procedure; 2=function; 3=colloquial
Tools T7, S7	Comment balloon tool: 1=question: 1.1=textual, 1.2=design; 2=suggestion: 2.1=textual, 2.2=design; 3=lesson: 3.1=textual, 3.2=design; 4=response: 4.1=textual, 4.2=design
Tools T8, S8	Video call platform 1=calling; 2=initiating/ending screen share: 2.1=using chat feature for instruction, 2.2=using chat feature to ask for help
Resources T9, S9	Reference to: 1=Davis assignment, 1.1=Davis exemplar; 2=Evans assignment, 2.1=Evans exemplar
Resources T10, S10	t3=Design features: 3.1=fonts, 3.2=white space, 3.3=repetition, 3.4=images, 3.5=layout, 3.6=other; 4=Dave Underwood
Researcher Thoughts/Memos	



## Appendix E

### **David Underwood Resources on Design Principles**

As part of their training, tutors were exposed to all of the following content on design principles. The expert, David Underwood, then came to personally hold a facilitated discussion of how these topics would be useful for tutoring in a multimodal digital environment.

As part of the course content of their respective online courses, each instructor also chose to assign the full content of these video lectures to their students as background material to be viewed before starting on their respective Google Slides presentation assignments.

#### **On Graphic Design:**

3-Part Series: “Graphic Design for People Who Think They Don't Need It”

[Introduction and The Pathos of Graphic Design](#)

[The Ethos of Graphic Design](#)

[The Logos of Graphic Design](#)

#### **On Effective Communications:**

[Baiting the Hook](#)

[Baiting the Hook 2](#)

### **Tutor Training Materials**

I created a [tutor training module](#) to help tutors become more familiar with manipulating tools and features of the Google Slides platform while also experimenting with the design principles that David Underwood included in his presentation materials. The tutor training module was designed to be self-paced, with a follow-up conversation about tutors’ thoughts regarding this training, life, the universe and everything.

## Appendix F

### Phase 2 Data Analysis: Analytical Session Summaries

#### Session Summary 1: Erin and Zander

Assignment: Food Bio

Tool: Google Slides

Composing Stage: Stage 2 (between ~25% to ~75% completed)

Active session time: 19 minutes

Digital Hub Environment: Student and tutor viewed the student's Google Slides product simultaneously; they did not use the Skype Screenshare feature, and thus could not see each other's full screens outside of the shared Google Slides product.

#### Participants, Context, and Goals

**Participants and Context:** The active time in this session lasted just over 19 minutes, after nearly ten minutes of the recording documenting the Google chat within the student's Google Slides product as the student and tutor worked on getting connected in Google Hangouts. The student, Erin, told the tutor, Zander, that she had never used Google Hangouts or Google Slides before, and he reassured her that this was a common predicament for other peers in her class who were working on the Food Bio assignment.

Erin's product was near the upper end of a Level 2 completion (between 25% to 75% complete). Perhaps because Erin seemed to be nearing the end of the composing phase of working on the assignment, she was selective in how she engaged with Zander, only speaking 783 words (~28%) throughout the session compared to Zander's 2048 words (~72%).

**Goals:** Prior to the session, Erin indicated in the dropdown menu on her appointment form that “design and creative concerns” were her primary concern with the product, while “organization and flow” were a secondary concern. After the session, the tutor indicated in the dropdown menu on the tutor report form that “design and creative concerns” were indeed the primary focus of the session, while “assignment clarity and focus” was the secondary focus of the session.

Soon after they connected on Google Hangouts, Erin confirmed that she was interested in visual aspects of the assignment and wanted to make it “look good” while providing a clear narrative, stating “I just kinda wanted to tell a story about a certain meal that I have in my family.” Shortly thereafter, within the first three minutes of their conversation on Google Hangouts, Zander established that Erin was familiar with the class resources by David Underwood on visual design, and several of these concepts--particularly consistency, white space, and font and images as related to layout--became shared terminology between them throughout the rest of their conversation.

### **Learning Interaction**

**Establishing shared knowledge of design and seeking validation: white space and images.** The learning dynamic was established as Erin and Zander went through the product together, as evidenced by both their talk about specific slides and their shared cursor movements in the same slides. Visually, when Zander would progress onto the next slide, the outline view of the slides in thumbnail view on the left side of the screen would show a highlighted pink box around the slide that the student was viewing; when he would click a slide, a second or two later, the student would click the same slide, thereby signifying that they were viewing the same slides.

As they proceeded through the product, Zander made several remarks related to the design of the slides, but Erin typically did not take up these comments, choosing to respond predominantly with one-word answers such as “okay” or “yeah.”

During this time, Zander’s talk served to determine Erin’s familiarity with design concepts; he was, it seemed, mapping her familiarity with design concepts to see where she might want help or advice. Early on in the session during a conversation about white space, Zander specifically asked if Erin was familiar with the David Underwood resources: “it’s trapped space, I think is the way David Underwood talks about it and-- did you watch any of those, uh--” to which she replied quickly, “yeah I did.” A minute or so later, Zander referenced her familiarity with those design resources as he clicked on the text boxes of the slide and said, “it looks like you are playing around with some of the font ideas that he had on there... using a serif font for the smaller stuff, and using a sans serif [in the title],” and Erin said, “yeah.” Erin listened politely, and then occasionally interjected with her own specific questions about white space and transitions, which further helped to establish where her learning needs were in this session.

In general, Erin seemed to feel confident in her design because several of her questions elicited Zander’s support or opinion rather than pertaining to something she did not understand. At one point, they were discussing her pattern of slide layout in which text was juxtaposed with a single image on the slide. During this exchange about white space and images that lasted about a minute, she asked, “so, in terms of like the white space, do you think I should just add- like- more pictures?” and then immediately clarified, “I tried to like make the pictures bigger, but if I widened them, then you know, it doesn't look right,” to which Zander said, “got it.”

Erin created almost a confidential tone around shared knowledge in saying “you know,” which further established rapport and encouraged Zander to provide feedback. Rather than simply answering the question of adding more pictures as yes or no, Zander walked Erin through options to consider: “see if you can't parallel what you did with the actual text, where you have a little space but not quite as much.... the other option which would be kind of interesting would be to move [the column of text and the vertically aligned image on the slide] both kind of in further, maybe.” As he spoke, he clicked on the text box in question to further draw Erin’s attention to that area of the slide, as her eyes move and she nods in the synchronous video view of her. Providing more than one “option” revealed Zander’s effort to keep the decision-making power in Erin’s hands.

Throughout the session, during pauses in Zander’s speech Erin provided neutral listener commentary, repeating “okay,” which encouraged him to continue talking when she did not take up an idea with anything else to say. He concluded the exchange about images and white space by suggesting that she “play around” and reminded her that “those rules just exist as guidelines, they're not there to tell you what is and is not,” to which she responded, “right.” Perhaps due to Zander’s recent training on visual design, which emphasized how ideas can be transferrable beyond just the individual assignment, he spent time talking through principles more generally, which Erin may already have been familiar with and therefore chose not to engage further.

**Student requests that tutor take the lead: Problem solving a technical design issue.**

There was one instance during the session in which Erin requested Zander provide specific technical support; this exchange took place towards the end of the session and lasted for approximately two minutes. While Erin was viewing slide 8, she explained a problem that she

was having with the transitions in Google Slides: “I’ve had problems when I was doing transition, with something like for fade in fade out with some of them, but I didn’t see that option.”

Zander clarified her question, “you’re saying that some of the transitions aren’t showing up?” He immediately scrolled up to the top of the presentation and then hovered his cursor over the “Present” button and looked at the drop-down menu next to it with presentation options.

Erin responded, “well, some of them gave me the option to fade in, and then for the last couple it didn’t give that as an option, so I feel like I remember right and it didn’t fade in as the other ones did... so I don’t know if you know how to do that, but I got confused.”

Zander leaned closer to the screen and went to the “Slides” drop down and clicked on “Animations” and tried clicking on the options for transitions; these movements were in the “Tools” portion of his own screen and were not visible to Erin. He then remarked, “it looks like I can get it to do it from here,” to which Erin requested, “Okay, yeah, could you?” and laughed.

As he clicked on different options about the speed of the transition, Zander followed up with additional questions to ensure that the changes were what she had in mind. He said, “there’s fade and like a speed setting, but I don’t see fade from a direction.” Again, because the drop down menu options with the settings Zander was viewing were not part of the shared screen, Zander and Erin collaboratively described what they were seeing to try to achieve Erin’s desired result.

She responded, “okay yeah, I think some of them were ‘fade,’ so fade would be ideal.” After another minute or so when Zander was ultimately likewise unable to make the change, they collectively speculated that something might be wrong with the program, or perhaps with Google, and Erin concluded “I can just keep playing with it.”

**Session resolution.** After this instance, they spent the last three minutes of the session discussing options for how the student might finish her conclusion slide by expanding both the text content and the design layout, and Erin made two small changes in the presentation to this end.

### **Concluding Remarks**

Overall, it seemed that Erin had clear goals for what she wanted help with in the session, namely, confirmation that her design looked good and support in resolving a technical difficulty that was impacting her design. The session began with the tutor's quick check on Erin's design knowledge. Zander tried several strategies to engage Erin around issues of design, including questioning her directly and providing options for different design choices, and he was quick to investigate options when Erin requested his help. Because her presentation seemed to be on a steady path toward completion, the conversation centered on changes that would provide finishing touches to the product, such as the alignment of images and transitions between slides, rather topics that might require global changes regarding content or design; both their talk and their activity was a product of this circumstance. Although both reported that they were relatively inexperienced users of the Google Slides platform, they both quickly found ways to troubleshoot problems by talking about what they were seeing on their respective screens, though using the screenshare feature in Skype could have also helped to clarify the situation because they would have been able to see what the other was seeing and not just the shared space of the product itself. Erin seemed pleased with the interaction overall as evidenced by smiling at the end and thanking Zander for his feedback, and she indicated that she would keep playing with the product to put the finishing touches on it before submitting it later that week. Zander was

likewise friendly and thanked Erin, and said “I hope I was helpful,” to which she replied, “you were.”

### **Session Summary 2: Gwen and Sara**

Words: Gwen 325 (17%), Sara 1571 (83%) (1896 total)

Assignment: Food Bio

Tools: Google Slides and Google Hangouts

Composing Stage: Stage 3 (> 75% completed)

Active session time: 16 minutes

Digital Hub Environment: Student and tutor viewed the student’s Google Slides product simultaneously; they did not use the Google Hangouts screenshare feature, and thus could not see each other’s full screens outside of the shared Google Slides product.

#### **Participants, Context and Goals**

The active time in this session lasted just over 16 minutes, after nearly six minutes of the recording documenting the Gmail chat on the tutor’s side as the student and tutor worked on getting connected in Google Hangouts. The tutor, Sara, told the student, Gwen, that she had never used Google Hangouts to connect before, but rather had always used Skype, and thus suggested that her own lack of familiarity with the tools might have contributed to the amount of time it took for them to get connected.

Gwen’s product was in a mostly complete state (>75%). Perhaps because Gwen had completed composing the slides and was in a “polishing” phase, she only spoke 325 words (~17%) in this short session, as compared to Sara’s 1571 words (~83%).



## Learning Interaction

**Interrupted by grammar: Tutor interjects a mini-lesson.** Sara interjected a mini-lesson about a sentence-level issue in the middle of a conversation that started with Gwen's request for clarification around assignment guidelines. Within the first minute of the session, Sara and Gwen chat a little bit about the assignment overall, and Sara begins reading the second "Abstract" slide to herself. As Sara was reading, Gwen said "I'm a little confused between what she wants for the 'purpose' and 'controlling ideas' because I think that those are really similar." Sara replied, "okay," and Gwen said, "cool," apparently to confirm that Sara had indeed registered her confusion and would help address that concern.

However, rather than answer Gwen's question, Sara continued reading the slide and started reading Gwen's sentence out loud as a way to begin the mini-lesson: "I wanted to show how different food can be... um... when you have a comma in the middle of a sentence, the second part of the sentence has to-- this is grammar [short laugh]-- has to be a complete sentence, so see your comma there after 'family'?" Gwen said, "oh," and Sara continued while highlighting the rest of the sentence on the screen, "so 'and' the rest of the sentence has to be a complete sentence, so you would need 'I' in front of that. does that make sense?" Gwen said, "okay" and Sara continued her explanation: "to make it fully complete, or you would take away the comma." Given this choice, of either adding "I" or taking away the comma, Sara decided, "Okay, so I'll just take it away," but then added "I" into the sentence, not doing what she said she would do, but fixing the grammatical issue nonetheless.

Sara does seem to have a self-awareness that her mini-lesson is off topic, for she interjected "this is grammar" and then laughed, and at that point Gwen gave a short laugh, too.

After seeing where Sara highlighted the problem area of the sentence, Gwen did make a change to the product that resolved the issue (though the change didn't align with her spoken choice).

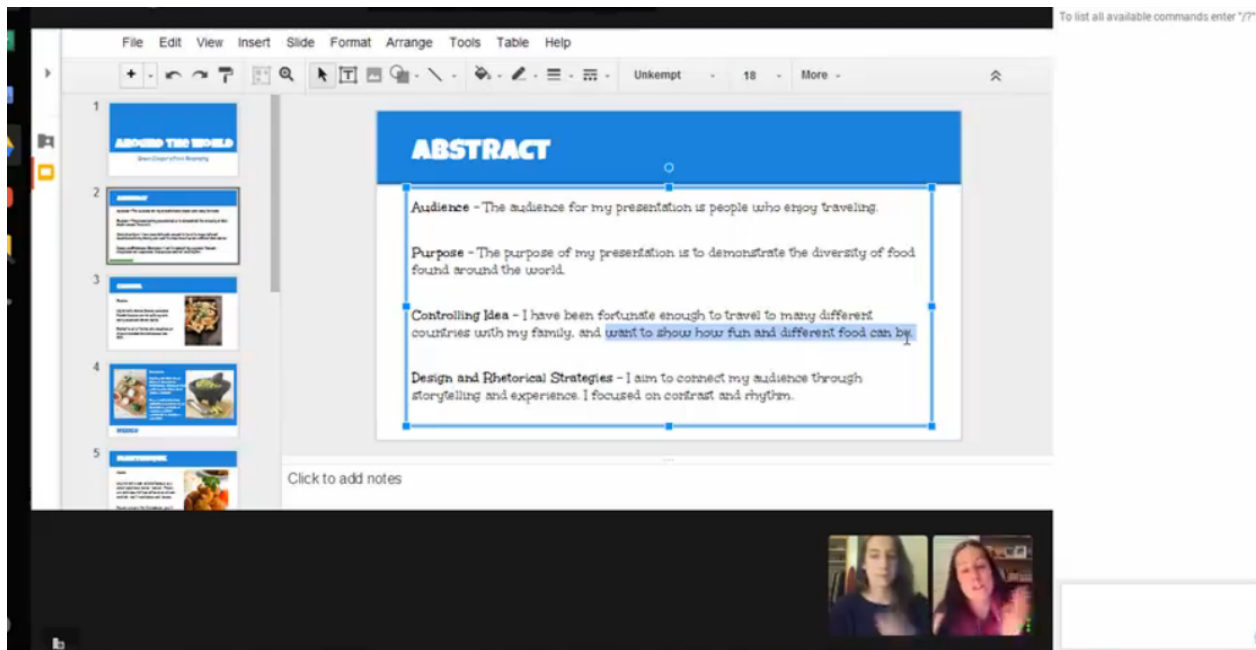


Figure 30: Sara (on the right) highlighted part of a sentence and explained a grammar mini-lesson. Both she and Gwen (on the left) were expressive and used their hands as they talked.

