Facilitating revision in the English as a second language (ESL) composition classroom through computer-based multimodal composing activities: A case study of composing practices of ESL students

RICHMOND SOLOMON KWESI DZEKOE
Iowa State University

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Facilitating revision in the English as a second language (ESL) composition classroom through computer-based multimodal composing activities: 
A case study of composing practices of ESL students

by

Richmond Dzekoe

A dissertation submitted to the graduate faculty in partial fulfillment of the requirements for the degree of DOCTOR OF PHILOSOPHY

Major: Applied Linguistics and Technology

Program of Study Committee:
Volker Hegelheimer, Major Professor
Carol Chapelle
Dan Douglas
John Levis
Robert Horton
Michelle Tremmel

Iowa State University

Ames, Iowa

2013

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DEDICATION

To the Greater Glory of Christ Jesus, My Savior and My King,

I dedicate this work to the Blessed Virgin Mary,
My Queen and My Mother

And to all whose love and support have brought me this far in life
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ACKNOWLEDGEMENTS

I am very grateful to Dr. Volker Hegelheimer, my major professor, for his excellent guidance and expertise in directing me in my quest for ways of helping second language writers do successful self-revision in academic writing. I thank my committee members: Dr. Carol Chapelle, Dr. Dan Douglas, Dr. Michelle Tremmel, Dr. John Levis, and Dr. Robert Horton for all their support and helpful suggestions in every stage of my dissertation. I also thank Dr. Tammy Slater and the entire Applied Linguistics and Technology faculty and staff as well as every one in the English Department for the support they have given me. Special thanks goes to Mr. & Mrs. Volcko, Mr. and Mrs. Anderson, and Miss Ping Li, for helping me with coding, transcriptions, and proofreading.

I also acknowledge the guidance and encouragement I received from my spiritual father and mentor, His Eminence Peter Cardinal Turakon. Many thanks to Archbishop Matthias Nketsiah, Archbishop Jerome Hanus, and all the priests in the Archdioceses of Cape Coast and Dubuque, especially, Frs. Eve Hemann, Ivan Nienhaus, Jon Seda, Jim Dubert, and Jim Secora. I am very grateful to all staff and Parishioners of St. Thomas Aquinas, St. Cecilia and SS. Peter and Paul (Ames) for their support and encouragement. I cannot forget Rev. Dr. Anthony Adawu for being there with me every step of the way: Tony, you are a true brother and friend! Words cannot express my gratitude to my dear friend and colleague Diana Shu Ju Tai: D, thanks for being there every step of the way. Many thanks to my colleagues Wei, Edna, Grace, Yoo Ree, Hye-won, Jim Ranalli, Ruslan, and Aysel: I very much appreciate all the support you gave me.

Finally, I am extremely grateful to my family: George, Patrick, Edmund, Frank, Ivy, Vida, Charity, Joyce Flynn, Christina Doggu, Dina Amoah, and Nyedzi Precious Abakah for all your sacrifices, prayers, encouragement and love that you bring me. Akpe Kakaaka!
Literature on second language (L2) writing indicates that, on their own, L2 writers are not able to notice problems with the linguistic and rhetorical features of their drafts and do successful self-revision; and that there is the need to facilitate self-revision in the L2 writing classroom. In view of this need, this dissertation explored the potential of computer-based multimodal composing activities (CBMCA) to help L2 writers’ do self-revision in academic writing. It analyzed how 22 English as a second language (ESL) students used the CBMCA to facilitate self-revision as they composed academic papers.

Data collection and analysis were based on a descriptive case study with embedded quantitative data and an integrated theoretical framework of Multimodality, (Kress & Van Leeuwen, 2001), Noticing Hypothesis (Schmidt, 1990), and Multidimensional Model of Revision (Stevenson, Schoonen, & Glopper, 2006). Data include surveys, students’ revision history, posters, listening activity, integration of visual and written texts, reflections, stimulated recall interviews, final written drafts, and scores on those drafts.

The findings indicate that the CBMCA helped students discover specific information, rhetorical and linguistic elements, and organizational structure that they used to revise their written draft. In addition, students perceived the CBMCA as useful for self-revision and reported that the activities helped them develop “language” and the “voice” to convey ideas that they were struggling to express using the written mode alone. Further, the findings show that, contrary to findings in most previous research, the students did more content-level revisions than surface level revisions. There were inconclusive findings about the relationship between students’ revision history and text quality: there was no significant correlation between revisions and text quality in the third assignment; however, there was a significant correlation
between the total frequency of revision and text quality in the fourth assignment. In general, the findings indicate that the CBMCA have the potential to facilitate self-revision in the L2 writing classroom; and that there is the need for L2 writing researchers to re-conceptualize “draft”, to focus on revision history rather than between-draft revisions; and pay equal attention to pre-text and point-of-inscription revisions. This dissertation has practical and theoretical implications for L2 writing pedagogy and research.
CHAPTER 1: INTRODUCTION

Background and Rationale

“You keep saying it needs improvement; how should I improve it?” This was a question from Christina, a student who was taking an ESL writing course that I taught at Iowa State University in 2008. Over the years, I have listened to students express frustrations and anger as captured in Christina’s tone. My uncertainty regarding how to answer Christina’s question brought me frustrations; but it also led to my quest for ways to help students revise their own writing successfully.

As I continued teaching freshman composition, I observed that combining different modes of communication, such as written, oral, and visual, has the potential to improve students’ writing. A comment from Mumbi, a student who took my freshman composition course in 2010, is typical of what students said about the integration of written, oral, and visual modes in the composing process. In her online portfolio, Mumbi wrote: “… using different modes, I can breathe life into my words and convey messages clearly and effectively”. When I asked her to tell me more about how she benefited from the use of different modes in her writing, Mumbi explained that turning her essay into a poster helped her to develop and clarify ideas in her written draft.

Comments, such as Mumbi’s, are encouraging and confirm Lee’s (1994) and Wijaya’s (2006) findings that multimodal pedagogy has the potential to help second language (L2) writers generate more ideas and revise their writing successfully. The comments also support the call by for research on how multimodality might enhance L2 writing competence (Leki, Cumming & Silva, 2008; Warschauer, 2000). However, a review of the literature on revision in
L2 writing indicates that not much scholarship exists on how multimodal composing activities impact ESL writers’ self-revision. There is, therefore, a two-fold need that this study addresses: My quest for ways of facilitating my students’ self-revision (pedagogical); and the need to contribute to the literature on L2 writing in terms of how computer-based multimodal composing activities might help students overcome frustrations and do successful self-revision in academic writing (contributing to L2 writing research). By highlighting this two-fold need, I suggest that L2 writing pedagogy and research, in this digital age, should seek to understand the complex ways in which the alphabetic text interacts with other modes, such as oral and visual, to construct and communicate meaning (Jewitt, 2009; Palmeri, 2012).

**Statement of the Problem**

Research on the writing process has documented the importance of revision for effective composition. Revision is said to have a favorable impact on the quality of text that students compose and how they gain new knowledge through writing (Bereiter & Scardamalia, 1981; Glenn & Goldthwaite, 2008). Writers who are able to revise their ideas and texts to meet their intended goals and audience expectations are those who succeed in producing effective compositions (Cresswell, 2000; Bridwell, 1980; Flower, 1985; Murray, 1978; Sommers, 1980). Unfortunately, research in composition studies as well as Second language (L2) writing indicates that most students fail to carry out effective revision that involve changes that lead to the improvement of the quality of the written text (Raimes, 2001; Stevenson, Schoonen, & Glopper, 2006). Studies that have focused specifically on the composing practices of L2 learners have identified lack of effective revision as one of the major problems of L2 writing (Chambers, 2011, Chenoweth & Hayes, 2001; Hall, 1990; Silva, 1993). This lack of effective revision among L2 writers has been a matter of great concern for researchers and practitioners,
especially at the college level where the success of ESL learners largely depends on their writing proficiency (Suzuki, 2008; Van Weas & Schllens, 2003); and different approaches have been adopted in the quest for solutions to the problem.

To address this problem, practitioners and researchers have used different instructional interventions that may be generally categorized as: a) instructor feedback, b) peer feedback, and c) the provision of revision checklists in textbooks. Although these interventions are generally helpful in guiding students to revise their drafts, they are not meant to replace self-revision in the composing process (Suzuki, 2008). These interventions remain ‘additional help’ in the composing process; and they are most effective for students who are able to do effective self-revision (Hall, 1990). Instructor feedback and peer feedback may be likened to the Track Change comments in Microsoft Word (2007+) editions, in the sense that they remain suggestions and the writer must be able to accept or reject them based on his/her ability to judge their relevance in helping communicate the intended meaning of a text. With specific reference to L2 writers, Hall (1990) argues: “…the ability to revise develops and improves when ESL writers confront problems in their own writing” (p. 57).

Furthermore, some studies on written and oral corrective feedback (Bitchener & Ferris, 2012; Sheen, 2010; Truscott & Hsu, 2008) and peer response (Lai, Zhao, & Li, 2008; Min, 2006) in L2 writing have documented the potential of instructor feedback and peer response to help students overcome their challenges with revision. However, the effect of instructor feedback on the quality of student writing is inconclusive (Chapelle & Jamieson, 2008); and peer feedback (both face-to-face and online) does not always produce the desired results (Liang, 2010). Even in cases where instructor and peer feedback are effective, the ability of the student to notice areas in his/her writing that need improvement is important. As Glenn and
Goldthwaite (2008) point out, if students are not able to notice the gap in their own writing, or at least agree with the gaps that instructors and/or peers point out, they will not be able to use such feedback for effective revision.

Some researchers have also explored how the use of reformulations and model essays might help students revise effectively. Even though reformulations and models have been shown to have positive effect on students’ revision (Hanaoka, 2007), other studies have also noted a negative impact of such techniques on students’ revision (Eschholz, 1980). In addition, evidence exists that the success of reformulations and models largely depend on students’ ability to notice problems that existed in their drafts. For instance, Qi and Lapkin (2001) studied the relationship between output and noticing and concluded that learners’ ability to notice linguistic problems as they composed their own drafts influenced what they noticed in the reformulated writing (Hanaoka & Izumi, 2012). Writer autonomy is, therefore, essential for the success of instructor feedback and peer response (Cresswell, 2000; Ferris, 1995, 1999).

Although teachers of composition agree on the importance of helping students “learn that self-evaluation and self-correction are elements crucial to successful writing” (Glenn & Goldthwaite, 2008 p.104), there are a limited number of empirical studies on how L2 writers do self-revision. In addition, the few studies that have investigated this issue have reported that L2 writers do not do effective self-revision (Cresswell, 2000; Suzuki, 2008). Also, not much scholarship exists on multimodal composition and student self-revision. This study, therefore, aimed at contributing towards filling this gap by investigating how computer-based multimodal composing activities might facilitate self-revision in the L2 writing classroom.

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1 Reformulation is the strategy of “having a native writer of the target language rewrite the learner’s essay, preserving all the learner’s ideas, making it sound as native-like as possible” (Cohen, 1983, p. 4)
Purpose of Study

The purpose of this study was to explore how computer-based multimodal composing activities (CBMCA) might facilitate advanced-low ESL writers’ revision by helping them notice linguistic and rhetorical elements that needed revision in their writing and make content and surface level revisions. Helping ESL writers develop strategies for testing the effectiveness of their own writing is an important step in helping them compose effective academic essays because as Flower (1981) observes: “good writers are their own editors…. They can test their own writing for effectiveness from the reader’s point of view” (p. 2).

Significance of Study

This study is a valuable contribution to English L2 writing research and pedagogy. The literature on L2 writers’ revision indicates that no empirical study has been done on how computer-based multimodal composing activities impact L2 writers’ revision. This study contributes towards filling this gap in the literature and also sheds light, specifically, on how English L2 writing researchers might benefit from findings from other fields, such as Computer Assisted Language Learning, and Composition Studies in its search to unravel the “mystery” that continue to surround the process of L2 writers’ self-revision. In addition, the study has important implications for English L2 writing pedagogy. With its special focus on multimodal composition, L2 writing, and the use of computer-based activities for developing students’ academic writing skills, the study draws attention to the potential of CBMCA as well as challenges associated with using CBMCA as procedural support to help ESL writers do effective revision as they compose academic papers.
Definition of Key Terms and Concepts

There are several key terms that are used in this study and I define terms within the context in which they occur. However, three of these terms, multimodality, semiotic modes, and integration of modes are explained here in the introduction because they are central to the understanding of the arguments and the general framing and design of the study.

**Multimodality**

The term multimodality is used in different contexts in the social sciences to mean different things; however, in second language education, multimodality was adopted by the New London Group (1995) to describe the process of integrating different semiotic resources, such as written/verbal text, images, and sounds, to make and represent meaning. In Composition Studies and Second Language Education, there is a growing interest to explore how multimodal representation and communication might facilitate the development of writing proficiency among students (Cope & Kalantzis, 2001, 2007; Kress & van Leeuwen, 2001; Selfe, 2007; Wysocki, 2004). In my study, multimodality is defined as the “use of several semiotic modes in the design of a semiotic product or event” (Kress & Van Leeuwen, 2001, p. 20). In other words, it is understood as the integration of different semiotic modes to make and express meaning.

**Semiotic modes**

A central concept in multimodality is semiotic modes. This refers to socio-cultural ways of making and expressing meaning. In this study, modes are defined as “ways of representing information or the semiotic channels we use to compose a text” (Kress & Van Leeuwen, 2001, p. 22). This definition is based on the theory of social semiotics (Halliday, 1985), which
emphasizes communication beyond the linguistic mode and calls for the inclusion of different modes that people employ in meaning making. In this approach to the study of signs, language, as well as image, sound, gestures, etc., become semiotic resources that people use in specific socio-cultural context for interaction (Jewitt, 2009). From this perspective, communication involves making use of multiple modes to construct and share meaning. In this study, I use the terms, semiotic modes, semiotic resources, and modes interchangeably.

**Integration of modes**

In this study, “integration of modes” refers to the process in which students use alphabetic text, still visuals, videos, and oral modes in the process of revising their drafts as they compose multimodal academic texts (essays that contain two modes only written and still visuals). By highlighting integration of mode as a “process” to facilitate revision, I seek to clarify the use of sounds and videos in this study. The register of academic writing, as it is understood currently, does not contain sound or video but alphabetic text and still visuals. Even though I believe that with time, the definition of academic writing will grow to include other modes as some L2 writing researchers have observed (Canagarajah, 2006, Leki, Cumming & Silva, 2008); I conceptualize multimodal academic text as containing only the alphabetic texts and still visuals, the two modes that are currently privileged in the register of academic writing. Therefore, the integration of modes (alphabetic, video, sound, still visuals, and oral) as a procedural support in this study does not suggest that academic register, as it is known now, includes sounds and video, but rather, that the process of revision might be facilitated as students integrate these modes.
Organization of Dissertation

The dissertation is divided into five chapters. In this introductory chapter, I have presented the background and rationale for the study and highlighted the need for L2 research and pedagogy to explore the potential of CBMCA to facilitate students’ self-revision. I have also explained the purpose and significance of the study as well as some key concepts, which are central to the study. Chapter two presents the theoretical framework of the study, a review of the literature on revision in L2 writing, argues for the use of CBMCA as a procedural support for self-revision, and explains the research questions that guided the investigation in this study. Chapter three discusses the embedded mixed methods research design that was used in this study and describes the setting, participants, materials, data sources, and steps taken in the quantitative and qualitative data analysis. Chapter four summarizes the results of the research and a discussion of the findings. Finally, Chapter five discusses implications and limitations of the research for English L2 writing research and pedagogy and makes recommendations for future research.
CHAPTER 2: LITERATURE REVIEW

In this review, I focus on the relationship between multimodal composing activities and revision in the L2 classroom. I seek to understand the role of writing in the acquisition of L2 and the challenges of L2 writings with specific reference to challenges associated with revision. By so doing, I place this research focus in the broader L2 research context and synthesize theoretical concepts on multimodality, noticing, and revision. I also identify the main methodologies and research techniques that have been used to investigate revision, identify gaps in the literature, and discuss how my research responds to the identified gap. The review is divided into three sections. In section one, I discuss the theories that influenced the framing of the study. In section two, I review the role of writing in acquisition of L2 and empirical research on challenges of L2 writing with special focus on revision. In the final section, I discuss the use of computers and multimodal composing activities as instructional and procedural support for revision problems. Figure 1 shows the matrix of the literature review.

Figure 1 Matrix for Literature Review
Section I: Theoretical Framework

Figure 2: Theoretical Framework for Research Design, Data Collection, and Data Analysis

As seen in Figure 2, three main theoretical perspectives guided the investigation in my study. These are Multimodality (Kress & Van Leeuwen, 2001), the Noticing Hypothesis (Schmidt, 1990), and the Multi-dimensional Model of Revision (Stevenson, Schoonen, & Glopper, 2006). By integrating these three perspectives, I seek to explore how the integration of multimodal composing activities, especially at the college level, might help L2 writers to notice linguistic and rhetorical elements in their writing that need attention and revise successfully. In the rest of this section, I explain the underpinning assumptions of these theories and the perspectives that I have adopted in my research.
Multimodality

Multimodality is an emerging framework for teaching writing. As Harklau (2002, p. 336) observes, “computers and other technological advances are making multimodal communication increasingly prevalent”. Many teachers of writing, including L2 writing teachers are exploring the potential of multimodality to help writers develop competence. As a theory, multimodality emphasizes the interconnection among representation, meaning making, and communication as distinct but interrelated processes that depend on the combination of different semiotic modes (Kress & Van Leeuwen, 2001; Kress, 2010; Jewitt, 2009). This theory assumes that all modes for making meaning are social in nature because the affordance of each mode depends on socio-cultural norms of interaction and communication.

Another assumption is that in a multimodal ensemble, each semiotic mode has a distinct affordance; and that integration of different modes provides an orchestration of meaning in a given context of communication (Jewitt, 2009). In a multimodal ensemble, different modes are integrated in a meaning making process, and the meaning that is constructed contains characteristics of the different modes present in the ensemble. For instance, in a YouTube advertisement on protecting the environment, Clorox, (http://www.youtube.com/watch?v=fpTDV1W-6ts), one finds the integration of written, oral, and visual texts (still and moving images).

Furthermore, when used in composition studies, multimodality conceptualizes a writer as a “designer”. This leads to the notion of writing as designing (Kern, 2000), in which “writers design and redesign all the modes of representation they draw upon in the production of multimodal texts in order to convey their intended meanings” (Shin & Cimasko, 2008, p. 377). I adopt the perspective that meaning is multimodal and a design; and that L2 writing pedagogy
needs to be multimodal (Canagarajah, 2006; Royce 2002). In adopting the conceptualization of writing as design, I seek to underline the important relationship between language and other semiotic modes in the process of making and sharing meaning. By adopting this perspective, I identify with Canagarajah’s (2006, p. 26) observation that Teachers of English to Speakers of Other Languages (TESOL) needs to embrace and explore the changing nature of texts as they become “polysemic, multimodal, and multilingual.”

**Multimodality and language as a semiotic mode**

In Multimodality, language is one of the several modes that people bring together in a multimodal ensemble (Finnegan, 2002). The theory “looks beyond language to explore a wide range of multimodal communicational contexts” (Jewitt, 2009, p. 2). Advocates of multimodal approaches to teaching and learning argue that in meaning making, representation and communication, language is certainly important but other non-linguistic modes are equally important. This view of equating the importance of other non-linguistic modes to that of language is perhaps the most strongly contested assumption of multimodality. There are some who have interpreted the place of language in multimodality “as an attempt to ‘side-line’ language” (Jewitt, 2009, p. 2).

However, far from sideling language, multimodality seeks to highlight the interrelation between language and the other semiotic modes and to emphasize how language and other modes interact and sustain each other in communication (Shipka, 2005). Thus, in multimodality, writing is multimodal, the integration of modes to construct and share meaning. As Hyland (2009, p. 59) explains: “Writing now means ‘assembling text and images’ in new
visual designs, and writers often need to understand the specific ways of configuring the world which different modes offer.”

The influence of language on understanding other semiotic modes has been highlighted in some multimodal analysis that use Halliday’s (1978) Systemic Functional Linguistics as a model of understanding the communicative function of non-linguistic modes. Examples of studies that emphasize the relationship between language and other modes include the multimodal discourse analysis of the Sydney Opera House (O’Toole’s, 2004) and a semiotic study of Singapore’s Orchard Road and Marriott Hotel (Alias, 2004). These analyses show how linguistic analysis can be used as a framework for understanding how meaning is constructed in other non-linguistic modes. In such multimodal analysis, “language fulfills a bridging function ” (Ivarsson, et al, 2009, p. 205) and helps us understand how meaning is presented in non-linguistic modes.

In my study, I foreground language even as I focus on integration of other modes in the writing process. This was not to claim that language is more important than other modes but to establish a clear focus for my study as research into how the integration of other modes in the revision process might help students to revise their alphabetic text and transform that into academic multimodal texts (essays that integrate only alphabetic text and still visuals). By taking this stance, I identify with Palmeri’s (2012, p.35) view that:

In order to get students past their habit of reading over their text looking for words to delete or change, we could ask students to translate their text into spatial image to create an external representation of their text that is not tied to words alone. By translating their text into images, students might better be able to radically revise---radically resee---their alphabetic writing.

This act of re-seeing one’s writing is what multimodal composition seeks to accomplish, especially through the notion of intersemiotic complementarity as discussed below.
Multimodality as intersemiotic complementarity

Besides the perspectives of meaning being multimodal and writing as design, I also adopt the notion of intersemiotic complementarity as expressed by Royce (1998, 2002). This refers to the collaboration between different semiotic modes “to produce a coherent multimodal text (Royce, 2002, p. 193). Researchers who focus on how computer technology has changed writing from paper-based to screen-based communication emphasize the interdependence among different semiotic modes. For instance, Kress (2000) argues that the integration of linguistic and non-linguistics modes in modern screen-based texts makes it “impossible to make sense of texts, even of their linguistic parts alone, without having a clear idea of what these other features might be contributing to the meaning of a text” (Kress, 2000, p. 337). This observation by Kress points to how non-linguistic modes can help us understand how meaning is encoded in the linguistic mode. As Harklau (2002, p. 337) observes, second language learning can take place through an intersemiotic complementarity:

Given the prevalence of multimodal classroom language learning environments, it seems fair to ask why wouldn’t second language learners who are already literate in their first language avail themselves of literate strategies and resources in order to acquire a second language? Why shouldn’t students’ acquisition of an L2 take place through literate as well as oral modalities?

By adopting the multimodal perspective of intersemiotic complementarity in this study, I suggest that multimodality has the potential to enrich our understanding of how students construct meaning through integration of different modes in writing; and that although different semiotic modes express meaning in ways that are specific to each mode, “they also collaborate to realize complementary intersemiotic meanings when they co-occur on a page or the computer screen” (Royce, 2002, p. 193). In my study, I used the notion of intersemiotic complementarity to understand how computer-based multimodal composing activities
(CBMCA) helped students to construct meanings as they integrated linguistic and other non-linguistic modes in text production and how this complementarity contributed to the overall quality of their texts.

Specifically, I used intersemiotic complementarity in analyzing the meaning in the written and visual modes in students’ final texts. Although, Royce mentions six sense relations: repetition, synonymy, antonymy, hyponymy, metonymy, and collocation, I focused on three main aspects of sense relations in order to make the rating of the essays less burdensome for the raters. The three sense relations include these:

**Intersemiotic repetition:** The repetition of the same experiential meaning as encoded in the written and visual texts (Example: Both a visual and the written text focus on football and the same words and phrases are repeated in the visual and the written draft).

**Intersemiotic synonymy:** The expression of similar experiential meanings as encoded in the written and visual texts (Example: A visual is about people at a beach and the essay talks about summer vacations. Similar words are used to describe a holiday experience in the visual and the written texts).

**Intersemiotic antonymy:** The presentation of opposing or conflicting experiential meanings as encoded in the written and visual texts (Example: A visual shows people in poverty and is meant to contrast a discussion of a luxurious lifestyle in the written draft).

In addition to multimodality as Intersemiotic Complementarity, I adapt the Noticing Hypothesis (Schmidt, 1990) as a theoretical perspective in my study. In what follows, I explain how I adapt the Noticing Hypothesis.

**Noticing hypothesis**

Psychological theories about learning, in general, agree that attention and awareness are important for learning. The importance of noticing in the revision process is emphasized in some L1 studies, which have reported that checking, monitoring, and evaluating one’s writing
are essential for successful composition (Bereiter & Scardamalia, 1987). In second language learning, attention and awareness are said to play a significant role in how learners acquire writing, reading, speaking, and listening skills (Leow, 2000). The Noticing Hypothesis takes this psychological view of learning as its point of departure. First introduced by Schmidt (1990), the Noticing Hypothesis argues that learners’ awareness of a mismatch between their input and the target language is a necessary and sufficient condition for the acquisition of the second language. This view of noticing as a necessary and sufficient condition for acquisition has been contested by some researchers, such as Tomlin and Villa (1994) who argue that it is detection and not noticing alone that is needed for second language learning.

Robinson (1995) provides a definition of noticing that seeks to integrate the views of Schmidt (1990) and Tomlin and Villa (1994). He describes noticing as "what is both detected and then further activated following the allocation of attentional resources" (p. 297). Robinson’s definition seeks to reconcile the opposing views on noticing by arguing that a learner’s ability to notice a gap between his/her language and the target language and then take steps to fill that gap are what lead to acquisition. Robinson goes on to argue that other contextual factors, such as different learning conditions and tasks, might influence how learners notice gaps and address those gaps in their learning.

Adapting the noticing hypothesis to L2 writing

Currently, the literature on SLA presents a consensus among L2 researchers that noticing is important for successful acquisition (Gass, 1997; Gass & Selinker, 2001; Izumi, 2002). Some studies that have investigated L2 writers’ noticing have done so from the point of view of L2 Output Hypothesis, which states that learners’ output is important in increasing fluency, testing hypotheses about the target language, engaging in conscious reflection in their
language use, and noticing problems in their output (Swain, 1995). For instance, Swain and Laptkin (1995) used the output hypothesis to investigate noticing and concluded that their French students noticed linguistic problems in their drafts as they produced output in the form of writing. Cumming (1990) also observed that writers do mental and verbal negotiations and notice gaps as they produce written outputs.

Some L2 writing researchers have also studied how different types of written feedback (reformulation and models) facilitate noticing. Reformulation is the strategy of “having a native writer of the target language rewrite the learner’s essay, preserving all the learner’s ideas, making it sound as nati velike as possible” (Cohen, 1983, p. 4). Some studies have noted positive effects of using reformulation to promote students’ revision (Lapkin & Swain, 2002, Tocalli-Beller & Swain, 2005, Yang & Zhang, 2010); and others have also noted the potential of using written models to facilitate revision (Hanaoka, 2007; Izumi & Bigelow, 2000).

In my study, I adapt the noticing framework as a perspective to investigate how computer-based multimodal composing activities might help intermediate ESL writers notice linguistics and rhetorical features that need revision in their drafts. In applying the framework of noticing to the study of students’ revision, I follow the precedence set by the studies that have focused on noticing and L2 writing, as discussed above. However, my application of the Noticing Hypothesis goes beyond how it has been used, so far, in L2 research. Although “the noticing hypothesis does not limit the hypothesized beneficial effects of noticing to morphosyntactic phenomena” (Hegelheimer & Chapelle, 2000, p. 52), most L2 research on noticing has focused on how students notice gaps in oral interactions and explored noticing in relation to grammatical forms and vocabulary leaning in oral interactions.
Only very few studies have focused on noticing and L2 writing. Although findings of such studies have provided some valuable insight on how the noticing and output hypotheses might help us understand revision in the L2 writing classroom, these studies are limited in scope because they focus mostly on how learners notice problems with lexical and grammatical forms in their drafts. Little is known about how the act of noticing might help writers revise metalinguistic and rhetorical features of their writing, which is the focus of my study. I, therefore, seek to apply the noticing hypothesis to the study of these macro-level issues in L2 writing, such as development of relevant content and supporting ideas and how to organize and express those ideas successfully in academic writing. Specifically, I seek to understand how computer-based multimodal composing activities might trigger internal feedback and help students notice issues with, language, content and organization of their academic papers. By adopting the Noticing Hypothesis this way, I identify with the argument that “there is nothing about the construct of modified input that says it cannot occur in written texts” (Hegelheimer & Chapelle, 2000, p. 52); and that self-monitoring, conscious reflection, and steps taken to revise one’s output to make it more native-like can occur not only in speaking but also in writing (Hanaoka & Izumi, 2012; Swain & Lapkin, 1995, Williams, 2012).

Furthermore, the use of the Noticing Hypothesis allowed me to address a gap that has been identified in the literature that inexperienced writers, including unskilled L2 writers, are not able to do content-related revisions because they fail to notice the gaps in their drafts (Hall, 1990). Using the Noticing Hypothesis and Multimodality allowed me to capture how the integration of different modes helped students to notice linguistic and rhetorical features during revision. It also helped me observe the writers’ mental process in progress.
**Multi-dimensional model of revision**

The third theory that I used is the Multi-dimensional Model of Revision (Stevenson, Schoonen, & Glopper, 2006), which focuses on revision in a computer-based composition and combines ideas from the traditional, recursive, and cognitive models of revision. As presented in Figure 3, the model explains revision in terms of orientation and location.

![Figure 3 Multi-dimensional Model of Revision](image)

According to the concept of location in this model, revision is a recursive activity that could be embedded at any stage of the composing process: before, during and after transcription. This is in line with the view of revision proposed by Flower and Hayes (1981), Nold (1981), and Sommers (1980). By conceptualizing revision according to orientation, the Multi-dimensional model presents revision as internal and external changes that a writer makes, a classification that was originally made by Murray (1978) in his essay on ‘professional’ and ‘amateur’ models of revision and writing as “discovery” (p. 86). In Murray’s classification, internal revision refers to the mental process of discovery that a writer goes through to develop and shape ideas; and external revision refers to the physical textual changes that a writer makes to the written draft.
In this sense, revision is both a mental and a physically observable activity. In the multi-dimensional model, internal revisions may be changes in non-linguistic mental representations, pre-linguistic, or changes to mentally practiced way of transcribing the ideas, which is termed pre-textual. External revisions refer to the actual observable changes in a text during and after transcription. Besides the concepts of location and orientation, Stevenson et al., (2006) argue that revision can also be classified according to the action that writers take, such as deleting, adding or re-structuring; or according to the domain, such as word, sentence, or discourse level.

I adopt the Multi-dimensional model in my study because it presents a more comprehensive view of revision that addresses the caveats in previous models of revision. Early researchers who studied revision present it as a linear activity, which occurs at the final stage of the composing process. In the linear view, therefore, revision is seen as “a separate stage at the end of the process-a stage that comes after the completion of a first or second draft and one that is temporally distinct from the prewriting and writing stages of the process” (Sommers, 1980, p. 378). Although the linear view of revision calls attention to the importance of revising in the writing process, it seems to present revision as a fixed activity (Witte, 1985), a view that has been challenged by contemporary theories on revision.

For instance, in her study of the revision strategies of student writers and experienced writers, Sommers (1980) theorized revision as a recursive and iterative process that occurs throughout the writing process as writers note some dissonance between their written drafts and the intended message they want to communicate. Although, the conceptualization of revision as recursive and iterative process is a departure from the stage model and provides a deeper understanding of revision as “a subprocess of reviewing and as a process capable of interrupting composing at any time” (Witte, 1985 p. 261), the recursive model is not without
criticism. For example, Witte observes that Sommers tends to see revision as “retranscription” (p. 262) and this does not allow her model to capture the type of revision that can occur at the pre-textual state of the composing process.

Another model that emphasizes the recursive nature of revision is the cognitive model of composition. It sees writing as a hierarchical and recursive process and revision as a series of sub-processes that can be embedded in other processes. (Flower & Hayes, 1981; Scardamalia & Bereiter, 1983). However, one caveat in the cognitive model is that it does not emphasize revision explicitly as both error-triggered and non-error triggered activity, a distinction that is important for the understanding of revision as an activity that can be undertaken even in the absence of errors in a written draft (Stevenson, Schoonen, & Glopper, 2006). Therefore, adapting the Multi-dimensional model allowed me to bring together the strengths of the previous models of revision, such as revision as a hierarchical, mental, physical, and recursive process, and also address the caveats identified in those models.

Furthermore, this way of understanding revision allowed me to collect data on both the mental processes (noticing) and the textual changes that occurred as students composed their essays. Thinking about revision this way is helpful because as Hairston (1982) argues: “We cannot teach students to write by looking only at what they have written. We must also understand how that product came into being, and why it assumed the form that it did” (p. 84). In my study, therefore, I define revision as the ongoing mental and physical changes to a text, changes that may be error triggered or non-error triggered. By this definition, I seek to conceptualize revision as a process that can occur at “any point in the writing process” (Piolat, 1997, p. 189).
Section 11: L2 Writing and Self-revision

For the rest of the literature review, I focus on the role of writing in L2 development and the lack of successful self-revision as one major challenge that L2 writers have to overcome in order to succeed in using writing as a driver for L2 acquisition. Particularly, I highlight challenges that L2 writers have with self-revision, as reported by empirical studies in L2 writing research. In addition, I discuss the use of computers to facilitate revision as reported by studies from the field of Composition Studies, as well as Applied Linguistics. Finally, I provide a detailed argument for the use of CBMCA as procedural support for L2 writers’ self-revision and explain the research questions that guided this study.

The role of writing in L2 development

The three predominant approaches to Second language pedagogy, grammar-translation, audio-lingual, and communicative or proficiency-oriented approach have placed different emphasis on the role of writing in L2 development. In theory, the grammar-translation method sees writing as important for learning a language, but in practice, it focuses on grammar and not writing as a means of communication. As Homstad and Thorson (1996) point out, in the audio-lingua approach, listening and speaking are seen as the principal means of learning a language. Communicative language teaching calls for equal emphasis to be placed on listening, speaking, reading, and writing; however, in practice “speaking and listening skills are privileged, and writing is frequently used primarily to support the development of oral proficiency” (p.3). Thus, from the perspectives of these approaches to language teaching, writing has not been seen as playing a primary role in L2 acquisition.

Recent scholarship in L2 research, however, has called attention to the primary role of writing in L2 development. Gradually but strongly, L2 researchers are emphasizing writing as a
facilitating factor for acquisition. Jessica Williams reviewed studies that focus on the role of writing in L2 development and concluded that “writing, because of its pace and the permanence of its record, may aid in L2 development …in knowledge internalization, modification, and consolidation” (Williams, 2012, p. 328) and called for more research on how the expression of explicit knowledge in writing plays a role in L2 development. The call on researchers to see writing as central to second language acquisition processes is expressed in a much stronger language by Harklau (2002) in the following words: “In fact, one might argue that descriptions and theories of second language acquisition that deal with classrooms or with literate individuals are incomplete until they consider the role of writing and reading in acquisition” (p. 341). Linda Harklau goes on to argue, based on evidence from her personal teaching and her study of other writing teachers, that L2 pedagogy needs to embrace a shift from a predominant focus on learning-to-write, an approach that sees the writing classroom as a place to help students express already-acquired language through writing, to writing-to-learn in order to understand how students learn a second language through writing. Arguments from other researchers also point to the potential of using writing to help students learn content and language (Ellis, 2003, Mancho´n, 2011).

The idea of writing-to-learn content is not new in education. Textbooks, such as Murray’s (1987) Write To Learn have been calling on teachers and students to see writing as “discovery” for the past two decades. However, the focus on write-to-learn a second language is a fairly new research perspective in L2 studies. It is a perspective that allows researchers, teachers, and students to see writing as a process of discovering new and appropriate ways of communicating in the target language. As Murray (1987) argues: “writing is exploration. We use language to combine experience and feelings and thoughts into a meaning which we may share with a
reader” (p. 226). Even though Murray did not make this comment in relation to L2 writing, what he said is true about writing in L2 because it has the potential to provide students with the opportunity to practice grammar and discover how to express their thoughts, experiences, and feelings in ways that are appropriate in the target language. This demand for accuracy and appropriateness in writing encourages language awareness and “makes writing a driver in language development” (Williams, 2012, p. 326).

Even though, writing can facilitate L2 development, academic writing can be a complex and challenging process especially for inexperienced writers. As Barkaoui (2007) observes, unskilled L2 writers “may find it easier to generate ideas than to revise what they have written in relation to task requirements and their writing goals and audience” (p. 65). In order to reduce the cognitive load that the writing process might put on students and help unskilled writers meet their composing goals and write to learn the target language, L2 pedagogy needs to address particular challenges that inexperienced writers face and help them to overcome these challenges. At this point in the literature review, I turn my attention to challenges that L2 writers face with special focus on difficulties they have with revision.

**Empirical research: L2 writers’ difficulties with revision**

Since the emergence of the field of L2 writing as a sub-discipline of Teaching English as a Second Language (Ferris & Hedgcock, 1998; Atkinson, 2003; and Matsuda, 2003), many studies have focused on uncovering the peculiar challenges and distinct nature of L2 writing. One of the early studies in this regard is Kaplan’s (1966) contrastive analysis of English speaking and ESL students, based on which he concluded that ESL writers make errors at the discourse level because of L1 influence.

Hamp-Lyons (1991) in her discussion of the specific problems of ESL writing mentions
“lack of rhetorical patterns typical of English language academic discourse” (p. 57) as a major problem identified by researchers. Although this assertion has been challenged as Leki (1991) and Matsuda (1997) point out, recent contrastive analysis studies have found differences in the rhetorical elements of L1 and L2 writers. For instance, Godo (2008) analyzed the writings of 37 Hungarian students studying at Miskolc University and 34 North American student writers studying at Southampton University in New York. Based on her findings, she concluded that the Hungarian students lack some rhetorical patterns that English readers expect to see in what they consider a good writing. Godo goes on to suggest that L2 writing courses should seek to increase students’ awareness of these rhetorical elements that English readers expect in academic writing because this may help L2 writers “see more distinctly the need to accommodate their rhetoric to the expectation of the given writing community” (p. 98).

Besides the problems identified in contrastive analysis, a detailed account of the challenges of L2 writing is reported by Silva’s (1993) study of the nature of second language writing. He analyzed 72 empirical research articles, some of which compared ESL writers to native English student writers, and others compared the composing process of ESL writers in their native language (L1) and their L2. There were more than 4,000 second language learners involved in the 72 studies. The participants came from 27 different L1 backgrounds. Based on his analysis, Silva (1993, p. 668) concluded that:

Though general composing process patterns are similar in L1 and L2, it is clear that L2 composing is more constrained, more difficult, and less effective. L2 writers did less planning (global and local) and had more difficulty with setting goals and generating and organizing material. Their transcribing was more laborious, less fluent, and less productive—perhaps reflecting a lack of lexical resources. They reviewed, reread, and reflected on their written texts less, revised more—but with more difficulty and were less able to revise intuitively
Of particular interest to my research is Silva’s speculation that L2 writers have difficulties with transcription because they do not have lexical resources and that they are not able to revise intuitively. This affirms the observation made by Bereiter and Scardamalia (1987) that the writing process, revision in particular, can be challenging because it calls for “a language production system capable of operating iteratively, using its own output as input” (p. 83). Indeed, if the only available resource for making and communicating meaning is the linguistic, L2 writers will continue to find writing and revision difficult. There is, therefore, the need to explore various pedagogical interventions, such as multimodal composition, that might help address the difficulties that L2 writers face as they compose and revise.

I suggest, in this study, that guiding students to reflect on their writing as they complete computer-based multimodal composing activities might help them do effective revision, something they are not able to do intuitively according to Silva (1993). I argue that L2 writing pedagogy should not only focus on helping students express meaning through written words but also help them discover meaning through exposure to other semiotic modes, such as visuals and sounds, in the composing process. As Shin and Cimasko (2008) point out, multimodal composition can increase access to information that may not be easily accessible when students compose with only alphabetic texts. Integrating different modes might increase access to information and facilitate content revision.

Other researchers have looked at L2 writing problems from the point of view of skilled and unskilled writers. Most of those studies have observed that unskilled ESL writers seem to have problems that are L1 related while skilled ESL writers seem to use their first languages as a positive tool as they compose in the L2 (Sperling & Freedman, 2001). The findings generally indicate that the writing of unskilled L2 writers tends to be overly simplified and vague.
(Hinkel, 2003), reveal problems with organization, cohesion, and revision (Wong 2007), and usually reveal problems with grammar and mechanics (Shaw and Liu, 1998). In addition, it is reported that skilled L2 writers do more effective revision than unskilled writers (Hall, 1990; Raimes, 1985; and Zamel, 1983). These findings parallel what some researchers found about skilled and unskilled writers in L1 (Fitzgerald, 1987; Sommers, 1980); however, the L2 studies generally identify lack of language proficiency as a major cause for students’ revision problems while the L1 studies generally attribute students’ difficulties to the cognitive demands of the writing process.

With reference to self-revision, there are a limited number of empirical studies on how L2 writers do self-revision (Barkaoui, 2007; Cresswell, 2000; Suzuki, 2008); however, their results provide very important insights for understanding the challenges associated with revision in L2 writing. Some studies that compared learners writing in their L1 and L2 concluded that students revise more when composing in their L2 than L1 (Chenoweth & Hayes, 2001; Gaskill, 1987; Zimmerman, 2000). However, there are contradictory findings on the relationship between frequency of revision and overall text quality. While some L1 studies have reported that more revision does not lead to improvement in text quality, Stevenson, et al., (2006) found that frequent revision resulted in improvement in text quality, “at least at the linguistic level” (p. 224). This confirms the findings from some L1 revision research that effective writers have high frequency of revision (Flower et. al, 1986).

Other researchers have also identified some factors that explain L2 writers’ difficulties with revision. Barkaoui (2007) reviews research on revision in L2 writing and identifies learners’ beliefs about revision, contextual factors such as task difficulty and task type, time constraint, and the mode of writing (paper/pencil or computer), and lack of proficiency in the
L2, as factors that affect L2 learners’ revision. Commenting on the lack of proficiency in the target language as a factor that mitigates L2 writers’ success in revision, Barkaoui (2007) notes that “unskilled L2 writers often have a limited knowledge of the L2 linguistic conventions and of how texts work to convey an intended meaning and to achieve a particular goal in a specific context” (p. 99).

As a way of addressing these problems, some researchers have explored specific pedagogical approaches as a way of facilitating L2 writers’ revision. For instance, Cumming and So (1996) investigated how different approaches to tutoring ESL writers impacted the way 24 ESL learners revised their texts. Cumming and So (1996) investigated the impact of the traditional error correction method versus the use of English and students’ L1 (Cantonese, Japanese, and Mandarin) on students’ revision. Based on their findings, they concluded that the students focused primarily on surface-level revisions and their revision practices were influenced by the way they were tutored. They, therefore, call for explicit instruction on revision and advise teachers to pay particular attention to the way they guide students to revise.

The importance of explicit instruction in the L2 writing classroom is a matter of debate. Some researchers have argued that explicit teaching of revision strategies might lead to constraint on the writing process (Freedman, 1993; Farrar, 1996) and might even lead to more errors and create anxiety for students (Yagelski, 1995). Others have found positive effects of explicit instruction on revision strategy (Grabe & Kaplan, 1996; Porte, 1996; Sengupta, 2000). Based on findings from her exploratory study of the impacts of explicit instruction on L2 writers’ revision in Hong Kong, Sengupta (2000, p. 1) concluded that: “explicit instruction in revision may contribute towards developing an awareness of discourse-related features in second language writing”. Both the positive and negative findings have important implications for my
research. The positive results gave me some confidence that devoting class time to explicit teaching of revision strategies might be helpful to my students. The negative findings, especially those related to anxiety (Yagelski, 1995), suggested that I needed to take measures to ensure that explicit teaching of revision strategies did not bring anxiety to my students. This helped me make a more conscious effort to model the CBMCA for students through learner training, encourage students to see those activities as procedural support, plan appropriate writing tasks, and create a friendly atmosphere in the classroom.

In addition to the effect of explicit teaching of revision strategies, other researchers have studied the type of revision L2 writers can do by themselves and those they cannot do except with the assistance of their peers. For instance, Suzuki (2008) investigated students’ revision practices during self-revision and peer feedback sessions and argued, based on her findings, that self-revision and peer revision should be used for different purposes in the ESL/EFL classroom. Specifically, she recommends that self-revision be used for word-level revision and peer revision should be used for content-related revisions.

Even though I agree with the general advice that teachers need to adopt different approaches to revision at different stages in the composing process, I see one caveat in Suzuki’s advice to encourage students to focus solely on word-level revisions during self-revision. This can have a long-term negative effective on students’ revision strategies; they may develop the habit of reducing self-revision to surface-level revision. I argue that, in both self-revision and peer revision sessions, students need to be guided and encouraged to do both surface-level and content-related revisions because both types of revisions affect the overall quality of their essays. In the next section, I review literature on the use of computers to facilitate revision in L2 writing.
Section III: Using Computers to Facilitate Revision

To address students’ problems with the composing process, other L1 and L2 researchers have turned their attention to how the computer can be used to facilitate students’ writing. Research in Composition Studies as well as CALL (Computer Assisted Language Learning) indicates that writing teachers have come to accept the reality that the computer is changing the way people write in our world today, and that the move from print-based text to screen-based text (electronic text) calls for traditional approaches to teaching writing to be replaced or be blended with computer-assisted writing pedagogies (Eldred, 1989; Reynolds & Bonk, 1996). Today, more than ever, second and foreign language teachers are required to develop knowledge and skills in communication tools in order to increase students’ access to the target language and make language teaching and learning more effective (Chapelle & Hegelheimer, 2004). This is an important call, especially for modern L2 writing teachers, given the fact that not only has computer technology made digital writing possible but that it has also “affected the process of writing at every stage, from invention, through revision, to delivery” (O’Reilly, 2006 p. 102). With specific reference to revision, research has reported opposing results on the impact of computers on students’ revision. For instance, Reynolds and Bonk (1996) investigated how using computerized generative and evaluative prompts might facilitate students’ self-revision. Based on their findings, they concluded that a computer-based intervention for self-revision enhances both the process and product of students’ revision. This finding confirms the results in earlier research that the use of the computer facilitates effective revision (Bridwell, et. al, 1985 and Rodrigues, 1985).

Recent studies on computers and revision have also reported that the use of computers allows students to experience revision as a recursive activity (Chambers, 2011; Goldberg,
Russell, & Cook, 2003). For instance, Garrison (2009) investigated the use of NaturalReader, text-to-speech software, to facilitate students’ revision. This experimental study involved 51 ESL students enrolled in a first-year college composition course who used this tool to revise their essays. Their revision was coded as, positive, negative, local, or global. The results showed that the students made more positive than negative revisions. Garrison concluded that the “software is useful for proofreading and also for local and global revision (though less so)” (p. 297) and suggested that more research be conducted on how the software might help students do more content-related revision.

Despite these reported positive effects of technology on student revision, some other researchers have challenged the assertion that students revise more effectively when using computers rather than the traditional paper and pen/pencil. Some studies have reported that computers tend to make the writing process even more difficult for students (Crafton, 1996) and make students focus mainly on surface-level revisions (New, 2002).

Different reasons might account for these inconsistent findings about the impact of the computer on revision, such as different research contexts, timed verses untimed essays, and single versus multiple drafts (Chambers, 2011). However, it is arguable that computers themselves may make revision effective or ineffective; the efficacy of this tool in any context of teaching and learning depends largely on effective pedagogy (Reynolds & Bonk, 1996). As Garrison (2009) points out, findings from studies that report the positive impact of computers on students’ revision suggest “that computers are useful for encouraging revision, specifically when guided by pedagogy” (p. 280).

The relationship that must exist between computers and pedagogy is strongly emphasized by Chapelle and Jamieson (2008) in their discussion of tips for teaching writing with CALL.
The potential of CALL to facilitate students’ writing has also been reported by researchers, who have investigated how the use of Corpora in the L2 classroom might facilitate students’ revision (Chambers & O’Sullivan, 2004). As Levy and Stockwell (2006) observe, “CALL can be used to provide ways to expose learners to individualized native speaker or teacher input, to think about alternative ways of expressing ideas, and to easily revise and edit” (p.184). For my research, understanding this relationship helped me to plan the computer-based multimodal activities in a way that ensured that the affordances of computer and multimodal pedagogy provided a stimulus for students to notice gaps in their writings.

**Computer-based multimodal composing activities: Procedural support**

The literature on composition studies and L2 writing indicates that multimodal composition is becoming common as writing moves from print-based text to screen-based and that this approach has the potential of enriching the development of ideas (Jewitt, 2006). It has been reported that presenting ideas in other modes in addition to the verbal/linguistic modes may help reinforce, clarify, compensate for, or reveal contradictions in an alphabetic text (Royce, 2002). As Shin and Cimasko (2008) observe:

> “Computer-based multimodal composition changes one’s ways of making and expressing meanings in that digital multimedia provide writers with imagery and audio-visual modes of representation beyond the linguistic mode for engaging in academic genres, if writers are willing to use these non-linguistic modes” (p. 376-377).

This observation means that in the process of making meaning, learners can benefit from other modes that may help them look at their ideas from another perspective. Asking students to compose multimodal texts has the potential to enhance their ability to discover and express meaning beyond what they might be able to do using only the alphabetic mode. In this sense, composing multimodal texts has the potential to increase access to information that may not be
easily accessible when one composes with only verbal texts. Although multimodal composition can be digital (texts on CDs, computers or on the Web) or non-digital, composing digitally allows more modes, such as written, visual (still and moving images), and sound to be integrated while non-digital composition allows limited integration of modes. In this study, students were required to compose digital multimodal texts so that they might integrate as many semiotic modes as they deemed necessary for effective communication.

A number of studies have noted the potential of non-linguistic modes in helping L2 writers draft and revise. Lee (1994) investigated the composing process of 53 university students who were learning Spanish as a second language. They were given instructions on how to use pictures, as an additional mode of making meaning, to generate and evaluate ideas as they composed academic papers. Lee found that the use of pictures helped the learners recall past experiences, reduce anxiety, activate vocabulary they had learned, generate more ideas for their papers, and revise their written drafts; and this led to an overall improvement in their writing proficiency. DiEdwardo (2005) and Wijaya (2006) have also pointed out the potential of other modes to enhance writing from studying how music might facilitate the way learners develop and elaborate their ideas. Their findings suggest that music increases students’ motivation and helps them to revise their ideas.

In addition to investigating the benefits that specific modes bring to the writing process, recent studies have also explored the potential of multimodal composing pedagogy in facilitating L2 writing proficiency. These studies explore the potential of integrating written, sound, still images, and videos in the composing process in order to help L2 writers overcome problems in their writing that might be caused by their reliance on the written mode alone for meaning making. For example, Shin and Cimasko (2008) analyzed the multimodal composition
of 14 students in an ESL freshman composition class who used written, visual, audio, and spatial modes of representation to compose academic papers.

The purpose of their study was to investigate the potential of multimodal composition in helping students draft and revise effectively. They also wanted to observe how the integration of different modes would enhance the quality of students’ text. Based on their findings, they concluded that: “multimodal approaches to composition provide writers who are having difficulty in using language, including those writers for whom English is a second language (ESL), with powerful tools for sharing knowledge and for self-expression” (p. 377).

This finding from Shin and Cimasko (2008) supports earlier findings that non-linguistic modes have the potential of enhancing students’ ability to express intended meanings beyond language-based materials (Nelson, 2006; Tardy 2005) and provide access to information that may not be easily available to students who use only the written words to compose (MacKee, 2006; Williams, 2001).

In this study, the findings from the literature on the need to expose L2 writers to other modes of meaning making and lessons from my own teaching experience (as I explained in background of this study in Chapter 1) influenced my desire to explore further how CBMCA might help L2 writers make use of non-language modes to revise their academic essays. In adopting a computer-based multimodal composing pedagogy I focus mainly on how the CBMCA might help L2 writers pay attention to important features in academic writing as they revise their papers. For the rest of this literature review, I focus on some discourse features of academic writing and make a case for using CBMCA to help L2 writers revise these features in their essays.
Some discourse features of academic writing

Academic writing is a special type of writing designed for the development and communication of knowledge in academic institutions. As Faigley (2012) observes, “in any discipline, good writing is likely to exhibit similar qualities: it will be clear, concise, and logical, supplying appropriate evidence in sufficient amount to persuade the audience” (p. 99). Even though the literature on academic writing does not present a unified view of what constitutes the discourse features of academic writing, second language (L2) writing instructors generally agree on some linguistic and rhetorical features that can be identified and assessed in academic texts and must be emphasized in the teaching of academic writing in order to help L2 writers improve the quality of their writing (Ferris, 2001; Hewings & Hewings; 2001; Leki, 2006; Odell & Katz, 2006; Silva & Matsuda, 2001). These include content, logical organization, language use and mechanics, proper citation, and effective integration of written and visual modes.

Content is one of the important discourse features of academic texts. It refers to the main point and the supporting details of a text. The content of a text can be captured through elements such as the scope of the topic, the title, thesis statement, and supporting details. As Lannon (2001) observes, readers of academic texts “expect content that rewards their efforts” (p. 74); content in which every detail is relevant. In addition, they expect content that is credible, informative, and complete. Contrary to these expectations, research on L2 writing shows that unskilled writers produce texts that are overly simplified and vague (Hinkel, 2003). In addition, it is reported that inexperienced L2 writers do not carry out content-level revisions but turn to focus more on surface level issues of their texts, such as grammar and spelling (Chambers, 2011; Suzuki, 2008).
Another discourse feature of academic text is logical organization. This refers to how ideas are ordered and texts are structured to guide the reader to the main point of the text. Readers of English academic texts expect ideas to be ordered in a logical sequence with introduction, paragraphs that are coherent and contain specific topic sentences and supporting details, as well as a conclusion, which recasts the main point of the text (Faigley, 2012). Even though most writing textbooks call learners’ attention to the importance of developing a logical organization, research indicates that L2 writers have problems with organization (Silva, 1993; Wong 2007). In her discussion of the specific problems of ESL writing, Hamp-Lyons (1991) identifies “lack of rhetorical patterns typical of English language academic discourse” (p. 57) as a major problem identified by researchers. There is, therefore, the need to help these writers pay particular attention to the organization of their texts during revision.

A third feature of academic text that can be identified and measured is language use and mechanics (Hinkel, 2004). As Celce-Murcia (1991) comments, “the importance of a reasonable degree of grammatical accuracy in academic or professional writing cannot be overstated” (p. 465). A text that appeals to academic readers is one that has accurate spelling, correct grammar, appropriate word order and usage, correct sentence structure, and punctuation. In addition, the writer must use academic English and a tone that is appropriate for the academic audience. Unfortunately, L2 writers are reported to struggle with language use and mechanics (Shaw & Liu, 1998); and most of them are said to have a great sense of awareness of their struggle with grammar (Ferris, 2004).

A fourth discourse feature of academic text is proper citation and documentation of sources. A successful text that appeals to an English speaking academic audience is one that demonstrates the writer’s ability to locate and extract information from standard sources,
including print and electronic, and to accurately document these sources (Singhal, 2004). This is important especially in American and European institutions of higher learning where plagiarism is considered a violation of honor and morals (Atkinson & Ramanathan, 1995). However, proper citation and documentation of sources is a major challenge for many L2 writers; and as Canagarajah (2002) suggests, we need to teach L2 writers how “to borrow other people’s texts and words” (p.156) so they will be able to achieve their rhetorical and intellectual goals.

Last but not least, a feature that is considered important in the assessment of multimodal texts for academic audiences is effective integration of written and visual modes. Writers who integrate information in the form of tables, graphs or pictures are expected to follow conventions for effective integration of written and visual texts. For example, the visual must be given a label or a caption that helps readers understand what it is about. In addition, the visual must be central to the discussion, appropriate for the target audience, placed where readers can easily locate it, and referenced in the written text (Lannon 2002; Faigley, 2012). It is the writer’s responsibility to make connections between the visual and the written text. A text that fails to follow this convention is considered less than successful. Effective integration of written text with other modes, especially the visual, is particularly important in multimodal texts because it is “impossible to make sense of texts, even of their linguistic parts alone, without having a clear idea of what these other features might be contributing to the meaning of a text” (Kress, 2000, p. 337). Research indicates the need to train both L1 and L2 writers in effective integration of written and visual information in academic writing in order to help them develop confidence and competence in creating multimodal texts for an academic audience (Cope & Kalantzis, 2001, 2007; Kress & van Leeuwen, 2001).
Special focus on language, content, organization, and integration of modes

Even though all the discourse features described above are important to my research, the use of CBMCA as procedural support in my study is meant to focus students’ attention primarily on the revision of content, logical organization, and effective integration of alphabetic and still visuals in their texts as they compose academic essays. The CBMCA are, therefore, designed to help inexperienced writers, move beyond surface-level revision by guiding them to pay equal attention to issues of content, organization, and effective integration of modes.

Summary of Literature and Implications for my Research

In sum, recent findings from L2 writing studies indicate the potential of writing to facilitate L2 acquisition (Harklau, 2002; Mancho´n, 2011; Williams, 2012; Wolff, 2000) if learners are helped to overcome challenges associated with the writing process. The notion of write-to-learn influenced the pedagogical decisions I made in designing and teaching the writing course that I used for this study.

The review also confirmed my observation that revision is one of the most challenging processes in writing and that inexperienced L2 writers usually carry out surface-level revisions and fail to do text-based or content-related revision. Furthermore, because most L2 writers fail to do content-related revisions, their revisions do not lead to overall improvement of text quality. (Chambers, 2011; Heuring, 1984; Gaskill, 1986; Matsuhashi & Gordon, 1985; Silva, 1993; Suzuki, 2008; Zamel, 1983;); and researchers have reported the potential of explicit instruction on revision to help L2 writers overcome their challenges with this process (Sengupta, 2000). Knowing the specific problems that these learners have with revision is very insightful for a study, such as mine, that seeks to facilitate L2 writers’ revision.

The failure of less experienced writers to do content-related revision is attributed to
their inability to notice dissonance in their writings (Sommers, 1980, Suzuki, 2008). As Sommers (1980) points out: “students do not see the incongruities” (p. 387) in their writing. With specific reference to L2 writers, the literature shows that less experienced L2 writers struggle with revision because of lack of proficiency in the target language (Barkaoui, 2007; Chenoweth & Hayes, 2001, Silva, 1993) since they are expected to think and make meaning solely through the linguistics mode. It is also reported that learners’ beliefs about the importance of revision, task difficulty, task type, time constraint, and the medium of writing (paper/pencil or computer) also affect L2 learners’ revision. These findings helped me develop specific research questions and a theoretical framework for my research. They also informed the way I presented the instruction on revision to students, the type of assignments I asked them to complete in the writing process, and my choice of screen/computer as the required medium for students’ writing (I provide a more detailed explanation on this in the methodology section in Chapter 3). These findings from the literature also helped me to elicit feedback from the students on what contextual factors influenced their revision process.

In addition, some studies reviewed suggest that students may benefit from the use of computer-based activities as instructional support (Reynolds & Bonk, 1996); and that multimodal composing activities might help L2 writers access and communicate meaning that are difficult to access when using the linguistic mode alone for composition (MacKee, 2006; Shin & Cimasko, 2008; Williams, 2001). Their findings support what I have observed from my teaching, from comments such as that of Mumbi’s (as I explained in the introduction in Chapter 1). These findings also provide support for the claims I made about the potential of the CBMCA to facilitate L2 writers’ revision. Table 1 presents the summary of the major findings from this literature review and their implications for my study.
Summary of Major Findings from Literature Review and their Implications for my Study

<table>
<thead>
<tr>
<th>Finding</th>
<th>Sources: Theoretical &amp; Empirical</th>
<th>Implication for Current Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Writing has the potential to facilitate L2 development. However, unskilled L2 writers must be helped to overcome challenges associated with the writing process in order to make it a driver for language learning.</td>
<td>Ellis (2003); Harklau (2002); Mancho’n (2011); Williams (2012); Wolff (2000)</td>
<td>The notion of write-to-learn influenced the pedagogical decisions I made in designing and teaching the ESL composition course that I used in this study. The course objectives, in-class activities and major assignments were planned with the goal of helping students acquire some linguistics and rhetorical knowledge they need to communicate to English readers in the academic context.</td>
</tr>
<tr>
<td>Unskilled L2 writers struggle with revision. They are not able to notice gaps in their drafts and revise intuitively. They focus on surface-level issues but not content-level revisions.</td>
<td>Barkaoui (2007); Chambers (2011); Chenoweth &amp; Hayes (2001); Hanoaka &amp; Izumi (2012); Heuring (1984); Gaskill (1986); Matsuhashi &amp; Gordon (1985); Silva, (1993); Sommers (1980); Suzuki (2008); Zamel, 1983</td>
<td>Knowing that unskilled L2 writers are not able to notice gaps in their writing and fail to do content revision helped me focus on specific areas in revision that learners need help with. It also helped me in developing more specific research questions to guide this study and to ensure that my findings would contribute towards filling this gap in the literature on L2 writing.</td>
</tr>
<tr>
<td>Unskilled L2 writers struggle with revision because of lack of proficiency in the target language. Also, Learners’ beliefs about the importance of revision, contextual factors such as task difficulty and task type, time constraint, and the medium of writing (paper/pencil or computer), affect L2 learners revision</td>
<td>Barkaoui (2007); Chenoweth &amp; Hayes (2001); Hall (1990); Porte (1997); Raimes (1987)</td>
<td>Identifying the factors that influence unskilled L2 writer’s revision was very informative for my research design. It helped me to ensure that I presented the lessons on revision, major assignments, in-class activities etc. to the students in such a way that allowed me to address their beliefs about revision and to ensure that the process does not produce anxiety for them.</td>
</tr>
<tr>
<td>Explicit instruction on revision could have both positive and negative effects on students’ writing</td>
<td>Freedman (1993); Farrar (1996); Grabe &amp; Kaplan (1996); Porte, (1996); Yagelski (1995); Sengupta (2000)</td>
<td>The studies that have reported positive effects of explicit instruction on revision gave me backing for my argument that L2 writing instruction should provide procedural support for revision. The negative findings also signaled the precautions that I needed to take during explicit instruction on revision.</td>
</tr>
<tr>
<td>Computers are useful for encouraging revision, specifically when guided by pedagogy</td>
<td>Reynolds &amp; Bonk (1996); Reilly (2006); Russell, &amp; Cook (2003)</td>
<td>This finding was a useful guiding principle as I designed the CBMCA to facilitate students’ revision.</td>
</tr>
<tr>
<td>L2 writers might benefit from integration of other modes in the writing process in general and revision in particular; and that Computer-based multimodal composing activities has the potential to facilitate L2 writing</td>
<td>DiEdwards (2005); Garrison (2009); Goldberg, Kobayashi &amp; Rimert (2001); Lee (1994); MacKee, (2006); Nelson (2006); Royce; 2002; Shin &amp; Cimasko (2008); Tardy (2005); Williams (2001); Wijaya (2006)</td>
<td>These findings provided the backing for my argument that CBMCA has the potential for facilitating ESL writers’ revision.</td>
</tr>
<tr>
<td>English readers in academic institutions expect texts to have some important discourse features, such as good content, logical organization, grammatical accuracy, effective integration of alphabetic and visual modes, and proper citation</td>
<td>Cece-Murcia, 1991; Faigley, 2012; Ferris, 2001; Hewings &amp; Hewings; 2001; Lannon, 2002; Kress, 2006; Leki, 2006; Odell &amp; Katz, 2006; Silva &amp; Matsuda, 2001; Singhal, 2004</td>
<td>My study seeks to help L2 writers communicate with academic audience successfully. Therefore, paying attention to these linguistic and rhetorical features of academic texts is very important. Not only did knowledge of these help me know what features to emphasis in students’ revision but it also helped me develop rubrics to access the quality of students’ writing.</td>
</tr>
</tbody>
</table>
Conclusion and Research Questions

Research on revision in general is vast. A lot has been done on the role of corrective feedback (peer and/or instructor feedback) on students’ revision. However, not much scholarship exists on L2 writers’ self-revision. The findings from the literature review indicate a need to expose unskilled L2 writers to other modes of making and communicating meaning and the need to train these learners to use other modes side-by-side the written mode as they revise. There is also the need to help these writers notice issues related to the discourse features of academic writing as they compose their papers. Finally, there is the need to encourage them to revise beyond surface issues. Based on the insights I gained from the literature review and my personal teaching experience, I developed the following research questions to guide my investigation into how CBMCA might facilitate ESL students’ revision:

Research Question 1: How might Computer-based Multimodal Composing Activities (CBMCA) enhance advanced-low ESL writers’ revision practices? This question is divided into three specific sub-questions:

a) How might the transformation of a written text into a poster facilitate advanced-low ESL writer’s ability to notice gaps in their written drafts and make content-related revisions?

b) How might the use of text-to-speech (TTS) software as a revisionary tool facilitate advanced-low ESL writers’ ability to notice gaps in their written drafts and make surface-level revisions?

c) How might the integration of alphabetic text and visual text (still images) help advanced-low ESL writers notice gaps in their written drafts and make content-related revision?
Research question 1 seeks to understand how the use of CALL activities might facilitate students’ revision from the perspective of the Noticing Hypothesis (Schmidt, 1990), Multimodality (Kress & Van Leeuwen, 2001), and Multi-dimensional Model of Revision (Stevenson, Schoonen, & Glopper, 2006). As evident in the way the sub-questions (a, b, and c) are phrased, each question has two parts. The first parts of the sub-questions sought to investigate students’ internal revisions, which are the mental changes that students made as they revised during the CBMCA. Specifically, the first parts of the questions seek to understand how the CBMCA facilitate noticing of gaps at the “Point-of-inscription” stages of their writing (Stevenson et al., 2006).

The second parts of the sub-questions (a, b, and c) focused on the domain of revision; and sought to investigate how students’ noticing during the CBMCA might facilitate surface and content revisions. It was important to investigate noticing in relation to actual instances of students’ revision because “noticing is an internal factor, which means that it is not observed directly, but must be inferred from observation of behavior” (Hegelheimer & Chapelle, 2000, p. 53).

Research Question 2: To what extent do the revisions prompted by CBMCA lead to improvement in the overall quality of students’ written compositions?

The second research question sought to investigate the relationship between the type of revision that students’ carried out during the CBMCA and the quality of their final written essay. This was particularly important because the over-arching goal of revision is to attain improvement in text quality (Chambers, 2011).
Chapter Summary

This chapter reviewed literature (theoretical works and empirical studies), on L2 writing, Multimodality, and revision. It began with a discussion on the theoretical framework for my study. This was followed by a critical look at the role of writing in the acquisition of a second language. The chapter also explained challenges that unskilled L2 writers have with a special focus on challenges associated with revision. The role of computers, explicit instruction, and multimodal composing activities in facilitating students’ revision were also discussed. Based on the gap identified and the insights that were gained from the literature reviewed, an argument was made for CBMCA as procedural support to facilitate unskilled L2 writers’ revision. The chapter ends with an explanation of the research questions that guided the investigation in this study. The next chapter explains the design of the study, a description of participants, procedures, materials, data sources, and methods for analyzing the data.
CHAPTER 3: METHODOLOGY

In this chapter, I explain the overall design of the study. I begin by providing a rationale for positioning myself as teacher-researcher. I then re-state the research questions and provide a detailed explanation of the research design, the setting, participants, sampling, materials, and data sources. Since my research uses computer-based multimodal composing activities to facilitate revision, an approach that is fairly new in L2 writing pedagogy, I describe the type of learner training that was provided to help the participants complete the activities successfully. Further, I explain the procedure for data collection and data analysis. Finally, I discuss the credibility and dependability of the study.

Positioning Myself as a Teacher-Researcher

In this study, I played a dual role: the instructor of the English 101C class and the principal researcher. By doing so, I positioned myself as a teacher-researcher, a role which makes one see teaching as a context for research (Cochran-Smith & Lytle, 2009; Mackey & Gass, 2005). Teacher research is a type of practitioner investigation, which involves a “systematic and intentional inquiry carried out by teachers” (Cochran-Smith & Lytle, 1990, p. 3). The advantages in adopting teacher research as a method of enquiry have been highlighted in Composition Studies (Ray, 1993) and Second Language Acquisition (Mackey & Gass, 2005). In her discussion of the role of teacher research in Composition Studies, Ray (1993) observes that teacher research is an important means of enriching our understanding of the relationship between theory and practice in the writing classroom. Ruth Ray goes on to call for an end to any perspective that views theory and practice as opposing perspectives. She argues that theory and practice are complementary and equally important sources of
knowledge about what writing is and how people learn to write successfully. As Ray further points out, teacher research is a bridge between theory and practice because it rests on the “premise that theory and practice are interrelated aspects of the same enterprise, namely, knowledge making in education” (p. 60).