After Gwen made the change to her product, Sara continued to read the rest of the slide and the conversation turned to clarifying the assignment. After reading the “Design and Rhetorical Strategies” portion of Gwen’s Abstract, Sara asked “Was that something that [the instructor], did she ask you to talk about... what was that about focusing on contrast and rhythm?” to which Gwen replied “yeah, that was like our design features, she wants us to specify them.”

Sara then asked if Gwen had watched any of the David Underwood presentations on design, and Gwen confirmed that she did, adding “honestly, I think this assignment is just, do we know how to make a presentation.” This made Sara laugh a short laugh, and she shrugged and said, “Okay... fair enough,” and then they proceeded to look at more of the product together. Although the conversation progressed naturally, the interruption of the grammar mini-lesson

derailed Gwen's request for clarification between "Purpose" and "Controlling Idea" in the Abstract, and this topic was not taken up again during the session.

**Identifying a design enigma: Different product displays on synchronous screen.** As Gwen and Sara were looking at slide 4, Sara pointed out a place where the full text of the content was not fully visible because of the layout of the slide. She said, "Okay, your word 'made' here, for this dip-- I'm looking at slide 4--the word 'made' is bleeding over, so you can't really see the 'e'" and she highlighted the word and hovered her cursor over it as she talked.

When Gwen asked, "oh really?" Sara added, "yeah the font is white, and then the picture is white on the right. It looks like 'the dip is mad.'" Gwen replied, "Oh, mine is like separate. They aren't overlapping."

Sara, who had clicked on the image on the right and moved it slightly, laughed and said, "Now it's not overlapping! I just moved it a little." Gwen responded, "Weird!... For me, it's on the next line, so it's the first word of the 4th line." This confirmed that they were viewing a problem that had to do with the display of the text in the text box itself.

Sara expressed her surprise and said, "really? That's interesting, and weird at the same time, huh?" at which point both of them laughed a little. Perhaps at a loss to explain this inconsistency in the view display of the Google Slides product, Sara added, "but honestly, that is strange." Gwen then suggested "yeah. I edited it, so maybe it just hadn't gone through yet?" implying that if Sara refreshed her page they might see the same thing. Sara said, "Okay, maybe while we were sitting here? Okay," and then shrugged and continued reading the text aloud. She did not try refreshing the page and chose to simply move on rather than investigate the issue further.

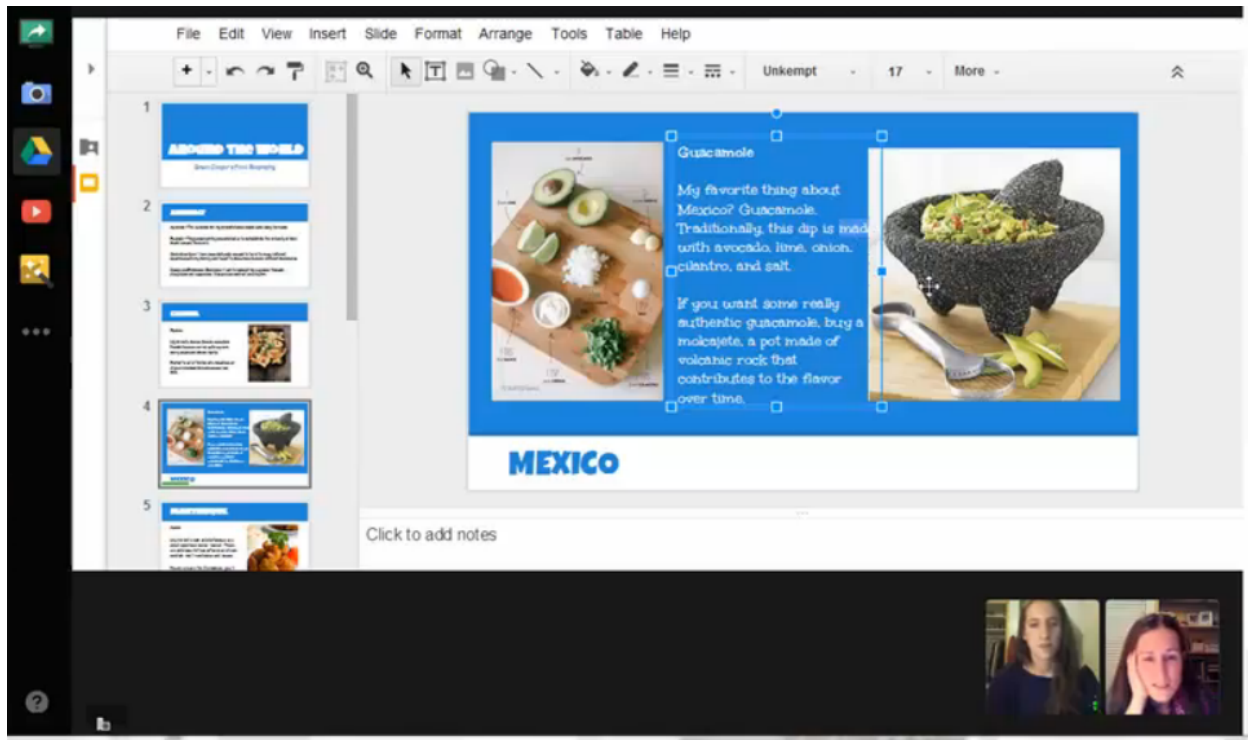


Figure 31: Sara (on the right) leaned in and looked closely at her screen, having highlighted the word “made,” which overlapped the image on the right so that the “e” was not visible in her recorded view of Gwen’s product.

**Session resolution.** After talking for about 15 minutes or so, Gwen and Sara had looked at the whole product and mainly discussed elements of design that had to do with Gwen’s stated focus on “contrast and rhythm,” such as the contrasting blue/white palette and the repeated pattern of font use throughout. As she signaled her concluding thoughts, Sara also remarked on elements of the project that were working well: “yeah, just think in general about consistency throughout and, yeah, it looks good, I like the voice, and I like that you change up how you say ‘my favorite food.’” Gwen laughed and replied, “I know, that was really hard to do!” She then thanked Sara for her help, and Sara wished her the “best of luck with revisions” as the session came to a close.

## **Concluding Remarks**

Overall, it seemed that Gwen was interested in confirmation that she had done the assignment correctly, and she took up moments where she could make immediate changes that would improve the content of the product, such as fixing grammar errors. Sara did not end up answering Gwen's initial question about the elements of the Abstract, but perhaps she either forgot or it did not strike her as an important issue to return to. While the question of the different displays of the product between Gwen and Sara's computers was not resolved, it seemed that they both felt that the issue was "weird" and perhaps a technological fluke and thus not something to spend additional time on. Given that Gwen had completed all of the slides for her project, they both focused on finishing touches, such as ensuring that font size use was consistent, rather than discussing ideas that would have required global changes to the content. Overall, Sara complimented Gwen's product and said that it "worked well" and "looked nice," and Gwen seemed pleased by this feedback.

### **Session Summary 3: Alice and Sara**

Words: Alice 1063 (28%), Sara 2706 (72%) (3769 total)

Assignment: Food Bio

Tools: Google Slides and Google Hangouts

Composing Stage: Stage 2 (between ~25% to ~75% completed)

Active session time: 36 minutes

Digital Hub Environment: Student and tutor viewed the student's Google Slides product simultaneously; they did not use the Google Hangouts screenshare feature, and thus could not see each other's full screens outside of the shared Google Slides product.

## **Participants, Context and Goals**

**Participants and context.** The active time in this session lasted just over 36 minutes, after nearly four minutes of the recording documenting the Gmail chat on the tutor's side as the student and tutor worked on getting connected in Google Hangouts. The tutor, Sara, then coached the student, Alice, on how to share her product with Sara through Google Drive, as Alice had never done that before.

Alice's product was at a stage 2 level of completion (between 25% to 75% done), though she was evidently more than halfway through her composing process. Of the total words spoken in this session, Alice's comprised 28% (1063) while Sara's comprised 72% (3769). During the session, Alice sometimes chose to take notes on paper with a writing utensil and sometimes chose to make changes in the product in Google Slides. They both were fairly expressive with their hands and often seemed to look at each other's image as they spoke.

**Goals.** Alice had indicated in the drop down menu on her appointment form that her primary concern for the session was "organization and flow" and that "design and creative concerns" was a secondary focus. After the session, Sara noted on the student report form that she felt the primary focus of the session was "design and creative concerns" and that "grammar, spelling and punctuation" was a secondary focus of the session. Alice started off the session by saying that her Food Bio was about Italian food and culture and she had "a few slides that might need a little editing, so if you could help me look it over... I'm not very creative, so it might be a little boring." At the time, Sara was still trying to open the shared document, so she just said, "okay," and didn't take up Alice's comment about creativity. However, as the session progressed, the majority of the conversation had to do with design choices related to the overall design and technology as well as the consistency of the product throughout, and thus it seemed that Alice

was indeed quite creative in her work. Early on in the session, Sara skimmed through the product and mentioned that as they went through, she also had some punctuation and grammar suggestions, and Alice replied, “okay good yeah, there's going to be a lot of that, sorry, I haven't really gone through it.” Sara reassured her, “it’s not that bad at all,” and then continued to explain a comma error that Alice was quick to correct in the product. These kinds of interactions characterized the secondary focus of the session.

### **Learning Interaction**

**Discovering multimodal limitations in Google Slides.** One interesting feature of this session was the way in which Alice and Sara bumped up against a technological limitation of the Google Slides program. One of Alice’s early questions had to do with adding music to her presentation. Within about three and a half minutes of the session beginning, and before Alice had even successfully shared the product with Sara yet, Alice asked “can you add sound to these presentations? ‘Cuz I was figuring it out and I saw that I could add video and I wanted to add sound to the first slide.... but I want it to linger for all the slides and right now it only plays for like, that one slide.”

Sara knew the answer to Alice’s question and said, “Okay, yeah, as far as I know I think it is slide specific.” Alice responded, “Oh, okay,” and Sara clarified, “as opposed to, you mean like narrating from behind for the whole thing?” When Alice said yes, that this is what she’d wanted, Sara responded empathetically: “yeah.. I don't think so. I felt a little restricted with the videos as well in that regard.... cuz I'd really love to take a YouTube video and put it in the slide and have it be like half of the video, or you know what I mean?”

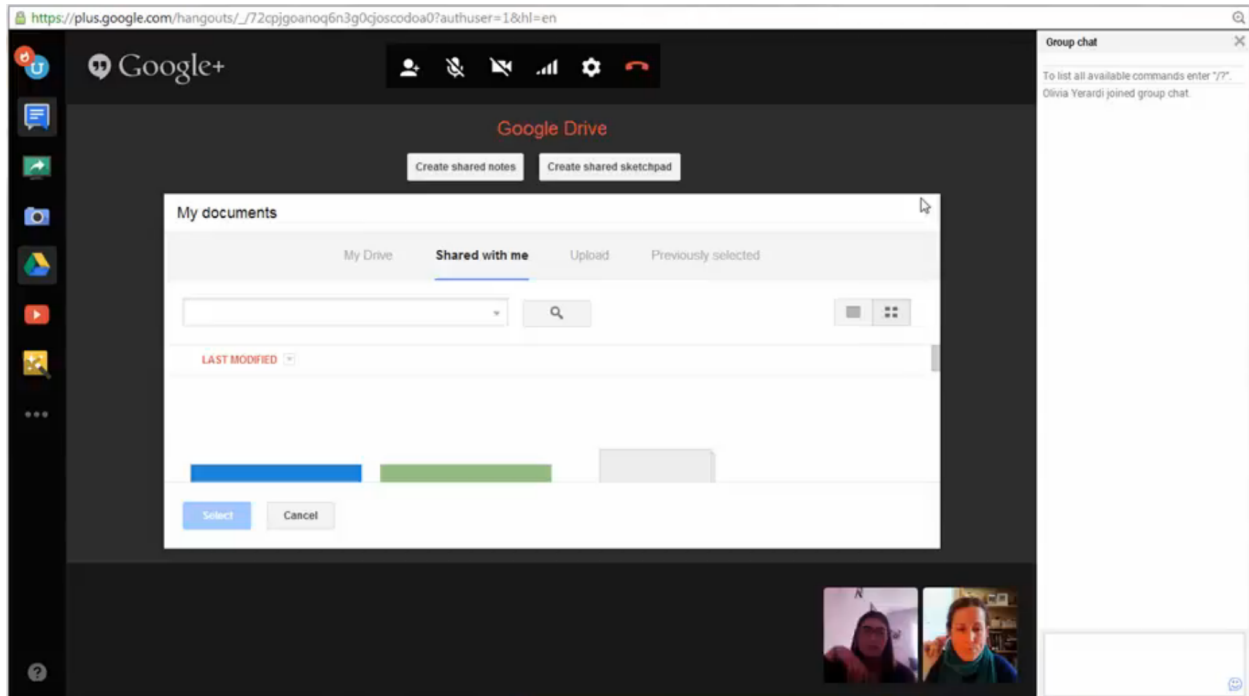


Figure 32: Alice, on the left, responds to Sara, on the right, regarding the inability to add a song to Google Slides that will play in a continuous fashion as slides are advanced.

Alice nodded and moved her hand for emphasis as she replied, “yeah, no, I totally, I agree, that's how I felt as I went.” A minute or so later, once they were viewing the first slide of the product synchronously in Google Slides, Sara asked “okay, and then what is this in the corner here?” and clicked on an image in the upper right corner of the slide.

Alice answered, “that's the little video I added, and I tried to shrink it down, but I might end up deleting it since when you press play it starts but then when you go to the next slide it just stops anyway, so I don't know.”

Sara clicked on the video to hear an Italian ballad begin to play, and she smiled and brought her hand to her mouth and swayed to the music slightly before she responded, “yeah and if you go to the next slide it just stops right, but you wanted more of a continuous...”



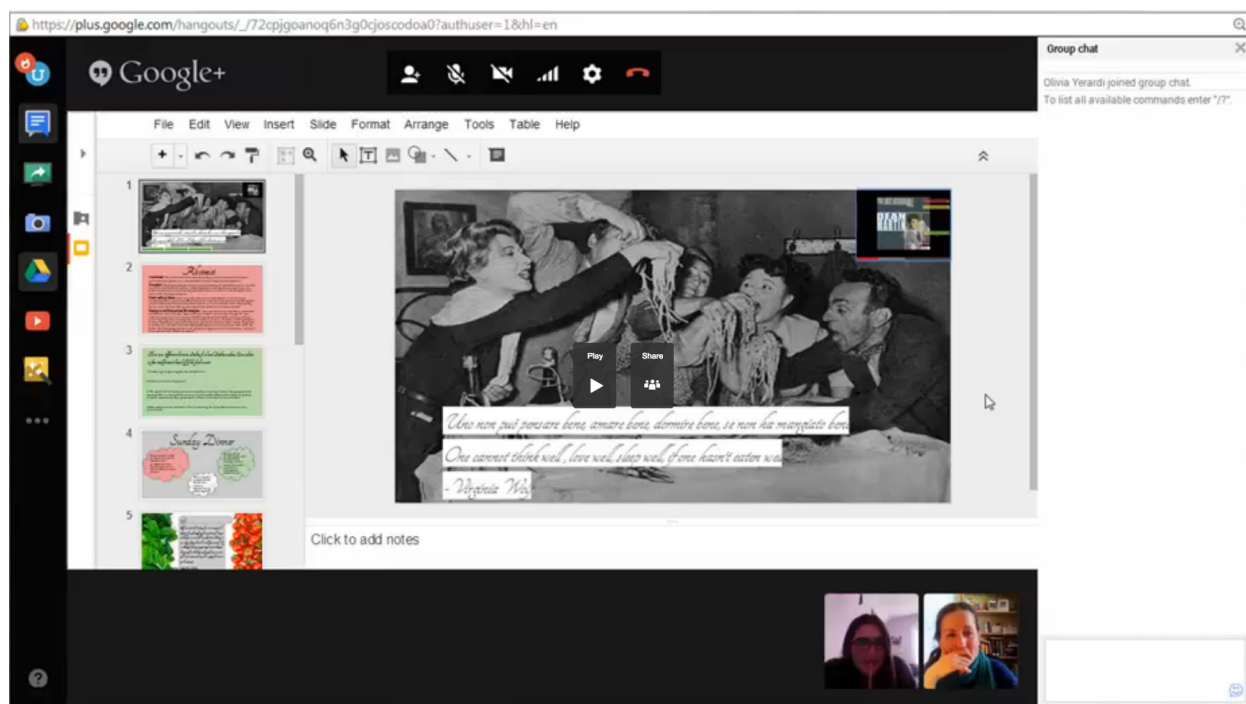


Figure 33: Sara, on the right, listened to Alice explain what she had wanted the song to do as the music played softly in the background.

“Right,” Alice said, holding the end of her pencil to her mouth. Sara nodded and moved her hand to her mouth as though she was thinking about the problem, then slowly said, “yeah, I can understand that.” After another pause, and without anything more that either of them seemed to be able to contribute to the topic, Sara then changed the conversation to discuss the text on the slide.

While Sara and Alice were not able to come to a resolution to the question, they were able to build rapport over their shared frustrations with the multimodal limitations of the Google Slides platform.

**Tutor’s hovering cursor use causes confusion.** Towards the end of the session, Alice and Sara were discussing one of her last slides, which was unfinished, and Sara asked a question that was unclear to Alice due to Sara’s cursor usage.

In the Google Slides platform, both parties see each other's movements in a given slide only when the cursor is clicked and literally moved within the slide. If either person simply moves their mouse and the arrow hovers over a place on the slide, the other party cannot see that motion until the slide is clicked.

On slide 11, there were two images of plates of food, one on the right side of the slide and one on the left. When Sara first clicked to the slide, she looked at it for a moment and asked, "Is this something you have cooked?"

Alice squinted at the slide and said, "um?" Sara then hovered her cursor above the image on the right but didn't click it and said, "In slide 11." She continued to hover the arrow above the image without clicking it. A moment later Alice guessed which one Sara was referring to, and said, "oh, yeah- this is really unfinished, this is just where I was playing around, but yeah I cooked that one." She clicked on the image on the right and moved it slightly twice, which created a green box that matched Alice's cursor color throughout the session in Google Slides, which let Sara know that Alice was back with her in the conversation.

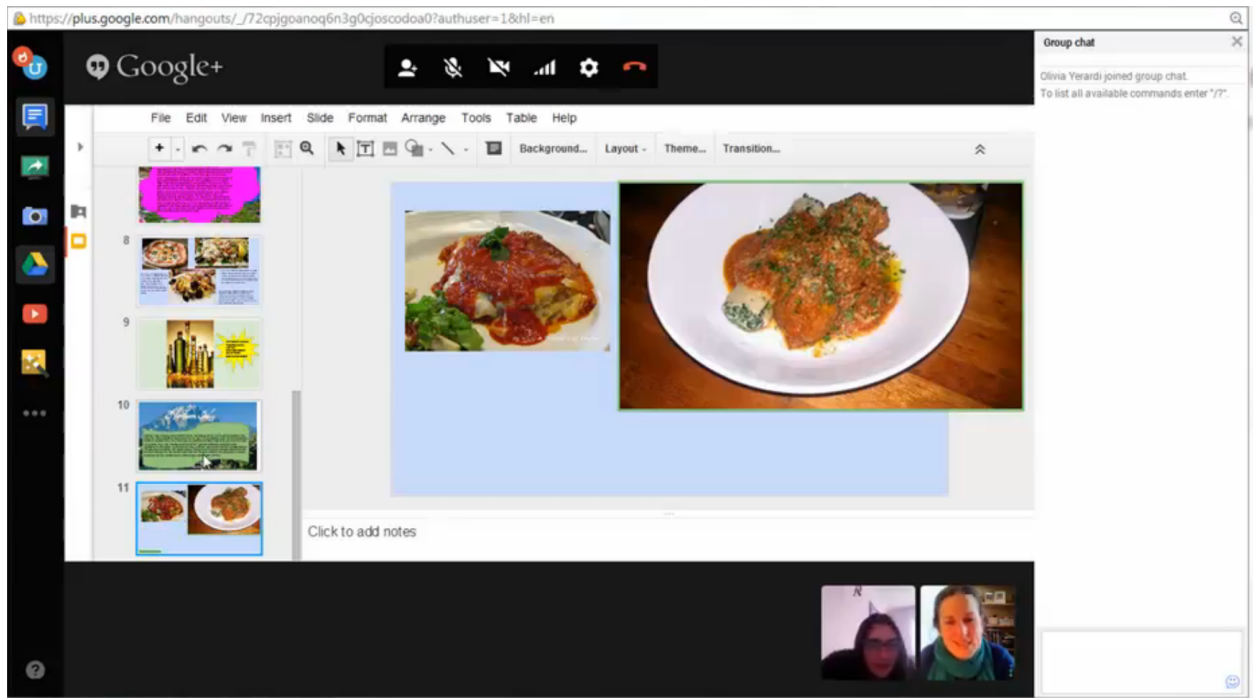


Figure 34: Alice clicks on the image on the right to show that she knows which one Sara is referring to, and a green box forms around the image to show Alice's action.

Sara replied, "alright yeah," and then they began to discuss where Alice might take the remaining slides in the project.

While Sara's behavior only caused a moment of confusion, it is interesting to note that Sara did not notice her action was confusing; rather, she let a moment of silence pass until Alice figured out the question of which image was a personal photograph of food she'd prepared herself.

**Session resolution.** After talking for about 40 minutes and being close to the end of the allotted time slot for the session, Sara and Alice discussed the last slide of the product. Sara made a final suggestion and Alice thanked her, and Sara responded, "okay, well that's about it!" Alice thanked her again and Sara told her that "it was fun" and that she learned some new things about Italian food through working together. Alice agreed, and Sara remarked, "how lucky to

come from such a nice family, huh?” to which Alice replied, “yeah-- they're, they're pretty Italian!” and laughed. Sara also laughed and said “that's great. so anyway, it was nice meeting you!” Alice agreed that it was great to meet Sara too and thanked her for her help. Sara thanked her for sharing her work and wished her luck with revisions, and thus they concluded the session.

### **Concluding Remarks**

Overall, it seemed that Alice was interested in feedback as to her design approach to this assignment and was open to Sara’s overall impressions once she had her specific question about adding music to her product answered. Sara went through the product in a straightforward manner from slide to slide and read through the content and discussed the overall aesthetic of each slide, noting how images and other layout choices led to an overall consistent look and feel while also pointing out sentence level errors, since Alice admittedly hadn’t gotten to proofreading her text yet. The interaction was friendly overall, and Alice both took hand-written notes and made occasional changes to the product itself as the two of them went from slide to slide.

### **Session Summary 4: Chris and Sara**

Words: Chris 1216 (30%), Sara 2913 (70%) (4129 total)

Assignment: Elevator Pitch

Tools: Google Slides and Google Hangouts

Composing Stage: Stage 2 (between ~25% to ~75% completed)

Active session time: 37 minutes

Digital Hub Environment: Student and tutor viewed the student's Google Slides product simultaneously and were able to view one another; they did not use the Google Hangouts screenshare feature, and thus could not see each other's full screens outside of the shared Google Slides product.

### **Participants, Context and Goals**

**Participants and context.** The active time in this session lasted just over 37 minutes, after just over five minutes of the recording documenting the Gmail chat on the tutor's side as the student and tutor worked on getting connected in Google Hangouts. The tutor, Sara, had two Gmail accounts and there was some confusion as to which account the student, Chris, had shared his product to, which accounted for some of the time taken to establish a connection. Sara then suggested that they view the product as a shared screen within Google Slides and retrieved the shared file on her end and brought it up so that it was viewable by both of them within Google Hangouts.

Chris's product was at stage 2 of completion, having been about halfway through the composing process at the start of the session. Of the total words spoken in this session, Chris's comprised 30% (1216) while Sara's comprised 70% (2913). As demonstrated in a later example in this session summary, Chris seemed to feel confident in his ability to manipulate the tools of Google Slides to achieve the effects he wanted, so he seemed mostly interested in discussing his approach to the assignment. Chris made some changes to the product as they talked, and Sara was active in inserting comments on slides to sum up topics they discussed. As is characteristic to her communication style, Sara used her hands frequently to make gestures as she talked, whereas Chris mostly sat forward looking at the screen and did not use frequent hand gestures.

Both used facial expressions and smiled frequently as part of a friendly rapport that was established early on.

**Goals.** Chris has indicated in the drop down menu on his appointment form that “design and creative concerns” were his primary concern and that “assignment clarity and purpose” was his secondary concern. The secondary concern could be addressed within the first two minutes of the session as Sara helped to explain his question concerning the intended audience of the assignment. Moving forward in the session, most of the talk about design had to do with personal branding, specifically images and color use on slides and the consistency of the overall look and feel of the product. After the session, Sara indicated that “design and creative concerns” were indeed the primary focus of the session and that “brainstorming and planning” comprised the secondary focus of the session.

### **Learning Interaction**

**Aligning visual and textual content for coherence.** Early on in the session, Chris and Sara began talking about the relationship between visual content and textual content. About seven and a half minutes into the session, they were viewing slide 3, which had text related to being a business owner and an image on the right side of the slide that showed a close-up of blades of grass. Sara evidently did not see an immediate connection between the two, for she said, “and then again, thinking about content, the aesthetics of the images, you might want to think about, like- are you really a business owner, or are we pretending?” and gave a short laugh.

Chris smiled wide and replied, “No, I'm really a business owner!”

Sara responded, “Okay, do you mind my asking what kind of business it is?” At first Chris’s reply is garbled and she asked him to repeat himself, and Chris leaned closer to the

camera and said, “lawn radiation?... it's when [gestures with fingers]... you dig these little plugs in the ground, so that's what I do, I dig the plugs.”

Sara smiled and said “okay, so that's why you have a picture of grass!” Chris also smiled and answered, “yeah, I didn't know how to incorporate that.” Sara suggested, “You might wanna think, um ‘in my experience as a business owner *of-*’ enter description.” Chris leaned his head back a little and said, “Oh.... so say, like, of a lawn radiation company.” Sara replied, “Yeah, cuz then grass will make sense.” Chris smiled again and repeated, “okay yeah, I think I didn't know how to incorporate that.” Sara then inserted a comment into the slide with a note to include more specific information about the type of business.

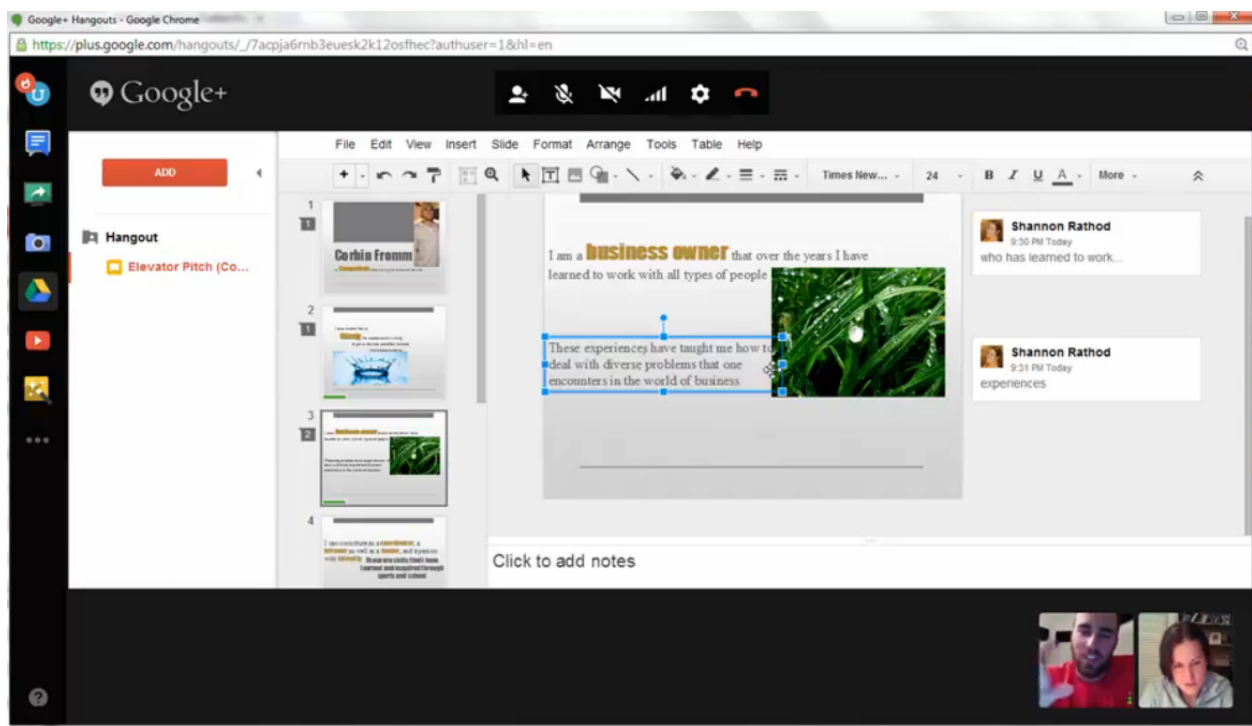


Figure 35: Chris, on the left, gestured to show the size of the plugs that he digs as part of his lawn business while Sara looked at the lower corner of her screen at his image.

**Student indicates expertise with Google Slides image features.** About halfway through the session, Chris and Sara had an exchange about design, specifically the contrast between a

background image and the readability of overlapping text, in which Chris indicated his knowledge of the Google Slides tools he'd need to use to make the changes. This exchange is important because it established a baseline of his knowledge and allowed the conversation to move forward quickly. Chris and Sara were viewing slide 5, which was comprised of a close up gray scale image of a droplet splashing into liquid, and on top of the image there was text in two kinds of fonts: a sans serif in dark gray, and a few key words in a serif orange color.

The words in serif font were meant to stand out, but in this session they were difficult to read, and Sara pointed this out: "oh, you might want to look at these-... your power words here, I'm going to call them power words though that's probably not right, they're a little difficult to see."

Chris replied, "I think they might show up more if I change what's in the background." Sara gestured and responded, "okay, yeah you wanna make those words, probably even easier to see than the other words, right?" Chris nodded and said, "Yeah, I think so."