Positioning myself as a teacher-researcher allowed me to explore how I might use insights that I have gained from Multimodality and Computer Assisted Language Learning (CALL) to help my ESL students overcome their challenges with revision. As I explained in the background to this study (see introduction in Chapter 1) this research developed out of my quests for ways to help my students revise their own writing successfully. As a PhD student in Applied Linguistics and Technology, and an instructor of freshman composition and ESL writing courses, I developed interest in how Multimodality and CALL might help my students overcome challenges with revision in L2 writing in order to facilitate their use of writing as a means of learning their second language. My goal in this study was not to “test” Multimodality, the Noticing Hypothesis, or the Multidimensional Model of Revision as frameworks but, rather, to explore students’ revision in the light of these theories.

In addition, playing the role of teacher-researcher allowed me to address a problem I had encountered in my pilot study. When piloting this study, my primary role was that of a researcher, and I doubled as a guest speaker in the class to provide learner training. I learned from the pilot study that the CBMCA, which I advocate as procedural support in L2 writing pedagogy is new and that I needed to explore this further in my own teaching in order to make recommendations to other teachers who might want to explore this approach to helping students revise. For instance, during her teaching, the instructor in my pilot study often did something entirely different from the activity we had planned for the day. This made data
collection very difficult and at times impossible. I learned that CBMCA should be integrated as part of the main activities in the writing class but not as “added on” because that made the writing process daunting for my participants in the pilot study. Therefore, changing my role from a researcher to a teacher-researcher allowed me to approach my teaching as a “planned, sustained activity centered around predetermined research problem” (Ray, 1993, p.63), of how CBMCA might facilitate students’ revision.

**Re-stating Research Questions**

As explained in Chapter 2, two main questions guided the investigation in this study. Question 1 is divided into three sub-questions that focused on how the CBMCA helped students to notice and revise. Question 2 focused on the effects of the students’ revisions on the quality of their academic texts. The questions are these:

Q.1 How might computer-based multimodal composing activities (CBMCA) enhance advanced-low ESL writers’ revision practices?

   a) *How might the transformation of a written text into a poster facilitate advanced-low ESL writer’s ability to notice gaps in their written drafts and make content-related revisions?*

   b) *How might the use of text to speech (TTS) software as a revisionary tool facilitate advanced-low ESL writers ability to notice gaps in their written drafts and make surface-level revisions?*

   c) *How might the integration of written text and visual text (still images) help advanced-low ESL writers notice gaps in their written drafts and make content-related revision?*

Q.2 To what extent do the revisions prompted by CBMCA lead to overall improvement in the quality of students’ written compositions?
Research Design

I used a descriptive case study with embedded quantitative data. This embedded design is the in which a researcher collects both quantitative and qualitative data but “one data set provides a supportive, secondary role in a study based primarily on the other data type” (Creswell & Plano Clark, 2007, p. 67). According to Creswell and Plano Clark, the embedded design may be one-phase, in which both data sets are collected concurrently, or two-phase design, in which one data set is collected after the other.

My study was a one-phase design because I collected both data concurrently so that the quantitative data would help clarify the phenomena that I observed in the qualitative data at different stages of the multimodal composing activities. In gathering qualitative data, I used a descriptive case study, which aims at describing a phenomenon in a particular context (Yin, 2009); however, I also collected quantitative data that played a supportive role in this embedded design.

A case study is “a research strategy which focuses on understanding the dynamics present within single settings” (Eisenhardt, 2002 p. 8). As Dörnyei (2007) and Duff (2008) point out, qualitative case studies have the advantage of providing depth and insight into learners’ learning processes through thick description. They seek to provide in-depth understanding of a phenomenon, in order to describe its unique nature within a larger context (Merriam, 2002).

My goal in this research was not to control for variables and establish a cause-effect relationship between multimodality and revision but to provide a description of how computer-based multimodal composing activities might facilitate students’ revision within the context of the L2 writing classroom. The use of the descriptive case study with embedded quantitative
data helped me to establish a baseline (qualitative and quantitative description of students’ revision before the computer-based multimodal composing activities) and provide an in-depth description of how the CBMCA facilitated students’ revision in terms of the extent and quality of their revision practices. The quantitative analysis (correlation between types of revision and quality of writing and mean comparison of revision in baseline data and the CBMCA as well as students’ scores on their final drafts) was used to support the qualitative analysis of student revision (Creswell & Plano Clark, 2007; Early & Marshall, 2008).

**Research Setting**

The study was conducted in an undergraduate ESL writing classroom at Iowa State University. The class, English 101C: English for Native Speakers of Other Languages, is a 16-week semester course (3 credit) for non-native speakers of English. Students are placed into the class based on their results in the English Placement Text (EPT\(^2\)), which is administered at the beginning of the semester to all non-native students admitted into the university. There is a two-fold goal for the English 101C course: to help students develop effective academic writing skills and prepare them for ISUComm Foundation courses\(^3\) (English 150 and 250). The class I taught was different from the regular English 101C class in terms of its special focus on multimodal composition and the development of rhetorical knowledge that students need in order to succeed in English 150. Therefore, in addition to helping students develop their linguistic skills, the course placed more emphasis on exposing students to rhetorical knowledge

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2 The EPT is an English Placement Test for Iowa State University. All incoming students whose first language is not English are required to take this test, which consists of three parts: writing, reading comprehension, and listening comprehension. Students who do not pass this test are placed in different ESL classes based on their performance in the skill areas.

3 The ISUComm is a rhetoric-based multimodal program for freshman composition that focuses on writing across the curriculum (ISUComm instructor guide, 2011, p.7)
about academic writing than other English 101C courses that I had taught in the past. As the following except from the syllabus of the current course explains, I designed the course to address a gap that I had observed from teaching both English 101C and the ISUComm. Foundation courses for four years:

Lack of exposure to WOVE (written, oral, visual, and electronic) communication and the rhetorical knowledge needed to analyze, compose and reflect on these multimodal texts compounds the struggle for non-English speaking students who are already struggling to overcome linguistic problems in English. This course is, therefore, designed as a rhetoric-based multimodal composition course to help students develop some basic linguistic and rhetorical knowledge that they need to succeed in English 150 and 250 at Iowa State University (English 101C course syllabus, Fall 2012).

The class met for one hour and thirty minutes on Tuesdays and Thursdays. On Tuesday, we met in a regular classroom and on Thursday in a computer lab. In all, there were 23 students in the class, 9 females and 14 males. Class time on Tuesdays was devoted to instructions and in-class activities that focused on the writing process in general, and the lab sessions on Thursdays were devoted to a special focus on revision in which students engaged in the computer-based multimodal composing activities.

In addition to the regular class meeting times, I also had two-hour office time during the week when students made appointments and came to discuss any difficulties they were experiencing in the class or with their writing. Besides these office hours, there were four individual student-teacher conferences spread over the 16 weeks of the course. The goal of the conferences was to meet with students, one-on-one, to address issues that they had as they completed each major assignment using the CBMCA.
The main textbook for the course was Engaging Writing 2 (2nd ed.) by Fitzpatrick (2011). Although this book contained very useful exercises for developing basic academic writing skills, it was mainly focused on teaching students to produce alphabetic texts and did not focus on multimodal composing activities. I, therefore, adopted some readings and activities from other textbooks, such as Multimodal Composition by Selfe (2007); Writing in a Visual age by Odell & Katz (2006); The Brief Penguin Handbook (4th ed.) by Faigley (2012); and Compose Design Advocate by Wysocki and Lynch (2007). Adopting readings and activities from these to complement those in the main textbook was meant to help students deepen their understanding of the linguistic and rhetorical features of multimodal academic texts (see the discussion of these features under literature review). Overall, the setting for this study provided an opportunity for students to develop and/or deepen their awareness of the writing process, multimodal composition, and academic registers through hands-on activities.

Participants

All 23 students in my English 101C class participated in this research, but only 22 of them gave permission for their work in the class to be used as data for this study because one was under eighteen years and her parents could not be reached for parental consent. The 22 participants include 8 females and 14 males. Participants were from different countries and spoke different languages.

The pre-survey they completed showed that 14 of the participants were from China and spoke Chinese; three were from Malaysia and spoke Malay; one participant was from Sri Lanka and spoke Sinhaha. Two were from South Korea and spoke Korean. One was from Nepal and spoke Nepali as a first language. The participants were pursuing different majors, such as Engineering, Architecture, Economics, Pre-Law, Graphic Design, and Nutritional
Science. Fourteen of them had had no exposure to college-level English before taking the English 101C class. Four had had one semester exposure to college-level English, two had two semesters, one had four semesters, and one had six semesters. Sixteen of the participants had taken the TOEFL (Test of English as a Foreign Language) exam and their scored ranged between 72-95. The survey indicated that six had taken the IELTS (International English Language Testing System) exam, and reported a score-range of 6.0-6.5. The glog\textsuperscript{4} in Figure 4 presents a description of participants’ country of origin, first language, exposure to college level English, and the range of their TOEFL and IELTS test scores.

\textsuperscript{4} A Glog is a digital poster that allows for the integration of multiple modes, such as written texts, visual images, sounds, and videos.
Figure 4 A Glog of Participants’ Country of Origin, Language, Exposure to College English, and Test Scores.
Based on the interpretation of their TOEFL, IELTS, and EPT test scores the participants are considered Advanced Low writers who need help in developing their writing competence in English. According to the description on the 2012 EPT revised grading rubrics:

Advanced Low writers are able to combine and link sentences into texts of paragraph length and structure. Their writing, while adequate to satisfy the criteria of the Advanced level, may not be substantive. Writers at the Advanced Low sublevel demonstrate the ability to incorporate a limited number of cohesive devices, and may resort to some redundancy and awkward repetition. They rely on patterns of oral discourse and the writing style of their first language (Revised EPT grading rubrics, 2012).

These participants, therefore, represent the population of unskilled L2 writers that the literature review identified as people who struggle with academic writing and revision, the group whose revision strategies the current study seeks to facilitate. Data were collected from all 22 students in the class in order to get a bigger picture of how students used the CBMCA for revision. However, six main focal students were selected for in-depth analysis. Each focal student represents a group of students in the class. In all, the participants were grouped into three subunits based on how they used the poster activity in the composing process during the semester. Students in subunit “A” used the poster for both pre-inscription and point-of-inscription revisions; students in subunit “B” used the activity mainly for point-of-inscription revision; and those in subunit “C” used it mainly as a pre-inscription activity. The division of the class into subunits is in line with the embedded case study approach, which “occurs when, within a single case, attention is also given to a subunit or subunits” (Yin, 2009, p. 50). A more detailed description of each group and the two focal students who were selected to represent that group is given in Chapter 4 as each subunit is analyzed in the light of the embedded cases.
within the overarching single case (English 101C class). Figure 5 presents the English 101C class as the single case study, the subunits, and the embedded cases.

![Diagram of Single Case with 3 subunits: The English 101C class](image)

**Figure 5** Single-case Design with Embedded Subunits

**Selecting Focal Students**

In selecting the focal students, I used purposeful sampling in which participants are selected because of some specific reason (Dörnyei, 2007; Duff, 2008). The six students were selected because they represent the three groups of subunits. Their use and perception of the poster activity were typical of other participants in their subunit. I also sought equal representation of males and females (3+3) in the focal group not as a way of foregrounding gender in this study but presenting a picture that is consistent with the context of my research as a classroom composed of the two genders. This purposeful sampling follows an established sampling strategy in case study research (Yin, 2006; Duff, 2008).

**Data Collection**

As stated earlier, my research is a descriptive case study with embedded quantitative data. This method of collecting data helped me to ensure a strong relationship between my
research questions, previous findings on students’ revision, my theoretical framework, and methodology (Maxwell, 2005). The matrix in Table 2 shows such a relationship.

Table 2
Relationship Between Research Questions, Theoretical Framework, and Methodology

<table>
<thead>
<tr>
<th>Research Questions &amp; Theoretical framework</th>
<th>Why do I need to know this:</th>
<th>What kind of data will answer this?</th>
<th>Type of Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a. How might the transformation of a written text into poster facilitate intermediate ESL writer’s ability to notice gaps in their written drafts and do content-related revisions? <strong>Theory: Noticing &amp; Multimodality</strong></td>
<td>To investigate how CBMCA might help students notice the gaps in their drafts and generate ideas to revise their texts</td>
<td>Task- students draft and revise expository essays using CBMC; Student reflections; Stimulated recalls interviews</td>
<td>Qualitative: Poster, reflections, interviews, and revised drafts</td>
</tr>
<tr>
<td>1b. How might the use of text to speech (TTS) as a revisionary tool facilitate intermediate ESL writers’ ability to notice gaps in their written drafts and do surface-level revisions? <strong>Theory: Noticing &amp; Multimodality</strong></td>
<td>To investigate how CBMCA might help students notice the gaps grammar errors their drafts.</td>
<td>Task- students screen-captured activities using NaturalReader; Student reflections; Stimulated recall interviews</td>
<td>Qualitative: Screen records of listening activity, reflections, and interviews</td>
</tr>
<tr>
<td>1c. How might the integration of written text and visual text (still images) help intermediate ESL writers notice gaps in their written drafts and do content-related revision? <strong>Theory: Noticing &amp; Multimodality</strong></td>
<td>To explore how CBMCA might help address the lack of content-level revision as reported by previous studies on student revision</td>
<td>Task- students complete CBMCA; Student reflections; Stimulated recalls interviews</td>
<td>Qualitative: Reflections, interviews, and revised drafts</td>
</tr>
<tr>
<td>2. To what extent do the revisions prompted by CBMCA lead to improvement in the overall quality of students’ written compositions? <strong>Theory: Noticing &amp; Multimodality</strong></td>
<td>To investigate how the type of revision that students make lead to improvement in the quality of their essays</td>
<td>Task- students draft and revise expository essays using CBMCA; reflections; Stimulated recalls; Interviews; Students graded final drafts</td>
<td>Quantitative: Descriptive statistics of revision history and exit survey, Pearson Correlations Coefficient</td>
</tr>
</tbody>
</table>

As shown in the matrix, Table 2, the questions that guided this study focused on the concept of revision and were investigated with Multimodality and the Noticing Hypothesis as the main theoretical frameworks. The computer-based multimodal composing activities were analyzed qualitatively and quantitatively. This helped me compare my data to the findings in previous literature indicating that students focus on surface level revisions and do less
content-level revisions. It was also helpful for investigating how the CBMCA helped students to notice gaps in their drafts and generate ideas to improve the quality of their essays.

Data for this study came from students’ written drafts and final copies of four expository essays, posters, and screen records of their listening activity as they used Text-to-Speech (TTS) software to revise their papers. The activity was recorded using QuickTime. The other sources of data were pre and post survey responses, students’ written reflections, and stimulated recall interviews. Using these multiple sources of data helped me triangulate as a way of making my findings as robust as possible (McKay, 2006; Yin, 2006). Although I used both sets of data (qualitative and quantitative) from all the participants to determine the frequency and type of revision (surface or content level), only data from the six focal students were used for in-depth qualitative analysis. To collect the concurrent qualitative and quantitative data, I followed these steps:

1. Guided students to complete initial survey about their revision strategies, technology use, and experience with computer-based multimodal text production. This helped me make decisions about learner training.
2. Helped students to compose the first expository essay (baseline data).
3. Trained students to compose a second expository essay using CBMCA.
4. Guided students to write reflections on how CBMCA helped them notice gaps in their own essays and generate alternative ideas for revision.
5. Guided students to write a third expository essay using CBMCA.
6. Guided students to write a fourth expository essay using CBMCA.
7. Asked students to revise one essay for their final exam (the use of CBMCA was optional).
8. Interviewed all participants (stimulated recall) about how they used CBMCA for revision.
9. Selected six focal students for in-depth analysis.
10. Interpreted data based on QUALITATIVE and quantitative results.
Materials: Software

Three main types of software were used for the computer-based multimodal composing activity, Google docs, Glogster, and NaturalReader 10.0. These technologies allowed students to compose using multiple modes (alphabetic text, still images, sounds, and videos) and transform alphabetic texts into multimodal texts. A combination of the technologies enabled students to complete the various CBMCA and reflect on how these activities facilitated their revision. A detailed description of each of these technologies is given below.

Google docs

Google docs is an online word processor and spreadsheet editor that allows users to create, store and share documents and spreadsheets. Users can also upload and edit documents or spreadsheets created with Microsoft Word, Excel or any other program. Google docs can be used for online collaboration in real time or asynchronously. The program stores all documents online and users can edit or read documents from any computer connected to the Internet. Documents are very secure and can only be accessed only by the owner or those invited to share them. Figure 6 presents a sample Google doc interface.

![Figure 6 Sample Google doc Interface and Document with Revision History](image-url)
Besides providing tools for word processing, *Google docs* records all revisions in the “Revision history” as can be seen in the sample revision history in Figure 6. This made *Google docs* appropriate for this study because it helped students to compose alphabetic text (baseline data) and integrate visuals into their final drafts. It also helped me to access all the drafts of students’ composition in order to understand the changes that they made as they revised their essays.

**Glogster**

![Glogster](image)

*Figure 7 Glogster for interactive poster*

*Glogster*, Figure 7, is an online multi-media site for educators (Gloster.com, 2011). Users can create and share interactive posters by integrating different modes, such as alphabetic text, images, audio, video, and graphics. Teachers can create and access different accounts for individuals or groups of students. Students can also create their own free accounts and create a variety of posters integrating different modes and using variety of templates. This site makes the creation of posters fairly easy and less time consuming for students because they can upload existing files and edit them to suit their communicative intents. They may also draw or use templates from the site and insert videos, graphics, or images to create interactive online posters.
In addition, students can record their own voices or those of people they want to include in the poster and upload it into their online poster. In this study, students used Glogster to transform their ideas into online posters by integrating all modes that they wanted to use in communicating their message. They shared their online posters with their classmates and reflected on how creating the poster helped them develop and/or clarify ideas in their alphabetic texts.

**NaturalReader 10.0**

The third software, *NaturalReader 10.0* is a text-to-speech (TTS) software, which allows “playback of printed text as spoken words (Atkinson & Greches, 2003 p. 178). The software is free and can be downloaded for Windows or Mac. Among other reasons, the software was developed to reduce eyestrain during reading, save time, and teach a second language (Natural Reading, 2011). It has an in-built driver that recognizes and speaks verbal text through a variety of voices that can be selected.

*NaturalReader 10.0* allows users to type or copy and paste written words, which are played back as speech. As the text is being spoken, users may control the speed of the voice, pause, or stop, the speech and correct any errors that they detect in the written text. Students can also upload PDF files or take pictures of their documents with their phones or cameras and upload them into the program and have the texts read aloud for them to listen to. The spoken texts may also be saved as MP3 files for students to replay later. In this study, students used *NaturalReader* to complete one of the revision activities as they went through the multimodal composition. They copied and pasted their alphabetic text and made grammar and content corrections as they listened to their texts read aloud. Figure 8 shows the interface of *NaturalReader 10.0*.
A multimodal composing activity may be traditional (non-digital) or computer-based (digital). For instance, in a traditional multimodal composing activity, students can compose essays with pen and paper (written text), turn those into posters that combine words and pictures, and make oral presentations on these posters without using Power Point or any presentation software. However, in a computer-based multimodal composing activity, students use technology, computers and/or web-based programs, to integrate different modes in producing a multimodal text.
The computer-based multimodal text may integrate different semiotic modes, such as written, oral, visual (still or moving images) texts captured on screen or in print (Bearne & Wolstencroft, 2007). When captured in print, multimodal texts can contain only two modes (written and visuals in the form of still images or graphics that do not change or move on the page (Bateman, 2008). In this study, students produced both screen-and print-captured multimodal texts, hence the need to use computer-based multimodal composing activities. In addition, composing on the computer is reported to allow for more and easier revision than composing with the traditional paper and pen (Bridwell et al., 1987; Rodrigues, 1985).

In this study, the CBMCA involved six main activities. First, students composed a written draft using Google docs. Second, they created an online digital poster using Glogster in order to integrate as many modes as they wanted. Third, after creating the poster, they wrote a reflection on how composing the poster helped them notice gaps in their ideas or written drafts and generate other ideas to fill those gaps. Creating a poster and reflecting on it was meant to help students make use of all possible semiotic resources for meaning making as they composed. This, it was hoped, would help students focus on content-level revisions. Students used the poster activity to complement the composition of their alphabetic texts. Fourth, students composed and/or revised their written alphabetic text for content and organization in Google docs. Fifth, they performed the listening activity in which they used NaturalReader to revise for style and grammar. Sixth, they integrated visual (still images) into their alphabetic texts. Table 3 explains the phases involved in the CBMCA.
### Table 3

Matrix for Computer-Cased Multimodal Composing Activity

<table>
<thead>
<tr>
<th>Steps/Activity</th>
<th>Rationale</th>
<th>Semiotic Modes</th>
<th>Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong>: Compose alphabetic text</td>
<td>Develop a draft</td>
<td>Written/alphabetic</td>
<td>Google docs</td>
</tr>
<tr>
<td><strong>Step 2</strong>: Create an interactive poster</td>
<td>Focus on content-level revision</td>
<td>Written, oral, and visual (still and moving images)</td>
<td>Glogster</td>
</tr>
<tr>
<td><strong>Step 3</strong>: Write reflection</td>
<td>Focus on noticing gaps and generating ideas</td>
<td>Written /alphabetic</td>
<td>Google docs</td>
</tr>
<tr>
<td><strong>Step 4</strong>: Continue revision of existing draft</td>
<td>Improve ideas in existing draft</td>
<td>Written/alphabetic</td>
<td>Google docs</td>
</tr>
<tr>
<td><strong>Step 5</strong>: Listen to essay using TTS</td>
<td>Focus on noticing grammar errors and improving organization</td>
<td>Oral and written</td>
<td>NaturalReader</td>
</tr>
<tr>
<td><strong>Step 6</strong>: Integrate visuals into final draft</td>
<td>Produce a multimodal text</td>
<td>Written and visual (still images)</td>
<td>Google docs and Microsoft Word.</td>
</tr>
</tbody>
</table>

**Survey**

Participants completed two surveys (pre and post). Both surveys were in the form of a questionnaire (See Appendix A and B) The pre-survey contained 24 (close-ended and open-ended) items, which were divided into four parts. Part 1 focused on gathering information about participants’ bio-data and language background. The questions focused on gender, country of origin and first language, exposure to college level English, TOEFL/IELTS score, students’ perception of their English learning ability in general and self-revision skills in particular. Parts 2, 3 and 4, contained questions about students’ experience with multimodal composition, general composing and revision strategies, and experiences they had regarding composing with technology. Students’ responses to these questions provided baseline data that
were used to make decisions about learner training, in-class activities, and the general design and delivery of the English 101C course. The post-survey contained 30 Likert Scale items that elicited students’ responses on their perception about the English 101C class as whole, the use of the CBMCA for revision, the various technology that was used for revision activities, and how the use of the CBMCA affected their writing in the course of the semester. Other questions asked students about their understanding of WOVE (integration of written, oral, visual, and electronic communication as the focus of freshmen composition courses at Iowa State University). Some questions also asked about how their understanding of revision evolved, how they perceived individual assignments, assigned readings, student-teacher conferences, peer response, and other class activities. Further, students were asked whether they would continue to use the CBMCA in their future academic writing. Students provided responses that ranged from strongly agree (1) to strongly disagree (4).

**Expository and argumentative essays**

The main tasks in the CBMCA involved composing four essays, three expository and one argumentative. Expository or analytical writing involves analyzing and explaining a complex problem or issue through the use of well supported facts and ideas and logical organization (Quellmalz & Bury, 1983). It is one of the most common but also most challenging forms of academic writing. According to Flower (1981), students find expository essays particularly challenging because they involve three major tasks: making meaning, communicating, and persuading.

Argumentative essays are different from expository because they require the writer to take a position and either agree or disagree with the issue under discussion. Like the expository essay, the argumentative essay requires analysis, explanation, logical organization, and the use
of well-supported facts and ideas; however, it also calls for evaluation and interpretation, and students tend to find argumentative essays even more challenging. I, therefore, decided to focus on these two types of essays with the hope that the integration of multiple semiotic modes might help the students make meaning, communicate, and persuade their readers more effectively than they might do revising through only the alphabetic texts. Further, I decided to let participants write three expository essays and only one argumentative essay so that they could have more practice with analysis, explanation, logical organization, and the use of well-supported facts and ideas before they add evaluation and interpretation. Therefore, the expository essays were planned to help students focus on practicing one or more of these skills; and the argumentative essay provided the opportunity for them to integrate these skills at the end of the semester.

Assignment 1 (see Appendix D) required students to write a 500-word essay on their role model and the influence that the person had had on their lives. They were asked to see the assignment not as telling a story about their role model, but rather, helping their classmates and instructor to gain insight into the influence of their role models on their lives. Specifically, they were required to discuss three characteristics, or qualities of their role model, using specific details. The goal of this assignment was to help students develop the skill of reflection, explanation, and organization of ideas into paragraphs, which they need in order to become more effective writers at college and in their future professional life.

The second assignment (see Appendix E) required students to seek a deeper understanding of an issue or a phenomenon by grappling with a question (exploring) and writing a 650-word essay on the topic. They were encouraged to present multiple perspectives on a topic in order to provide information that others could use to gain more insight into the topic. This
assignment provided an opportunity for practicing analysis, explanation, logical organization, and development of ideas.

All the skills practiced in Assignment 2 were also practiced in Assignment 3. However, assignment 3 (see Appendix F) placed a special emphasis on analysis. Students were asked to choose a work of art or a place on campus, analyze it, and write a 700-word essay focusing on how and why the campus designers, architects, landscape architects, or artists chose to plan and create that particular feature as they did, as well as how the art work or place has come to have meaning for students and others on campus. The objective was to help students develop analytical skills and general knowledge about visual analysis, an important skill and knowledge that they need to become effective communicators in the 21st century.

The last major assignment was the argumentative essay (see Appendix G). Students were required to choose one controversial issue or problem that affects the university community or the larger society, research the issue, and compose a 700-word argumentative essay that clearly conveys their stands on the issue. They were encouraged to explain the issue to their audience and convince them that their position is the most reasonable one. In all, this assignment, together with the expository essays provided an opportunity for students to produce language and to practice reflection, explanation, analysis, logical organization and development of ideas, evaluation, interpretation, and persuasion.

**Student reflections**

As part of the multimodal composing activity, students were guided to reflect on how the activities helped them revise their drafts focusing on content-related and surface level revisions. Their narratives provided a rich source of data for understanding the potential of
CBMCA in facilitating self-revision. There were three types of reflections that students wrote in the course of the semester.

The first reflection was a guided one, which focused on helping students to identify linguistic and rhetorical choices they had made in creating their posters and how those choices might help them notice features that needed attention in their alphabetic texts. As shown in Appendix H, the reflection guide contained 16 questions, which were meant to help participants reflect on their poster activity and revise their written drafts based on their reflection. The questions were to help participants discover new ideas and strategies that they had used in the poster that might help them revise their written drafts in Google docs. The questions were organized under substance, organization, language, and style. Specifically, there were 9 questions under substance, and they were meant to help participants think about the thesis, details, audience, purpose, and the message in the other semiotic modes (visuals, sounds, video) that were not already expressed in the alphabetic text, and how the message and ideas in the poster might help improve their draft. In addition, there were 2 questions under language and style that focused on words, phrases, or sentences in the poster that captured the main message, sources that were cited, and how these might be used to revise the alphabetic text. The last five questions focused on organization of ideas and materials in the poster, as well as how that arrangement might help organize ideas in the entire essay. Providing this kind of guidance for students during their reflection was important because, left unguided, students who lack effective metacognitive skills may focus on too many issues in their reflection, which can make data analysis very difficult (Gass & Mackey, 2007). The second reflection was also a guided journal reflection that students wrote in the middle of the semester to help them think about their perception and attitude towards revision and how the revisions they had done, thus far, in the
class were helping them develop as writers. Three questions were posed to guide students’ reflection in this journal:

1. How do you understand revision?
2. In ONE paragraph, describe how your understanding of revision has evolved during this semester.
3. Reflecting on Assignments 1, 2, and 3, explain how you are developing your revision strategies, as a writer.

Students’ responses to these questions provided important data for understanding how their understanding of revision evolved in the course of the semester and how they perceived the development of their revision strategies as they completed the major assignments in the class. Unlike the first and second reflections, the third one was unguided. Students were asked to write their reflection on how they revised their final exam. The final exam was a take-home exam in which students were asked to choose any one of their major papers (1, 2, or 3), revise it, and write a one-page reflection on how they revised their paper. They were not given any guided questions because I did not want to influence the way they revised the final exam. The main purpose of this reflection was to see whether students would use the CBMCA when they were not required to do so. This last reflection also provided very useful data on the transferability of the skills and strategies for revision that students had learned during the semester.

**Stimulated recall**

Sometimes referred to as retrospective interview, stimulated recall can help students retrieve their thought processes and share useful information about their perceptions and experiences (Dörnyei, 2007). As Gass and Mackey (2000) observe, the use of stimulated recall is based on the assumption that a visual or aural stimulus may help learners recall and shed light on their mental processes. In this study, I conducted stimulated recall interviews with each
of the 22 students in the class. This was to help me develop a deeper understanding of their
textual changes as they composed the essays. By using stimulated recall, I followed a tradition
in previous studies (Cumming, 1990; Raimes, 2001; Swain & Lapkin, 1995) that used this
method to collect data on the process of L2 writing. In all, I met with each participant on four
occasions, and each meeting lasted for approximately 40 minutes. In all, there were 3,520
minutes (59 hours) of interview with the participants. All the interviews occurred in my office
and were spread over the semester to coincide with the composition of the major papers in the
class.

During the stimulated recall, students were shown their poster as well as the draft they
wrote immediately after making the poster. They were then asked to comment on how they
developed or even changed their ideas on the topic as they composed the poster. Students were
shown their final multimodal text (one that integrated written texts and still images) and were
asked to comment on decisions they made while integrating the visuals as well as how that
facilitated their revision. Their responses provided useful data on how the CBMCA helped
them revise their drafts. The interviews were digitally recorded, but I also took notes of
occasional events or happenings so that I could reconstruct the interview if any problems
occurred with the recordings. Since there was no problem with the recording, only the
transcripts from the recorded interviews were used in the data analysis.

Procedure

The study lasted for one semester. On the first day of class, I informed the students that
the class was specially designed to investigate how the use of CBMCA might facilitate L2
writers’ revision and help them improve their text quality. During our third meeting, which was
in the second week of the semester, I invited them to participate in the study. I explained to
them that there was no extra coursework involved in this study except that they would complete a pre-survey and post-survey, stimulated recall interviews, and that other tasks in the research would be part of their course work. I also informed them that their drafts and revised papers would be used as data for analysis and would not be used for any publication without their permission. Students read the consent form, and after I had answered questions that they had about the study and their participation in general, they signed the form and completed the pre-survey. I spent the weekend analyzing the pre-survey in order to make decisions about learner training.

Students’ responses from the survey indicated that three participants knew how to use Google docs, but none of the participants had heard about or used Glogster or Natural Reader. In order to help the students use these technologies successfully as they completed the computer-based multimodal composing activities, there was the need to provide learner training, which is considered crucial for the success of CALL use (Hubbard, 2004). I provided three 50-minute training sessions in the computer labs for students. I used the first three lab days of the class for these training sessions.

The first session focused on introducing students to Google docs and took place in the first and second week of the semester. The training took place in the lab. All students had access to a computer that was connected to the Internet. It was not difficult to introduce students to Google docs. All students at Iowa State University use CyMail, which is the official Gmail empowered mail server, so it was very easy and convenient for students to use Google docs because they already had CyMail accounts. All I had to do was to help them locate Google docs as they logged into their CyMail, and then I gave them a handout on how to create a document and revise using this software. Students were very glad to be exposed to how they
could use a “tool” they already had, *CyMail*, as part of their composing process. After creating sample documents, students did a 10-minute free-writing on their role model and shared that with me. The training for using *Google docs* was on-going as they used it at home and in the lab and sent me emails or asked questions about things they did not know, such as how to retrieve old versions of a draft and how to insert images and captions.

Another type of learner training focused on helping students to create online posters using *Glogster*. I purchased the premium version of the software and created a teacher account, and that gave me access to create subaccounts for each student and organize a class activity. After helping each student to log into *Glogster*, I used a whole lab session to model how to use the tools and create a glog. Through hands-on activities, students created their own sample glogs and shared them with their classmates. I did not give students any handout on how to use the software. We watched some tutorials and after did a number of in-class activities. Students actually learned more about the program on their own and ended up teaching me some new things that I did not even know about *Glogster*. Students who mastered the program faster helped other students. In addition to providing training on *Google docs* and *Glogster*, I also trained students on how to use *NaturalReader* 10.0. This was the shortest of all the trainings. The tool is very simple to use, and after a 10-minute demonstration of how to use the software, all participants copied and pasted their drafts and used headphones to listen and practice revising their essays. Even though students learned how to use all three software programs quickly, there were occasional issues that called for providing additional help to some students in using the tools. For example, there were times that some students could not view their glogs because they did not save them properly. Therefore, I provided on-going support for students who needed additional help with using these technologies. I also provided explicit training on
successful integration of written and visual texts in academic writing.

Data collection began in the second week of the semester as students completed the pre-survey and began the first expository essay (assignment 1). From week four to week seven, they composed Assignment 2 and completed the first round of using CBMCA to revise their papers. In weeks eight, nine and ten they composed Assignment 3 and used CBMCA a second time. From weeks eleven to fourteen, they completed Assignment 4 and the third round of using the CBMCA. Weeks fifteen and sixteen were used for the final take-home exam (the use of CBMCA was optional). Table 4 presents the weekly tasks and activities involved in the procedure.

<table>
<thead>
<tr>
<th>Week</th>
<th>Goal</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Recruit participants</td>
<td>I invited students in my class to participate</td>
</tr>
</tbody>
</table>
| 2-3  | Learner training Collect baseline data | • Students composed and shared short writings using Google docs.  
• Students completed initial survey  
• They composed first expository essay using traditional approach |
| 3    | Learner training | • Students learned how to use Glogster and NaturalReader  
• They received additional training in using Google docs  
• They learned how to integrate written and visual texts |
| 4-7  | Compose & Revise Assignment 2 using CBMCA | • Students composed the second expository essay using computer-based multimodal composing activity (CBMCA)  
• Stimulated recall |
| 8-10 | Compose & Revise Assignment 3 using CBMCA | • Students composed the third expository essay using computer-based multimodal composing activity (CBMCA)  
• Stimulated recall |
| 11-14 | Compose and Revise Assignment 4 using CBMCA | • Students composed the third expository essay using computer-based multimodal composing activity (CBMCA)  
• Stimulated recall |
| 15-16 | Revise take home exam (Optional use of CBMCA) | • Students revised one of their papers (1, 2, or 3)  
(The use of CBMCA was optional)  
• Student Final Reflection |
Qualitative and quantitative data analysis

I adapted the multi-dimensional taxonomy for analyzing revision developed by Stevenson et al., (2006). The method classifies revision into four main dimensions: orientation, domain, location, and action. Their method was developed based on how previous studies had measured revision. For instance, their classification of location as internal and external revision is based on how Murray (1978) analyzed revision. The classification of revision according to orientation is influenced by Faigley and Witte (1981 &1984); and the purpose of revision is linked to Hall (1990). However, the multi-dimensional model differs from those found in the previous studies because of the sub-classification of revision as pre-textual, point of transcription, and previous-text revisions. Pre-textual revisions “do not end up actually being transcribed in the text” (Stevenson et al., 2006, p. 206) while point-of-transcription revision is made to the text during composition, and previous-text revisions are made after composition.

Table 5 presents the adapted multi-dimensional model (See Appendix K for a detailed explanation of the taxonomy).

Table 5
Adapted Multi-dimensional Revision Taxonomy (Stevenson et al., 2006)

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Main categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Orientation</td>
<td>Surface; content-related</td>
</tr>
<tr>
<td>2. Domain</td>
<td>Clause and above; below clause</td>
</tr>
<tr>
<td>3. Location</td>
<td>Pre-text, point of inscription; Previous-text</td>
</tr>
<tr>
<td>4. Action</td>
<td>Addition; deletion; substitution; other</td>
</tr>
<tr>
<td>5. Cause</td>
<td>Error triggered; non-error triggered</td>
</tr>
</tbody>
</table>
This classification in the multidimensional model was beneficial in the sense that it helped me to relate surface level and content-related revisions to bigger issues of language and content. In addition, as indicated in Table 5, I added a new dimension to the model, namely, cause, which involves two categories: error-triggered and non-error triggered. This is important because while some revisions, such as using the text-to-speech software to revise for grammar, may be triggered by errors in the written drafts, revisions resulting from reflecting on integrating written and visual texts or turning a written text into a digital poster may not be triggered by any error in the existing draft. I referred to those as non-error triggered revisions. I used the multi-dimensional taxonomy to analyze the baseline data as well as the different drafts composed during the CBMCA.

I downloaded all the different versions of students’ drafts and manually classified them into surface and content-related revisions, addition, deletion, substitution, error-triggered, and non error-triggered. I did the classification together with the second rater, whom I trained to use the scheme and I calculated the inter-rater reliability. I adapted the taxonomy in order to ensure a more effective relationship between my research questions and the taxonomy. I classified revision according to orientation as either surface or content-related and left out ‘typing’ as an orientation category because unlike Stevenson et al., I did not seek to analyze keystrokes as part of revision. Rather I captured all mechanical and spelling revisions as surface-level revisions. Another adaptation that I made to the taxonomy was dividing the domain into two main categories (clause and above; below clause) for easy analysis since I did not focus on keystrokes or below word revisions. I now turn my attention to how I analyzed specific research questions. I first restate the research questions and explain how I analyzed the data qualitatively and quantitatively in order to answer each question.
Answering research question 1: How might Computer-based Multimodal Composing activities (CBMCA) enhance advanced-low ESL writers’ revision practices? This question sought to understand how CBMCA might facilitate students’ revision in three ways, as captured in the following sub-questions:

a) How might the transformation of a written text into a digital poster facilitate advanced-low ESL writer’s ability to notice gaps in their written drafts and make content-related revisions?

b) How might the use of text to speech (TTS) as a revisionary tool facilitate advanced-low ESL writers’ ability to notice gaps in their written drafts and make surface-level revisions?

c) How might the integration of written text and visual text (still images) help advanced-low ESL writers notice gaps in their written drafts and make content-related revision?

Qualitative data analysis

I analyzed only revisions at the point-of-inscription since my research questions sought to uncover how the CBMCA helped students to notice gaps during the process of composing drafts and not at the pre or previous text. In order to answer the first part of research questions 1a, 1b, and 1c, I used qualitative measures, namely analyzing students’ reflections and stimulated recall interviews. I analyzed data simultaneously as I collected more data. This is a common practice in qualitative research (Merriam, 2002), which helped me to modify the data collection plan (Yin, 2006, 2009) in order to pay particular attention to areas in which I needed more data to answer the research questions. Doing data collection and analysis simultaneously also allowed me to do member checking, which allowed participant the “opportunity to discuss and clarify the interpretation and contribute new or additional
perspectives” (Baxter & Jack, 2008, p. 556) on how they were using the CBMCA to facilitate their revision. The qualitative analysis focused mainly on how the CBMCA facilitated noticing of gaps in the revision process.

I began the qualitative analysis by downloading and carefully reading through all students’ reflections after they completed the CBMCA. I transcribed data from the stimulated recall. I developed codes (See Appendix J) for the analysis using the coding procedure suggested by Miles and Huberman (1994). These authors define codes as “tags or labels for assigning units of meaning to the descriptive or inferential information compiled during the study” (p. 56). I adopted an open coding system, which allowed me to identify code units based on the theoretical framework and research questions and add new codes or sub-codes that emerged as I read students’ reflections and interview transcripts.

The open coding system allowed me to revise my codes as I saw necessary. After revising the codes, I explained the coding system to my second rater (I used one of the ESL instructors who was teaching English 101). I explained the research questions and the theoretical framework to the second rater and had her practice the coding. After a two-hour training on how to use the developed codes, the second rater and I coded part of the data separately so that I could calculate inter-coder reliability (I provide a detailed explanation of how I obtained inter-rater reliability as I discuss credibility and dependability of the study at the end of this chapter). We discussed discrepancies in our coding to ensure the two of us agreed on how to code the rest of the dataset. I divided the dataset into two sets. The second rater coded one set as I coded the other, and after that we exchanged the sets so that I got to code hers as she coded mine. We then compared the coding and came to an agreement. The final codes we used for the qualitative analysis are presented in Appendix J.
Quantitative data analysis

In order to make inferences about noticing, I analyzed the textual revisions, which I considered the observable behavior of noticing (Hegelheimer & Chapelle, 2000). I used surface revision to refer to all language changes that are meaning preserving and content-related revisions to mean all revisions that lead to a change in meaning. This allowed me to reduce all the external revisions into two main categories for easy analysis. I used descriptive statistics to calculate the percentage and mean frequencies of all the types of revisions that students did during the CBMCA. With reference to research questions 1a and 1c, I used the result as supporting data to draw conclusions about how noticing a gap helped the students to do more content related revision and in the case of research question 1b, I focused on how noticing of problems related to linguistic and rhetorical features facilitated revisions as students performed the listening activity.

In addition to the total frequencies of revision that students actually carried out, the post survey asked students to state their level of agreement on the statements about how CBMCA facilitated their noticing and revision. I used descriptive statistics to calculate the percentage of agreement and disagreement that participants reported in the post-survey.

Answering research question 2: To what extent do the revisions prompted by CBMCA lead to improvement of the overall quality of students’ written compositions?

To answer research question 2, I analyzed students’ interview data to assess their own opinion on how the revision activities impacted the quality of their final texts. In addition, I also had three ESL instructors grade the final essays of the focal students using a rubric for assessing multimodal texts (I provide a detailed explanation of the grading rubric in Appendix I. The inter-rater reliability is also explained under the discussion of credibility of the
study at the end of this chapter). Finally, I calculated the correlation between the total frequency of revisions and the overall score of each student’s final essay.

Previous studies have used different measures to assess the impact of revision on text quality. For instance, Hall (1990) adapted the ESL Composition Scale, Ashwell (2000) used an adapted scale based on the Composition Profile and the Test of English for Educational Purposes (TEEP), and Ferris (1997) developed a six-point nominal scale. However, the measures adapted in the existing studies were not designed to assess a multimodal text. I, therefore, developed a new measurement scale based on The New London Group’s (1995) model for assessing multimodal texts. This was important because, as I explained in the description of the CBMCA, the final text of students’ composition was a multimodal text that integrated alphabetic and visual texts.

Shin and Cimasko (2008) observe that there are three main approaches to assessing multimodal texts. Some researchers, such as McKee (2006) and William (2001), have focused on the analysis of meaning as encoded in each specific mode. Others like Wysocki (2001) focus mainly on how other non-linguistic modes can fulfill the traditional roles of the linguistic mode. The third approach follows the New London Group model and focuses on how the integration of different modes presents new meanings (Bolter, 2001; Lemke, 2002; Royce, 2002; Shin & Cimasko, 2008). I adapted the New London Group’s model because it assesses multimodal texts at two levels: analyzing each mode separately and then analyzing how they are synthesized to produce a unified multimodal text (Kress & Van Leeuwen, 2006). I particularly appreciate the assumption behind this model that in order to decode the unified meaning that the integration of modes brings to a text, it is important to understand the meaning that each mode conveys.
Therefore, in analyzing the meaning in the written and the visual modes in students’
final texts, I trained the three ESL raters to use a rubric based on an adaptation of Royce’s
(2002) framework of *Intersemiotic Complementarity* (explained in Chapter 2 under the section
on theoretical framework). This framework combines the model suggested by the New London
Group and the concept of sense relations (Halliday, 1994; Halliday & Hasan, 1975, 1985). Although Royce mentions six sense relations: repetition, synonymy, antonymy, hyponymy,
meronymy, and collocation, I used a rubric that focused on assessing three main aspects of
sense relations. This was to make the rating of the essays less burdensome for the raters. The
three sense relations include these:

*Intersemiotic repetition:* The repetition of the same experiential meaning as encoded in
the written and visual texts

*Intersemiotic synonymy:* The expression of similar experiential meanings as encoded in
the written and visual texts.

*Intersemiotic antonymy:* The presentation of opposing or conflicting experiential
meanings as encoded in the written and visual texts.

In addition to assessing *Intersemiotic Complementarity*, the rubrics also assessed the
overall quality of students’ final essay in relation to context, substance, organization, style, and
delivery, the categories of assessing students’ writings in the ISUComm Foundation Courses.
These strategies and *Intersemiotic Complementarity* were measured on a five-point scale:
Exemplary, mature, competent, developing, beginning; and basic (see Appendix I). As
mentioned above, I calculated the correlation between the final text scores and the frequency of
revision in order to determine the extent to which these revisions relate to text quality.

**Reporting on Credibility and Dependability**

As Creswell and Plano Clark (2007) point out, credibility and dependability in qualitative
research “determine whether the account provided by the researcher and the participants is
accurate, can be trusted, and is credible” (p. 134). My research is primarily a descriptive case
study, which embeds quantitative measures for data collection and analysis. I took a number of measures to ensure credibility and dependability of the analysis and the results of my study.

Pilot Study

Before conducting the present study, I piloted the procedures and materials in a dissertation pilot study in 2011. This was like a “research dress rehearsal” (Dörnyei, 2007) for my study to test the credibility and dependability of my research procedures and materials in finding answers to my research questions. The study was done in the same setting, an English 101C classroom, but taught by a different instructor. The pilot study investigated the same research questions as in the present study. Participants included 3 ESL students. The results indicate that the activities facilitated students’ noticing of gaps and revision in terms of ideas, language and organization. In addition, the pilot study helped me discover what needed revision in my procedure and material.

One important change I made was to increase the time for learner training. Based on students’ report that they needed more time to practice the computer-based multimodal composing activities for revision, I decided to devote time for one major assignment (one-month) solely for learner training. This also made me decide to position myself as a teacher-researcher in order to plan in-class activities in a way that allowed more time for learner training, which is crucial for the success of CALL research (Hubbard, 2004).

In addition to providing more time for learner training, the pilot study revealed the need to revise the survey instrument and the interview protocol. Initially, the survey instrument did not gather specific information on how students perceive their revision strategies. I revised the survey instrument and the interview protocol to allow students to provide a brief description of how they revised their papers before taking the class. This helped me to gather some baseline
information on students’ revision strategies rather than just presuming their problems. Also, from students’ comments on the reflection guide, I re-phrased one of the questions they found difficult to answer, the one which asked them to imagine questions that their readers might ask.

Further, I corrected some limitations the coding procedure that I noticed from the pilot study. I found that students’ revisions in Google docs were not different drafts but rather different versions of one single draft. Therefore, these needed to be coded as point-of-inscription, which captures ongoing revision, rather than coding them as previous-text inscriptions as I did in the pilot study. I also expanded the qualitative coding method I used in the pilot study. I used a structural coding technique to help organize the qualitative data under specific categories emerging from the research questions. While this approach was useful, it did not lend itself to detailed qualitative analysis. Therefore, I adopted a second cycle coding method (open coding), which allowed me to classify, conceptualize, and theorize the data and add new codes or sub-codes that emerged from reading students’ reflections and interview transcripts.

**Triangulation**

In addition to the pilot study, I also used triangulation to ensure credibility and dependability. Specifically, I used three main types of triangulation: data triangulation, theory triangulation, and methodological triangulation. Data triangulation involves gathering and corroborating evidence from multiple data sources, theory triangulation involves using multiple theoretical frameworks to frame a study and analyze the data set that is gathered to answer specific research questions and methodological triangulation calls for combining different qualitative and quantitative measures to gather and analyze data (Brown & Rodgers, 2002; Mackey & Gass, 2005; Yin, 2009).
In triangulating the data, I gathered data from multiple sources including survey, stimulated recall interviews, revision history, poster activity, listening activity, integration of visual and written text activity, students’ reflections, students’ final drafts, and final scores of their essays. With regards to theory triangulation, I used three main theories: Multimodality, Noticing Hypothesis, and Multi-dimensional model of revision as lenses to analyze and interpret the data in terms of how the computer-based multimodal composing activities facilitated students’ revision. To triangulate the methodology, I used the mixed methods design, which allowed me to do both qualitative and quantitative data collection and analysis. The value of using these types of triangulation is “that it reduces observer or interviewer bias and enhances the validity and reliability of the information” (Johnson, 1992; p. 146).

**Peer Debriefing**

Besides the pilot study and triangulation, I also used peer debriefing. This involves sharing data with another researcher who is familiar with qualitative research and the content area of the research in order to receive feedback on whether or not particular strategies and the approach used to analyze the data are appropriate and whether other researchers can follow the same procedure and arrive at the same findings as the researcher has reported (Creswell & Plano Clark, 2007; McKay, 2006).

I shared 33% of the data with a new graduate student in second language curriculum and instruction who has a research interest in how adolescent second language writers develop writing competence through multimodal activities. The 33% of the data was made up of all data from two of the focal students (data from the survey, stimulated recall interviews, revision history, poster activity, listening activity, integration of visual and written text activity, students reflections, students’ final drafts, and final scores of their essays). After examining the data, the
analytical procedure, and the initial findings that I had recorded, my colleague affirmed that the procedures and the patterns detected are visible to a researcher who is less connected to the original data collection, and he agreed that the data and analytical procedures provide a systematic way of answering the research questions that guided the study.

*Inter-rater Agreement*

Another strategy I used to ensure credibility and dependability was calculating inter-rater reliability. Inter-rater agreement was to help me ensure that the data from the stimulated recall interviews and students’ reflections were coded properly for effective analysis and interpretation. After my initial passing of the interview and reflection data, I developed 11 main codes for the structural coding focusing on units of analysis that related to specific research questions and the theoretical framework. Following this, I developed 15 more codes based on the open-coding system. After this, I explained the codes to the second coder who has a Masters Degree in Teaching English as second language (MA TESL) and teaches ESL writing. I used two hours to explain the research design, theoretical framework, research questions, and codes to the second rater, and the two of us used data from one focal student (17% of the data from the focal students) to practice the codes. The practice data was not used to calculate inter-rater agreement. Rather, after the training and discussion of the codes with the second rater, I discarded some of the codes that were repetitive and reduced the codes to 25. These were added to the five codes adopted from the Multi-dimensional model of revision. In all, 30 final codes were developed (see Appendix J).

After the two of us agreed on the total number of codes and their definition, we coded 33% of the interviews and reflections data from two students. We also coded 22 revision histories for all the students in Assignment 2. There were 88 revision histories in all so the 22
made up 25%. After that I calculated the inter-rater reliability using simple percentage agreement. I opened an Excel sheet and entered all the instances and number of codes recorded by the second rater and me. As Mackey and Gass (2005) observe, using simple percentages to calculate inter-rater agreement is “appropriate for continuous data (i.e., data for which the units can theoretically have any value in their possible range, limited in precision only by our ability to measure them)” (p.243). The agreement between the second rater and me for the interview and reflection was 90% and that between us for the revision history was 94%. We spent an hour and half discussing areas where we disagreed and reached 100 %, and then the second coder coded 25% of the data (all revision history for the 22 students in assignment 3 as well as interview and reflection from 1 student. I coded the rest of the data.

Validity Evidence for the Grading Rubric and Inter-rater Reliability

The last strategy I used to ensure credibility and dependability was collecting validity evidence for the grading rubric that was used to grade students’ multimodal composition and calculating inter-rater reliability among the three ESL raters. I did an analysis of the rubric for construct validity. Three ESL raters were given the rubric and were asked to describe and assess the extent to which the rubric measures the linguistic and rhetorical features typical of academic multimodal texts: content, language and style, logical organization, effective integration of written and visual modes, and delivery.

The three raters analyzed the rubric and used it to practice grading 3 essays written by students from the English 101C class. After this practice, they discussed their perception of the extent to which the rubric measures those linguistic and rhetorical features of academic text. Inter-rater reliability of their practice coding (Kendall’s tau-c) was 0.943. After this they made some suggestions, which I used to revise the rubric for clarity. They then graded 12 essays from
the focal students (Assignment 2, 3, and 4) using the revised rubric. The inter-rater reliability (Kendall’s tau-c) among the three raters was 0.972.

**Chapter Summary**

This chapter presented the overall design of the study. It explained my position as teacher-researcher, provided a detailed explanation of the research design, the setting, participants, sampling, materials, and data sources, and learner training. Finally, it explained the procedure for data collection and analysis as well as measures I took to ensure the credibility and dependability of the study. The next chapter presents the findings from the study. In presenting the findings, all quotations from students’ interviews and reflections are reported verbatim in order to preserve students’ voice.
CHAPTER 4: RESULTS AND DISCUSSIONS

This chapter is divided into two sections. The first section presents and discusses findings related to research question 1 and the second discusses the findings for question 2. Question 1 focused on how the computer-based multimodal composing activities (the poster activity, listening activity, and integration of visuals) facilitated students’ revision practices. The overarching goal of this question was to understand how CBMCA might facilitate students’ revision. The question was divided into three sub-questions. Question1a sought to understand how the transformation of a written text into a digital poster might facilitate students’ ability to notice gaps in their drafts and do content revision. Question 1b focused on how listening to one’s essay using text-to-speech software might help students to notice gaps in their drafts and do surface revision. Question 1c focused on how the integration of written and visual text (still images) might help students revise.

Findings were based on the quantitative and qualitative analyses of students’ posters, reflections, listening activity, stimulated recall interviews, revised drafts, and exit surveys. The Noticing Hypothesis (Schmidt, 1990) and Intersemiotic Complementarity (Royce, 2002) provided theoretical lenses for analyzing question 1. Inferences about noticing were based on the observable behavior of students as they completed the CBMCA activities. In general, the findings show that the poster activity facilitated students’ noticing and revision of problems related to development and organization of ideas. There were also some instances of noticing and revision related to vocabulary. The listening activity helped students to notice and revise problems related to content and organization, with few instances of noticing and revising grammar errors. The integration of written and visual texts helped students to express ideas and a voice, which they were struggling to convey using written words alone.
Research question 2 focused on the relationship between the revisions prompted by CBMCA and the overall quality of students’ written essays. This question sought to understand the relationship between students’ revision and the quality of their final written essay. This is particularly important because the over-arching goal of revision is to attain improvement in text quality. Data for answering this question came from students’ revision as captured in Google docs, and students’ scores on the final drafts of assignment 3 (expository) and 4 (argumentative).

Analysis of students’ revision history was based on point-of-inscription revisions, which were the ongoing observable textual changes that students made to their drafts in Google docs. Students’ revision history was coded using codes that I adopted from the Multi-dimensional Model of Revision (Stevenson, Schoonen, & Glopper, 2006). I used Pearson’s correlation test to calculate the correlation between the types of revision that students did and the final scores they received on their essays (I provide a detailed explanation of the procedure for the analysis in chapter 3 and also in section 2 of this chapter).

In general, the findings show that, contrary to what previous research found, the students did more content-related revision than surface-level revisions. There were two different results regarding the total frequency of revision and text quality. The Pearson correlation test for assignment 3 showed that there was no significant correlation between total frequency and text quality. However, the analysis for assignment 4 showed that there was a significant correlation between total frequency and text quality.

For the rest of this chapter, I present a detailed explanation of findings for research questions 1 and 2. In section 1, I present findings on how the use of the poster activity, the listening activity, and the integration of visual and written texts facilitated noticing and revision. In doing so, I provide a general picture of how the 22 students in the class used the activities as
reported in their responses to the questions on the exit survey. Following that, I provide a detailed analysis of how the six focal students used the activities for noticing and revision. In section 2, I provide findings and discussion for research question 2 using data from 13 students who had complete revision history for all the major assignments.

Section 1: Findings and Discussion for Research Question 1

*Facilitating students’ noticing and revision through poster activity, listening activity, and integration of visuals*

Research question 1a was: *How might the transformation of a written text into a poster facilitate advanced-low ESL writer’s ability to notice gaps in their written drafts and do content-related revisions?* The purpose of the poster activity was to explore how turning written text into a visual representation (digital poster) might help students focus on content and organization of ideas during revision. Data for answering this question came from students’ posters, guided reflections, stimulated recall interviews, revised drafts, and exit-survey. Data were analyzed using both qualitative and quantitative measures. In order to understand how the poster activity facilitated students’ noticing and revision, I did a quantitative analysis (descriptive statistics) of students’ responses in the exit survey.

I also used structural coding to analyze the reflections. Structural coding applies a content-based or conceptual phrase representing a topic of inquiry to a segment of data that relates to a specific research question used to frame the data collection (Saldaña, 2009). Using structural coding allowed me to access segments of data that were relevant to a particular analysis from the larger data set. This coding method was appropriate because students’ reflections and interviews were guided with questions based on the theoretical framework and research questions. In addition to the structural coding, I adopted an open coding system (Miles & Huberman, 1994) to analyze students’ interviews. This helped me to identify code units based
on the theoretical framework and research questions and add new codes or sub-codes that emerged as I read students’ reflections and interview transcripts.

In order to analyze the poster and students’ written drafts and make inferences about how they used the poster to revise, I adopted Royce’s (2002) framework of Intersemiotic Complementarity focusing on the ideational meaning in the written text and the poster. Based on a comparison of the two ideational meanings, I made inferences about how the poster and the draft share the same ideational meaning and drew conclusions about complementarity. In what follows, I present the results from the exit-survey as well as the qualitative analysis of the poster, reflections, and drafts. The purpose for presenting results from the exit-survey is to describe the bigger picture of how students in the class perceived the relation among the poster activity, noticing of gaps, and revision. Such bigger picture from the exit-survey provides contexts for understanding how the poster activity facilitated noticing and revision among the embedded cases in the class.

**Students’ perception of the poster activity: Results from exit-survey**

In general, Analysis of the responses from the exit survey shows that students found the poster activity helpful in noticing features that needed revision in their drafts. Questions 5, 6, and 7 on the exit-survey focused on their perception about the benefits of the poster activity to their writing and revision in particular. Ninety-one percent (91%) of the students agreed that making the poster was helpful for their writing, with 9% indicating disagreement. Eighty-two percent (82%) said the poster activity helped them notice things that needed revision in their papers while 18% indicated that it did not facilitate their noticing. In addition, 91% of students said they would continue to explore the poster activity on their own to revise the content and organization of their papers, while 9% said they would not explore the poster activity on their own. Table 6
presents students’ general perception of the poster activity as indicated by their response to the exit survey.

Table 6

Percentage and Frequency of Students' Perception of the Poster Activity

<table>
<thead>
<tr>
<th>Statement</th>
<th>1 Strongly Agree % (F)</th>
<th>2 Agree % (F)</th>
<th>3 Disagree % (F)</th>
<th>4 Strongly Disagree % (F)</th>
<th>Total % Agreement</th>
<th>Total % Disagree</th>
<th>N= 22</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q. 5 Making a poster as part of the writing process was helpful to me.</td>
<td>(32%) 7</td>
<td>(59%) 13</td>
<td>(9%) 2</td>
<td>0</td>
<td>91</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Q. 6 The poster activity helped me to Notice some things in my paper that needed to be done differently.</td>
<td>(23%) 5</td>
<td>(59%) 13</td>
<td>(18%) 4</td>
<td>0</td>
<td>82</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>Q. 7 Depending on what type of paper I am writing, I may continue to explore how making a poster might help me develop the content and organization of my papers.</td>
<td>(40.9%) 9</td>
<td>(50%) 11</td>
<td>(4.5%) 1</td>
<td>(4.5%) 1</td>
<td>90</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

Findings from students’ reflection and interviews

Analysis of students’ interviews indicates that they used the poster activity in three different ways: Pre-inscription only, point-of-inscription only, or both. Based on the way they used the poster activity, students were divided into three subunits (A, B, and C). Even though instructions for the assignments suggested that students compose a written draft before they create the poster, some students used it mainly as a pre-inscription activity, others used it both as pre-inscription and point-of-inscription activity, while others used it only as a point-of-inscription activity. As a pre-inscription activity, students used the poster activity to generate, refine, and organize their ideas before they began their written texts. When they used it as a
point-of-inscription activity, students had the goal of turning their written drafts into posters in order to assess whether or not their drafts conveyed their intended message. Fourteen students (63%) used the poster activity for pre-inscription and point-of-inscription revisions. They are classified as “subunit A” and are represented by Shirley and Lenard. Five students (22.7%) used the activity mainly for point-of-inscription revision as suggested by the instructor, and are classified as “subunit B”. They are represented by Tonia and Felicity. Three (13.6%) students, “subunit C”, are represented by Anderson and Ryan. They used the poster mainly for pre-inscription revision. Table 7 presents the reflections of the six focal students on how the activity helped them notice and revise their drafts. These focal students were selected to represent the three groups of students in the class because their poster activities were typical of other students in their group.
<table>
<thead>
<tr>
<th>Questions</th>
<th>Shirley (unit A)</th>
<th>Lenard (unit A)</th>
<th>Tonia (unit B)</th>
<th>Felicity (unit B)</th>
<th>Anderson (unit C)</th>
<th>Ryan (unit C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q. 7 What information do the images/videos give that is not already in your written draft?</td>
<td>- The details about how to fix the ailing economy</td>
<td>- The table shows the number of students who come to America</td>
<td>- I haven't written any examples about the medicine advertisement.</td>
<td>- Serial killers' background</td>
<td>- The audience can see the &quot;real&quot; problems that exist in today world when education is not equally distributed</td>
<td>- The different way of living between poor and rich</td>
</tr>
<tr>
<td>Q. 8 Comparing your written draft with your poster, what new information do you think your poster brings to your audience?</td>
<td>- A clear and straight sense that the economy is falling and sick.</td>
<td>- The reason why more and more Chinese students come to America</td>
<td>- It points out food, beauty product and medicine advertisement are sometimes untrustworthy</td>
<td>- More details story about some of the serial killers.</td>
<td>- Audience will start to realize what is actually means by civilization</td>
<td>- I think all things in my poster is contain in my draft</td>
</tr>
<tr>
<td>Q. 9 How will the ideas in the poster help you build on the ideas in your written draft?</td>
<td>- It helps me build a well-organized paper with my four sub-topics</td>
<td>- It makes the main idea of my passage more clear</td>
<td>- I can write advertisement for food for one paragraph</td>
<td>- The organization of the ideas as well as the additional points on the video.</td>
<td>- It serve as a brainstorm for me to come up with more ideas</td>
<td>- Actually, I don’t think the poster can help me to build the ideas</td>
</tr>
<tr>
<td>Q. 10 What words on the poster convey the main message of the poster?</td>
<td>- How to fix the economy; No ignoring; unemployment; Tax rate</td>
<td>- Better, English Education, Less Expense, Convenience Transportation</td>
<td>- Advertisements make products seem better than they really are</td>
<td>- Serial killers on the loose. Why?</td>
<td>- Education for better civilization</td>
<td>- The top sentence</td>
</tr>
<tr>
<td>Q. 16 How might the organization of ideas in your poster help you organize your ideas in the written draft?</td>
<td>- It will help my written draft with a better structure.</td>
<td>- My written draft followed the bulleted point in the poster</td>
<td>- First, write your thesis. Then, explain it. And divide the advertisement into three aspects</td>
<td>- It helps me arrange my points better and it's easier for me to get ideas with the help of the images, videos</td>
<td>- It gives me better guideline on how to arrange the ideas</td>
<td>- Helpless</td>
</tr>
</tbody>
</table>
In general, analysis of student’s reflections indicates that the poster activity helped them discover specific information, important words and phrases and organizational structure that helped them revise their written text. Students in subunits A and B, who used the poster for pre-inscription and point-of-inscription activities, reported that the activity helped them notice and revise. However, those in subunit C, who used it solely as a pre-inscription activity, found the poster activity less helpful for noticing and revision. In addition to the comments from their reflection, analysis of the posters, final drafts, and stimulated recall interviews shows that the way students used the activity influenced how it facilitated noticing of gaps for revision. For the rest of this section, I present the results and discussion of how the focal students used the poster activity and how that influenced their noticing and revision. I first give a short portrait of the focal students based on the responses they provided in the initial survey. Following this, I present findings from the analysis of their posters, final drafts, and stimulated recall interviews.

**Poster activity and noticing for students in subunit A**

**Shirley’s poster activity and noticing**

Shirley is from China and had had no exposure to college level English before taking the English 101C class. She was pursuing a major in Statistics. Choosing from four options that described learners’ language learning ability and revision skills (fair, good, very good, and excellent) on the initial survey, Shirley rated her English language learning skills as “good” and her ability to revise her own draft as “fair.” She indicated that when revising, she paid more attention to stating and developing ideas, organization, and style. She reported that she usually read over her paper once before submitting it for
grading. She also indicated that she found self-revision challenging. In her second assignment, Shirley wrote about the need to fix the failing USA economy; and in the third assignment, she analyzed one of the buildings on the Iowa State campus. She used the poster activity for point-of-inscription revision in Assignment 2 and for both pre and point-of-inscription revision in Assignment 3. As seen in Table 8, Shirley’s guided reflection shows that using images and videos helped her discover new meanings that she had not been able to express in the written text. Her responses indicate that making the poster helped her develop a more effective organization of ideas in her essays and identify important words and phrases that she used to convey her message.

Table 8
Shirley's poster and guided reflection

<table>
<thead>
<tr>
<th>Shirley’s Poster</th>
<th>Questions</th>
<th>Shirley’s Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q. 7 What information do the images/videos give that is not already in your written draft?</td>
<td>-The details about how to fix the ailing economy</td>
<td></td>
</tr>
<tr>
<td>Q. 8 Comparing your written draft with your poster, what new information do you think your poster brings to your audience?</td>
<td>-A clear and straight sense that the economy is falling and sick.</td>
<td></td>
</tr>
<tr>
<td>Q. 9 How will the ideas in the poster help you build on the ideas in your written draft?</td>
<td>-It helps me build a well-organized paper with my four sub-topic</td>
<td></td>
</tr>
<tr>
<td>Q. 10 What words on the poster convey the main message of the poster?</td>
<td>-How to fix the economy; No ignoring; unemployment; Tax rate</td>
<td></td>
</tr>
<tr>
<td>Q.16 How might the organization of ideas in your poster help you organize your ideas in the written draft?</td>
<td>-It will help my written draft have a better structure.</td>
<td></td>
</tr>
</tbody>
</table>
Intersemiotic analysis of the ideational meaning in the poster and the written draft shows that the same ideas are repeated verbatim or expressed in similar ways. Both the poster and the written draft convey the message that the US economy is failing and has a destructive effect on people’s life, and that this alarming situation can no longer be ignored. The analysis, therefore, affirmed Shirley’s claim that she benefited from the poster activity (see Table 9). Shirley followed the organizational structure of the poster in developing the ideas in the written draft: She discussed the failing economy, factors that caused the problem, and the impact of the crisis on the people, and called for immediate action to be taken to address the issues.

Table 9
Intersemiotic Analysis of the Ideational Meanings in Shirley’s Poster and Written Draft

<table>
<thead>
<tr>
<th>Visual Elements in Poster</th>
<th>Description</th>
<th>Linguistic representation of ideational meaning in Written Draft</th>
<th>Intersemiotic Complementarity</th>
</tr>
</thead>
<tbody>
<tr>
<td>The US economy is failing</td>
<td>The U.S. economic issue has been existed for many years but get more ailing and serious that finally gets people's highly attention during last 3 years (Excerpt from Shirley’s introduction).</td>
<td>Synonymy: - Fail/ailing - No more ignoring/biggest concern Linguistic Repetition: Unemployment - The US economy - Ignoring Repetition of ideas: - The economy is failing and needs attention - Every body is affected - We have to do something about it</td>
<td></td>
</tr>
<tr>
<td>The problem has caused unemployment, which is destroying the lives of the citizens and people around the world.</td>
<td>After that, high unemployment rate becomes the biggest concern of American citizens. Although the GDP of United States are increases continuously for four quarters, the unemployment rate still keeps up to over 9.5% (Excerpt from her third paragraph).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>This alarming situation can no longer be ignored.</td>
<td>The economic issue of United States has become an economic concern in worldwide because the important role that dollar plays in the world economy. We have to do something about it instead of ignoring it like we did before (Excerpt from her conclusion).</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
In addition, some of the causes for the failing economy that she discussed as well as the solutions she proposed were ideas that she borrowed from the video in her poster. Furthermore, findings from Shirley’s stimulated recall interview provided explanation of how she benefited from the poster activity. She reported that making the poster gave her an opportunity to do a two-way revision, in which she moved back and forth between the poster and her written text using ideas from the poster to enrich the essay and vice versa. The following excerpt\(^5\) from my interview with Shirley reveals how she used the poster activity.