Sara, who began typing a comment, said, "and I can tell by, you have this water thing, it shows that you know how to do backgrounds." Chris nodded again and said, "yeah... with the transparencies, and the move to back, and-"

"Oh great" Sara replied. "Definitely," Chris said. Sara finished editing a comment she had made earlier on the slide, adding the words "Also, your power words are difficult to see" and she said "great" again and published the comment, adding, "just so when you're going through this and revising more." Because Chris had already established that he knew how to make changes to the product to achieve a desired effect, Sara simply noted what the problem was that they had identified. Perhaps because the session involved discussion of Chris's ideas and



changes that might be helpful, Sara was sure to include comments such as this one in the product for Chris to view later when he returned to work on it again.

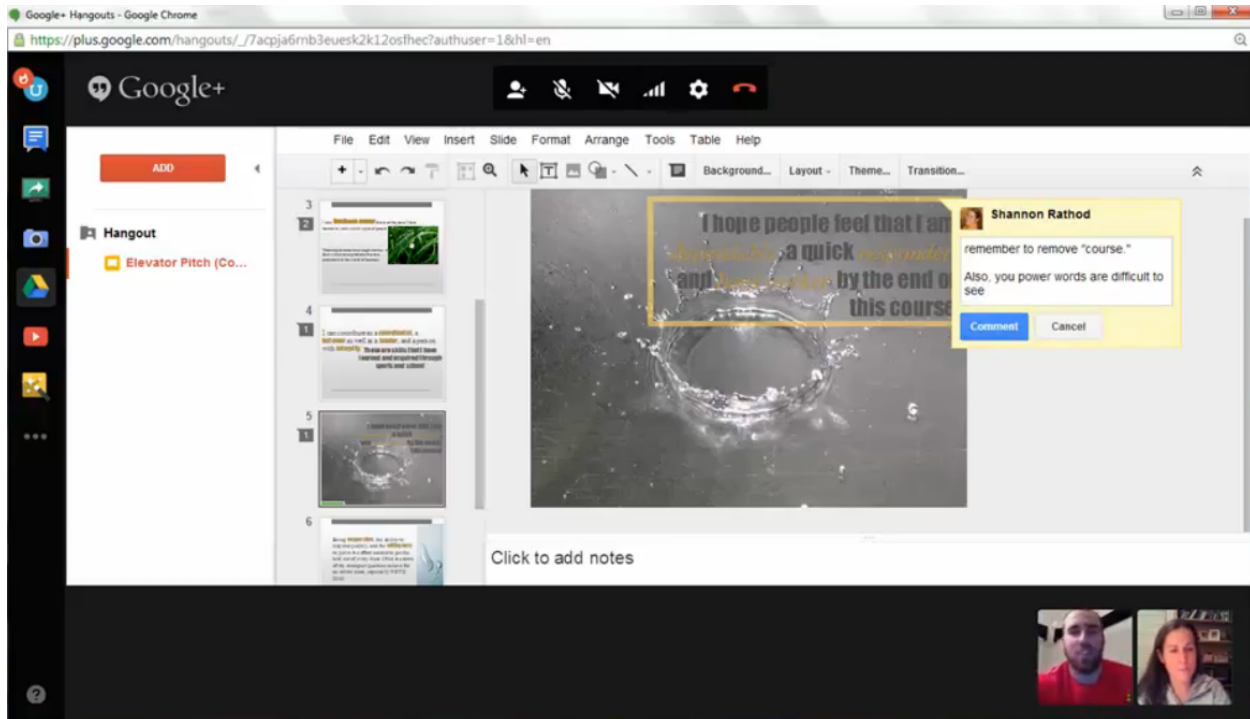


Figure 36: Sara finishes typing in a comment balloon to provide a reminder for Chris as to how he will revise the background design of the slide.

After this exchange, Sara changed the topic of conversation to ask Chris why he was using water as a metaphor in his personal branding, which continued to shape the session’s focus as a generative discussion of design ideas and how they “work” with the content that Chris wanted to communicate.

**Session resolution.** After talking for over 40 minutes and being close to the end of the allotted time slot for the session, Chris and Sara came to a friendly, conversational end to their session. Sara told him, “I think you have good stuff to work with,” and Chris replied, “yeah definitely.... I liked talking through this with you.”

Sara responded, “yeah! it was nice meeting you, good luck with revisions. if you wanna, um, you're always welcome to come back and make another appointment with me or someone else, cuz if you're, you said you feel a little, um, not always comfortable with language, like grammar, punctuation?” Chris replied, “okay yeah, we have a lot to do in this class with like writing about ourselves and stuff like that.” (Indeed, after the conclusion of this study, I was able to see in the Hub’s recorded data on this student that Chris did indeed make another appointment with Sara later in the semester.) Chris then thanked Sara for her help, and she told him that she hoped he had a nice evening before they said goodbye and ended the session.

### **Concluding Remarks**

Overall, it seemed that Chris was interested in getting feedback on his overall design approach, especially in conjunction with the content and the controlling idea for his Elevator Pitch. Sara engaged with him in discussing images and issues such as the readability and font color on the slides, which lent to the consistency of the product overall. Sara used the comment tool in Google Slides to insert several comment balloons that helped to summarize ideas they had discussed for Chris’s future reference, and Chris made a few minor sentence-level changes within the product as they came up organically in the session but otherwise no global changes. The interaction was friendly and conversational in tone, with both participants laughing and smiling on several occasions.

### **Session Summary 5: Molly and Zander**

Words: Molly 1181 (40%), Zander 1752 (60%) (2933 total)

Assignment: Elevator Pitch

Tools: Google Slides and Skype

Composing Stage: Stage 1 (Less than 25% complete)

Active session time: 22.5 minutes

Digital Hub Environment: Student and tutor viewed the student's Google Slides product simultaneously, however, it was not converted properly so the tutor and student could not make synchronous changes in the product; they also periodically used the Skype screen share feature, and thus the student occasionally could see the tutor's full screen outside of the shared Google Slides product.

### **Participants, Context and Goals**

**Participants and context.** The active time in this session lasted about 22.5 minutes, and Zander started the recording for the session right as they established a synchronous connection via Skype.

Molly's product was at stage 1 of completion (at approximately 25% or less complete). Of the total words spoken during the session, Molly's comprised 40% (1181) while Zander's comprised 60% (1752). During the session, because the tutor and student never successfully got into a synchronous Google Slides screen, there were no changes made directly to the product. However, Molly did take some notes on paper on a few occasions. Mostly, though, they relied on talk and looking at each other's image in Skype to communicate. Within the first minute of the session, Molly asked, "have you like worked with people on this assignment before?" Zander replied, "You're my first on this assignment, but I have seen the rubrics and [the professor's] example, so I have kind of an idea what you're working on." Molly then said, "okay, so is it easiest for me if I just, um, like share, uh you know like share the slides or share the screen or whatever?" Zander then coached her through the process of uploading her PowerPoint into

Google Drive so she could share it with him, and they entered into the session from this interaction.

**Goals.** Molly had indicated in the drop down menu on her appointment form that her primary concern for the session was “organization and flow” and that “design and creative concerns” was a secondary focus. After she had shared her unconverted product (still in PowerPoint form) in Google Slides, she said, “okay yeah, so it's like not done yet, but... I didn't want to like do all of it if I was doing it wrong, does that make sense?” Thus Molly established a main goal of obtaining reassurance from Zander, to know that she was doing the assignment correctly. Ultimately, after being unable to convert Molly’s product into Google Slides, he indicated that she was not doing the assignment correctly because it was supposed to be composed in Google Slides. Both Molly and Zander seemed frustrated with the technology at different times, though they were able to utilize the screen share tool in Skype and discuss the content of Molly’s product as well. Overall, once Zander suggested that Molly redo her work in Google Slides, it seemed clear that Molly just needed more time to keep working on the product itself, which ended the session a bit on the earlier side. Thus, in Zander’s student report form, he indicated that the primary concern for the session was “design and creative concerns” and that the secondary concern was “other” due to the technological issues they experienced.

### **Learning Interaction**

#### **Troubleshooting technological problems between PowerPoint and Google Slides.**

After Molly shared her PowerPoint to Zander the first time, neither of them was able to make changes to the product because her settings were not adjusted to convert the work from PowerPoint to Google Slides. Unfortunately, neither Zander nor Molly realized that this was a conversion issue at the time. Molly uploaded and shared the PowerPoint a second time, and

while it did not convert to Google Slides format that time either, the product was displaying the images differently than it had in the first version she had shared. Both Zander and Molly were very confused by this, and Zander utilized the screen share tool in Skype in order to show Molly the difference between the versions on his end.

As he viewed the product that Molly sent the second time, he said, “oh, it's the same, PowerPoint, but it looks completely different- this is weird, the picture still has that weird-”

“It does?” Molly asked. Zander replied, “yeah, let me see, can I screen share that with you?” He then enabled the screen share feature on Skype, which allowed Molly to see what was on Zander’s screen rather than Zander’s image of himself. Right away, Molly said, “oh yeah, I see how it's fuzzy.” Zander agreed: “It's really weird. like it-” Molly interrupted, “yeah, it's like it's... it looks like a cartoon.”

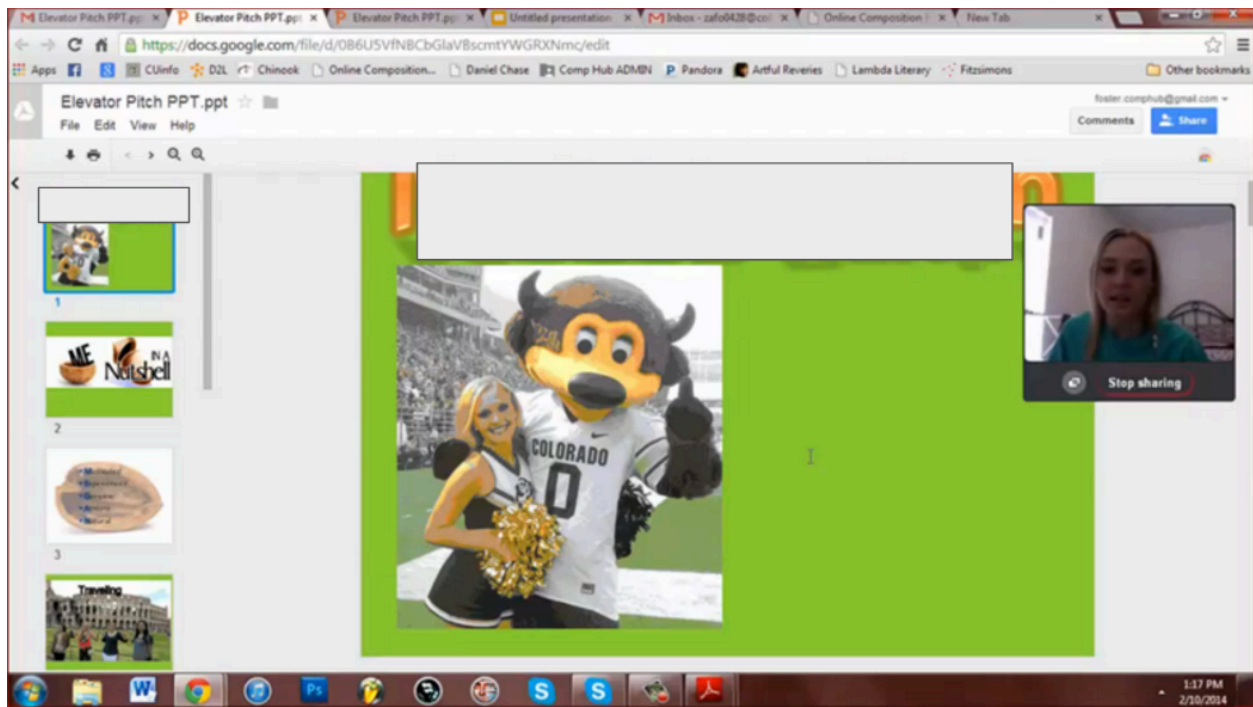


Figure 37: Zander used screen share through Skype to show Molly what her first slide looked like on his computer, and she understood that her photo was not being represented properly.

Zander replied, “mhm, yeah- and the other one-” and at this point he switched tabs to show her the first attempt at sharing the product with him, “also, but in a different way, so it has something to do with the upload.” Molly, seemingly at a loss for what else to say, said, “huh. okay.”

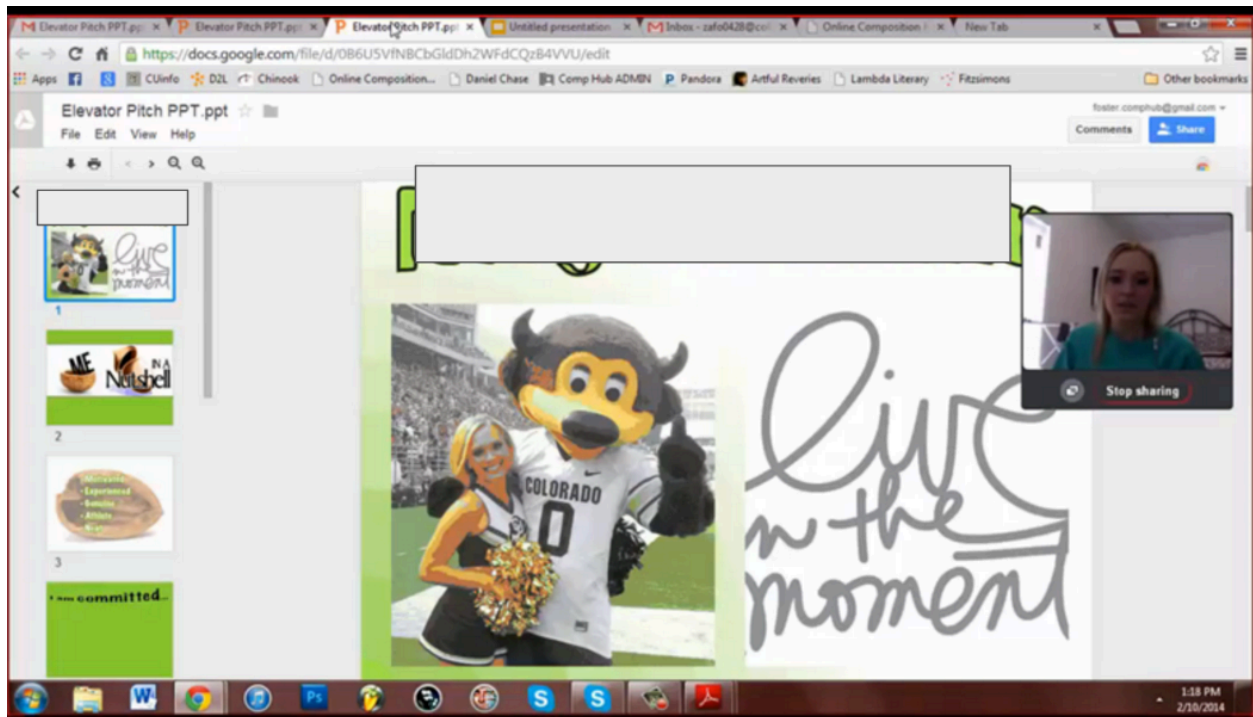


Figure 38: Zander shows Molly a screen share of the first version of the PowerPoint she had shared with him, which differed from the second version but still retained technological problems in maintaining the design integrity of her image.