**Excerpt 1: First Stimulated Recall Interview with Shirley (October 4, 2012)**

**Richmond:** At this point in the semester, how do you understand revision?

**Shirley:** For me the um, um before the course when I think about my essay it’s just the wording like a lot of words coming together and it’s kind’na boring but now I think about my essay the first thing come up to my mind is the pictures and the image eh it’s made eh the paper like more vivid and interesting to me and also interesting to the audience I want to show about my essay.

**Richmond:** Um, one reason for making you do the poster is to help you see some things in your paper that need improvement. Do you think that is happening?

**Shirley:** Umm, for me uh the regular poster and the paper itself um they are like revising each other. Sometimes I come up with some good ideas for the poster and I add them to the paper and sometimes I think of something I can write in the paper to make the statement better and after I wrote something I will add some picture to the poster too. So it’s a two-way revision.

As she stated, the poster made her essay “more vivid and interesting” and helped her notice some ideas that she used to revise her written draft. In addition, the poster activity helped her think about her essay beyond the alphabetic text and this increased her

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\(^5\) All excerpts from students’ interviews are reported verbatim throughout this study.
motivation during the writing process. When I asked her for final comments during our last interview, Shirley said: “We've done plenty of work in this course um, I love the poster actually and I think the poster is the part I like the best in this course and because I enjoy it, the poster, than writing those words” (Shirley, Final Interview, Dec. 14, 2012). Shirley’s perception about the poster activity was similar to that of Lenard and other students in her group.

**Lenard’s poster activity and noticing**

Lenard is a Chinese student who was pursuing a major in Electrical Engineering. He had no exposure to college level English before taking this class. In his responses to the initial survey questions, he described his English language learning ability and revision skills as “fair.” Describing what he focused on during revision, Lenard indicated that he paid more attention to content than surface issues, development of ideas, vocabulary, and organization. Like Shirley and others in subunit A, Lenard reported that he read over his essays once and turned them in for grading and that he found revision challenging.

Lenard used the poster activity for both pre-inscription and point-of-inscription revisions. In his second essay, he wrote about the reasons why more Chinese students are coming to America to study. His third essay was about the Campanile on the Iowa State University campus. His reflection in Table 10 shows that he benefited from the use of images and videos as semiotic modes. Specifically, he reported that the use of tables and videos in the poster helped him access two important pieces of information that he had not captured in the written draft, namely, research on the number of Chinese students who come to the US and the meaning of the Campanile. The poster activity also helped
him identify specific words and phrases, such as “better English education, less expensive,” that helped him express the main ideas he wanted to convey to his audience.

In addition, Lenard reported that the poster activity helped him organize his essays more effectively: “My written draft followed the bullet point in the poster” (Lenard’s Reflection.1). In his reflection for assignment 2, he wrote: “I will write each aspect in each paragraph. And the main message of the poster will be the thesis of my essay” (Lenard’s Reflection. 2). Table 10 presents Lenard’s poster and reflection for assignment 2.

### Table 10

<table>
<thead>
<tr>
<th>Lenard’s Poster</th>
<th>Questions</th>
<th>Lenard’s Response</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Q. 7 What information do the images/videos give that is not already in your written draft?</td>
<td>- The table shows accurate mount of students come to America</td>
</tr>
<tr>
<td></td>
<td>Q. 8 Comparing your written draft with your poster, what new information do you think your poster brings to your audience?</td>
<td>-The reason why more and more Chinese students come to America</td>
</tr>
<tr>
<td></td>
<td>Q.9 How will the ideas in the poster help you build on the ideas in your written draft?</td>
<td>-It make the main idea of my passage more clearly</td>
</tr>
<tr>
<td></td>
<td>Q. 10 What words on the poster convey the main message of the poster?</td>
<td>-Better, English Education, Less Expense, Convenience Transportation</td>
</tr>
<tr>
<td></td>
<td>Q.16 How might the organization of ideas in your poster help you organize your ideas in the written draft?</td>
<td>-My written draft followed the bullet point in the poster</td>
</tr>
</tbody>
</table>
Intersemiotic ideational analysis of Lenard’s second poster and the final draft of that assignment did not reveal any table in the poster. Therefore, Lenard’s response to question 7 could not be affirmed. However, the analysis showed that the poster and the written draft had the same ideational meaning and that he actually used the poster as a guide to revise the organization of his essay. Table 11 shows the analysis of the ideational meaning in Lenard’s poster and written draft.

<table>
<thead>
<tr>
<th>Visual Elements in Poster</th>
<th>Description</th>
<th>Linguistic representation of ideational meaning in Written Draft</th>
<th>Intersemiotic Complementariness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poster title focusing on Chinese students coming to America</td>
<td>It’s easier for Chinese students to study in America than before. Do you have one or two Chinese friends? Do you notice that there are more Chinese students in your high school or university than before? Nowadays, a lot of Chinese students come to America to study for their master or bachelor degree. <strong>The rate of Chinese students studying in America still keeps rising.</strong> The reason why more and more Chinese leave their families to study in America is because it is much easier for them to achieve it than before. In the following passage, I will explain this phenomenon in three aspects: <strong>Language, expense and “communication and transportation”</strong> to tell you why it is much easier (Excerpt from Lenard’s introduction: Paper 2).</td>
<td><strong>Linguistic Repetition:</strong> - Chinese students come to America - Why more and more Chinese - Much easier - Expense, communication, transportation <strong>Synonymy:</strong> - Education/school or university, study - More easy/easier <strong>Repetition of Ideas:</strong> Factors including language, cost, communication, and transportation explain why more and more Chinese students are coming to study in the USA.</td>
<td></td>
</tr>
<tr>
<td>Image of students traveling</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Main reasons for students coming to the USA</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
students to come to the US is repeated in both modes. Some of the main reasons given in
the poster are repeated verbatim (education, expense, communication, and
transportation) while others are expressed in synonyms. For instance, Lenard used
Language in the introduction to mean the same as English in the poster. He also used
master or bachelor degree to mean education.

In addition, the draft he had before the poster described education in China and
how expensive it is for students to get access to a good education in China. The final
draft, however, followed the structure of the poster. He described the phenomenon of
many Chinese students coming to the US and explained the rationale through a
comparison of the two educational systems in terms of quality, cost, and convenience as
he outlined in the poster. During the stimulated recall interview, Lenard explained that
the poster activity offered him a new way to “see” his essay.

Excerpt 2: Second Interview with Lenard (October 18, 2012)

Richmond: At this point in the semester, how do you understand revision?

Lenard: For me revision is not changing the idea of your paragraph but to make
your paragraph correct.

Richmond: Um, one reason for making you do the poster, listen, and add visuals
to your essay is to help you see some things in your paper that need
improvement. Do you think that is happening?

Lenard: Yes, it kind of offer new ways to see your paragraph. Like the poster
when you do it you have to search for a lot of information from the
Internet and then you can get a better understanding of that topic.

The above interview indicates that doing the poster helped Lenard do more research on
the topic and develop a better understanding of the issue. It also helped him notice things
that needed revision in his written draft.
Felicity’s poster activity and noticing

Felicity is from Malaysia and was pursuing a major in Public Relations. She had had two-semester exposure to college level English in Malaysia before taking this class. She considered her English language learning ability “good” and her revision skills “fair”. Felicity indicated that she focused more on vocabulary, sentence structure, and development of ideas during revision. Her revision strategy was to read over her work once and submit it for grading. She also found self-revision challenging.

Felicity’s reflections indicate that making the poster helped her notice specific things that helped her revision. She wrote about serial killing in assignment 2 and a mural in the school library in her third essay. Felicity made different gains from using the poster activity for revision. She commented in her reflection that the use of images and videos helped her discover and convey new details about serial killing that she did not have in the written draft. She also reported that doing the poster helped her develop a better organizational structure for her essay: “It helps me arrange my points better and it’s easier for me to get ideas with the help of the images, videos and points that are broken down” (Felicity’s Reflection 1). In addition, doing the poster helped her identify catchy words and phrases that embodied the messages she intended to convey to her audience, such as “on the loose, why, serial killers”. Table 12 presents Felicity’s poster and guided reflection.
Table 12
Felicity's Poster and Guided Reflection

<table>
<thead>
<tr>
<th>Felicity’s Poster</th>
<th>Questions</th>
<th>Felicity’s Response</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Q. 7 What information do the images/videos give that is not already in your written draft?</td>
<td>- Serial killers' background</td>
</tr>
<tr>
<td></td>
<td>Q. 8 Comparing your written draft with your poster, what new information do you think your poster brings to your audience?</td>
<td>- More details story about some of the serial killers.</td>
</tr>
<tr>
<td></td>
<td>Q. 9 How will the ideas in the poster help you build on the ideas in your written draft?</td>
<td>- The organization of the ideas as well as the additional points on the video.</td>
</tr>
<tr>
<td></td>
<td>Q.10 What words on the poster convey the main message of the poster?</td>
<td>-Serial killers on the loose. Why?</td>
</tr>
<tr>
<td></td>
<td>Q.16 How might the organization of ideas in your poster help you organize your ideas in the written draft?</td>
<td>-It helps me arrange my points better and it's easier for me to get ideas with the help of the images, videos and points that are broken down.</td>
</tr>
</tbody>
</table>

Analysis of her poster, the draft she had before creating the poster, and her final draft affirms Felicity’s claim that the poster activity helped her discover new meanings and develop a better organizational structure. For instance, in the draft before her first poster, she talked only about why there are so many serial killers in the USA, but in her poster she provided context for the discussion from newspaper reports and added the impact of serial killing on society. She also provided specific examples of serial killers as reported by the media and explained why they become serial killers as well as how they
attack their victims. Finally, she called on people to be alert. Her final draft shows that Felicity revised her draft to follow the way she organized her ideas in the poster. She also used a lot of details from the video, which was a news report on serial killers in the USA. Furthermore, the poster and the written draft had the same ideational meaning as seen in Table 13.

Table 13
Analysis of Ideational Meaning in Felicity’s Poster and Written Draft

<table>
<thead>
<tr>
<th>Visual Elements in Poster</th>
<th>Description</th>
<th>Linguistic representation of ideational meaning in Written Draft</th>
<th>Intersemiotic Complementarity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Images of serial killers</td>
<td>People should be aware of the surrounding wherever they are. This is a serious matter. No one should take this lightly. One mistake can cost them their life. Anybody can be victim of serial killers. No matter how strong someone is, everybody should always bear in mind that serial killers are dangerous and can do anything to harm people. (Excerpt from Felicity’s conclusion; paper 2)</td>
<td>Linguistic Repetition: -Victim -Serial killers -Tragedy Synonymy: -Victims can be anyone/ anybody can be victim -Serious/ dangerous</td>
<td></td>
</tr>
<tr>
<td>Symbol of death</td>
<td>A tragic murder video</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Analysis of Felicity’s poster and the excerpt from her written draft, as seen in Table 13 shows that the poster and the written draft had the same ideational meaning expressed through intersemiotic repetition and synonymy. Concepts, such as serial killers, victims, death, and the need to be alert are either repeated verbatim or expressed
in similar ways in the poster and the written drafts. Besides the evidence from her written reflection, the poster, and the final drafts of her papers, findings from the interviews with Felicity provided rich insight into how she used the poster activity. She found the poster activity innovative, motivating, and helpful for revision. Not only did the poster give her another way of looking at revision, but it also helped her overcome writer’s block when she used it as a pre-inscription activity. During the last interview, Felicity explained how she benefited from the poster activity:

Excerpt 3: Final Interview with Felicity (December 4, 2012)

Richmond: So, Good Afternoon.
Felicity: Afternoon,
Richmond: Are you happy the semester is over?
Felicity: Yeah
Richmond: Okay, so I just want you to talk to me about your experience in this class
Felicity: I learned different ways to revise my essay, to gather up ideas how using the poster and how to check my essay. I've never done anything like that before.
Richmond: Um, one reason for making you do the poster, listen, and add visuals to your essay is to help you see some things in your paper that need improvement. Do you think that is happening?
Felicity: As for me I think the um the visual helps a lot um before I write any essay you assign us to do um sometimes I don’t have any ideas to write and when I design the poster and I find the pictures and visuals and everything then I started getting the ideas of what I am going to write and I yeah, I think um visual is one element that helps a lot with my writing.

As she explains in the excerpt above, the visuals she used in her poster helped Felicity to develop ideas about her topic and she described the visual as “one element that helps a lot with my writing”. Felicity’s comments were similar to what Tonia and others in her group said about the poster activity. Below, I present Tonia’s poster activity.
**Tonia’s poster activity and noticing**

Tonia is a Chinese student pursuing a Chemical Engineering major. Before taking this class, she had had no exposure to college level English. She described both her English language learning ability and revision skills as “good”. Responding to questions about her revision strategy, Tonia indicated that she paid more attention to sentence structure, vocabulary, content, and style; and that she read over her essays twice to correct grammar and organization before she submitted her paper for grading. She reported that she found self-revision “fairly easy”. Table 14 contains Tonia’s poster and guided reflection for assignment 2.

**Table 14**
Tonia’s Poster and Guided Reflection

<table>
<thead>
<tr>
<th>Questions</th>
<th>Tonia’s Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q. 7 What information do the images/videos give that is not already in your written draft?</td>
<td>- I haven’t written any examples about the medicine advertisement.</td>
</tr>
<tr>
<td>Q. 8 Comparing your written draft with your poster, what new information do you think your poster brings to your audience?</td>
<td>- It points out food, beauty product and medicine advertisement are sometimes untrustworthy</td>
</tr>
<tr>
<td>Q. 9 How will the ideas in the poster help you build on the ideas in your written draft?</td>
<td>- I can write advertisement for food for one paragraph,</td>
</tr>
<tr>
<td>Q. 10 What words on the poster convey the main message of the poster?</td>
<td>- Advertisements make products seem better than they really are</td>
</tr>
<tr>
<td>Q. 16 How might the organization of ideas in your poster help you organize your ideas in the written draft?</td>
<td>- First, write your thesis. Then, explain it. And divide the advertisement into three aspects and give the examples separately. Last, tell the exception and conclude the text.</td>
</tr>
</tbody>
</table>
As captured in her reflection in Table 14 the activity helped Tonia access specific ideas that she had not mentioned in her draft: “I haven't written any examples about the medicine advertisement” (Tonia’s Reflection.1). The video gave her additional information and helped with her organization. Her response to question 16 (Table 14) shows how the poster provided visual guideline for her in organizing her paper: “First, write your thesis. Then, explain it and divide the advertisement into three aspects and give the examples separately. Last, tell the exception and conclude the text” (Tonia’s Reflection 1).

Analysis of the ideational meaning of the poster and the draft indicates that the ideas in the poster are repeated or expressed in similar ways in the written draft. The following excerpt from Tonia’s introductory paragraph reveals how the ideational meaning in the poster (advertisements such as instant noodles and McDonald’s Big Mac could be misleading) is also expressed in the written draft:

We see many advertisements every day and gain information from them. Do advertisements make the products seem better than they really are? In my opinion, most advertisements exaggerate the desirable qualities of the products, because they can attract consumers and boost sales. Consider advertisement for food and drinks. The advertisements for instant noodles present the product in a very attractive way, with the noodle covered with beef, shrimps, and all kinds of vegetables. In fact, the amount of beef and shrimps is small. Consumers always feel disappointed and regret after buying constant noodles. Similarly, in advertisements for McDonald's, the Big Mac is huge. But actually you may not feel full after eating it. (Excerpt from Tonia’s Introduction, Paper 2)

In addition, the analysis shows that Tonia followed the three-part division she mentioned in her poster and written text. Although her poster does not contain much alphabetic text that helps the reader understand the specific message that the visuals are intended to
convey, Tonia’s explanation of the poster during the stimulated recall interview shows that the poster activity gave her a visual way of developing and organizing ideas that needed to be expressed in her essay. The following excerpt from the stimulated recall interview highlights how Tonia saw the poster activity as helping her revise the written text.

**Excerpt 4: Second Stimulated Recall Interview with Tonia (October 17, 2012)**

**Richmond:** Okay, Tonia, Good afternoon.
**Tonia:** Good Afternoon, professor.
**Richmond:** I have some questions that I want to talk to you about. The first one is, which of the technologies and activities that we do in the class do you find most useful?
**Tonia:** Something like natural reader and poster, yeah, I find it useful because it can, by doing this I can find the some, I mean, I can know how to read the draft, how to organize the passage.
**Richmond:** Oh okay, so let's talk about the poster reflection. How do you understand it? Why do you think I make you do the poster reflection?
**Tonia:** Because it will lead you to connect the poster to your essay.

In general, Tonia’s interview shows that she found the poster activity useful. As she noted, the poster reflection helped her connect the poster to her written draft and develop some confidence in her ability to do self-revision. Her experience is similar to other students in subunits A and B, but different from that of students in subunit C, such as Anderson and Ryan, who generally found the poster activity less helpful for revision.
Anderson’s poster activity and noticing

Anderson’s response to the initial survey questions indicates that he is from Malaysia and pursuing a major in Economics. He had had one-semester exposure to college level English before taking this class. He described his English language learning and revision skills as “good” and stated that he paid equal attention to content, style, development of ideas, and spelling. Anderson also reported that he revised his essay more than twice before submitting it for grading and that he found self-revision challenging.

In his first essay, Anderson wrote about the challenges of education in the world today. In the second assignment, he wrote about one of the statues on the Iowa State Campus. In both cases, he created the poster before writing the essay. As he indicated in his reflection, he used the poster activity for brainstorming: “It serves as a brainstorm for me to come up with more ideas” (Anderson’s Reflection 1) and not so much as a means for revision. Since he did the poster before writing the draft, he found the questions on the guided reflection irrelevant; apart form his responses to the guided reflection in the case of the assignment 2, he did not complete the guided reflection for the rest of the assignments. Even in the case of Assignment 2, the way he wrote his reflections seems to imply that he focused on how the audience might derive some meaning from the poster but not how the poster was helping him notice issues about his draft.

However, even when he used the poster mainly as a pre-inscription activity, he seemed to have made some indirect gains, as he noted in his guided reflection: “It gives me better guideline on how to arrange the ideas” (Anderson’s Reflection 1).

Unfortunately, Anderson deleted his posters before I could retrieve them for analysis so I
could not compare his final draft to the poster and compare the ideational meanings in his poster and final draft. I could, therefore, not confirm his claims in the reflection that the poster helped him organize ideas. In the stimulated recall interview, Anderson explained why he did not find the poster activity relevant for his writing.

Excerpt 5: Third Stimulated Recall Interview with Anderson (November 15, 2012)

Richmond: Okay, what are the things that you focus on when you are revising at this point?
Anderson: Maybe the level of maturity of development of idea; do you get what I mean?
Richmond: mm, yes
Anderson: How my idea is organized and whether my writing is mature or not. It is still in a high school level or it can be read as an academician.
Richmond: mm
Anderson: So, that is how I look, and also I'm looking for any grammatical errors
Richmond: So do the activities that you do help you in any way?
Anderson: uh, yes, like, maybe, maybe a critical issues, so I think we need to have a reflection on poster to trigger our brain to have more ideas but sometimes the questions actually didn't appear at the poster, so when there is a reflection on poster it is not helpful because I have the poster and no draft yet.

Anderson used the poster solely as a pre-inscription activity and so found the questions on the reflection guide irrelevant, since those questions were meant to guide students to compare the poster to their draft and use it to enrich the draft. During the second interview, Anderson revealed that his personal belief was that the best approach to revising one’s paper is receiving feedback from an instructor because self-revision makes one hold on to one’s own ideas: “but, it’s like, because you still stick to your own ideas” (Anderson, Interview 3). Anderson’s evaluation of the usefulness of the poster activity was, therefore, influenced by how he used the activity and by his belief that
teacher comments are more helpful for revision than self-revision. Some of Anderson’s beliefs about revision and the poster activity were also expressed by Ryan.

**Ryan’s poster activity and noticing**

Ryan is from China and was pursuing an Engineering major. He had had two semesters of exposure to college level English and described his English language learning ability as “good”. Ryan saw his revision skills as “fair” and said he found self-revision challenging. He indicated that he focused more on vocabulary, spelling, sentence structure, and organization during revision. His revision strategy involved reading over his essay once. When asked whether he preferred reading texts that have only words or both words and visuals, his response was “I don’t care”.

Among the students in subunit C, Ryan had the most pessimistic attitude towards the poster activity. Like Anderson, Ryan did not see the poster activity as helping him revise. In his second assignment, he wrote about social injustice with a focus on the gulf between the rich and the poor in different countries in the world. In his third essay, he wrote about his residence hall at Iowa State University. In both cases, Ryan created the poster before writing the essay but found the poster activity redundant. In his reflection he wrote: “*Actually, I don’t think the poster can help me to build the ideas*” (Ryan, Reflection1); and when asked how the poster helped him with organization of ideas as he wrote Assignment 2, he answered: “Helpless”. However, as he completed his reflection for the third assignment, Ryan reported that creating the poster helped him find visuals to enrich his essay and develop a better organization: “*It really help me a lot, it give me main structure of the whole essay*” (Ryan Reflection 2). Table 15 presents Ryan’s poster and reflection for his third assignment.
Based on analysis of his poster and final draft, I inferred that Ryan actually followed the arrangement in his poster to organize the essay. He first introduced the hall, described it, and discussed its importance in terms of its facilities and proximity. In this case, the pre-inscription activity helped Ryan to revise the organization of the ideas before writing the essay. Table 16 shows how the main ideas in the poster served as topic sentences in Ryan’s written draft.

### Table 15
Ryan's Poster and Guided Reflection

<table>
<thead>
<tr>
<th>Ryan’s Poster</th>
<th>Questions</th>
<th>Ryan’s Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q. 7 What information do the images/videos give that is not already in your written draft?</td>
<td>-Whole visual</td>
<td></td>
</tr>
<tr>
<td>Q. 8 Comparing your written draft with your poster, what new information do you think your poster brings to your audience?</td>
<td>-Visual information</td>
<td></td>
</tr>
<tr>
<td>Q.9 How will the ideas in the poster help you build on the ideas in your written draft?</td>
<td>- It help me find more aspect to write</td>
<td></td>
</tr>
<tr>
<td>Q. 10 What words on the poster convey the main message of the poster?</td>
<td>- Well designed</td>
<td></td>
</tr>
<tr>
<td>Q.16 How might the organization of ideas in your poster help you organize your ideas in the written draft?</td>
<td>- It real help me a lot, it give me main structure of the whole essay</td>
<td></td>
</tr>
</tbody>
</table>
Table 13
Intersemiotic Ideational Analysis of Ryan’s Poster and Written Draft

<table>
<thead>
<tr>
<th>Visual Elements in Poster</th>
<th>Description</th>
<th>Linguistic representation of ideational meaning in Written Draft</th>
<th>Intersemiotic Complementarity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location and general features of the hall highlighted in the poster</td>
<td><strong>Topic Sentence 1:</strong> Beginning with the feature, Wilson-Wallace is designed like twins, and both have 10 flowers tall, that is one of the tallest dormitories in US.</td>
<td><strong>Linguistic Repetition:</strong> Location, features, Wilson Wallace, facilities, <strong>Synonymy:</strong> Common area/convenient stuff</td>
<td></td>
</tr>
<tr>
<td>Ryan notes specific features that make the hall important to students who live there</td>
<td><strong>Topic Sentence 2:</strong> Moving in to the building, people will be attracted by the excellent facilities in this dormitory. <strong>Topic Sentence 3:</strong> Wilson-Wallace hall contains many convenient stuffs, which made sure that students living comfortable in their dorm and enjoying the life in Iowa state university.</td>
<td><strong>Repetition of ideas:</strong> Wilson-Wallace Hall is one of the best places to live on ISU campus because of its location and facilities</td>
<td></td>
</tr>
</tbody>
</table>

In an Interview with Ryan, he explained why he found the poster activity a bit more useful for the third assignment and not the second. He indicated that he always did the poster before writing just to get it out of the way and receive the participation grade but in the case of assignment 3, writing about the building was difficult so the poster was actually helpful in finding and organizing ideas before writing. The analysis of his final draft confirmed Ryan’s claim that making the poster helped him organize ideas in his written draft. Also, like Anderson, Ryan believed that self-revision did not lead to improvement in writing skills and saw teacher and/or peer comments as what brings improvement in writing skills. In his journal reflection Ryan wrote:

In my opinion, writing easy cannot improve our writing skill, because people don’t know what they did good and what they did not. When we got the response from others, can be teacher or students, we know that what aspect we should do better, and we start to rethink about it. Compared by what we think before, the new opinion will be better, and we gain many benefits from doing these things (Ryan’s Journal Reflection, Nov. 26, 2012).
Furthermore, during the stimulated recall interview, Ryan indicated that he did not like the poster activity because he is not a visual learner and he believed that his problem was with grammar and organization and that he would prefer revision activities that would focus on grammar:

**Excerpt 6: Third Stimulated Recall Interview with Ryan (November 15th, 2012)**

- **Richmond:** Hello Ryan, tell me something about the poster
- **Ryan:** It's fine, it's just wastes my time
- **Richmond:** Oh, okay, I want to know a little bit more
- **Ryan:** Because I prefer to write a draft by words, not by a poster, poster, so I think it's a waste of my time, but the reading response help me, help me to find the main point of my essay, it can work some useful admission from others, so that's what it help me for
- **Richmond:** Hmm, in our previous conversation too you said the poster was not useful.
- **Ryan:** Yeah, I don’t think it’s very helpful. Maybe I’m not a good visual person. I have a lot of problems about the grammar and so I focus just that, I most focus on that part and then for the organization sometimes I’m not very clearly so I will revise it and organize it to make sure the reader can understand me.

In summary, as Ryan reiterates, for students in subunit C, the poster activity was less useful because it did not focus on grammar revision. However, analysis of the reflections, posters, written drafts, and interviews of students in group A and B suggests that the poster activity helped them to construct and share new meanings that they had not expressed in their drafts. The analysis also suggests that the students benefited in terms of how the activity helped them notice issues with the organization of their ideas in order to revise them. Even for students like Anderson and Ryan, who indicated that the poster activity was less helpful, their interviews and reflections show that when they found the topic challenging, the poster activity helped them revise ideas and organization at the pre-inscription level.
**Question 1b: Listening Activity and Facilitation of Revision**

Research Question 1b was: *How might the use of text-to-speech (TTS) as a revisionary tool facilitate advanced-low ESL writers’ ability to notice gaps in their written drafts and do surface-level revisions?* This question focused on how the listening activity might facilitate students’ noticing and revision. In this activity, students uploaded their written drafts into text-to-speech software (*NaturalReader*) and listened for things that needed improvement. The activity was adopted from previous research that found that listening to one’s essay read aloud might help the writer look at a piece of writing from the audience perspective and notice dissonance between the author’s intended goal and the composed draft (Garrison, 2009). From the multimodal perspective, this activity focused on how the integration of the written and oral modes might facilitate self-revision. Students’ activity in *NaturalReader* was screen-recoded using *QuickTime* Player.

I analyzed the videos for instances of noticing and revision using Baldry and Thibault’s (2005) framework for analyzing videos. These authors based their transcription on elements, such as time, visual frame, visual image, kenesic action, sound track, and meta-functional interpretation. However, I based the analysis of the listening activity only on the visual image, a description of actions that students took as revealed by the annotations that they made, and the metafunctional interpretation. This allowed me to capture and present a picture narrative of how students used the listening activity for noticing and revision.
In addition to the screen recordings, students’ comments about the listening activity from their reflections, stimulated recall interviews and exit survey were also analyzed. In general, the findings indicate that listening to the essay helped students to notice and revise things that needed improvement in their drafts. The analysis of the screen recordings shows that students noticed issues that helped them do both surface and content-level revisions. The surface-level revisions were mostly done as students listened to their drafts, paused, and corrected some grammar errors. Noticing in relation to content-level revisions happened in the form of notes that students made to themselves regarding changes that they needed to make in order to improve the ideas and the general organization of their essay. Students’ descriptions of how the activity helped them, as recorded in their reflections, were also analyzed. In the rest of this section, I present findings from the exit survey that give the bigger picture of how students in the class perceived this activity. I also provide a detailed discussion of how the focal students used the listening activity to facilitate self-revision.

During the exit-survey, students were asked to state their level of agreement or disagreement with the statement: *Listening to my paper being read aloud helped me to notice some things in my paper that needed revision.* Analysis of their response indicates that 86% of the students agreed that the listening activity facilitated their noticing while 14% said the activity was not helpful for noticing. Table 17 presents students’ response.
Table 14
Student’s Perception about how the Listening Activity Facilitated Noticing Revision

<table>
<thead>
<tr>
<th>Statement</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>Total % Agreement</th>
<th>Total % Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q.8 Listening to my paper being read aloud helped me to Notice some things in my paper that needed revision.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>86% (19)</td>
<td>14% (3)</td>
</tr>
</tbody>
</table>

Students’ responses in Table 17 affirm the general impression I had gathered during the stimulated recall interviews. A majority of the students indicated that they noticed things that needed improvement in their drafts as they listened to their essays. Further, findings from the analysis of the screen recordings and interviews with the six focal students indicate that students in groups A and B found the listening activity useful for noticing while those in subunit C found it less useful for noticing.

**Listening and noticing in group A: Shirley & Lenard**

**Shirley’s listening activity**

Shirley performed three listening activities as she completed her major assignments and indicated, during the interview, that she listened to her essay many times at home. Analysis of her activities showed that she noticed more issues related to content-level revisions than surface-level. In her first activity she did not make any surface changes at all but inserted a comment: “it sounds weird”. In the second activity, however, she made three surface changes and wrote a note about content-level issues.
that needed revision. Table 18 presents a pictorial narrative of Shirley’s listening activity and the inferences about noticing that were made based on her activity.

**Table 15**
Shirley's Listening Activity and Noticing

<table>
<thead>
<tr>
<th>Shirley’s Listening Activity</th>
<th>Description</th>
<th>Inferences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shirley uploads and listens</td>
<td>She actually explores listening as a strategy for revision</td>
<td></td>
</tr>
<tr>
<td>to her essay</td>
<td></td>
<td></td>
</tr>
<tr>
<td>She makes note to herself:</td>
<td>The note provides evidence of noticing</td>
<td></td>
</tr>
<tr>
<td>1) She notes the need to</td>
<td></td>
<td></td>
</tr>
<tr>
<td>provide details about the</td>
<td></td>
<td></td>
</tr>
<tr>
<td>building, and 2) to provide</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a clearer thesis statement.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>She copies and pastes her</td>
<td>An indication that she intends to use what she noticed to revise her draft.</td>
<td></td>
</tr>
<tr>
<td>note in her written draft in</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Google docs.</em></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

My interview with Shirley also reveals how she perceived the importance of the listening activity to her revision. Her responses indicate that she found listening to her essay useful.

**Excerpt 7: Second Stimulated Recall Interview with Shirley (October 18, 2012)**

**Richmond:** Okay Shirley, what do you think about listening to your essay with Natural Reader?

**Shirley:** I like it very much, um using it at times I can feel the essay, the ideas, the structure and grammar and I think it’s useful because it can tell you the essay is weird or does not sound correct but at times it’s put me to sleep.

**Richmond:** Oh really? Why does it put you to sleep?
Shirley: At times, the voice is okay but at night it’s I do it more at night and I am sleepy so I just sleep.

The above excerpt from my interview with Shirley explains her general perception about the listening activity. On a whole, she indicated that the listening activity helped her notice and “feel” issues in her essay. She could tell when the essay sounded “weird” and needed some improvement in terms of grammatical accuracy, organization, and development of ideas. Her perception about the listening activity was similar to that of other members in subunit A, such as Lenard.

Lenard’s listening activity

Analysis of Lenard’s listening activity shows that the activity facilitated his noticing of errors related to grammar and content. In one of his reflections, Lenard described how listening to his essay helped him “get some new feelings” about his paper, detect problems with fluency and use conjunctions to ensure cohesion and better flow of ideas:

As my instructor introduce to me, I begin to use new software, which can read my paragraph to revise my paragraph so that I can get some new feelings. For instance, in my assignment 2 when I used the software to revise my work, I found out some parts of my work was not so fluency, then I added some conjunctive word to it. Then it sounded much better choice (Lenard’s Reflection, November 26, 2012).

The picture story of Lenard’s listening activity (Table 19) affirms his comments in the reflection that listening to his essay made him “feel” what was strange about his writing and helped him revise.
Table 16
Lenard’s Listening Activity & Noticing

<table>
<thead>
<tr>
<th>Lenard’s Listening Activity</th>
<th>Description</th>
<th>Inferences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lenard uploads and listens to his essay</td>
<td>He actually explored listening as a strategy for revision</td>
<td></td>
</tr>
<tr>
<td>Lenard highlights part of his essay and inserts a note “sound weird”</td>
<td>His note provides evidence of noticing</td>
<td></td>
</tr>
<tr>
<td>He copies and pastes the revised paper to replace his original draft in Google docs</td>
<td>Lenard revised his written drafts based on what he noticed during the listening activity</td>
<td></td>
</tr>
</tbody>
</table>

In addition to the evidence from his listening activity, findings from the interview point out that Lenard saw this activity as one of his favorite approaches to revising his papers.

**Excerpt 8**: Third Stimulated Recall Interview with Lenard (November 15, 2012)

*Richmond:* Okay, yeah, no the question is whether all these activities make you see anything about your writing, notice, you know, anything as you write.