Zander then makes a suggestion that Molly use Google Slides to create her presentation, since that is the required platform for the assignment. He said, “So you might just wanna- um, I made an untitled presentation...” He clicked over to the next tab to the right on his computer and continued, “I’ll share that with you, and maybe you can just use that as your template.” He then clicked on the blue Share button and shared the blank Google Slides presentation with Molly. She said, “Oh, okay cool.” Zander added, “and so just copy whatever images you were using--

you might have to do a little bit over, but better to get it done.” Molly replied, “Oh, okay I see the difference.”

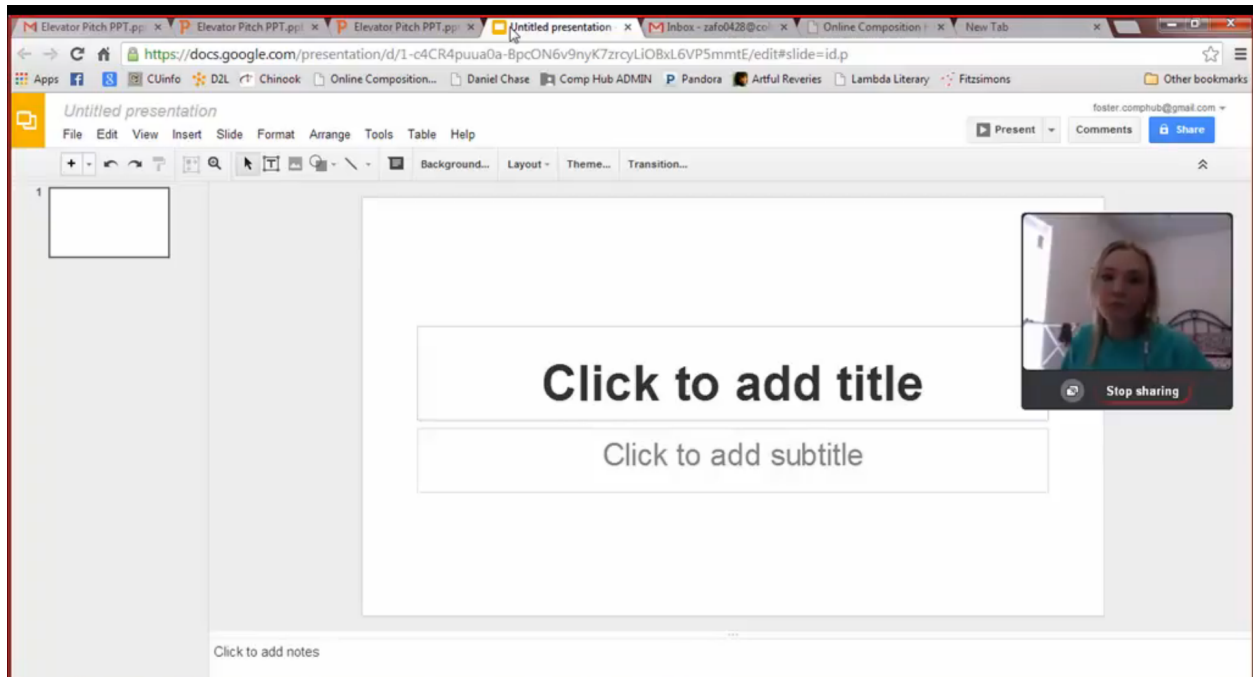


Figure 39: Zander showed Molly the untitled Google Slides presentation that he created and then shared it with her, so that she might rebuild her Elevator Pitch assignment in the assigned platform.

Zander said, “So yeah this at least is the format that your professor wants to be used.” Molly asked, “yeah, so is it a problem that I created it in actual PowerPoint and I should have created it on this?” Zander replied, “it just seems like whatever's converting from PowerPoint to this isn't doing it right.... and it's making it look bad, so it's better if you do it in the file you're going to use-- cuz when you download it to the pdf, it'll save the exact, like, the exact look.”

Zander’s suggestion that she use Google Slides grew out of a concern that Molly might end up with an assignment where the design does not reflect her intention if she used the wrong platform to compose her work.

At this point, they were only about thirteen minutes into the session, so Zander suggested, “I guess I can make some comments on the slides as they are?” “That’s fine,” Molly said, “and then I can just go redo it.” From here, the conversation then turned to looking at the slides together and talking more specifically about Molly’s design aesthetic and her plan for her content.

**Using screenshare and instructor’s exemplar to discuss design content.** As Molly and Zander finished talking about her first few slides, Zander complimented the light green and white color theme that he saw Molly had started and then went on to show her the instructor’s exemplar to discuss stronger alignment of design and content. He said, “I think you have, like your first couple of slides obviously have... a solid sense of, I think, kind of the visual plan.” Molly simply said “m-hm,” which encouraged Zander to continue.

He said, “I’m trying to think, um let me open up what she's done...” and he clicked on the instructor’s exemplar, which he had minimized so that it opened up on the screen. He then got a notification on his screen that his computer battery was running low, so he paused and told Molly that and plugged in his charging cable. He then said, “so, pick out, maybe like key words that you're using... and emphasize those, so... um, in the example, for ex-- uh that's redundant-- ‘standing out’ stands out, on this slide, can you- let me share that.” Zander then clicked back to the Skype window and said, “maybe possibly the screen share might be useful again,” and clicked on the screen share button, but found that he had not turned it off from earlier. He continued, “oh, I’m still doing it, uh let me move this to the side,” and he moved the Skype window so that Molly would have a clear view of the instructor’s exemplar then asked, “can you see that?” The slide on the instructor’s product was all white except for a small line of black sans serif font across the screen with the words “standing out” in a large orange serif font.



“Yes,” Molly replied, then Zander said, “how it literally does, kind of, what it's saying it's doing?” “Yeah. Exactly,” Molly answered. Zander continued, “um, and that's a pretty simple technique, in terms of making things more visually-” Molly interrupted, “okay,” but Zander completed his thought: “uh dynamic.”

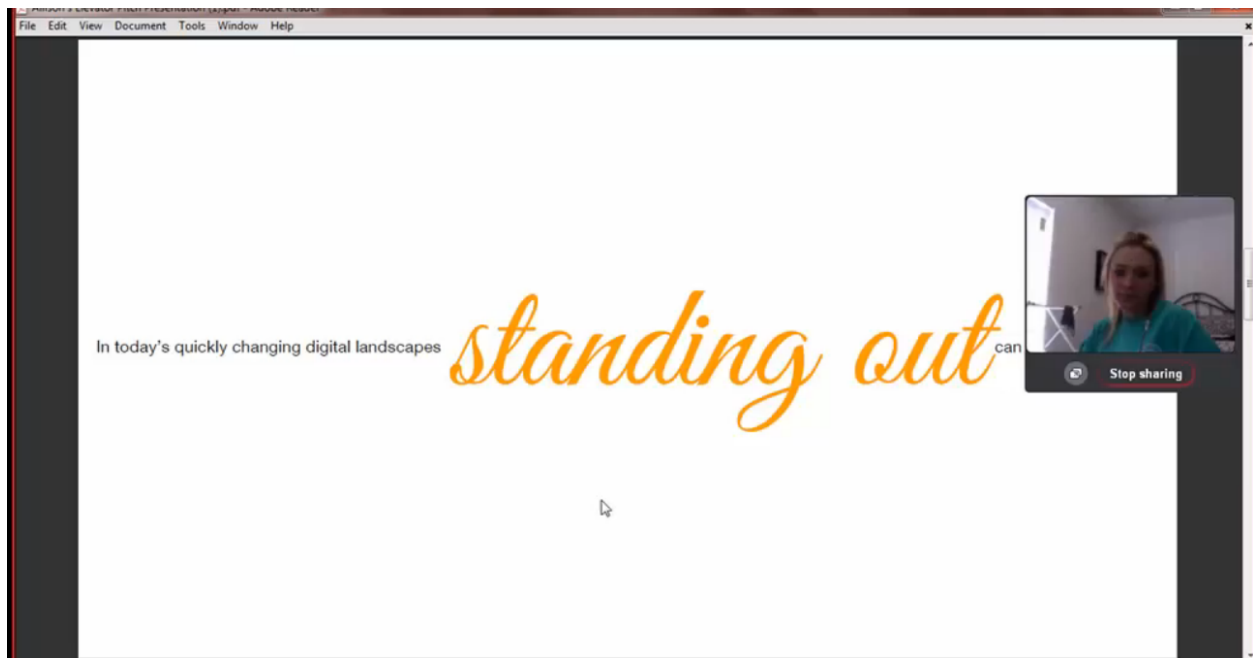


Figure 40: Zander used screen share via Skype to show a specific slide from the instructor’s exemplar to discuss alignment of content and design with Molly.

Zander then clicked back to her product and asked, “You have any other pictures you might be planning to use?”

Molly replied, “uh, yeah, I mean I'll have to play around with that, cuz I have a lot of ones, like, she said to use like personal pictures too, so I have a lot of ones like the- I mean obviously not just ones of me, but like personal pictures from, that are like similar to the one of my first slide, but if they're not showing up, then I'll have to play around with that, but I do have more pictures, so...”

Zander responded, “Okay cool, I bet that they will show up now that you're using-” Molly finished his sentence: “the Google form of PowerPoint?” “Yeah,” Zander said.

**Session resolution.** After looking at the instructor’s exemplar, the session only lasted approximately two more minutes. Zander asked if Molly had looked at the David Underwood videos, and she replied that she had not done that yet, so Zander looked up a direct link to them in his email and copy and pasted the link into the Skype chat window; he said, “he does a lot of stuff on visual design... and it may be pretty useful.” She simply said, “okay.”

Zander asked if she had any other questions, and Molly replied that she did not, and gave him a summary of her next steps: “no, I think now pretty much I just need to go through and edit those last few slides and like obviously take away the- cuz the format won't work, so I think I just need to do that, I have other pictures to add, and like play around with the fonts and stuff a little bit more.” Zander said that it sounded like she knew what she needed to do, and she replied, somewhat sullenly, “yeah.”

Zander also suggested that, even though she will use Google Slides to complete her work, it might be a good idea to “share with just a couple of people and see if things aren't showing up the way that they're supposed to... just to make sure that you're not running into technical difficulties... that will ruin all your hard work.” “Yeah seriously,” Molly replied with a short laugh.

As they concluded the session, Zander thanked her and said, “good luck and just work on the visual engagement stuff. you- you have solid material.” Molly replied, “alright perfect, thank you so much.” From there, they each said goodbye and Molly ended the Skype call.

## **Concluding Remarks**

Overall it seemed that, although technical problems dominated the session and Molly was disheartened to learn how much more she would need to do to complete the project, she was overall thankful for Zander's help, despite a bit of a grumpy attitude. Zander seemed to genuinely feel sorry that Molly had so far yet to go with her assignment and did his best to think up suggestions and provide examples and resources that he thought would be helpful. Given the technical difficulties with Google Slides, he utilized a strategy of going outside of the product to help move the session forward by referring to and sharing material with Molly through the screen share tool on Skype. This strategy helped to reconnect them, literally, on the same page, as Molly was able to see Zander's cursor movements and screen content for the duration of the screen share. In terms of design, they discussed the overall look and feel of the product, including color scheme, images and font, as well as a strategy of aligning the content to the design more closely.

## **Session Summary 6: Rick and Zander**

Words: Rick 1506 (40%), Zander 2290 (60%) (3796)

Assignment: Elevator Pitch

Tools: Google Slides and Skype

Composition Stage: Stage 1 (less than 25% complete)

Active Session Time: 36 minutes

Digital Hub Environment: Student and tutor viewed the student's Google Slides product simultaneously and were able to view one another through Skype. They did not use the Skype

screen share feature, and thus could not see each other's full screens outside of the shared Google Slides product. However, Rick made several references to content viewable only to him on his screen during the session and brought relevant examples into his shared Google Slides product and made changes as the session progressed.

### **Participants, Context and Goals**

**Participants and context.** The active time in this session lasted just over 36 minutes. Zander started the recording right as he established a connection with Rick, though given their initial conversation about the technical difficulties they were having-- Rick initially could not find the email with the Google Hangouts invitation that Zander had sent him-- they had likely spent several minutes working to establish a connection.

Rick's product was at Stage 1 (less than 25% complete), and he was still in the early phase of his composing process, as right away it was evident that he only had text on the first three slides, with the remaining slides blank except for the royal blue Google Slides theme that he had selected as a background. Of the total words spoken in the session, Rick's comprised 40% (1506) while Zander's comprised 60% (2290). During the session, Rick was very active in making changes within the product.

**Goals.** Rick had indicated in the drop down menu on his appointment form that his primary concern for the session was "organization and flow" and that "grammar and punctuation" was a secondary focus. After the session, Zander indicated on the student report form that "organization and flow" was indeed the primary focus and that "brainstorming and planning" was the secondary focus. Within the first minute of being connected, Zander asked, "did you have any glaring questions right off the bat about that, or-?" Rick replied, "Not really, I mean I was just going through right now, um. I guess mostly I just need your help kind of, um. Let's see,

let me pull up... the assignment. Have you seen the, uh prompt?" Zander answered that he had seen the assignment and that he also had a copy of the instructor's exemplar, so he was familiar with what Rick was working on. Rick replied, "Okay awesome.... Alright, so for the first page, looks like I'll need a picture, then probably just about four words to describe myself is what I'm thinking." From there, they both jump right into looking at and discussing the product and what Rick's approach would be. Given both the early stage of Rick's composing process and the general request for help without further clarification, it quickly became established that Rick mainly wanted Zander to be a sounding board for him while he used the session as an active working time.

### **Learning Interaction**

#### **Collaborative design work as play: Tutor provides wait time as student tries options.**

A feature of this session that was unusual in this study was long periods of quiet wait time as Zander watched Rick try out different options without interfering. In total, there are four periods of roughly two minutes long each in which Zander did not speak and simply watched and waited for Rick to make changes; given that the session only lasted 36 minutes total, that means roughly 22% of the session took place without dialogue. In each of these four instances, Rick made active changes to the product and sometimes talked out loud in a rhetorical, self-narrating way; each time, Rick would signal the end of his working phase by asking Zander a direct question, and Zander would respond.

The first period of wait time occurred barely six minutes into the session. Both participants were viewing slide 2, which contained white sans serif font that read "there is only one corner of the universe you can be certain of improving and that is yourself..." Zander said, "So it looks like self improvement is kind of the theme of your piece," and Rick agreed with a

brief “mhm.” Zander remarked, “That's a good one. Do you have any idea of what kinds of images you might want to use for it?” Rick replied, “that's what I was trying to think of, images are kind of hard to use for that one, um let's see, I think I kinda need to do the 3rd slide over, kinda add a little more text to it and then um, maybe play with the fonts and then maybe the pictures will come?” Zander simply said, “yeah, no totally,” and then waited for Rick, who clicked to slide 3.

From there, Rick seemed to be conducting a search on the Internet in another browser window on his computer and occasionally provided commentary by saying “umm, okay let's see” and “okay.” Rick typed in an upper text box on slide 3, “everyday [sic] I strive to be the best me” and then added in a lower text box on the slide, “perseverance, determination, hardwork [sic].” Rick then made some edits, such as correcting to make “hard work” two words and to create dashes instead of commas.