*Lenard:* …as for the natural reader, I think this from, not just reading, but from also hearing your paragraph, so new aspect…I think I develop a lot because of the natural reader. Every time I listen to my paragraph really help on that, I can get new things. So I revise my paper with that.

Besides evidence from his listening activity and the interview, Lenard’s reflection on how he wrote the final exam indicates that the listening activity helped him develop his skills as a writer, using what he noticed to revise his papers. The following excerpt (8a) from his reflection highlights the specific ways he benefited from the listening activity:
Excerpt 8a: Lenard’s Final Reflection, (December 14, 2012)

Secondly, I use the natural reader to read my paper to try to find some parts, which are not good enough. I deleted the first sentence of my paper because I think it is just repeating my title. I find out the explanation in the second paragraph is not clear enough. So I write an example of compare between two students to make it is easier to understand. As I listened to my third paragraph, I feel satisfied with that, so I did not make any more change to this paragraph. Then when I listened my fourth paragraph, I feel that the word “better” does not match with the communication and transportation. Then I switch it to the more convenience. Finally, when I listened my last paragraph, I find out that it is just conclude my previous content. I think I need to go beyond it. So I switch it like this: We can predict that there will be more and more Chinese students come to America to study than before because of the better English education, less expense and better communication and transportation. In a word: it is easier for Chinese students to study in America than before.

The reflection above shows that the listening activity helped Lenard re-assure himself of things that were right about his essay and notice other things that needed revision such as vocabulary and a weak conclusion that needed to be made stronger. In all, Lenard found this activity helpful for noticing and revising. As in the case of Lenard, analysis of the listening activity of students from subunit B (Felicity and Tonia) also indicates that the listening activity was helpful in facilitating noticing.

Listening and noticing in subunit B: Felicity and Tonia

Felicity’s listening activity

Felicity’s activity shows that listening to her essay helped her notice problems with her introduction, organization, and style. For instance, she made a note to herself indicating that she discovered that her introduction lacked a thesis statement and that
she needed to improve her organization and expressions in order for her audience to understand her message. Table 20 presents a picture narrative of Felicity’s listening activity.

**Table 20**
Felicity’s Listening Activity

<table>
<thead>
<tr>
<th>Felicity’s listening Activity</th>
<th>Description</th>
<th>Inferences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Draft uploads into <strong>NaturalReader</strong></td>
<td>As she listens Felicity makes note of the need to insert a thesis statement into her introduction (see the last sentence in this picture)</td>
<td>Felicity listens to her essay</td>
</tr>
<tr>
<td></td>
<td>As evident in the notes in the bracket, Felicity makes additional notes about the need to improve the organization and the expressions she is using</td>
<td>Listening helps her notice</td>
</tr>
<tr>
<td></td>
<td><strong>Civilization and the ages of enlightenment cannot be separated. This is because the ages of enlightenment play a very significant role on the birth of great civilization. It is undeniable to say that education plays a major role in shaping the ages. The Near Eastern and medieval ages of enlightenment began in Europe in the 17th century. During that time, the role of education and education systems were important. A lot of great philosophers were written and many works of literature were being written. It was then that enlightenment pioneers people of that time started to think of improving their lives.</strong></td>
<td>Further evidence of noticing issues about organization and style</td>
</tr>
</tbody>
</table>

The inferences about noticing were affirmed by Felicity. In her journal reflection, Felicity described how she revised in the class and indicated that listening to her essay helped her capture problems with grammar, spelling and organization:

> There are a few methods that I use to revise my papers. First is to read through for 2 times. I start by read through the whole essay and the second time I read through and edit any mistakes in the papers. Secondly, I use Natural Reader. It’s an app that read my papers and allow me to listen to it. By doing this, I can capture any error in grammar or spelling or even the structures (Felicity’s Final Reflection, December 14, 2012).
Furthermore, Felicity revealed in her interviews that listening to her essay helped her discover other ways of revising her essays; and that the use of the CBMCA to revise had given her a deeper appreciation of what it means to revise and how to do so successfully. The following excerpt from my interview with Felicity highlights how her ideas about revision evolved during the semester:

**Excerpt 9: Final Interview with Felicity (December 3, 2012)**

**Richmond:** Yeah, so I just want you to talk to me about your experience in this class

**Felicity:** I learned different ways to revise my essay, to gather up ideas how using the poster and how to check my essay. I've never done anything like that before so especially the natural reader, which you introduced to us, that helps a lot and yeah like the Google doc, yeah.

**Richmond:** So, have you developed any kind of understanding of revision that you didn't use to have?

**Felicity:** It has changed a lot like the poster and the natural reader, application that you use.

**Richmond:** So typically, when you are revising your essays what do you do?

**Felicity:** Eh, I check the spelling error, sentence structure, grammar error, and whether the paragraphs are connected to each other and whether the point that write is relevant to the thesis statement, and the conclusion, everything.

As her responses indicate, Felicity developed the understanding that both surface and content revisions are important and that is what she focused on as she completed the computer-based multimodal composing activities. Her comments about the listening activity were similar to other people in her group, such as Tonia.
Tonia’s Listening Activity

Like Felicity, Tonia indicated in her reflections that listening to her essay helped her see things that needed improvement: “I went to professor's office and used Natural Reader to have a listen of my essay. And I can see it is abrupt in some places or there is no main point in the passage. Then I know how to revise it” (Tonia’s Journal Reflection, November 26, 2012). The main goal of asking students to perform this activity was to help them “see” and this according to Tonia’s comment is what the activity made her do. The following picture narrative of her listening activity, Table 21 affirms her comments.

Table 21
Tonia's Listening Activity and Noticing

<table>
<thead>
<tr>
<th>Tonia’s Listening Activity</th>
<th>Description</th>
<th>Inferences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tonia uploads her essay and listens to it using NaturalReader</td>
<td>She performed the listening activity</td>
<td></td>
</tr>
<tr>
<td></td>
<td>She makes a note on the need to add more details about the effects of advertisements</td>
<td>Listening facilitated her noticing</td>
</tr>
<tr>
<td>Tonia copies and pastes her note in her draft in Google docs.</td>
<td>Tonia used what she noticed to revise her paper</td>
<td></td>
</tr>
</tbody>
</table>

In addition to the picture narrative above, findings from the interviews provide evidence that the listening activity helped Tonia in terms of noticing. She indicated that she had developed some confidence in doing self-revision using technology. She also said that her understanding of revision had developed and that she could do more self-revisions using the various activities in the class, such as listening to her essay.
Excerpt 10: Third Stimulated Recall Interview with Tonia (November 15, 2012)

Richmond: Um, one reason for making you do the poster, listen, and add visuals to your essay is to help you see some things in your paper that need improvement. Do you think that is happening?

Tonia: Like see?

Richmond: Yes, does it help you notice anything that you can do to make your essay better?

Tonia: Um I think I can revise my essay by myself because there are some technology like the Natural Reader or the poster and the website…Before the class I always focus on grammar and the vocabulary, but right now I focus more on the organization and I have never done, I have never put visuals into my essays and right now I know how to do it.

Besides the above comments, Tonia’s reflection also provides some concrete evidence of specific ways she benefited from using the listening activity to revise her papers. In her final reflection she wrote:

First, I opened the natural reader to listen my own writing making myself a reader. I could hear of some grammar errors clearly and some sentences that are not fluent. And I felt that my introduction was not very attractive. It could make audience sleepy! And every paragraph was not long enough. I should focus on one aspect and write specific details about it. So I added content to the introduction and make it interesting to audience, corrected some grammar errors, changed sentence structure and focused on the unreal part of the advertisements (Tonia’s Final Reflection, December, 14, 2012).

As her reflection shows, listening to her essays helped her “see”, “hear”, and “feel” issues related to grammar, fluency, introduction, and the development of ideas and revise them.

In the rest of this section, I present how students in subunit C, Ryan and Anderson, used the listening activity and perceived its relevance for revision.
Listening and noticing for students in subunit C: Ryan and Anderson

Ryan’s listening activity

Ryan always came to the student-teacher conference late and had questions he wanted to ask, so I never got him to perform the listening activity for me to record. He, however, told me he downloaded Natural Reader as I had recommended and used it to listen to his essays on two occasions but did not find it helpful. During my third interview with him, however, he revealed the reason for his indifferent attitude towards most of the activities and the class in general. He hinted that he felt he was forced to take the class and that his friends had told him the course did not count towards graduation and would not affect his grade point average (GPA). Excerpt (11) from my interview with Ryan reveals his attitude towards the activities and the class in general:

Excerpt 11: Third Interview with Ryan (November 15, 2012)

Richmond: Okay, Ryan, today I would like you to tell me why you seem to have a negative attitude towards the class. Is there any problem? Do your classmates or I annoy you?
Ryan: I don’t know, I think, I feel you tell us to do so many things but my friends they told me this class does not count GPA so I don’t think ISU should make it forceful for students to take it.
Richmond: Oh, I see, so you feel you were forced to take the class right?
Ryan: But does it go for GPA?
Richmond: Eh, yes and no. No, it is not counted directly towards graduation; but yes because if you learn what I am trying to teach you; you will do very well in English 150 and 250, which count towards your GPA; but if you do not use this class to prepare for those classes you will struggle and that will affect your GPA.
Ryan: Are you sure?
Richmond: I know what I am talking about; I teach 150 and 250
Ryan: Really? I want your class
Richmond: Okay we will see about that but let’s finish this one first.
As captured in the dialogue above, Ryan’s attitude and perception of the computer-based multimodal composing activities were influenced, among other factors, by how he got into the course and what he had heard about the relevance of the course towards his GPA. Like all the students in the class, Ryan did not choose this course freely. As I explained in Chapter 3, students in the English 101C class were placed in the course based on the interpretation of their scores on the English Placement Test, which indicated that they needed extra help with their writing to be prepared for the regular English composition courses in the university. Ryan felt he was forced to take this class as a prerequisite, and that he did not need it. Thus, while the issue of placement did not influence how students, in general, responded to the activities in the class, it seems to have affected how Ryan embraced and used the activities and how he participated in the class as a whole. This was, however, not the case with Anderson who belongs to the same subunit as Ryan.

**Anderson’s listening activity and noticing**

As the picture narrative in Table 22 indicates, listening to the essay helped Anderson to notice and make note of specific things that needed improvement. Specifically, he identified the organization, expression, and sentence structure of his paper as elements that needed improvement. The way he wrote the note, as seen in the picture story, also indicates that listening to his essay helped him put himself in place of his audience and perceive their need more effectively: “*readers cannot get what I am trying to express*”. Table 22 presents the picture story of Anderson’s listening Activity.
Further analysis of Anderson’s reflection and interviews indicates that he had different perceptions about how listening to his essay helped his revision. Over the course of the semester, his perception moved from positive to less positive and then to very positive. When Anderson performed this activity for the first time, at the beginning of the semester, he was very excited about how the activity helped him discover problems about his draft. Explaining his perception of the listening activity at the beginning of the semester, Anderson described it as the “best” means for knowing what is wrong with his essay, especially when there is no teacher to point out things that need revision. The following dialogue between Anderson and me highlights his initial perception of the listening activity:

**Excerpt 12: First Interview with Anderson (October 1, 2012)**

**Richmond:** Ok Anderson, you just finished the Natural Reader activity and the machine read your essay to you. What do you think about it?

**Anderson:** Hum about the Natural Reader?
Richmond: Yeah and the activity in general
Anderson: Um, it’s my first time to have the NaturalReader, never in my life I have such an experience. I think maybe it can help me in the future because I will no longer have a lecturer, a teacher in my future year so hum it can help so say should I need to improve in order to make the essay more mature and more great in the organized form. Natural Reader is the best tool for me to know what’s wrong with my essay.

By the middle of the semester, however, Anderson’s perception about how listening helps his revision has dropped a little. When I asked him whether or not he found the computer-based multimodal composing activities helpful, he singled out the listening activity and commented that it was not that helpful because the technology could not help him as much as comments from his instructor.

Excerpt 13: Second Interview with Anderson (October 18, 2012)
Richmond: Okay, so do the activities that you do help you in any way?
Anderson: like the Nature Reader, I think it’s still difficult because you need a human for you to respond to the essay… because using the technology is different when the people, like the teacher, is revising your paper and give the same feedback from them

The change in Anderson’s perception about the listening activity could be attributed to the fact that at the time he completed the first listening activity he had not yet received any feedback on his paper from me, the instructor. By the third interview, however, he had received comments on his assignments 1 and 2; and I discussed those comments with him during student-teacher conferences. His evaluation of the listening activity during the third interview could be based on a comparison of self-revision with instructor feedback. By the end of the semester, however, Anderson’s perception about
the listening activity had become more like the comment he made when he performed the activity for the first time. During the final interview, he saw the listening activity as the solution to the problems that international students have as they struggle to communicate to native speakers through writing. The following comment sums up Anderson’s general perception of the activity by the end of the semester:

**Excerpt 14: Final Interview with Anderson (December 4, 2012)**

In my personal opinion, one of the problems for the international students to write the essay is to make sure whether the essay is suitable as how the native speaker writes so I think the *Natural Reader*, it gives the solution to the problem because we can listen how the native speaker speaks our paragraph it sounds like the native speaker is writing it.

To sum up, the findings from the exit survey, students’ reflections, their listening activity, and interviews indicate that the listening activity facilitated students’ noticing and revision. It not only helped them to “see”, but also helped them to “hear” and feel” things that needed revision. As they listened to their essays, they noticed issues with presentation of ideas, organization, and style. In particular, students did not make many changes related to grammar as they listened to their essays even though there were many grammar errors in the papers they uploaded into the text-to-speech software. In general, the listening activity facilitated noticing of grammar for learners who already had the ability to notice grammar errors. For those who were less proficient in grammar, the activity was less useful for noticing grammar errors.
Question 1C: Integration of Written and Visual texts (Still images)

Question 1c was: *How might the integration of written text and visual text (still images) help advanced-low ESL writers notice gaps in their written drafts and do content-related revision?* This question focused on how the integration of alphabetic text and visual text (still images) might help the students to notice gaps in their written drafts and do content-related revision. This is one activity that all the three groups of students found very helpful for noticing and revision, including students, such as Ryan, who had ambivalent attitudes towards the multimodal activities. Findings about students’ perception of how the integration of written and visual texts facilitated noticing and revision were based on analysis of their exit-survey and interviews. As seen in Table 23, there was a 100% agreement among students that adding visuals to their written text made them re-consider the content and organization of their ideas. Also, 95.5% of the students indicated that they would continue to explore how the integration of visual and written texts might help them communicate with their readers in the future.

<table>
<thead>
<tr>
<th>Table 23</th>
<th>Students’ Perception of Visual integration and Noticing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Statement</strong></td>
<td><strong>1</strong></td>
</tr>
<tr>
<td>Q. 9 Adding visuals to my papers helped me re-consider the content and organization of my ideas.</td>
<td><strong>Strongly Agree % (F)</strong></td>
</tr>
<tr>
<td></td>
<td>(54.5%) 12</td>
</tr>
<tr>
<td>Q. 10 I may continue to explore how adding visuals to my papers might help me communicate more effectively to my readers.</td>
<td><strong>Strongly Agree % (F)</strong></td>
</tr>
<tr>
<td></td>
<td>(50%) 11</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Students’ interviews provided a detailed explanation of how the integration of visual and written texts facilitated noticing and revision. All the focal students indicated that integration of the visuals made them pay more attention to the message they were communicating to their audience. Felicity said: “I think about where to put it and make sure it has a label and you know, it's related to the points that I want to write” (Felicity’s Interview 2). Lenard, Anderson, and Shirley expressed similar views. As Shirley, commented in the following excerpt, the activity made her revise several times in order to find the best place to insert the visual for effective communication.

**Excerpt 14: Third Interview with Shirley (November 15, 2012)**

We need to go over the paper and look into the place and the best place that we can put the image and it’s mostly like go write the paper over again and again to find the best place to insert the picture; and we don’t just insert one picture usually we insert two or more so after we find the place to insert the picture we basically go over our paper 5 or 6 times.

In addition to encouraging revision, the integration of visuals also provided opportunity for students to construct and share meaning that they could not easily have accessed using the written mode alone. For instance, Tonia explained how she struggled to describe some phenomenon to her readers but did not have the words to do that and how she relied on the visual to provide a clearer description in her paper. The following excerpt (15) from my interview with Tonia explains how she used this activity to revise her draft.
**Excerpt 15: Third Interview with Tonia (November 15, 2012)**

**Richmond:** Okay, so have you ever had any experience where you kind of added anything to your text because you were adding a picture or maybe you deleted something, does it make you take a second look at what you have written?

**Tonia:** Yeah

**Richmond:** How? Can you give me some example?

**Tonia:** Mmm, like, because I can read the, read some meanings from the visuals and I can even add something to my text. The visuals and the text must match to each other, so I'm to analyze by looking at the visuals and revise it.

The conversation with Tonia reveals how she benefited from the use of multiple modes in constructing and sharing meaning. As she indicated, she could “read some meanings from the visual” and add that to the written text. Not only did the visuals provide a language for Tonia to describe the phenomenon more clearly, but it also gave her a “voice” to express the emotions that she was struggling to convey through written words.

Like Tonia, Ryan indicated that the visuals helped him discover and use a “language and voice” that he did not have as he composed his drafts using only the alphabetic text. Ryan commented that integrating the visuals into his draft was his favorite activity. Even though he had said that he did not like the poster activity because he is not a visual learner, Ryan always integrated more than one visual into each of the four assignments. Describing his perception about integrating visuals and written texts, Ryan reported that the activity helped him express ideas that he could not convey using written words alone:
Excerpt 16: Ryan’s Third Interview (November 15, 2012)

I think if you cannot get something that I want to say from my essay, I will find some picture for you, for the reader, so some point is difficult to just write down things and there is more to put a picture there into the essay, so I will choose that picture. I prefer just putting on the reader's shoes and think about it's not my essay, not my essay. I will read it and think if I maybe I can't understand what I mean, so I will use the picture.

As Ryan describes above, the activity enabled him to put himself into the “shoes” of the reader and, if he felt the reader would not understand his essay, revised it to clarify his ideas. In all, students found the integration of visuals helpful for noticing and revision. In what follows, I present a synthesis and discuss of findings for research question 1.

**Synthesis and Discussion of Findings for Question 1**

As presented above, findings for research question 1 suggest that the CBMCA facilitated students’ noticing and revision of issues related to content, organization, integration of visual, and language, which are important features of academic text. With reference to the affordances of each activity and how it facilitated noticing and revision, the findings suggest that a number of factors influenced how a particular type of activity helped students. In general, there were three major findings related to question 1:

1. The poster facilitated internal revision at the pre-text level; and at the point-of-inscription, it helped students discover specific information, words and phrases, and organizational structure that they used to revise their written draft.
2. The listening activity helped students to notice issues with rhetorical and linguistic features of their academic texts and revise their essays.
3. The integration of visuals and written modes in the final drafts helped students to revise content and organization of ideas and develop “language” and the “voice” to express ideas that they were struggling to express using the written mode alone.

**The poster activity and facilitation of self-revision**

The poster activity facilitated different types and degrees of noticing and revision depending on the particular point in the composing process where students used this activity. As findings from students’ interviews indicate, when students used the poster as a pre-inscription activity, it helped them to do internal revision. Internal revision, as Murray (1978) points out, is an important mental process of discovery that “professional” writers go through to develop and shape ideas even before they begin a draft, and a skill that an “amateur” (p.86) needs to be helped to acquire. As important as the poster was in facilitating internal revision at the point of pre-inscription, the activity at this level is less effective for students like Ryan, who are not visual learners and might prefer doing an outline rather than doing a poster for an initial internal revision. Thus, the effectiveness of the poster activity at the point of pre-inscription depends on the learning style of the student. This finding affirms Lee’s (1994) observation that “learner’s learning styles and visual ability need to be taken into account when planning writing instruction” (p. 15).

At the point-of-inscription, the poster activity helped students develop a visual representation of the draft they had and compare the content, organization, and language of the poster with the draft. As reported in the findings, comparing one’s poster to a written draft using guided-reflection questions helped students notice specific and additional information they wanted to convey, important words and phrases helped them convey their intended meaning in the alphabetic text, and discover ways of improving the
organization of the their written draft. It is, however, important to note that the success of
the poster activity as a revision strategy at the point-of-inscription could be attributed, in
some sense, to explicit instruction, learner training, and scaffolding that were given to
students to help them use the poster effectively for noticing and revision. Students
received explicit instruction on the writing process in general and the importance of
revision in particular. The entire Assignment 2, in which students used the CBMCA for
the first time, was considered a time for learner training focusing on how to use each
activity as a revision strategy. In-class activities focused on turning a draft into a poster in
order to help students see how the ideas grew through the integration of different modes
to express the same message that the written text was intended to communicate in a more
effective way. In addition to creating a specific reflection guide to help students compare
their poster and draft and revise, I had to provide explicit instruction on how to use the
reflection guide through in-class activities in which I demonstrated how they could use
the reflection guide effectively. I found out that, left on their own, students could not use
the reflection guide, but providing examples for them and having them practice how to
use it in groups helped them developed an awareness that the poster activity was meant to
help them revise. These findings support what has been reported in L2 writing literature
that explicit instruction on revision strategies could have positive effect on students’
writing (Grabe & Kaplan, 1996; Porte, 1996; Sengupta, 2000).

In addition, the findings also reveal that the poster activity is effective when
students are allowed to decide at which point in the writing process they want to use it.
Even though I required students to create the poster only after composing an initial draft,
they used it when they saw the need for it, either at the point of pre-inscription or point-
of-inscription depending on the level of difficult they experienced in composing a particular assignment. Some students reported that if the topic was easy they began a written draft before doing the poster but when they found the assignment difficult, they usually began the poster first and used it to develop a written draft. Others also commented that if the topic was easy they found the poster activity unnecessary, but when the topic was more challenging, they found making a poster useful. This affirms previous observation in L2 writing research that contextual factors, such as task difficulty influence how students revise (Barkaoui, 2007).

**Listening activity and noticing of problems with rhetorical and linguistic features**

With regards to the listening activity, the findings suggest that encouraging students to use a listening activity as a revision strategy helped them notice issues with rhetorical and linguistic features of their academic texts. Not only did most students in my research find the listening activity useful for noticing issues with their writing, but they also considered it one of the most effective ways of knowing how an essay might “sound” from a reader’s perspective. It was a means through which students raised their awareness of language issues in their writing. Students also pointed out that they found the activity helpful because it was easy for them to download the text-to-speech software on their own computers and listen to their essays as often as they needed at home. This provided an opportunity for students to carry out revision as an on-going activity. One thing that was revealing was that students found this activity less stressful and more fun than reading the essays by themselves in order to revise. Most of the students told me they performed the listening activity when they got tired or bored with writing. Such reports from the students confirm the findings from previous research that integrating
listening activity into the writing process has the potential to increase students’
motivation in the writing process (DiEdardo, 2005; Garrison, 2009; Wijaya, 2006).

It is, however, important to note that in terms of noticing grammar errors, the
listening activity was most helpful for students who already possessed grammatical
competence. For students who were less proficient in grammar, the listening activity did
not help them notice grammar errors. For instance, Lenard, Felicity, and Tonia, who had
a high proficiency in grammar, corrected many grammar errors as they listened to their
essays while Shirley and Anderson, who had low proficiency in grammar, made almost
no grammar corrections as they listened to their essays. The free-version of the text-to-
speech software (Natural Reader) that students used in this activity did not have any
option for spellcheck, so students’ noticing of grammar problems depended solely on
their own ability to detect these errors. This was because the goal of my research was to
see how students could notice issues on their own rather than an instructor or any
program pointing out the error to them. However, it might be important for a classroom
activity that is not limited to observing how students can notice things on their own to use
a version of the text-to-speech software that has a spellcheck option. This might make the
listening activity even more useful for students with low proficiency in grammar.

Integration of modes and revision of content, organization, and development of
“language” and “voice”

Another observation worth discussing is how the students used the integration of
visual and written texts as a revision strategy. As indicated under the presentation of the
results and findings for research question 1c, students indicated that this activity helped
them pay a closer attention to the content and organization of ideas in their essays. It
also helped them construct, clarify, and express some meanings that they were
struggling to express using the written mode alone. For instance, Ryan, who described himself as a non-visual learner, commented that this activity helped him develop a “voice” and put himself in the shoes of his audience to revise his papers. This finding is similar to those from previous research indicating that multimodal composing activities have the potential to facilitate L2 writing. Particularly, it indicates that “multimodal approaches to composition provide writers who are having difficulty in using language, including those writers for whom English is a second language (ESL), with powerful tools for sharing knowledge and for self-expression” (Shin & Cimasko, 2008, p. 377). The findings also provide evidence that supports the argument that non-linguistic modes can enhance students’ ability to express intended meanings beyond language-based materials (Nelson, 2006; Tardy, 2005) and provide access to information that may not be easily available through the written mode (MacKee, 2006; Williams, 2001).

As in the case of the poster activity, the success of this activity could be related, to some extent, to the explicit teaching that was done on how to use this activity as a revision strategy. In addition to guiding students to do group rhetorical analysis of short essays that integrated visuals and written texts, students had to do a bi-weekly reading response of an academic text that integrated these two modes. This helped them develop some confidence and competence in integrating the two modes to ensure intersemiotic complementarity in their essays. These texts that students analyzed bi-weekly and the feedback I gave on their analysis served as models for effective integration of visual and written modes and provided on-going training and support for students as they performed this activity throughout the semester.
In sum, the CBMCA helped students notice things that needed revision in their papers and increased their motivation to revise their papers. It also helped them construct and express meanings that they were struggling to convey through the written mode. The rest of the analysis focuses on research question 2, which captured whether the kind of revision that students did, as a result of the CBMCA, led to any improvement in the overall quality of their essays. The rest of this chapter discusses the findings for research question 2.

Section 2: Results and Discussions for Research Question 2

This section presents findings and discussions for research question 2: To what extent do the revisions prompted by CBMCA lead to improvement of the overall quality of students’ written compositions? Data for answering this question came from students’ revisions as captured in Google docs and students’ scores on the final drafts of Assignment 3 (expository) and 4 (argumentative).

Analysis of students’ revision history was based on point-of-inscription revisions, which were the ongoing observable textual changes that students made to their drafts in Google docs. I decided to analyze the point-of-inscription revision because students in my research did not compose different drafts but one draft with a four-week history of its development. In my research, therefore, I did not focus on differences between drafts but the revision history of a draft. The revision history was downloaded and manually coded using the codes that I adopted from the Multi-dimensional Model of Revision (Stevenson, Schoonen, & Glopper, 2006). I did the coding with a second coder who teaches ESL writing, as I explained under inter-rater reliability in Chapter 3. The inter-rater reliability,
using simple percentage agreement, was 94%. In all, the second coder coded 50% of the data, and I coded all the data.

The scores from students’ essays were obtained from the average score that three ESL raters gave to the essays using a multimodal-grading rubric that I developed with them. The validity of the rubric and the inter-rater reliability among the three raters is discussed in Chapter three under the section that accounts for credibility and dependability of this research. The inter-rater reliability (Kendall’s tau-c) among the three raters was 0.972.

After coding the revision history, I used descriptive statistics to analyze the total frequency of revisions as completed by the whole class in Assignment 1, 3, and 4. In order to see whether the CBMCA encouraged more revisions than what they did when they composed their first essay (in which they did not use the CBMCA), I used paired-sample t-test to compare the means of students’ revision in the assignments. In comparing the means of students’ revision in different assignments, I used data from 13 students instead of the 22 students in the class because only 13 students had all their revision histories in Google docs. All students who had some of their revision history missing were excluded from the mean comparison.

In order to observe the actual relationship between type of revision and the improvement in text quality, I used data from only the six focal students. This was to make the grading of the essays less burdensome for the raters. Each one of them rated 16 essays in total. I used Pearson’s correlation test to calculate the correlation between the types of revision that students did and the final score that the three raters awarded to their essays.
In general, the findings show that students did more revisions when they used the CBMCA. The results also show that contrary to what previous research indicates, the students did more content-related revision than surface-level revisions. Most of their revisions were additions and non-error triggered with only a few substitutions and deletions. There were two different results regarding the total frequency of revision and text quality. The Pearson correlation for Assignment 3 showed that there was no significant correlation between total frequency and text quality. However, the analysis for Assignment 4 showed that there was a significant correlation between total frequency and text quality. In what follows, I present the findings and discussion for research question 2.

**CBMCA and students’ revision history: Entire class (13 students)**

Analysis of the total revision that students did in the various assignments shows that students did more revisions when they used the CBMCA as a procedural support. In the first assignment, students did not use the CBMCA. In Assignments 3 and 4, they revised using the CBMCA. The means and standard deviations for students’ total revisions were: Assignment 1 \( (M=82.4, \ SD=48.3) \) Assignment 3\( (M=157.3, \ SD=41.8) \), and assignment 4\( (M=185.9, \ SD=36.5) \). The results of a paired sample t-test analysis shows that there was a significant difference in the total number of revisions that students did in assignment 1 and Assignment 3 \( (t = -4.265, \ p < .001) \). Also, the result indicates that there was a significant difference in the total number of revisions in assignment 1 and Assignment 4 \( (t = -6.207, \ p < .000) \). In all, the t-test shows a significant difference in the total number of revisions that the class did when they used the CBMCA and when they did not. In order to estimate the magnitude of the
differences in the various revision histories, I calculated the effect size using correlation coefficient ($r^6$). The difference between Assignments 1 and 3 was -0.64 and that between assignment 1 and 4 was -0.77.

Students’ responses in the exit survey affirm this finding that the CBMCA encouraged students to revise more than they would have done on their own. When asked to indicate their level of agreement or disagreement with the statement: “The activities we did in this class helped me revise my papers more than I would have normally done”, 37% said they agree and 63% responded that they strongly agree that the activities made them revise more than they would have otherwise done. A further analysis of students’ revisions using descriptive statistics shows that they did more content and non-error triggered than surface and error-triggered.

**Specific types of revision**

With regards to the specific types of revisions that students made, the descriptive statistics of the revision history indicate that the students did more content-related revision than surface-level revisions. They also did more non-error triggered revisions than error-triggered revisions. Table 24 presents the descriptive statistics of the different types of revisions for each assignment that students completed.

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6 The effect size interpretation is based on Cohen’ (1998) benchmarks ($r$ effects: small $\geq .10$, medium $\geq .30$, large $\geq .50$). I used “$r$” instead of Cohen “$d$” because “$r$” is base-rate sensitive but “$d$” is not (McCraith & Meyer, 2006). In my research, the base-rate is not the sample size but the use of the CBMCA, which makes assignment 1 different from 3 and 4 because students did not use the CBMCA in assignment 1. This calls for base-rate sensitivity, hence my use of “$r$”.
Table 24
Descriptive Statistics of Students’ Revision History

<table>
<thead>
<tr>
<th>Type of Revision</th>
<th>Surface</th>
<th>Content</th>
<th>Error-triggered</th>
<th>Non error-triggered</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Assignment 1</td>
<td>29.46</td>
<td>31.6</td>
<td>61.62</td>
<td>37.1</td>
</tr>
<tr>
<td>Assignment 3</td>
<td>33.69</td>
<td>19.6</td>
<td>131</td>
<td>42.6</td>
</tr>
<tr>
<td>Assignment 4</td>
<td>41.46</td>
<td>16.9</td>
<td>153</td>
<td>31.2</td>
</tr>
</tbody>
</table>

In addition to comparing the means of students’ total revisions in the various assignments as well as the means of particular types of revision, I used Pearson correlation to determine the relation between students’ total revisions and the quality of their written texts. Below, I present the relations between students’ revision history and the quality of their texts focusing on the six focal students.

*Students’ revision history, text quality: Focal students*

Findings about the relation between revisions and text quality were based on a correlation analysis of the total frequency of revision and the scores that students received from the three ESL raters. The Pearson correlation coefficient for students’ revision and scores in Assignment 3 (p = 0.122) showed no significant correlation between total frequency of revision and text quality. Also, there was no significant correlation between types of revision and the quality of text in Assignment 3 and 4. However, there was a significant correlation (p = 0.012) between total frequency of revision and students’ scores in Assignment 4.
Besides the findings from the correlation analysis, students’ perception of the relation between revision and the quality of their text provides evidence that supports findings from students’ reflection, which indicates that they perceived the revisions prompted by the CBMCA as helping them improve the quality of their writing. The following comments from the reflections of the six focal students and other students in the class indicate students’ perception of how the revisions helped them improve the quality of their writing:

**Excerpt 17: Comments from Students’ Journal Reflection (November 26, 2012)**

**Lenard:** I think with the help of the ways I learned to revise and write a paper in this semester. I can write a paper, which is much better than before.

**Tonia:** I used many ways we have learned in this class to revise my final exam. By doing activities like natural reader, reviewing teacher’s comments and posters, I revised my essays successfully.

**Jay:** To conclude, I found out that revision is a necessary work to be done when writing an essay. After revision, my essay had a better quality. It flows well because it has better sentences. Also, the essay explains better because of more detailed supporting ideas.

**Jane:** I think by doing revision on the essay would help us in our writing skills as this would train us to improvise a better work and not just writing one essay and submitting it right away.

**Kane:** Now I consider revision as a great process of the composition. It is of great importance that revision can determine my final assignment quality. It forces me to review the whole passage again and again, so I can check the structure and organization things, even my writing style, not only the things that I focus before.
The above comments from the students suggest that they perceived the revisions they did in the class as helping them to improve quality of their writing. Among other things, the general tone of students’ reflections indicates that they saw the revisions prompted by the CBMCA as helping them make their essays “better”. For the rest of this section, I synthesize and discuss the findings for research question 2.

Synthesis and Discussion of Findings for Research Question 2

Three major findings emerged with regard to research question 2. Results from the descriptive statistics, t-tests, and Pearson correlation analyses suggest that:

1. Students did more content-related revision than surface-level revisions.
2. Most of their revisions were additions and non-error triggered.
3. There was no significant correlation between total frequency and text quality in Assignment 3. However, there was a significant correlation between total frequency and text quality in Assignment 4.

The students did more content-related revisions than surface-level revisions.

The finding that students did more content than surface-level revisions is contrary to what previous research has documented. The literature reviewed shows that inexperienced L2 writers usually carry out surface-level revisions and fail to do content-related revision (Chambers, 2011; Gaskill, 1986; Silva, 1993; Suzuki, 2008; and Zamel, 1983). However, students in my study did more content-level revisions than surface level. This finding could be attributed to the differences in the way I captured revision in my study and how previous studies analyzed revision. Most of the previous studies on L2 writers’ revision focused on observing changes that students made to different drafts (revision as re-transcription captured through a comparison of a new draft to a previous draft).
My research, however, focused on capturing the revision history (revision as ongoing changes within a single draft at the point-of-inscription). Unlike most previous studies, my research saw revision history not as the growth from one draft to another, but as the record of every change that the essay went through from its beginning to the point of submission for grading. The students in my study had no first or second drafts but a single draft with a history of its development. Figure 9 presents a sample revision history indicating the historical development of the draft as marked by the time stamp.

![Figure 9 Sample Revision History of Students’ Draft](image)

My analysis focused on the history and development of one single draft, as seen in Figure 9. Thus, while a comparison of different drafts of student essays (previous-text revisions) in most previous studies might not indicate any major revision in terms
of content, analysis of the developmental history of a draft at the point-of-inscription, in my research, indicates that students did more content revision.

In addition, the few studies that have analyzed the history of students’ revision, such as Chambers (2011) and Hall (1990), have also focused on timed essays. For example, in describing the writing conditions under which he studied the revision history of students, Hall (1990) writes: “For each writing task, two 90-minute writing sessions were individually scheduled. During these sessions, first and final drafts were planned, composed, and revised” (p.48). Under such conditions, students might not have enough time to change ideas but only to produce them and spend the few minutes or seconds they have left to do surface-level revisions that do not alter the meaning of their text. Unlike such timed essays in previous studies, essays in my research were “take-home” assignments, and students had four weeks to complete one essay; that might have also helped them pay more attention to content-related revisions.

Furthermore, the explicit instruction on the importance of content-level revisions as well as teaching students to use the CBMCA as procedural support also helped them focus more on content-level revisions. Analysis of students’ interviews affirms that the CBMCA helped them focus on content-level revisions. Thus, the focus on revision history rather than different drafts, the CBMCA, and the design of the assignments as “take-homes” help explain the finding that students did more content-level than surface-level revision in terms of adding, deleting, and substituting ideas that changed the meaning of their text as they composed.
Most of their revisions were additions and non-error triggered.

Another finding was that most of the revisions were additions and appeared as on-going composition. This affirmed the view of revision as a sub-process that can be embedded in other processes during composition (Flower & Hayes, 1981; Scardamalia & Bereiter, 1983; Sommers, 1980), “a process capable of interrupting composing at any time” (Witte, 1985 p. 261). It also suggests that both processes (composing and revising) interact in the production of texts.

However, the finding that students did fewer error-triggered revision in all assignments, calls for attention. Analysis of students’ final drafts indicates that there were many errors in vocabulary and grammar that they could not or at least did not notice and revise. This is similar to findings in previous research that, left on their own, inexperienced L2 writers do not notice linguistic problems, especially grammar issues in their drafts (Reynolds & Bonk, 1996; Sommers, 1980). Thus, while the CBMCA helped students revise and improve the rhetorical features of their drafts, the activities did not help students notice much issues related to grammar. This suggests the need to incorporate an activity into the CBMCA that will specifically help students notice and revise grammar errors and develop their vocabulary.

There was no significant correlation between total frequency and text quality in assignment 3; however, there was a significant correlation in assignment 4.

Contradictory findings from Assignments 3 and 4 indicate the complex nature of the relationship between revision and text quality. While the students’ total revision in Assignment 4 correlated with the quality of the texts they produced, there was no such correlation in Assignment 3. These findings coincide with previous contradictory
findings on the relationship between frequency of revision and overall text quality in L2 revision; it confirms Sengupta’s (2000) observation that the relation between revision and improvement of text quality is problematic. For instance Yagelski, (1995) found that more revision did not lead to improvement in text quality but others, such as Reynolds and Bonk (1996) and Stevenson et al., (2006) found that frequent revision resulted in improvement in text quality, “at least at the linguistic level” (p. 224).

A number of reasons could account for why there was no correlation between total revision and text quality in assignment 3. Analysis of data from the stimulated recall interviews indicates that the quality of the texts in Assignment 3 could be related more to the pre-text revisions students did than their point-of-inscription revisions. As one of the participants, Anderson, explained in his reflection “During this semester, I learned that revision actually does not begin after the writing but it actually begins before the writing. The process begins by making a free writing such as drawing a poster” (Anderson’s Journal Reflection, November, 26, 2012). Like Anderson, most students indicated that they began Assignment 3 with the poster activity because they had difficulty starting that paper and had to spend a lot of time developing and revising ideas through the poster.

Comments from students, such as Anderson’s, raise the question of how pre-text revisions might have affected the way students revised and how such revisions might have in turn affected text quality. As Witte (1985) argues, “…the subprocess of revising can be embedded into the subprocess of planning, the result of which is a pre-text that can take a number of forms and can be revised in much the same way and for many of the same reasons that a writer would revise a written text” (p. 278). Thus, other kinds of revision, such as pre-text revisions that were not captured in my study might have
influenced the quality of students’ texts. In addition, analysis of effects of revision on text quality should be based not only on quantitative analysis but also on qualitative analysis of students’ perception. Taking students’ perception into account might help provide a richer understanding of the relation between revision and text quality.

**Chapter Summary**

This chapter presented findings and discussion related to the research questions that guided the investigation in this study. Data used to answer the questions included surveys, students’ poster activity, listening activity, integration of visual and written texts, reflections, stimulated recall interviews, revision history, final drafts, and final scores on essays. The analysis was based on qualitative and quantitative measures. Findings for research question 1a showed that the poster facilitated students’ internal revision at the pre-text level and helped students to discover specific information, words and phrases, and organizational structure at the point-of-inscription to revise their written draft. Findings for question 1b indicate that the listening activity helped students “see”, “hear”, and “feel” issues related to rhetorical and linguistic features of their texts and revise them. In addition, analysis of research question 1c revealed that the integration of visuals and written modes helped students revise content and organization of ideas and develop “language” and a “voice” to express ideas.

With regards to research question 2, the results indicated that students did more revisions when they used the CBMCA as a procedural support. The results further showed that the students did more content-related revision than surface-level revisions, a finding that was contrary to what previous research on L2 revision has reported. Reasons,
such as explicit instruction on revision, the focus on revision history rather than different drafts, and the length of time students used to compose in this study, were identified as possible explanation for the findings in the current study.

Further, the results showed that most of the revisions that students did were additions and non-error triggered, and that inexperienced students with low proficiency did not notice linguistic errors, such as grammar and vocabulary errors in their drafts. Finally, there were contradictory findings regarding the relationship between total frequency and the quality of texts that students produced. This was similar to the contradicting results from previous research where Yagelski, (1995) found that more revision did not lead to improvement in text quality but other researchers found a positive correlation between revision and text quality (Reynolds & Bonk, 1996; Sengupta, 1998; Stevenson et al., 2006). Analysis of students’ perceptions as recorded in their reflections and interviews, however, revealed that they saw the revisions they did as having a positive impact on the quality of the texts they produced. In some cases, student interviews indicated that pre-text rather than point-of-inscription revisions could explain the relationship between revision and text quality.

The next chapter reiterates the purpose of the study and draws conclusions about the potential of the computer-based multimodal composing activities to facilitate L2 writers’ noticing and self-revision. The chapter also presents the limitations and implications of the study and suggests a direction for future research.
CHAPTER 5: IMPLICATIONS AND CONCLUSION

In this chapter, I discuss the implications of the study for English L2 writing research and pedagogy. In doing so, I reiterate the purpose of the study, provide a summary of the major findings, and explain the limitations that must be taken into consideration in interpreting the findings. Following this, I discuss the theoretical and pedagogical implications of the findings and draw conclusions about the potential of the computer-based multimodal composing activities to facilitate L2 writers’ noticing and self-revision. Finally, I suggest directions for future research.

Reiterating the Purpose of the Study

“You keep saying it needs improvement; how should I improve it?” As I explained in Chapter 1, this question from Christina, one of my former students, is what gave me the quest for ways to help my students do successful self-revision. My research addressed a two-fold need: My quest for ways of facilitating my students’ self-revision (pedagogical), and the need to contribute to the literature on L2 writing in terms of how computer-based multimodal composing activities might help students do successful self-revision (contributing to L2 writing research). The purpose of this study, therefore, was to explore how the CBMCA might help students notice linguistic and rhetorical elements that needed revision in their writing and make successful revisions.
Summary of Major Findings

The major findings of this research are based on the analysis of the data as presented in chapter 4. In all, the findings indicated that students did more content-related revision than surface-level revisions; and the poster activity facilitated internal revision, and it helped students discover specific information, linguistic elements, and organizational structure that they used to revise their draft. In addition, the findings indicate that the listening activity helped students notice problems with rhetorical and linguistic features of their draft, while the integration of visuals and written modes helped them revise content and organization of ideas and develop “language” and the “voice” to convey ideas that they were struggling to express using the written mode alone. Further, the findings show that there was no significant correlation between total frequency of revision and text quality in Assignment 3. There was a significant correlation between total frequency of revision and text quality in Assignment 4. However, there are a few limitations related to data collection and analysis that need to be taken into consideration in interpreting these findings.

Limitations

First, the study could not capture textual changes that students made at the final stage when they used Microsoft Word to format their papers before submitting them for grading. Students used Microsoft Word for the final revision because it was difficult for them to use Google docs to format their visuals for effective integration. Revisions made to the written text at this point could not be captured except the addition of the visual. Although students were encouraged to use the Track Changes option in Microsoft Word so that I could analyze changes they made to their papers, they did not
use the tool because they complained that it made their formatting untidy and confusing. As seen from students’ comments about how they benefited from using written and visual texts integration activity, revisions done at this point in the composing process could have influenced text quality, but these could not be recorded and were not taken into account in calculating the correlation between revision and text quality.

Second, the study did not record pre-text revisions but focused solely on point-of-inscription revisions. However, the stimulated recall interviews suggest that there were times that students used the poster activity for pre-text revisions and this could have influenced the amount of revisions they did at the point-of-inscription as well as the quality of the text they composed. The pre-text revisions might have influenced the correlation between students’ revisions and text quality in ways that this study did not capture.

Third, I could not control for all the possible factors that could influence noticing in this research. For example, my responses to students’ questions about their papers during in-class activities and student-teacher conferences could have facilitated their noticing of problems in their writing. During the stimulated recalls, some students wanted feedback on their papers, and comments that I gave could have aided what they noticed and revised; however, I did not analyze how teacher comments might have contributed to noticing in this study. I did, though, try to respond to students’ questions carefully in order not to provide any specific details that might have influenced their noticing of linguistic and rhetorical problems in their drafts. Despite these limitations, the findings of the study have important theoretical and pedagogical implications.
Theoretical Implications: Contribution to L2 Writing Research

With regards to theoretical implications, the findings suggest that there is the need to re-conceptualize “draft” as the unit of analysis for L2 research on self-revision and focus more on in-process revisions rather than between-draft revisions. The study also provides empirical evidence on how L2 writing researchers might benefit from theoretical insights from other fields, such as Second Language Acquisition, Composition Studies, and Computer Assisted Language Learning, in the search for a deeper understanding of how L2 writers do self-revision. Each of these implications is discussed below.

The need to re-conceptualize “Draft” and focus more on In-process rather than Between-draft revisions

One finding of this study was that students did more content revision than surface revision. This was contrary to what previous studies have reported that these learners focus more on surface-level than content-level revisions (Chambers, 2011; Suzuki, 2008). As I explained in chapter 4, one reason why my finding was different from previous studies is that I focused on in-process revisions but most previous research has focused on multiple drafts as the unit of analysis. Research on revision has been greatly influenced by the process approach to writing and its emphasis on multiple drafts. Most previous studies on revision in the 1980s, 1990s, and early part of 2000, saw multiple drafts as the marker of revision and focused on comparing multiple drafts.

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7 In-process revision is embedded in the composing process and is found within the same draft (changes within a single draft). Between drafts revisions are made after a draft is composed in order to produce a new draft. They are observed by comparing multiple drafts.
in analyzing revision. Conclusions about students’ revision practices were, therefore, based on between-draft revisions (Dave & Russell, 2010).

However, evidence from my students’ revision in Google docs shows that the students did not compose multiple-drafts. Rather, they composed “single” drafts with developmental histories of revision, which could not be demarcated into first, second and final drafts. This finding is similar to what Dave and Russell (2010) found about how some of their participants defined and composed a “draft”. As these authors point out, the computer has changed the way students compose a draft when they use word processors to write their essays. The type of draft that students in my research composed (a single draft) raises two theoretical issues:

1. What is a draft?
2. What should be the unit of analysis for research that focuses on self-revision when students compose using the word processor?

The way students composed their drafts in my research has implications for L2 writing research on self-revision. It indicates the need to expand the meaning of a “draft”. A clear conceptualization of what constitutes a “new draft” is important for any research that seeks to analyze students’ revision by comparing multiple drafts. Indeed, findings from my study affirm the observation that the “ongoing revision of a ‘single’ draft allowed by word processing provides no demarcation between drafts” (Dave & Russell, 2010, p. 410); and suggest that research on self-revision needs to focus on in-process rather than between drafts revisions in order to unravel the “mystery” that continues to surround L2 writers’ self-revision. For instance, the revision history, in Google docs, revealed something that one might not be able to capture if one focuses on between-draft revisions rather than in-process revisions. It shows that while analysis of
in-process revisions might indicate that students do more content-related revisions, between-drafts analysis might not indicate any major change in terms of content.

Findings from my research, therefore, suggest the need for L2 classroom writing research to focus more on in-process revisions in order to deepen our understanding of the revision practices of our students. Focusing on between-drafts revisions will only tell half (or maybe even less than half) of the story of the nature of L2 writer’s self-revision. Re-conceptualizing a “draft” as a developmental history of revision rather than a demarcated portion of an essay at a particular stage in the composing process, will allow researchers to focus on in-process revisions and present revision as a recursive, embedded, and on-going process (Barkaoui, 2007) of addition, deletion, and substitution of ideas and linguistic elements that change the meaning of a text and, in some cases, might lead to improvement in the quality of students’ texts.

Empirical evidence on how L2 writing research might benefit from insights from other fields in the search for a deeper understanding of L2 writers’ self-revision

The study provides empirical evidence on how insights from other fields might help L2 researchers in our search for a deeper understanding of students’ self-revision. The field of Second Language Writing emerged as a sub-discipline of Teaching English as a Second Language (Atkinson, 2003; Matsuda, 2003) and has benefited from insights from other fields of study (Royce, 2002). In my research, I adopted insights from Composition Studies, Second Language Acquisition (SLA), and Computer Assisted Language Learning (CALL), in framing the study, designing the CBMCA, as well as collecting and analyzing data.
For instance, the CBMCA were designed using insights from SLA research that self-monitoring, conscious reflection, and taking steps to revise one’s output to make it more native-like can occur not only in speaking but also in writing (Hanaoka & Izumi, 2012; Swain & Lapkin, 1995, Williams, 2012). Also, insights from SLA regarding the role of writing in L2 acquisition (Harklau, 2002) and the need to focus on a write-to-learn approach (Wolff, 2000; Williams, 2012) helped me plan the activities with a focus on helping students to see writing as a means of learning the rhetorical and linguistic features of academic English.

In addition, insights from CALL regarding learner training (Hubbard, 2004), the use of electronic media in L2 writing (Pennington, 2003), the need for language teachers to help learners gain access to the target language through technology (Chapelle & Hegelheimer, 2004), and tips for teaching writing with CALL (Chapelle & Jamieson, 2008) helped me in making decisions for learner training, selecting technology for the CBMCA, and developing the writing course for the study. Further, insights from Composition Studies regarding writing as “design” and a multimodal activity (Kern, 2000; Selfe, 2007; Shipka, 2005) provided theoretical perspective on how the use of other semiotic modes might help L2 writers overcome challenges they face in academic writing.

The use of multiple and interdisciplinary perspectives in my research, therefore, demonstrates how the integration of insights from Composition Studies, CALL, and SLA, can help L2 writing researchers gain a deeper understanding of challenges that students have with self-revision and steps that can be taken to help them overcome their challenges. To my knowledge, my research is the first that integrates perspectives from
Composition Studies, SLA, and CALL to investigate L2 writers’ self-revision. By this, my study documents how insights from other fields can help L2 writing explore how computer-based multimodal composing activities facilitates L2 writers’ self-revision.

*Paying equal attention to pre-text and point-of-inscription revisions in investigating the relationship between revision and text quality*

Besides, the theoretical implications, my study also calls attention to a methodological issue in revision research. In trying to understand the relation between revision and text quality, researchers may have to consider the impact of both pre-text and point-of-inscription revisions on students’ writing. As I indicated in Chapter 4, research on L2 writing has yielded conflicting results regarding the relationship between students’ revision and text quality. Yagelski, (1995) found that more revision did not lead to improvement in text quality; however, Reynolds and Bonk (1996) and Stevenson et al., (2006) found that frequent revision resulted in improvement in text quality. My study also yielded contradictory results, which indicated no significant correlation between total revision and text quality in Assignment 3 but a significant correlation in Assignment 4. The findings also indicate that the quality of text in Assignment 3 could be influenced by pre-text revisions rather than point-of-inscription revisions; and suggests the need to pay equal attention to pre-text and point-of-inscription revisions. This echoes Witte’s (1985) call on L2 writing researchers to pay attention to how revision at the planning state might affect text quality.
**Pedagogical Implications**

In addition to the theoretical implications, my research has some important implications for L2 writing pedagogy. The study indicates the need to take the classroom context into consideration in defining revision in order to design appropriate and practical activities to promote self-revision. Also, findings from the study draw attention to the potential of CBMCA as well as challenges associated with using the activities as procedural support to facilitate students’ self-revision as they compose academic papers. In what follows, I explain these implications.

*The need to take the classroom context into consideration in defining revision*

The findings show the need to take the classroom context into consideration in defining “revision” for L2 writing instruction. As I explained under the theoretical implications, not all L2 writers produce multiple drafts. In addition, different writing contexts require a different amount of time for completion. For instance, authors who write books or research articles for publication may spend more time on revision than students who compose essays in the L2 writing classroom. As Bishop (2004) observes, the “processes can take hours—even days, weeks, lifetimes” (p. V). In the classroom, students usually have a limited time (between 2-3 weeks) to complete their essays and turn them in for grading. This implies that most of the strategies that writers use outside the classroom might not be effective or practical in the context of the classroom. The specific context of the L2 writing classroom must be taken into consideration in planning revision activities because imposing a generic definition of “revision” might not be effective in some writing contexts.
In planning pedagogical intervention to facilitate revision in L2 writing classroom, teachers need to take into account the type of revisions that students make and define revision in their specific context. As analysis of students’ revision in my study reveal, there are times that students may not compose multiple drafts but one draft that undergoes in-process changes. In such contexts, defining revision as changes made between drafts (re-transcription) will contradict what students are doing. Furthermore, for students who do not produce multiple drafts, some strategies for revision found in most writing textbooks (setting an initial draft aside and coming to it at a later date, not paying attention to grammar and style as one revises a first draft) might not resonate with the way they revise. For instance, the following suggestion from *The Concise McGraw-Hill Guide: Writing for College, Writing for Life* by Duane, Glau, and Maid (2009), which is typical of the revision strategies suggested by many college writing textbooks, might not work for students in my study:

As you revise your early drafts, hold off on doing a lot of heavy editing. When you revise you will probably change the content and structure of your paper, so time spent working to fix problems with sentence style or grammar, punctuation, or mechanics at this stage is often wasted (p. 178).

The strategy above will not be effective for students’ in my research. Not only did my students not compose multiple drafts, but they also revised content, grammar, and style as an on-going embedded process as they composed their papers. For such students, activities that are meant to facilitate self-revision should be designed as on-going procedural support rather than an activity that is done after composing. Thus, L2 writing teachers need to consider the specific context of revision, in terms of how a particular group of students revise, in order to plan successful pedagogical interventions to facilitate self-revision.
Affordances and factors that influence the success of CBMCA as procedural support for facilitating self-revision

Findings from this study affirm observations from previous research that less experienced L2 writers struggle with revision because of lack of proficiency in the target language (Chenoweth & Hayes, 2001, Kobayashi & Rinnert, 2001; Silva, 1993) and that they may benefit from computer-based instructional and procedural support (Reynolds & Bonk, 1996). In general, findings from this research indicate that the CBMCA, as procedural support helped students to revise the content, organization, and some linguistic elements in their papers. In addition, the activities helped students express emotions, assume ownership of their writing, and develop a “voice” to express their ideas. In what follows, I discuss some affordances as well as factors that must be taken into consideration to ensure the success of the CBMCA.

Encouraging content-level revisions

The poster activity facilitated internal revision at the pre-text level and helped students discover specific information, words and phrases, and organizational structure at the point-of-inscription. However, there are some factors that need to be taken into account to ensure the success of this activity. Students’ beliefs about revision influenced their attitude toward and use of the poster activity for revision. Ryan and Anderson, who believed that revision should focus on grammar correction, found the poster activity less helpful while others who thought revision should focus on development and organization of ideas found the poster activity useful. Thus, for the success of this activity in a writing classroom, teachers may want to create opportunities for students to articulate their
beliefs about revision at the beginning of a course and help students who pay less attention to content-level revisions to broaden their understanding of revision in order to explore how the poster activity might help them do content-level revisions.

Furthermore, students’ perception of how difficult a topic was as well as their learning styles influenced how they used the poster activity. Analysis of students’ interviews revealed that they used the poster activity when they had difficulties with their topic and wanted a means to generate and organize ideas. In addition, Ryan indicated that he did not like the poster activity because he is not a visual learner but Shirley, who described herself as a visual learner, saw the poster activity as one of her best activities in the class. Also, students did not always follow the order in which I had planned the poster activity (written draft before poster). Sometimes, they created the poster before starting the written draft; other times they used it after starting the drafts. This suggests that students may not always see the poster as necessary or useful and they should be allowed to decide when they want to use it. Rather than making this activity a strict requirement for students, the poster activity may be best presented as one of the recommended activities that students might use to generate, improve, and organize ideas in the writing process. The amount of flexibility that is given to students regarding when to use the poster activity may determine the success of this activity in facilitating their revision.

**Helping L2 writers to express emotions and assume ownership of their writing**

Like the poster activity, the listening activity has its affordances and factors that may make it successful. Findings from this study show that the activity helped students notice problems with rhetorical and linguistic features of their academic texts. Students
also reported that they found this activity more fun and less stressful than reading their essays aloud by themselves; and that it helped them “see”, “hear”, and “feel” what needed revision in their essays and look at their essays from the readers’ perspective. As Tonia, expressed:

 First, I opened the *Natural Reader* to listen my own writing making myself a reader. I could hear of some grammar errors clearly and some sentences that are not fluent. And I felt that my introduction was not very attractive (Tonia’s Final Reflection, December 14, 2012).

Similar comments from other students indicate how the listening activity may be used to help students establish pathos in their writing. Students’ comments on seeing, hearing and feeling their way through the writing and revising processes help us to understand writing and revision as an embodied experience, which involves the whole person and employs different modes in making meaning and communicating one’s ideas. The ability to “hear” and “feel” one’s essay is important for composing successful expository and argumentative essays, which call for analysis and persuasion. However, one of the problems of L2 writers, according to findings from Contrastive Analysis, is that they find it difficult to express emotions effectively in the target language because “different languages have distinct emotion vocabularies and ways of expressing emotions” (Pavlenko & Driagina, 2007, p. 91). The affordances of the listening activity suggest that L2 writing teachers could explore this activity as a way of helping students to express their emotions effectively and assume ownership of their writing.

 Further, the listening activity helped students to look at their essays from the reader’s perspective. One common revision strategy that many college composition textbooks recommend is for students to put themselves in the position of their audience
and read their essays from the reader’s point of view. The following comments from L2 writing textbooks illustrate the importance of revising from the audience’s perspective:

1. “When you are ready to revise, analyze your draft by looking at its broad features. First, remind yourself who your audience is.” (Leki, 1998, p. 141).
2. “Begin your revision by pretending you are someone who is either uninformed about your subject or holds an opposing view. If possible, think about an actual person and pretend to be that person” (Faigley, 2012, p. 28).

As laudable as these recommendations are, students struggle to think from the readers’ perspectives. The challenge is how a teacher might help students to put themselves in the position of their readers. Findings from my study suggest that the listening activity may help students to put themselves into a reader’s shoes. As Anderson commented: “We can listen [to] how the native speaker speaks our paragraph; [how] it sounds like the native speaker is writing it (Anderson, Interview 2). Similar comments from students in my research suggest that the listening activity has the potential to help students revise their essays in ways that will help them to meet the expectations of their audience and achieve the purpose of their writing.

Enhancing the communication of ideas in alphabetic texts

In addition to helping students revise content and organization of ideas the integration of visuals and written modes helped students to develop “language” and the “voice” to convey ideas that they were struggling to express using the written mode alone. For instance, Ryan stated: “Some point is difficult to just write down ... and there is more to put a picture there into the essay, so I will choose that picture” (Ryan, Interview 3). Such comments from students indicate that integrating the visual and
written modes helped them with regards to meaning making and finding ways to clarify and express ideas in the target language. It further suggests that embracing multimodal composition in the L2 classroom may help students communicate effectively as they compose academic papers. The findings also highlight the potential of non-linguistic modes to enhance students’ ability to express intended meanings beyond word-based materials (Nelson, 2006; Tardy 2005) and provide access to information that may not be easily available through the written mode (MacKee, 2006; Williams, 2001).

Findings from students’ interviews show that integration of visuals into written drafts might facilitate revision if students are trained to do this effectively. My experience in this research revealed that students need explicit instruction on how to integrate visuals effectively into their alphabetic texts in order to use that as an activity for revision. In academic writing, students who integrate information in the form of tables, graphs or pictures are expected to follow conventions for effective integrations of written and visual texts. For example, the visual must be given a label or a caption that helps readers understand what it is about. In addition, the visual must be central to the discussion, appropriate for the target audience, placed where readers can easily locate it, and referenced in the written text (Lannon 2008; Faigley, 2012). Odell and Katz (2006) provide examples of questions that one might reflect on in order to ensure that the integration of visuals, such as charts, graphs, maps and tables, facilitates revision:

- Do all the visual elements on the page or screen help the intended readers find answers to the questions that matter to them?
- What does the visual information reveal about my understanding of readers and the topic?
- What kinds of details are included in the image?
• Are there any visual features (for example, photograph, charts, bulleted lists) my readers are likely to expect or appreciate? (pp. 108-152). Answers to these questions might help the students integrate visuals effectively and clarify the meaning they seek to convey through the alphabetic text. In this way, the integration of the visual mode might provide an opportunity for students to develop “language” and “voice” from other modes to enhance the message in their written texts.

*Developing “language” and “voice’ to express ideas*

The CBMCA facilitated development of some linguistic elements of students’ writing. The poster activity helped students to access specific words and phrases that helped them express the main ideas in their written drafts. The activity helped them notice some problems with spelling, grammar and vocabulary. However, students had grammar problems that could not be addressed by these activities in the CBMCA. The only activity that provided an opportunity for students to notice some grammar errors was the listening activity. Even in the case of the listening activity, there were many grammar errors in students’ papers that they could not notice.

The free version of the text-to-speech software that they used did not contain any spell/grammar check options because I did not want the software to influence noticing in my study. Analysis of students’ listening activity showed that the free version of Natural Reader was less useful for noticing grammar errors, especially in the case of students with low proficiency levels in grammar. This means that if there is no need to control for other factors that might influence students’ noticing (as I had to do in this study) then a version of the software that has spellcheck/grammar check options might be more helpful for students to notice grammar errors during the listing activity. In such cases, it is important to include Automated Writing Assessment (tool) software that focuses
specifically on providing feedback on students writing into the design of the CBMCA so that equal attention is given to rhetorical and linguistic elements in students’ writing.

The CBMCA are successful when implemented through a syllabus that is based on multimodal approach to writing

Finally, conducting this research has been a very insightful experience for me. It has taught me that CBMCA are effective if they are integrated into a syllabus that is based on a multimodal approach to composition and is done in a sustained way. When I piloted this study, I worked with an instructor who was using a syllabus based on the Process Approach to writing but all assignments in her syllabus required the use of only the written mode (alphabetic texts). The teacher saw the CBMCA as “added-on” activities that did not promote her teaching goals and students’ learning outcomes. It was, therefore, not surprising that by the fourth week of the semester, the instructor told me she could no longer fit the CBMCA in her syllabus and suggested that I worked with participants outside the class.

Contrary to the syllabus that the instructor used in my pilot study, the syllabus I used in the current study was based on the multimodal approach to composition that I discussed in chapter 2 under the theoretical framework of this study (See Appendix L, for the sample multimodal-based syllabus). In general, the multimodal-based syllabus that I used has the following characteristics:

1. It calls students’ attention to writing as a communicative event and the writer as designer.
2. It contains specific objectives for written, oral, visual, and electronic communication.
3. Activities go beyond the alphabetic text and include oral and visual modes.
4. Assignments require students to produce multimodal texts.
5. It emphasizes the importance of linguistic and rhetorical knowledge for academic writing.
6. Assignments focus on the development of strategies that are essential for academic writing, such as narrating, defining, classifying, summarizing, explaining, evaluating, analyzing, synthesizing, comparing, arguing a point, paraphrasing, quoting, citing published sources, and integrating different modes.
7. Activities call student’s attention to the linguistic and rhetorical features of academic texts such as content, logical organization, language use and mechanics, proper citation, and effective integration of written and visual modes.
8. It provides opportunity for reading responses and mini-rhetorical analysis, which help students to learn from models.
9. It emphasizes the rhetorical appeals: ethos, pathos, and logos.
10. It provides opportunity for teacher-student conferences and peer-response.

Besides the above characteristics, my experience in this study reveals that the multimodal-based writing syllabus requires a sustained implementation. The teacher needs times to plan and try out the activities and students need learner training and time to be able to use the technology and develop competence in reading and composing multimodal texts. However, as with every teaching and learning approach, using the multimodal approach in a sustained way helps the instructor to identify challenges as well as strategies that facilitate the implementation of these activities as a means of leaning a second language through writing in a given classroom context.

In all, this study suggests that asking students to revise or spend more time revising may not necessarily lead to improved writing. Teacher intervention plays a major role in helping students succeed in using the CBMCA for self-revision. The findings support the observation from previous research that if L2 writing teachers desire students to make successful self-revisions, they need to provide some procedural support by helping students to identify their own revision strategies and introducing them to other strategies that might help them revise effectively (Reynolds & Bonk, 1996; Stevenson et
al., 2006). When students are helped to develop their own voice through self-revision, then peer and instructor feedback become an added support that might make their papers even more effective.

**Directions for Future Research**

Although one semester (16 weeks) is sufficient time to develop some understanding of how the CBMCA facilitate students’ self-revision, researching the potential of the CBMCA for a longer duration might yield more findings that will add to what is documented in the current study. For instance, the case of Anderson’s changing perception of how the listening activity helped him notice errors suggests that a longitudinal study that lasts more than a semester might provide more information on students’ experiences in using the CBMCA for self-revision.

Also, students’ comments in this study suggest that pre-text revisions might impact text quality. However, the relationship between revision and text quality remains inconclusive. A future study could investigate how pre-text revisions might influence point-of-inscription revisions and text quality. For instance, students could be asked to think aloud as they use the poster as a pre-text activity. Such pre-text activities could also be recorded for analysis of instances of embedded revision at the pre-text level and how that influences point-of-inscription revisions and overall quality of students’ essays. Findings from such a study will complement what is reported in my research and deepen our understanding of how revisions embedded at different moments in the composing process influence the quality of texts that students produce.

Furthermore, a future study may focus on the challenges that the instructor faces as she/he integrates CBMCA as procedural support into the L2 writing curriculum. I
was the teacher in this research and have reported some factors that a teacher might consider in integrating CBMCA into the L2 writing curriculum. However, the data collection and analysis focused more on how the students used the CBMCA than the challenges that I faced as the instructor. Therefore, a future study, which focuses on the challenges that the instructor faces in integrating CBMCA as procedural support might add valuable information to the pedagogical implications of using the CBMCA in the L2 writing classroom.

Finally, my research focused on how advanced-low ESL writers used the CBMCA. More research is needed on how the CBMCA might facilitate noticing and revision for other L2 learners. For instance, further research on how the activities might facilitate noticing and revision for low and intermediate L2 writers might yield important findings that will complement those in my study and help L2 writing researchers deepen our understanding of how learners with different proficiency levels might benefit from the CBMCA as procedural support for revision.

**Conclusion and Reflexivity**

In conclusion, it is important to note that the focus on self-revision in this dissertation is not an attempt to rule out the importance of feedback from peers and/or instructors. It rather re-enforces the important role that self-revision plays in the development of L2 writing skills, and responds to the call in some previous studies to find ways to help L2 writers overcome their challenges with self-revision. L2 writing instructors generally agree that self-revision is an important process for successful academic writing. They also agree that linguistics and rhetorical features of academic
texts, such as content, logical organization, language use and mechanics, proper citation, and effective integration of written and visual texts, affect the quality of an academic text, and that students should be helped to pay attention to these features as they compose and revise their papers for effective communication. However, literature on L2 writing research indicates that L2 writers still struggle with self-revision. They turn to focus mostly on correcting grammar and mechanics and fail to revise content, organization, and the other features of academic texts. The literature also indicates that not much research exists on how these writers can be helped to make successful revisions.