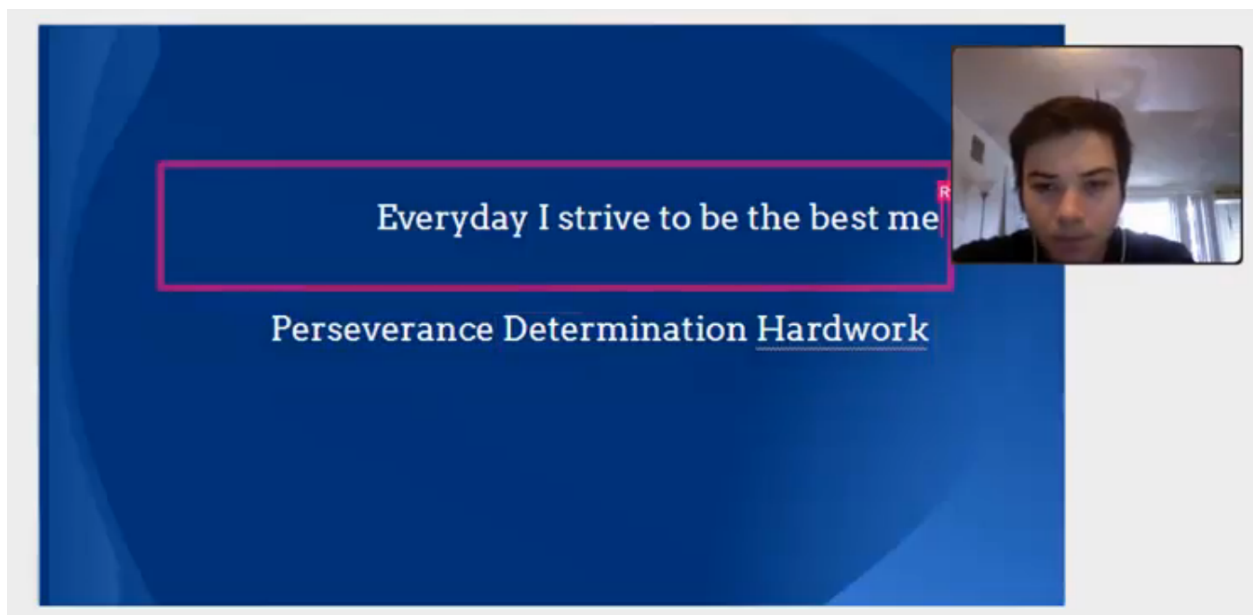




Figure 41.: Rick makes changes on his own to the product during an extended 2-minute period of silence in which Zander does not speak.

He then indicated that he was done making changes on his own when he asked Zander, “what do you think I could do to liven up the third slide a little bit? what colors do you think I could use for maybe the bottom three words?” In responding to Zander, Rick entered back into the conversation from the perspective of wanting to help Zander clarify a particular question or dilemma.

**Student and tutor become “we” during active changes to product.** Another interesting and unique feature of this session was that, as Zander and Rick worked together and Rick made changes to the product, the pronoun “we” became intermittently used by both of them to discuss authorship decisions about the work. The first instance of this occurring was about nine minutes into the interaction and was initiated by Rick, and the last instance was two and a half minutes before the end of the session, as Zander indicated that they were running short on time. The pronoun was not used consistently, as Rick and Zander still referred to themselves in first person

at times as well, but the use of “we” as a collaborative signal seemed to arise organically as they worked together; Rick used “we” to refer to authorship of the product five times, and Zander used it six times in this context as well, with a seventh “we” to indicate the end of the session. This use of “we” did not happen in any of the other sessions of this study. This session was also the one in which the most active changes were made to the product.

Zander had provided a mini-lesson on serif versus sans serif fonts and Rick had already made five changes to the product by the time they were nine minutes into the session, and it seemed that a friendly and trusting rapport had been established between the two of them during that time. In the interaction that led to Rick’s first use of “we” to refer to authorship, Rick asked, “what do you think I could do to liven up the third slide a little bit? what colors do you think I could use for maybe the bottom three words?” Zander replied, “Well, since it seems you have the heavy blue in the back,” and Rick interjected, “yeah, I really like the blue color for the background.” Zander said, “oh yeah, no definitely. So you could go, I think, a couple different directions with the rest of it, um you could harmonize colors that are kind of close to blue, so like purple, or green... but you could also go for heavy contrast and go for something like a red.”

Rick nodded and said, “Yeah, that's what I was thinking, either like a red or a green.” He changed the top text to green and then to red, then put his hand to his mouth and said, “let's see, I kind of like the green color a little better than the red.” Zander replied, “Yeah, no definitely, I think I agree.”



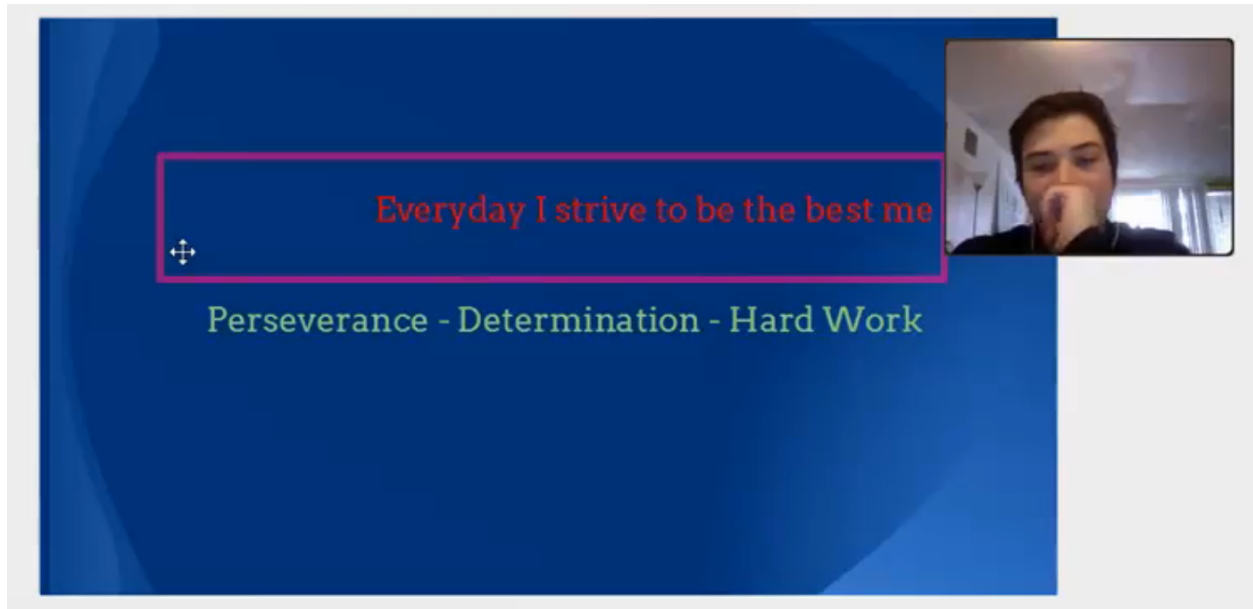


Figure 42.: Rick decided that he did not like how the red font looked on the blue background.

Rick changed the font color back to green then asked, “alright, so then, how do you think we could format this to, obviously, be more visually pleasing? maybe I should go with a centered outline, or like all to the left and then throw in a picture?” This question led to a natural “chaining” of one topic to another, following a build in which new topics were based on the foundation provided by previous ones.

Zander began to talk about slide layout design and said, “we want to use as much of the slide as possible, we don't want to end up with a bunch of just useless space.” As he spoke, Rick was moving a text box on the screen and said “yeah,” and Zander added, “cuz that keeps the eye busy and moving... and even within text boxes, you can emphasize something... like the word ‘everyday’ could be emphasized... by having it in a different color, or a different font.” At the mention of the word “everyday,” Rick had highlighted it, which reveals how closely Rick was listening and how receptive he was in trying out new ideas. (Later in the session, Zander did

point out that it should be two words, “every day,” given Rick’s intended meaning, but Zander did not mention it at the time that they were discussing design.)

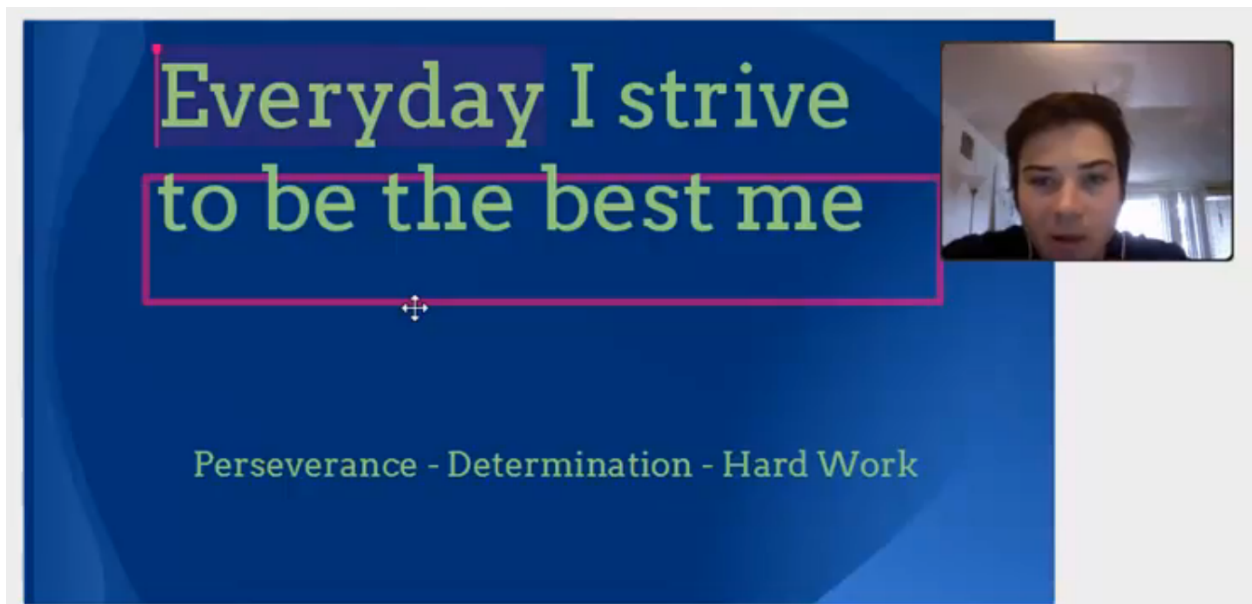


Figure 43: Rick highlights the word “everyday” on his slide and leans in toward the computer. His cursor movements appear pink on Zander’s screen.

A minute or so later in the conversation provides a nice example of how fluidly they each switched between typical first person pronouns and the shared “we” pronoun. As they concluded the discussion of key words in a different color to draw the viewer’s attention, Zander said, “Yeah, it’s something you can just play with.” Rick agreed, “yeah definitely I’m gonna just go around and play with it,” and then changed the direction of the conversation: “um hmm. Maybe for this we insert a picture of... search- maybe like someone working hard?” Rick laughed and added, “I don’t know, that’s hard to find a picture of that...”

Zander replied, “I mean we can kind of build on the slide before this, you have a person acting things out.” “Yeah,” Rick said, and they continued a conversation around the kind of image Rick should be looking for.

**Session resolution.** After talking for over half an hour and being close to the end of the allotted time slot for the session, Rick was still actively composing and discussing ideas of different images to use when Zander said, “I think we have four minutes left, um, did you have any questions left over?” This seemed to signal the end of the session and the collaborative authorship use of “we,” as Rick replied “not really, um you've been pretty helpful, I feel like I've got a good theme going now.”

Zander reaffirmed that Rick was on the right path and responded, “you're tying pictures in wonderfully.” Earlier in the session Zander had established that Rick had not yet looked at the David Underwood design videos and provided him with a direct link to them, and as they were concluding the session, he reminded Rick, “just stick with your intuition, if you run into any trouble, then check out the video I linked you to.” Overall, Zander affirmed that Rick was on the right path: “I think you're on top of this, I would say your next step is really just wrapping it up.” Rick agreed and stated, “yeah, exactly, that's all- I'm looking forward to doing it today.” Rick thanked Zander for his help, and Zander said, “Any time! Thank you very much.” Then they both said goodbye and Zander ended the session.

### **Concluding Remarks**

Overall, it seemed that Rick was interested in getting general feedback on his overall design approach for his Elevator Pitch, but that mainly he wanted to have a sounding board for exploring ideas as he used the session as an active work time. Zander provided feedback about the overall look and feel of Rick’s design, including a mini-lesson about serif and sans serif fonts, and Zander also allowed for several long periods of wait time while Rick worked on the product. There seemed to be an overall sense of productive flow, as the conversation evolved in a “chained” fashion, where one topic led fluidly into another and was mostly driven by Rick’s

questions or ideas. The two of them also slipped into an interesting use of the pronoun “we” to refer to authorship of the product, which was used consistently, though not exclusively through the middle of the session when the majority of changes to the product were made. Both Rick and Zander seemed satisfied at the end of the session and remained friendly as the session came to a close.

This session is unique in this study because of the early stage of completion on the student’s end and the number of changes that the student made to the product during the session that specifically had to do with design. In addition, this session showcases an interesting tutoring strategy of extended wait time that seemed to be effective in this context.

### **Session Summary 7: Sam and Zander**

Words: Sam 341 (16%), Zander 1747 (84%) (2088)

Assignment: Food Bio

Tools: Google Slides and Google Hangouts

Composition Stage: Stage 3 (more than 75% complete)

Active Session Time: 16 minutes

Digital Hub Environment: Student and tutor viewed the student’s Google Slides product simultaneously and were able to view one another through Google Hangouts; the tutor did use the Google Hangouts screen share feature once, and thus the student could see the tutor’s full screen outside of the shared Google Slides product during that period of time in the session.

### **Session Participants, Context and Goals**

**Participants and context.** The active time in this session lasted just over 16 minutes, and Zander started recording the session just as he and Sam established their connection through Google Hangouts. Once they established their video call, Sam shared the Google Slides product with Zander, who was able to retrieve it through the Google Hangouts medium for shared viewing at about two and a half minutes into the session. As the session progressed, both Sam and Zander operated confidently within the technological platforms they were using in this session.

Sam was at Stage 3 (75% or more complete) in working on his assignment. Of the total words spoken in this session, Sam's comprised 16% (341) while Zander's comprised 84% (2088). While the flow of the conversation was fairly balanced in terms of turn-taking, the majority of Sam's words were short, one-word responses to Zander. Zander engaged in two "lessons" over the course of the session, which collectively made up 42% of his total air time; this can potentially explain why this was such a "tutor-heavy" session--because Zander was spending a good amount of air time focusing on teaching lessons that could potentially transfer to future topics outside of this particular session.

Another factor that could have impacted the flow of this session is cultural difference. This session is the only instance in this study where the student was from another country. As an international student from South Korea, Sam may have been more comfortable maintaining a quiet, respectful demeanor due his own cultural traits. Product completeness may have also been part of the reason why Sam was less talkative; he may have been less interested in discussing or making changes because he already perceived his work to be in a relatively finished state. Sam

seemed reluctant to make changes to the product during the session, but he did take notes using pen and paper and was often seen writing during the session.

**Goals.** Sam indicated in the drop down menu on his appointment form that “design and creative concerns” were his primary concern and that “brainstorming and planning” was his secondary concern. However, given that his product was nearly complete, there was not much planning that was needed during the session. Zander indicated on the student report form that “design and creative concerns” were indeed the primary focus of the session and that “citation and sources” was actually the secondary focus of the session, which was the topic of Zander’s second mini-lesson. Once Zander and Sam were viewing the product nearly three minutes into the session, Zander asked if Sam had any specific questions or concerns and Sam replied “I want the slides to... just about design, to make it more appealing.” Thus, Sam’s interest was in the overall look and feel of the product’s design, and Zander went on to provide him with feedback that was aimed mostly at polishing up what Sam already had going on in the product.

### **Learning Interaction**

**Tutor teaches two mini-lessons related to design.** The majority of the learning interaction in this short session took place between two mini-lessons that Zander taught; this also helps to explain why he spoke as much as he did. The first lesson had to do with fonts and the rhetorical impact of fonts, specifically the difference between serif and sans serif. This lesson explicitly had to do with design and was expressed in a way that would have implications for future decisions about fonts in other compositions. The second lesson had to do with how to modify a Google image search to find images that are free to use or share, and thereby avoid copyright infringement in using digital, Internet-sourced images. This lesson was implicitly about design, because it had to do with finding images for multimodal composition, but it

explicitly was about manipulating the settings in the Google search engine in such a way as to avoid plagiarism. During these lessons, the student took lots of notes and made frequent response-based utterances, such as “okay,” “right,” or “yeah,” to indicate that he was paying attention to the lesson at hand.

**Fonts: serifs vs. sans serifs.** At nearly eight and a half minutes into the session, Zander engages in a short mini-lesson on fonts. A few minutes earlier, Zander did confirm that Sam had seen the Dave Underwood videos on design, and Zander referenced that this content might be familiar since it was a topic that was covered by Dave Underwood.

Zander said, “basically the idea is just how, like on slide..5,” and he paused to click into the title of the slide that read “Recipe for Kimbap” and highlighted the capital R as he continued, “the R here has like, ledges?” Sam replied, “yeah.” Zander continued, “um, that's a serif font, and the idea is it's supposed to help your eye track, and so it's good in small fonts to have those, because it makes it easier to read, in theory.” Sam replied, “okay.”

**Recipe for Kimbap**

The great thing about kimbap is that you can put anything you want into the rolls and create your own style of kimbap!

- Dried Seaweed
- 2 Cups of cooked rice
- 2 tsp. sesame oil
- 2 tsp. salt
- 1 carrot, cut into long pieces
- 1 cucumber cut into long pieces
- 3 eggs
- ½ pound of spinach, parboiled
- Pickled Radish, cut into long pieces
- Imitation Crab
- Any other desirable filling!

5



Figure 44: Zander, on the right, highlights the “R” in the title of the product to emphasize features of serif font.

Zander continued on, “whereas your larger material you could kind of experiment with a sans serif which would be, like, I’m just going to temporarily change this to Arial for a second...” and he highlighted the title of the slide and changed it to Arial, then asked, “just to show, see that doesn’t have those ledges at all?”



# Recipe for Kimbap

The great thing about kimbap is that you can put anything you want into the rolls and create your own style of kimbap!

- Dried Seaweed
- 2 Cups of cooked rice
- 2 tsp. sesame oil
- 2 tsp. salt
- 1 carrot, cut into long pieces
- 1 cucumber cut into long pieces
- 3 eggs
- 1/2 pound of spinach, parboiled
- Pickled Radish, cut into long pieces
- Imitation Crab
- Any other desirable filling!



Figure 45: Zander changed the title of the slide to Arial, sans serif font, as Sam watched.

“Right,” said Sam. Zander added, “and it creates just a little bit more visual contrast? um, I really think playing with color there could also be, perhaps more effective, but definitely different fonts have just a different look.” Sam said, “okay,” and began taking notes.

While Sam was taking notes, Zander was looking at the different fonts available through Google Slides, which is an action that Sam would not have been able to see; Zander then remarked, “oh Comic Sans is terrible, never use Comic Sans!” and he laughed. Sam looked up from writing and smiled widely as the joke and then went back to finishing his notes. Zander changed the title font on the slide to a different serif font and said, “uh, yeah, this is another serif,

but it, even that has a different look than..." Sam said, "yeah." Zander then finished his sentence in saying, "the other one, that you're using."

Given that Sam did not say anything else, Zander then concluded the mini-lesson: "so, it's just something to play with, really. A lot of it's a matter of personal preference, but definitely anytime you can create more contrast, it's usually better than a shortage of it." Zander then changed the font in the title of the slide back to how Sam had it originally. Zander wanted to provide a visual demonstration of the lesson that Sam could see, and thus he made changes within Sam's product, but he was careful to go back to Sam's original choices so that he could decide for himself later what he would like to do with the font. Sam was still quiet, so Zander added, "but no, I think otherwise you're really satisfying the requirements of the assignment." Sam then said, "okay."

*Images: How to do "free to use or share" image searches.* The second mini-lesson that took place within the session started only about a minute or so after Zander's lesson about fonts concluded. Zander had noted that Sam included a slide as a Works Cited for his images, and Sam asked, "is that an okay way for sources for images, or is it supposed to be in like a more detailed way?"

Zander replied, "um, I know there are... uh did your teacher specify whether you're supposed to be using, like um-" Sam responded, "she basically just, um citing images-" Zander said, "I mean I think for an assignment like this citing them is the most important part, just as long as you're saying where you got them from... but I mean there are guidelines, like MLA or APA, if you have a preference or if you want to do it in a formalized way, if your teacher isn't asking for a specific way, I doubt it's going to be important."

Zander then added, “did you, when you were looking at images, whether they were able to be reused or not, that kind of stuff? in Google, or-?” Sam looked a little confused and said, “um... I'm not sure...”

Zander then began a mini-lesson on how to find images that have “free to use or share” licensing in Google: “it's a useful thing when you're using images for something... sushi. I'm going to share my screen with you real quick.” Zander had opened another tab on his computer and searched in Google for “sushi” as an image search, and then he enabled the screen share feature on Google Hangouts as Sam said, “okay.” Zander said, “okay, so can you see? what's goin' on, on my screen?” There was a moment of lag time, so at first Sam said, “uh not yet..” and then as it popped up he added, “uh yeah now I can see it.”

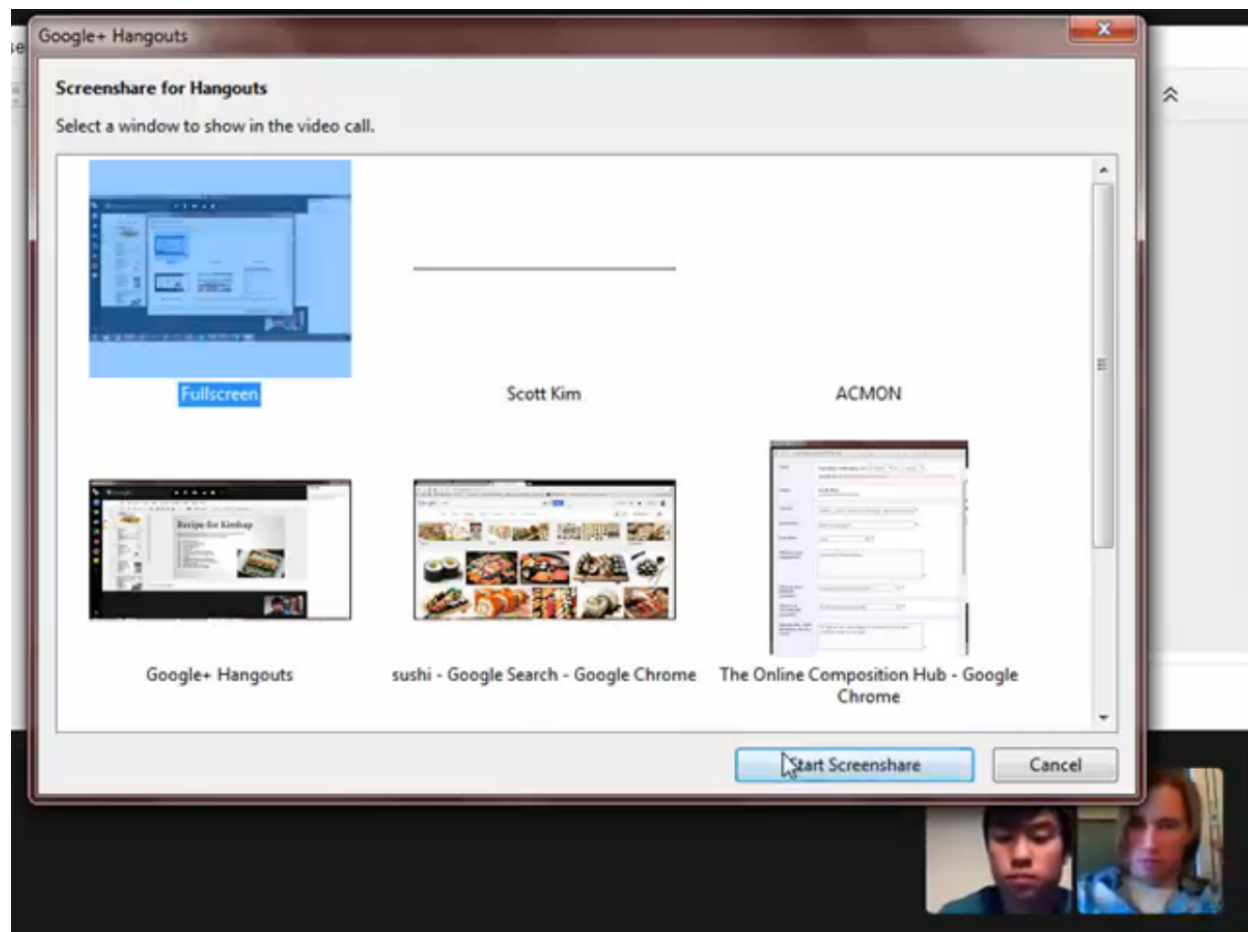


Figure 46: Zander, on the right, initiated a screen share with Sam to show how to do Google image searches with “free to use or share” settings.

“Okay cool,” Zander explained, “um so I've just pulled up a basic Google search on sushi.. um, but over here in the corner you have this gear” and he hovered his mouse over the “Settings” icon, which was shaped like a gear to emphasize where he was at. Zander chose sushi specifically because Sam had several images of sushi in his product, which made the mini-lesson example even more relevant to Sam’s experience. Sam looked intently at the screen during the mini-lesson and made a follow-up comment about not using artwork without permission, which demonstrated that he followed along and understood why the content Zander was focusing on was important.

**Session resolution.** After Zander and Sam talked for about 14 minutes and went through all of the slides together, Zander said, “um, so I think that's all I can really think of, in terms of suggestions, unless you have any real questions..?” Sam replied, “um, no.. that's really what I had main questions about, design.” Zander quickly recapped the main design points that they had discussed: ways of drawing more attention to certain parts of a slide using different fonts or a contrasting color, and making sure that images were being used effectively. Zander then asked, “yeah, I guess that's probably it.. um, do you want to play around with some of the fonts now? or, would you rather..” Sam replied, “uh, I'll probably play with the fonts another day, uh, kinda finalize the presentation and repost it.” Zander responded, “okay, sounds good,” and thanked Sam. Sam thanked Zander, and then they bid farewell to each other and Zander ended the call.

### **Concluding Remarks**

Overall, it seemed that Sam was in the polishing phase of his composing process, and even though he wanted feedback on design, he chose to take notes on paper as to what advice

Zander was giving him rather than to make his own changes to the product. Zander's advice was likewise about design but had more to do with polishing the overall look and feel of the presentation through small changes in design (changing one font to another) rather than in content. Zander also provided a mini-lesson that related to using proper citations and sourcing images that were "free to use or share," but perhaps because this was not stipulated in the assignment, Sam did not take this up as a point of conversation, but did take notes on this topic, presumably for future reference. Although the session was short, it seemed that Sam got the feedback that he was looking for and that Zander made suggestions that were generally helpful.

### **Session Summary 8: Alan and Sara**

Words: Alan 1930 (41%), Sara 2763 (59%) (4693)

Assignment: Food Bio

Tools: Google Slides and Google Hangouts

Composition Stage: Stage 2 (between ~25% to ~75% completed)

Active Session Time: 32.5 minutes

Digital Hub Environment: Student and tutor viewed the student's Google Slides product simultaneously and were able to view one another through Google Hangouts; the tutor did not use the Google Hangouts screen share feature, and thus the student could not see the tutor's full screen outside of the shared Google Slides product during the session.

### **Session Participants, Context and Goals**

**Participants and context.** The active time in this session lasted 32 and a half minutes, as Sara began recording the session after she and Alan had already gotten connected on Google

Hangouts, which was a new circumstance for Sara and perhaps indicated her growing familiarity with the Google Hangouts platform. Aside from some early feedback in the audio connection that required both Alan and Sara to turn down their volumes to avoid an echoing screeching sound, they both used the technology of Google Slides and Google Hangouts fluently throughout the session. Though the assignment falls into the Food Bio category because it had the same parameters, Alan had worked out a different topic for this assignment and had cleared it with the instructor ahead of time, so he was creating a presentation around a personal conviction, electric vehicles, rather than a personal story about food. It was not known why this exception was made in Alan's session, but because the parameters around content and design were the same, Sara seemed to have no trouble in providing feedback for him.

Alan was at Stage 2 ( between 25% to 75% complete) in working on his assignment. Of the total words spoken in this session, Alan's comprised 41% (1930) while Sara's comprised 59% (2763). Alan took notes throughout the session on paper but did not make many changes to the product. The flow of the session seemed congenial and friendly throughout and began with a joking banter. Sara said, "okay, we're recording now... so please, keep the profanity to a minimum... no I'm just kidding!" and she laughs. Alan laughed as well and said, "yeah, you know there might be some profanity after you've looked at my presentation." Perhaps part of their friendly rapport was established through the fact that Alan was a non-traditional student (he later talked about this) and he appeared to be closer in age to Sara, if not slightly older than her. Alan has a clear sense of what he wanted his design aesthetic to be like (minimalist with a lot of white space and pastel colors), and Sara seemed to not understand the reasoning behind some of his choices, which was perhaps just due to a difference in personal aesthetic opinion. Thus, much of the session was spent discussing design where Alan seemed to be on the defensive, which may

explain why he ends up talking a relatively large amount of time. Indeed, this session is the only session in the study where a student at a later stage of composition talks as much as a student in Stage 1 of composition, which makes it a bit of an outlier and a disconfirming session to Finding 1.

**Goals.** Alan indicated in the drop down menu on his appointment form that “design and creative concerns” was his primary concern and that “organization and flow” was his secondary concern. After the session, Sara indicated in her student report form that that “design and creative concerns” was his primary concern and that “organization and flow” was his secondary concern, and she noted: “he wanted to be VERY sparing with text and boldly use lots of white space. Just discussed how his spacing, font size, shapes all need to be very consistent and exact.” Early on in the session, Sara and Alan established that he had seen Dave Underwood’s videos on design and that Sara was familiar with the assignment and had seen the instructor’s exemplar. Alan then framed his goal in relationship to the exemplar: “hers was very simple and straightforward and it didn't really knock my socks off with some complicated rhetorical kind of thing, it just- and in that way I think mine seems simpler than hers, though, no, I think... I guess that's sort of what I'm looking for, was to just sorta have you take a peek at it and see- see if it made sense.” Sara replied, “okay,” and then they began to go through Alan’s product together.

### **Learning Interaction**

#### **Navigating differences of opinion in student’s product.**

**Color: Meaning associated with content.** About 12 minutes into the session, Sara brought up a comment about the color scheme that Alan was using and how, in her opinion, it didn’t seem to relate as closely to the content as it might. They were viewing the second slide in the presentation that had a white background with a light gray heading that said “Abstract,” and

text that was a light blue on the slide to describe audience, purpose, controlling idea, and design strategies. After discussing some comma omissions in the text portion of the slide, Sara said:

“the only other thing I want to mention after reading your abstract here... is that you might want to think about what colors are associated with a do-it-yourself type that also has an environmental ethic associated with it, cuz I hate to harp on this light blue, but I just don't know if light shades of light blue equal a do-it-yourself type with an environmental ethic.” As she spoke, Alan was fidgeted and looked for a new writing utensil, then simply replied, “okay.”

Sara continued by suggesting, “you might wanna just start with looking at a couple environmental websites, or looking at stuff that you read, um or even like looking around your room, like what kind of colors do you surround yourself with and then imbue that.” Alan sounded a bit skeptical as he said, “yeah,” so Sara added, “because, I feel like I should know this person based on, you know, the way things look.”

Alan then responded, “yeah, I didn't want to be sort of, well, I think you'll see when we go through it, but everything is sort of done in that palette, which is basically it's got some blues and grays and it's got some sort of yellows in it, so it's got a few other tones, but I definitely didn't want to do green because I feel like it's, kind of... I don't know, it just didn't appeal to me I guess.”

Sara listened with a thoughtful expression and just said, “okay,” so Alan added, “I don't know if that makes sense, but yeah I think I could definitely punch it up... I think there might be some other shades or places where I could-” Here it seems that he was suggesting changes that he might make to incorporate her feedback, but perhaps in a placating way.



Sara then jumped in, “okay, and again I don't want to change your aesthetic, but just maybe, like at the very least to *see* it better,” she said, referring to the contrast of the light-colored text on the white background. Alan simply replied, “yeah.”

Sara wrapped up her previous thought by saying, “to punctuate it,” and then changed the subject, “and what was the other thing- oh! and between the text, between ‘audience’ and ‘purpose’ looks like it's wider... white space than between the other ones.” She clicked into the text box in the product and clicked into the space after the "purpose" section first, then up above it to the space after “audience,” then asked, “see what I mean?”

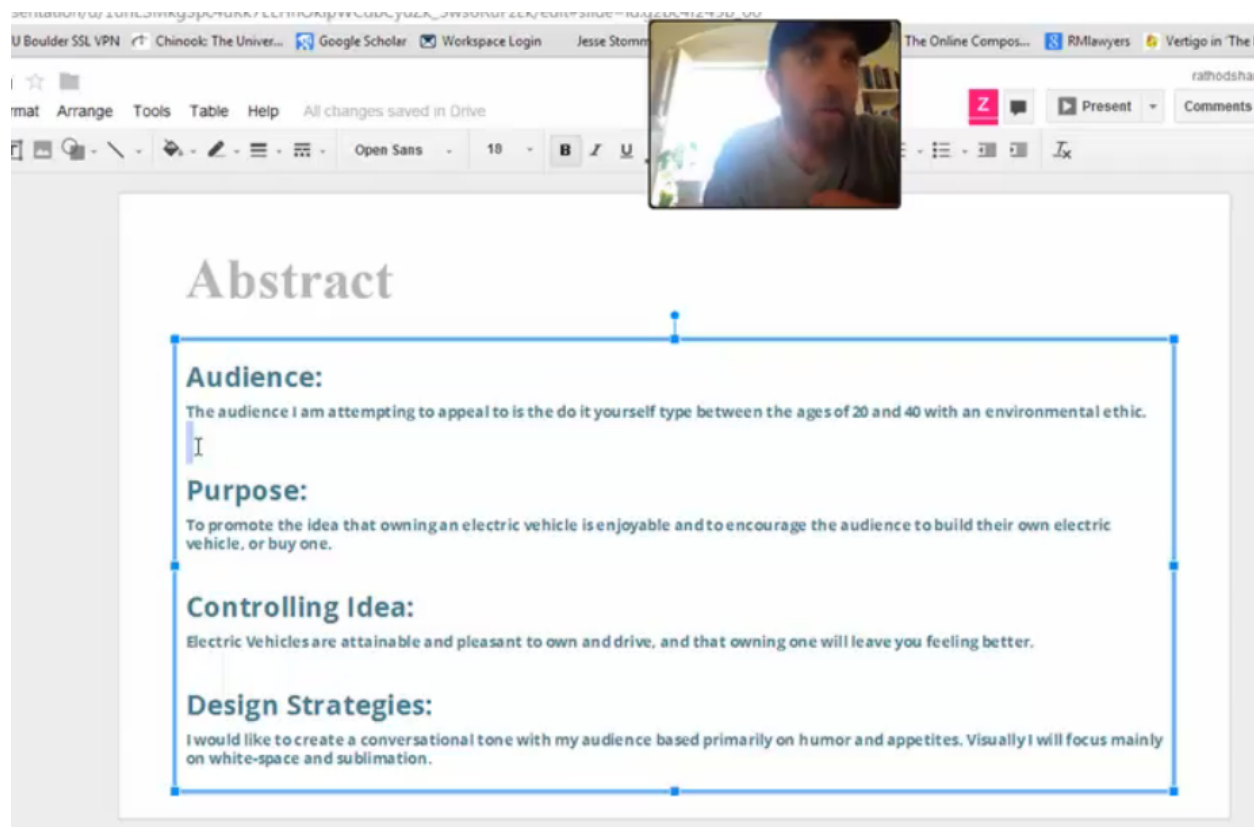


Figure 47.: Sara used the cursor to highlight a space (which appears blue) above the word “Purpose” to show that it is larger than other spaces between the sections of text while Alan looks intently at the screen.

Alan nodded and replied, “oh okay yep, I, yep I see what you mean” and made a note on paper, but didn’t make a change to the product itself.

***White space as design aesthetic.*** A little bit later in the session, Sara was looking at the flow of the slides between slide 3, which featured a large black and white image in addition to text, and slide 4, which featured a small black and white image with text and a lot a white space. She remained on slide 4 and clicked the image in question, then she said, “there's so much white space in 4, is there any way to make um that picture bigger? Or, you could turn that image into your background...”

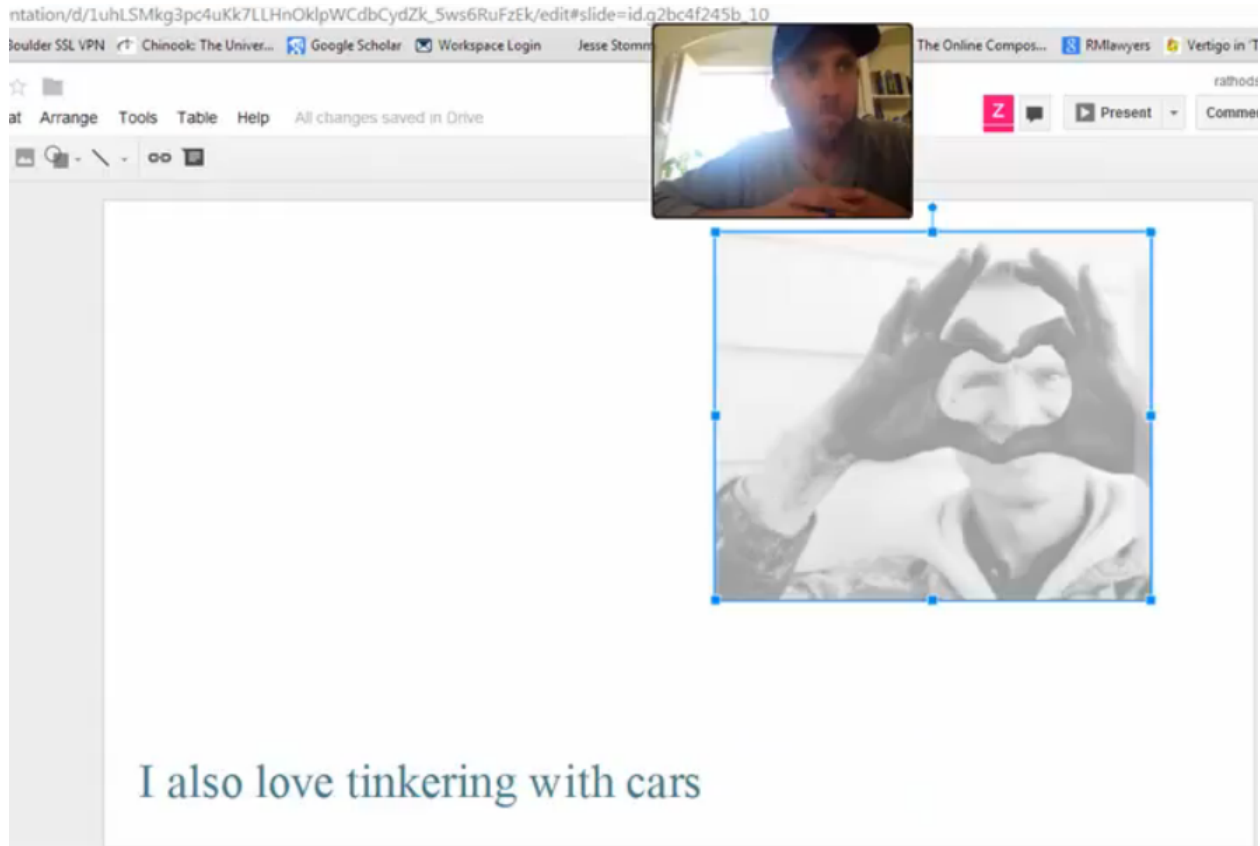


Figure 48: Sara clicked on the image on slide 4, which was highlighted in blue so that Alan could see exactly what she was referring to.

As she was speaking, Alan got a bit of a smirk on his face, and then responded, “so you might not, uh, so one of the things that struck me about the Underwood thing... was that he said, you know, people are really afraid to kind of do kind of less, you know, and to leave a ton of white space, which really struck me, because I often felt like, I don't know, I really just went pretty much with that idea...”

Sara had been making listener noise, “mhm” periodically as Alan was speaking, and she responded, “yeah” once he paused. Then Alan continued, while making some hand gestures for emphasis:

And you know the different sections, you know, and I was trying to play with that particular picture, um, and so I used just a ton of white space, for a lot of these, and that partic- that picture in particular, um you know, there are... that has the whole background and the whole background totally with the text. And then I went back and actually changed it, I just, I kinda liked the idea that he was just like, well people are just in a position where they're afraid to use all of the white space. You know, and it's really like less stuff stands out, and I think he showed some ones that were pretty stark. You know, so do you think... that's reasonable?

Throughout Alan's speech, Sara periodically murmured “mhm” while listening to him, and at one point she clicked back to slide 3, then clicked down through the next few slides, then clicked back to slide 4. When he posed his question, she replied, “fair enough... yeah, fair enough, yeah okay fine, I just, um... my only-”

Alan interrupted and said, “well let me just make a note that maybe the size, I can look at the sizing here,” and he wrote something down in his notes. Sara responded, “yeah. The only

reason that I said that is because, again, the image that you have here on slide 4 is pretty faint,” and she clicked on the image again to help draw attention to it. “Yeah,” Alan said.

Sara continued, “so it really would almost be a very- it's like kinda, you could consider it a perfect faint background because it has a lot of white space in it?”

Alan gestured with this hand and said, “yeah, I did a- I did a lot of that sort of thing, like fading the images.” Sara asked, “like first?” to help clarify that he'd retouched the images before adding them to his work. Alan replied, “yeah so-... just because there was another thing he was talking about, he was telling about saturation.” Sara said, “yeah,” and then Alan continued: “you know, so I'm trying to kinda mute some of the colors so it wasn't so, uh, it just wasn't so hard on the eyes, but I maybe went overboard, cuz there's light blues and it's faded, so I'll... I'll go back and think about that for sure.” He then made another note on his paper off screen.

As he'd been speaking, Sara said “yeah” to show she was listening, and she then said, “yeah, um,” and Alan interrupted her to add, “that picture is already very, it's actually a really cool picture, but I could get it darker, you know.”

Sara nodded and provided her feedback: “yeah, I like it too. I'm glad that you're at least, I'm glad you're thinking about it, so just, you don't wanna, and I- I remember him saying that too, people are afraid, ah, to have white space, um, and yeah that's a good rule of thumb, but just you also don't want your professor to think that- you want her to be able to see that you put thought into it, you know?”

“Yeah,” Alan replied, taking a sip out of a water bottle. Sara added, “you know, and you're purposely doing white space as opposed to just throwing it up, you know?” Alan simply replied “yeah” again, so at this point Sara changed the bend of the conversation to talk more

about the size of the font that Alan was using as a means of discussing consistency throughout the piece.

This is an extended example that showed how a difference of opinion led to a long conversation about design aesthetics. Ultimately, Sara emphasized that she felt Alan's choices would be okay, as long as he was being consistent in a way that his decisions looked purposeful rather than haphazard, and as the session went on, Alan seemed to be receptive to this point.

**Session resolution.** After Alan and Sara had talked for about 30 minutes and went through all of the slides together and discussed white space, color and consistency in his design, Sara signaled the end of the session. She said, "honestly, that's about it, yeah you've got a lot of sort of um... very increm- increment spacing and design things to think about, but I think you seem very confident, and you know what you're doing, so..." Alan replied, "well, I hope she likes it." Sara laughed and said, "she will!"

Alan then thanked Sara: "well thank you so much for your time, I really appreciate it.... this has actually been, this is nice and it's the first time I've ever gotten feedback, you know I've been out of school now for years and years so..." As he spoke, Sara murmured, "oh wow," and Alan continued while gesturing, "so it was starting to feel like, a bit of a guess if I'm doing it right, so-"

Sara smiled and responded, "yeah, we're all luddites!" and laughed, and Alan smiled and nodded. Sara then suggested that Alan come back to make another appointment, especially if he had another paper or assignment that he wanted feedback on. Alan nodded and said, "yeah no definitely, I'll be back." (Indeed, after the study had concluded, Alan did make another appointment and worked with Sara on a different assignment later in the semester.) Alan then

thanked Sara for her time and said it was a pleasure to meet her, and Sara responded in kind, thanking him and then saying goodbye.

### **Concluding Remarks**

Overall, it seemed that Alan had a clear sense of what his design aesthetic was and sought approval from Sara that he was on the right track. Sara seemed to push back a little on some of Alan's aesthetic choices and provided him with alternative considerations (such as the need for clear contrast for good visibility and consistency for a coherent look and feel overall). Despite some moments of tension throughout the session, overall it seemed that the conversation was productive for Alan. He took notes consistently throughout the session but did not make any changes to the product, even if they were minor sentence-level issues. Sara likewise did not make any changes to the product, nor did she insert any comments into the product, perhaps because she saw that Alan was both taking notes and hesitant to make changes, but this is only speculation. By the end of the session, they were able to conclude in a respectful and even friendly tone, and Alan said that he would definitely use the tutoring service again.