This research was designed to contribute towards filling this gap and to help me in my quest, as an L2 writing instructor, to find ways to help my students do effective self-revision. It analyzed how advanced-low ESL writers used computer-based multimodal composing activities to facilitate self-revision as they composed academic papers. The findings indicate that computer-based multimodal composing activities have the potential to facilitate L2 writers’ self-revision. This dissertation has not only helped me find some answers to my quest, but it has also contributed to the field of Second Language Writing. By adopting an integrated theoretical framework (Multimodality, Noticing, and Multi-dimensional Model of Revision) to study how CBMCA facilitate revision, the study provides a new theoretical perspective for investigating students’ self-revision in the L2 writing classroom. In addition, with its special focus on point-of-inscription revisions history rather than multiple drafts, the study yielded evidence that previous research did not provide. Despite a few methodological limitations, the findings and methods in this study have theoretical and pedagogical implications for L2 writing and are informative for future research.
Finally, conducting this research has been a very insightful experience for me. Positioning myself as a teacher-researcher gave me an opportunity to gain some understanding of how L2 writers might benefit from computer-based multimodal composing activities as they revise their papers in order to communicate successfully through academic writing. It has also taught me that the CBMCA are effective if they are integrated into a syllabus that is based on a multimodal approach to composition and is done in a sustained way. In all, this dissertation provides empirical evidence that adopting a multimodal pedagogy, such as the CBMCA, as procedural support in the L2 writing classroom does not distract students’ attention from alphabetic writing but might rather enhance invention and revision and help students to construct, clarify, and express meaning successfully. It also suggests that self-revision needs to be emphasized, in L2 writing pedagogy, as the first step in the revision process in order to help students to develop their own voices and ideas, something no instructor or peer can do for them. Writer autonomy, which is the ultimate goal of every academic writing course, can be achieved only when students are helped to develop their own voices and to see feedback from peers and instructors as additional help in the writing process.
APPENDIX A: PRE-SURVEY PROTOCOL

Your Name……………………………..

This questionnaire is aimed at gathering information on the experiences you have with using technology to learn ESL writing, composing multimodal texts, and how you do revision as you write academic papers/essays. Any information given is solely for academic purposes and will be treated with confidentiality. I (Richmond Dzekoe) encourage you to ask me any questions you may have regarding this survey and the research in general.

A/ Personal data and Language background
1. Gender:   Male [ ]   Female [ ]
2. What is your major?______________________________
3. What is your country of origin? _______________________
4. What is your first language (mother tongue)?  ___________________________
5. How many semesters of English have you had at college level?________________
6a. Rate yourself as an English learner
   [ ] Fair
   [ ] Good
   [ ] Very Good
   [ ] Excellent

6b. What was your score on the TOEFL………… …………or the IELTS……………………

7. Rate your skills in revising your own draft as you write English compositions
   [ ] Fair
   [ ] Good
   [ ] Very Good
   [ ] Excellent

B/ Experience with multimodal texts

8. In the blank to the left of the item, please tick (√) the things you read, write, watch or play at home and in school:
   ____Comics
   ____Magazines
   ____Newspapers (e.g. Iowa State Daily, Des Moines Register etc)
   ____Television
   ____Computer games
   ____Information on the Internet
   ____E-mails
   ____Texting (i.e. using cell phones to send text messages
   ____Other things (add anything here that isn’t listed)

9. Do you prefer reading texts that have only words or both words and pictures?

10. Please explain your response to question 9 above

11. What can words tell you that pictures can’t?

12. What can pictures tell you that words can’t?
C/ Experiences with Writing

14. Where do you get your information or ideas for writing? In the blank to the left of the item, please number them 1, 2, 3, 4, 5 etc; where 1= the source on which you most frequently depend for information, and 5 (or the last number) = the source which you least depend for information.

___Your own ideas and experiences
___Other people’s ideas and experiences
___Events and issues in your own community or other communities
___Books, newspapers, magazines (stories you read)
___TV shows
___Other ...(mention any sources that have not been listed)____________________

15. What do you usually focus on improving when you write in English? In the blank to the left of the item, number them 1, 2, 3 … 9; where 1= the item you most frequently focus on improving and 9= the item you least focus on improving.

___Content
___Organization
___Vocabulary
___Spelling
___Punctuation
___Convincing the audience
___Having a unique style
___Sentence structure
___Stating and developing the central message or theme

16. How often do you revise your papers before submitting them for grading?

[ ] Once [ ] twice [ ] More than twice

17. Briefly explain how you normally revise your papers as you compose your academic papers_________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________

18. Where do you get the most help, when you write in English? Please number them 1, 2, 3 and 4; where 1= your most frequent sources of help and 4= your least frequent source of help.

___Friends
___Family members (parents, siblings, etc)
___Teachers
___Using models (from books, magazines, etc)

19. Without help from friends, family, teachers etc. how easy is it for you to notice the gaps in your own writing?

[ ] Very easy [ ] fairly easy [ ] Not easy i.e challenging [ ] Very challenging

D. Experiences with composing with technologies

20. In the blank to the left of the statement, please respond with

3= Very Good (I have sufficient skill to help others with this)
2= Good (I have enough skill to do this on my own, but can’t help others)
1= Beginning (I have just been introduced to this skill)
0= Not familiar (I have no experience using this skill)
___Using PowerPoint
___Editing and organizing photographs using basic image editors (e.g. Microsoft Paint, iphoto)
___Integrating pictures and other images into your written texts
___Using Gloster to create posters
___Using Google docs
___Natural Reader

Please check the position on the continuum that best describes your use of technology to Compose in English.

21. If I am writing a paper in English and need help finding or spelling a word, I use the language help in the word processing program or on the Internet.

<table>
<thead>
<tr>
<th>Always</th>
<th>Frequently</th>
<th>Sometimes</th>
<th>Seldom</th>
<th>Never</th>
</tr>
</thead>
</table>

22. I search on the Web for information that I need when I am writing a paper for class or for my job.

<table>
<thead>
<tr>
<th>Always</th>
<th>Frequently</th>
<th>Sometimes</th>
<th>Seldom</th>
<th>Never</th>
</tr>
</thead>
</table>

23. I participate in chatrooms and contribute to discussion groups and Wikis on the Web to develop my writing ability

<table>
<thead>
<tr>
<th>For more than an hour every day</th>
<th>Almost everyday</th>
<th>About once a week</th>
<th>Less than once a week</th>
<th>Never</th>
</tr>
</thead>
</table>

24. I keep a blog to communicate in English with anyone who wants to know what I am doing or what I am writing about.

<table>
<thead>
<tr>
<th>Frequently</th>
<th>Occasionally</th>
<th>Rarely</th>
<th>Never</th>
<th>I don’t know what a blog is.</th>
</tr>
</thead>
</table>

25. Use the space below to list any other technology that you use for writing that is not on this questionnaire
APPENDIX B: POST-SURVEY

Surveying English L2 Writers’ Experience of Using Computer-based Multimodal Composing Activities to Revise their Academic Papers

Dear student, in this course you wrote essays on different topics and had several opportunities to revise your essays. You also used different activities to help you revise your papers, such as making a multimodal poster, reflecting on the poster in order to discover and refine the content and organization of your papers, listening to your essays being read aloud to you, and integrating visuals into your written texts. This questionnaire is aimed at gathering information on the experiences you had in this class. The information is to help me understand what you learned as well as what you think and how you feel about the class activities. Please answer the following questions honestly. Do not write your name on these sheets.

Please for each of the statements, select the appropriate response that reflects what you think and feel.

1= Strongly agree (this means that you are very sure that the statement is or was always true in your case)

2= Agree (this means that the statement is or was generally true in your case; although there may be exceptions)

3= Disagree (this means that you find the statement to be generally false in your case, although there may be exceptions)

4= Strongly disagree (this means that you find the statement to be absolutely false in your case)

Please, now answer the questions

<table>
<thead>
<tr>
<th>Statement</th>
<th>4 Strongly Agree</th>
<th>3 Agree</th>
<th>2 Disagree</th>
<th>1 Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1   The topics I chose and wrote about in this class were important to me.</td>
<td></td>
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<tr>
<td>2   I learned how to integrate written texts, visuals, videos, and spoken language AS PART OF THE PROCESS of writing academic papers.</td>
<td></td>
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<tr>
<td>3   The activities we did in this class helped me revise my papers MORE THAN I would have normally done.</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>4   Using Google docs/drive was helpful to me.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5   Making a poster as part of the writing process was helpful to me.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Statement</td>
<td>4 Strongly Agree</td>
<td>3 Agree</td>
<td>2 Disagree</td>
<td>1 Strongly Disagree</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------</td>
<td>------------------</td>
<td>---------</td>
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</tr>
<tr>
<td>6 The poster activity helped me to Notice some things in my paper that needed to be done differently.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>7 Depending on what type of paper I am writing, I may continue to explore how making a poster might help me develop the content and organization of my papers.</td>
<td></td>
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</tr>
<tr>
<td>8 Listening to my paper being read aloud helped me to Notice some things in my paper that needed revision.</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 Adding visuals to my papers helped me Reconsider the content and organization of my ideas.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 I may continue to explore how adding visuals to my papers might help me communicate my ideas more effectively to my readers.</td>
<td></td>
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<td></td>
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<tr>
<td>11 I learned about WOVE (written, oral visual, and electronic) communication in this class.</td>
<td></td>
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<tr>
<td>12 In creating the poster, I chose words that would help my readers understand my ideas.</td>
<td></td>
<td></td>
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<tr>
<td>13 Composing with visuals and videos helped me discover and express some meanings that would have been difficult for me to discover and express using written words alone.</td>
<td></td>
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<tr>
<td>14 The activities in this class helped me to think more deeply about my topics as I wrote the papers.</td>
<td></td>
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<tr>
<td>15 The memo on the peer response sheet was helpful in helping me reflect on my writing.</td>
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<tr>
<td>16 The peer response in this class was helpful.</td>
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<tr>
<td>17 Based on my experience, I will encourage every student to learn how to combine visuals and words to communicate ideas in writing.</td>
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<tr>
<td>18 I acquired some useful skills in organizing main and supporting ideas in my essay.</td>
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<tr>
<td>19 My ideas about how to revise my papers have improved over the course of this semester.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Statement</td>
<td>4 Strongly Agree</td>
<td>3 Agree</td>
<td>2 Disagree</td>
<td>1 Strongly Disagree</td>
</tr>
<tr>
<td>20 As I revised my papers in this class, I mostly paid attention to grammar, spelling and punctuation when I revised my papers.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>21 As I wrote my papers in this class, I mostly focused on how to develop my ideas and make them clear to my audience.</td>
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<tr>
<td>22 Writing my essay several times helped me to improve on my ideas in very significant ways.</td>
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<tr>
<td>No.</td>
<td>Statement</td>
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<td>----------------------------------------------------------------------------------------------</td>
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<tr>
<td>23</td>
<td>The comments I received from my instructor helped me to make changes that made the ideas in my papers much clearer.</td>
<td></td>
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<tr>
<td>24</td>
<td>The individual conferences I had with my instructor were helpful to me.</td>
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<tr>
<td>25</td>
<td>I found the course website easy to navigate and helpful.</td>
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<tr>
<td>26</td>
<td>It was easy to learn and use the technologies we used in this class.</td>
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<tr>
<td>27</td>
<td>I have gained more confidence in revising my papers than I had before taking this class.</td>
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<tr>
<td>28</td>
<td>The writing process we used in this class was too much of a pressure for me.</td>
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<tr>
<td>29</td>
<td>The process we used in this class demanded more time but it DID NOT give me pressure.</td>
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<tr>
<td>30</td>
<td>Overall, I think I have gained some useful skills and knowledge about REVISION in academic writing</td>
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</tbody>
</table>
APPENDIX C: INTERVIEW QUESTIONS

Stimulated Recall Interview 1

Student's Understanding of revision

- How do you understand revision?
- Before taking this class how did you use to revise your papers?
- How is the approach we are using in this class different than what you used to do?

Experience with the first CBMCA

- Tell me about your poster and your draft
- How does your poster relate to your draft in Google docs?
- Did you compose a draft before writing the draft?
- How did the making of the poster help you in revising your written draft?
- Let's talk about the poster reflection. How do you understand it? Why do you think I make you do the poster reflection?
- How did listening to your essay with Natural Reader help you?
- Do you find adding visuals (graphs, tables, pictures etc) to your draft useful?
- What questions do you have for me?

Stimulated Recall Interview 2:

CBMCA, Noticing, Revision, and Challenges

- Tell me about your poster and your draft
- Do the poster activity and listening activity help you notice anything that helps you to revise your written draft?
- Which of the technologies and activities do you find most useful?
- Do you always write a little bit of a draft before you do the poster or do you do the poster before you write a draft?
- At this point in your writing how confident are you in revising your own paper?
- So, what do you focus on when you are revising your paper?
- When you are adding visuals, how do you choose your visuals and how do you integrate them?
- What principles guide you as you integrate the visuals into your drafts?
- Have you experienced any challenges using any of the technologies that we use in this class?
- How are the activities in this class helping you revise your essays?
Stimulated Recall Interview 3:

Evolving ideas about revision, CBMCA, Noticing, Revision, and Challenges

- Tell me about your poster and your draft
- How does your poster relate to your draft in Google docs?
- At this point in the semester, how do you understand revision?
- One reason for making you do the poster, listen to your essay, and add visuals is to help you see some things in your paper that need improvement. Do you think that is happening?
- How did listening to your essay with Natural Reader help you?
- Do you find adding visuals (graphs, tables, pictures etc) to your draft useful?
- What do you do when you are adding some visual to the final text before you submit it
- What are the challenges that you have as you revise your paper

Final Exit Interview

Perception about the CBMCA and the class as a whole

- Could you talk to me about your experience in this class.
- Have you developed any kind of understanding of revision that you didn't use to have
- What challenges did you have during the semester?
- What suggestions do you have about the CBMCA that we did?
- How can we make them better for future students?
- What plans, do you have for the future? As you take English 150 and 250 in the future, how do you plan to continue to improve your revision?

Note: These are the main questions that guided the interviews. Follow up questions that arose from the conversations are not listed here.
APPENDIX D: ASSIGNMENT 1

English 101c
Assignment #1:
The Influence of Your Role Model on Your Life (500 words)

Fall 2012

There are people in life who serve as examples for others to emulate. Such people are called role models. When we reflect on our life experiences, we will be able to identify people, who we admire because they possess some “special qualities that make them attractive, memorable, and worthy of imitation” (Fitzpatrick, 2012, p 3). In this assignment, you will introduce and explain a role model you have now or one that you had during an earlier time in your life. Remember, you are NOT being asked to tell a story about your role model. Rather, you are required to help your audience (your classmates and your instructor) gain insight into the influence of your role model on your life. Specifically, you will discuss THREE characteristics, or qualities, of your role model using specific details. Completing this assignment will help you develop an important skill, reflection and explanation, which you need in order to become a more effective writer at college and in your future professional life. You will also develop the skill of organizing your ideas into effective paragraphs.

Planning and Drafting
You will choose ONE role model and share your reflection about him/her with your audience. In order to probe your topic and interest your audience, you may try to respond to the following questions:

- Who are the people who have influenced my life? Who among them do I want to write about in this assignment?
- What do I know—and what more do I need to know—about my role model?
- What are the Three characteristics or qualities that I admire about my role model?
- What specific details do I need to share in order to help my readers gain some insight into the qualities I admire in my role model?
- What specific details do I need to share in order for my audience to understand how my role model has influenced my life?
- What visuals would help my audience understand my narration?
APPENDIX E: ASSIGNMENT 2

English 101c
Assignment #2:
Exploring and Informing (650 words)

Spring 2012
Date Due:

In this assignment, you will be seeking a deeper understanding of an issue or a phenomenon by grappling with a question (exploring). This means that YOU CANNOT rely solely on your personal experience as the primary material and support for your main points. The purpose of this assignment is not to persuade your audience; so you will need to present multiple perspectives on your topic in order to provide information that others can use to gain more insight into your topic (informing).

Planning and Drafting
The first step will be to choose a topic and ask a specific question about that topic. This question will serve as a kind of a thesis statement for this exploratory essay and guide your exploration. The answers you find to your question will be the substance of the information you will provide for your audience in order to help them gain more insight into the topic. Be sure that you are giving your readers (and yourself) the opportunity to see the topic from several vantage points, some of which will almost certainly not be your usual or most comfortable way of thinking about this topic. This information also needs to meet the criterion of being relevant, and explanations must be clear and accurate. Further, in this assignment, you are required to integrate visual images into your final text. This is important because visuals, if used effectively, play an important complementary role in the effectiveness of your paper for your readers.

The following questions will help you develop ideas for your essay.

- What do I know—and what more do I need to know-- about the topic I am exploring or providing information about?
- What preconceptions do I have about the topic? (Getting these out into the open in your planning stage is very important.)
- Since I am not relying heavily on personal information, where would I get additional information to provide the multiple perspectives I need on this topic?
- Why might my audience be interested in reading my exploration or informational paper? How can I engage (interest, motivate) them?
- What details will help my audience understand my exploration and information?
- What visuals would help my audience understand my topic?
APPENDIX F: ASSIGNMENT 3

English 101C
Assignment #3:
Analyzing Place or Artifact: Campus Landscape, Building/Landmark, or Art (at least 700 words)

Spring 2012
Date Due:

In this assignment you will build on the experience of exploring and sharing information, which you developed in assignment # 2. In addition, you will develop analytical skills and general knowledge about visual analysis; an important skill and knowledge that you need to become an effective communicator in the 21st century. You may choose to analyze a work of art, such as the beautiful Font of Four Seasons in Figure 1, or a place, such as the Campanile in Figure 2. You can also choose any other place or artifact on campus.

Your purpose is to find out all that you can about your place or artifact and analyze how and why the campus designers, architects, landscape architects, or artists chose to plan and create that particular feature as they did. Sometimes this kind of project is called “place-based” analysis. The purpose of this assignment is not to try to persuade your readers that your view of the place or artifact is correct but to explore and explain how it was created and placed as well as how it has come to have meaning for you and others on campus.

Getting Started
To choose a focus for this place-based analysis, set aside some time to just walk on campus and, importantly, to sit and look. Take notes about what you see. Then re-visit the site to get more information, and go back to “your place” to look again. While your reactions and thoughts will certainly be emotional and personal on some level, the overall goal of the paper is to analyze this landscape or an object within it; so think about and take notes on the elements that make up this part of the Iowa State University landscape, what it means to you, in its specific setting, and to Iowa State University, as a community.

Include at least one image of the object or place. Integrate the image within your text rather than placing it at the beginning or end. Label the picture, and then refer to the picture when you first describe it and, if appropriate, elsewhere in your paper. See the sample in this assignment sheet (above).
APPENDIX G: ASSIGNMENT 4

**English 101c**
Assignment #4:
Mini-Research: Position Argument (700 words)
*Fall 2012*
Date Due:

In our daily lives, we read books, magazines, posters, brochures etc. We listen to the news, watch TV programs and use different social networking sites on the Internet, such as Facebook, MySpace, and Twitter, to keep in touch and have fun time with friends and family. However, we may also hear and read about or even participate in discussions on variety of issues that are controversial, such as teenage pregnancy, taxes, legalization of some drugs, abortion, assisted-suicide or the death penalty. What we read, hear, watch or write influence the way we form and share our personal opinions on issues that affect our society, in particular, and the world at large. This assignment provides you an opportunity to reflect on ONE issue that is of interest to you and persuade your audience to accept your views on the issue. You will also practice the rhetorical appeals: ethos, pathos and logos as you.

**Planning and Drafting**
You will choose ONE CONTROVERSIAL issue or a problem that affects your school community or the larger society, research the issue, and compose an argument that clearly conveys your stands on the issue. This is a position argument essay; therefore, you need to explain the issue very clearly in your introduction and state your claim in a thesis statement that will guide your readers to follow the general organization of your paper. Your main purpose is to explain the issue to your audience and convince them that your position is the most reasonable one.

The following questions will help you develop ideas for your essay.

- Why am I interested in this issue?
- What do I know—and what more do I need to know-- about the issue I am writing about?
- What is my main claim?
- Why am I making this claim?
- What makes my position the most reasonable one?
- What supporting details will help me convince my audience?
- How might my opponent respond to my position?
- What is my attitude towards this issue? How will I convey this effectively to my audience?
- What visuals would help my audience understand my point?
APPENDIX H: GUIDED REFLECTION ON POSTER ACTIVITY

The following questions are meant to help you reflect on your poster so that you can discover new ideas and strategies that you have expressed in the poster that might help you revise your written draft in Google docs. In other words, the questions will help you analyze your poster critically and rhetorically, and develop the SUBSTANCE, ORGANIZATION, LANGUAGE and STYLE, of your written draft.

SUBSTANCE
1. What is the main message (thesis) of this poster? Can you state that in one sentence?
2. What other minor ideas are captured in the poster? Please list them.
3. Who is/are the intended audience?
4. What is the main purpose of the poster?
5. Why did you choose the background color that you did?
6. Why did you use those images and/or videos in the poster?
7. What information do the images/videos give that is not already in your written draft?
8. Comparing your written draft with your poster, what new information do you think your poster brings to your audience?
9. How will the ideas in the poster help you build on the ideas in your written draft?

LANGUAGE & STYLE
10. What words on the poster convey the main message of the poster?
11. Have you included some credible sources about your topic in your poster?

ORGANIZATION
12. Is the main idea in the poster divided into clear and simple sub-ideas? How?
13. Why did you arrange the materials (words, images, sounds, videos) on your poster the way you did?
14. Is there any idea that contradicts your main message?
15. What questions might your readers raise about your poster? And how would you respond to these questions?
16. How might the organization of ideas in your poster help you organize your ideas in the written draft?
APPENDIX I: RUBRIC FOR ASSESSING ACADEMIC MULTIMODAL TEXTS
(By Richmond Dzekoe: 2012)

Explanation of Concepts on Rubric

**Content:** This involves the purpose, position, and audience of the composition

**Substance:** This focuses on the scope, depth, relevance, and the general appeal of the composition.

**Organization:** It involves the focus, structure, relationship, and emphasis of ideas in the composition.

**Style:** This involves conventions, Aesthetics, and variety

**Delivery:** Involves consistency, engagement, accessibility, and layering

**Intersemiotic Complementarity** (Royce, 2002): This framework combines the model of Multimodal Assessment suggested by the New London Group (1995) and the concept of sense relations (Halliday, 1994; and Halliday & Hasan, 1975, 1985). Although, Royce mentions six sense relations: repetition, synonymy, antonymy, hyponymy, merronymy, and collocation, I use three main aspects of sense relations in this rubric. This is to make the rating of the essays less burdensome for the raters. The three sense relations include these:

1. **Intersemiotic repetition:** The repetition of the same experiential meaning as encoded in the verbal and visual texts.
2. **Intersemiotic synonymy:** The expression of similar experiential meanings as encoded in the verbal and visual texts.
3. **Intersemiotic antonymy:** The presentation of opposing or conflicting experiential meanings as encoded in the verbal and visual texts.
## Rubrics for Students’ Assessing Multimodal Academic Texts

<table>
<thead>
<tr>
<th>Exemplary</th>
<th>Mature</th>
<th>Competent</th>
<th>Developing</th>
<th>Beginning</th>
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</thead>
<tbody>
<tr>
<td><strong>Context</strong></td>
<td>(10) The treatment of topic is original and very thoughtful. It engages reader early and is mindful of audience.</td>
<td>(8) The treatment of topic is original and somewhat thoughtful. It engages reader but not early enough; shows signs of being mindful of audience but can be improved.</td>
<td>(6) Treatment of topic is original but lacks thoughtfulness. Audience is implicit and difficult to find. Engages reader only late in the paper.</td>
<td>(4) Treatment of topic is NOT original and lacks thoughtfulness. Fails to engage audience. In general, the context is insufficient.</td>
</tr>
<tr>
<td><strong>Substance</strong></td>
<td>(15) The content is relevant, supporting details are very carefully chosen, appropriate for the topic, and substantial.</td>
<td>(12) The content is relevant, and supporting details are appropriate for the topic, but need to be more specific.</td>
<td>(10) The content is somewhat relevant, supporting details seem too general and needs to be made more specific for the topic.</td>
<td>(6) The content is irrelevant, to the main topic; supporting details seem too general, content not substantial for the topic.</td>
</tr>
<tr>
<td><strong>Organization</strong></td>
<td>(15) Intro provides a very explicit, specific, and clear thesis; and provides overview of organization. Conclusion recasts the thesis - Smooth flow of ideas in the paper; ordered in a logical sequence that effectively guides the reader; each paragraph has a well supported and clearly-stated main point; There is effective use of transitions.</td>
<td>(12) Intro provides thesis that is somewhat clear but not explicit and specific enough. Conclusion recasts thesis but could be improved. - Flow of ideas in the paper could be more effectively sequenced; most paragraphs have clear and support main point; most topic sentences focus on developing the thesis but could be improved.</td>
<td>(10) Intro provides thesis but lacks clarity, is too general. Conclusion only recasts thesis weakly. - Ideas flow in a logical, cohesive manner but paragraphs often do not have clear and supported main idea; topic sentences are present but do not effectively focus on the thesis. The development of ideas needs work.</td>
<td>(6) Intro provides thesis which is only implicit and hard to find; and conclusion fails to recast the thesis. Both intro and conclusion need major revision. - Sequence of ideas and paragraphs need major revisions. Topic sentences are NOT well written and fail to focus on the thesis.</td>
</tr>
<tr>
<td><strong>Style: Language and use</strong></td>
<td>(25) Correct, appropriate, and varied integration of textual examples, including in-text citations; limited errors in spelling, grammar, word order, word usage, sentence structure, and punctuation; good use of academic English.</td>
<td>(23) Correct, appropriate and some integration of textual examples, including in-text citations; However, there are some FEW errors in spelling, grammar, word order, word usage, sentence structure, and punctuation; and with using academic English.</td>
<td>(20) Correct and appropriate integration of textual examples, including in-text citations; However, MANY errors per page in spelling, grammar, word order, word usage, sentence structure, and punctuation; Major problems with using academic English.</td>
<td>(15) MOSTLY incorrect sentence structures integrating textual examples, including in-text citations; SEVERAL errors per paragraph in spelling, grammar, word order, word usage, sentence structure, and punctuation; informal language used in multiple instances.</td>
</tr>
<tr>
<td><strong>Intersemiotic Complementarity</strong></td>
<td>(25) The integration of verbal and visual texts shows effective encoding of same experiential meaning (Repetition); or similar experiential meaning (Synonymy); or opposing/Conflicting meanings. Or, all three meanings are effectively encoded.</td>
<td>(23) The integration of verbal and visual texts shows a good encoding of same experiential meaning (Repetition); or similar experiential meaning (Synonymy); or opposing/Conflicting meanings. Or, all three meanings are encoded but need some revision to be effective.</td>
<td>(20) The integration of verbal and visual texts shows some somewhat a fair encoding of same experiential meaning (Repetition); or similar experiential meaning (Synonymy); or opposing/Conflicting meanings. Or, all three meanings are fairly encoded.</td>
<td>(15) The integration of verbal and visual texts shows a weak encoding of same experiential meaning (Repetition); or similar experiential meaning (Synonymy); or opposing/Conflicting meanings. Or, the encoding of meanings needs major revision.</td>
</tr>
<tr>
<td><strong>Delivery</strong></td>
<td>(10) Consistency in typography and headings, page layout makes the paper easy to read. Sites sources using APA or MLA style. Visuals are well positioned in relation to the written texts, given captions, and are specifically referenced in the written text in a way that helps readers understand how the visual complements the written text.</td>
<td>(8) Consistency in typography and headings, but displays minor problems with page layout and citing of sources using APA or MLA style. Displays minor problems with visual integration. There are minor problems with position and referencing of visuals.</td>
<td>(6) There is some consistency in typography and headings, but displays some problems with page layout, citing of sources using APA or MLA style, and integration of visuals. However, these problems do not impede comprehension.</td>
<td>(4) Major problems with typography and headings. Display major problems with page layout and citing of sources using APA and MLA style. Displays problems with the integration of visuals. Problems seem to impede comprehension.</td>
</tr>
</tbody>
</table>
APPENDIX J: CODES FOR RESEARCH QUESTION 1

<table>
<thead>
<tr>
<th>Code related to Research Question &amp; Theoretical Framework</th>
<th>Main Codes</th>
<th>Code definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Question 1a:</strong> Poster, Multimodality &amp; Noticing</td>
<td>PNA</td>
<td>Poster activity and noticing of issues related to ideas</td>
</tr>
<tr>
<td></td>
<td>PNO</td>
<td>Poster activity and noticing of issues related to organization</td>
</tr>
<tr>
<td></td>
<td>PNLS</td>
<td>Poster activity and noticing of issues related to Language &amp; Style</td>
</tr>
<tr>
<td></td>
<td>COMIP</td>
<td>Comments on how the integration of modes helped noticing and revision (Positive)</td>
</tr>
<tr>
<td></td>
<td>COMIN</td>
<td>Comments on how the integration of modes helped noticing and revision (Negative)</td>
</tr>
<tr>
<td><strong>Question 1b:</strong> Listening, Multimodality &amp; Noticing</td>
<td>LNA</td>
<td>Listening activity and noticing of issues related to ideas</td>
</tr>
<tr>
<td></td>
<td>LNO</td>
<td>Listening activity and noticing of issues related to organization</td>
</tr>
<tr>
<td></td>
<td>LNLS</td>
<td>Listening activity and noticing of issues related to Language &amp; Style</td>
</tr>
<tr>
<td><strong>Question 1c:</strong> Integration of visual, Multimodality &amp; Noticing</td>
<td>IVNA</td>
<td>Integration of visuals and noticing of issues related to ideas</td>
</tr>
<tr>
<td></td>
<td>IVNO</td>
<td>Integration of visuals and noticing of issues related to organization</td>
</tr>
<tr>
<td></td>
<td>IVLS</td>
<td>Integration of visuals and noticing of issues related to Language &amp; Style</td>
</tr>
</tbody>
</table>

**Additional Emerging Sub-codes**

<table>
<thead>
<tr>
<th>Codes</th>
<th>Code definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tech Diff</td>
<td>The use of technology was difficult</td>
</tr>
<tr>
<td>Tech Easy</td>
<td>The use of technology was not difficult</td>
</tr>
<tr>
<td>CWA</td>
<td>Challenges that students faced while performing the computer-based multimodal composing activities</td>
</tr>
<tr>
<td>IPR</td>
<td>Students initial perception of revisions</td>
</tr>
<tr>
<td>NP of revision</td>
<td>New perceptions that students developed about revision</td>
</tr>
<tr>
<td>FDR</td>
<td>What students reported they focused on during revision</td>
</tr>
<tr>
<td>PR Skills (surface)</td>
<td>Students’ description of their previous revision skills as focusing on surface level revision</td>
</tr>
<tr>
<td>PR Skills (content)</td>
<td>Students’ description of their previous revision skills as focusing on content level revision</td>
</tr>
<tr>
<td>PR Skills (C &amp; A)</td>
<td>Students’ description of their previous revision skills as focusing on both content and surface level revisions</td>
</tr>
<tr>
<td>FUP</td>
<td>Students mention that they will use the poster activity in their future classes</td>
</tr>
<tr>
<td>FUL</td>
<td>Students mention that they will use the listening activity in their future classes</td>
</tr>
<tr>
<td>FUI</td>
<td>Students mention that they will use will explore integration of visuals in their future classes</td>
</tr>
</tbody>
</table>
## Codes for Research Question 1 Continued

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>Definition</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP</td>
<td>Intersemiotic repetition</td>
<td>The repetition of the same experiential meaning as encoded in the written and visual texts.</td>
<td><em>Both a visual and the written text focus on football and same words and phrases are repeated in the visual and the written draft.</em></td>
</tr>
<tr>
<td>IS</td>
<td>Intersemiotic synonymy</td>
<td>The expression of similar experiential meanings as encoded in the written and visual texts.</td>
<td><em>A visual is about people at a beach and the essay is talks about summer vacations. Similar words are used to describe a holiday experience in the visual and the written text.</em></td>
</tr>
<tr>
<td>IA</td>
<td>Intersemiotic antonymy</td>
<td>The presentation of opposing or conflicting experiential meanings as encoded in the verbal and visual texts.</td>
<td><em>A visual shows people in poverty and is meant to contrast a discussion of a luxurious lifestyle in the written draft.</em></td>
</tr>
</tbody>
</table>
APPENDIX K: MULTIDIMENSIONAL TAXONOMY

Explanation of Multidimensional Taxonomy
Used for Coding Point-of-inscription textual changes

1. Orientation:
   
   Content-level revisions: revisions that are meaning changing
   
   Egs: Original Sentences
   1. I like cats
   2. She has two cats
   
   Revisions
   1a. I don’t like cats
   2b. She has three cats

   Surface-Level: Revisions that are meaning preserving
   
   Egs: Original sentence:
   The man in a red shirt is my father
   
   Revised:
   My father is the main who is wearing a red shirt

2. Domain:
   
   Below-Clause: one word or more and less than a clause
   
   Clause and above: one or more clauses.

3. Location:
   
   This refers to the point in the composition process at which the revision takes place. Pre-text: The revision is made without being transcribed
   
   Point of inscription: The revision takes place during transcription/writing (i.e., the last word of the current text).
   
   Previous text: The revision takes place prior to the Point of inscription.

4. Action:
   
   This refers to the kind of mechanical operation that the writer carries out in order to make the revision. The following categories are distinguished:

   Addition: the addition of at least a word
   Deletion: the deletion of at least a word
   
   Example: Deletion and Addition
   For instance, McDonald’s constantly put ads promoting discounted hamburgers or fried chicken, and these products are also selling at the discounted prices. Dell’s website says that ‘buy a laptop, get an xbox’, and if it doesn’t perform as it says, it will probably lose fans. When it comes to ads for cold medicine, because cold ads promoting discounted hamburgers or fried chicken, and these products are also selling at the discounted prices. Dell’s website says that ‘buy a laptop, get an xbox’, and if it doesn’t perform is easy to cure, if your company’s cold medicine doesn’t work as it shows in advertisements, consumer will probably use other brands. These ads choose not to exaggerate to maintain reputation and avoid complain and even lawsuit.

   Substitution: the substitution of at least a word
   Eg: (However, it is very likely that many of the ads for medicines)

5. Cause:
   
   This refers to the reason for the revision, either to correct an error or just to improve the text.
   
   Error-triggered revisions are triggered by a linguistic error or an error in convention/format.
   
   Non-error-triggered revisions are prompted by considerations such as style, tone, and cohesion or just the desire to enrich ideas through details etc
   
   Example:
   
   Error-triggered (Original: The man were in the house. Revised: The man was in the house)
ENGLISH 101C:  
ACADEMIC ENGLISH II FOR UNDERGRADUATES  
FALL 2012

Instructor: Richmond Dzekoe  
Email: rsdzekoe@iastate.edu  
Office: Ross 309  
Office hours: T & Th 11am-12noon  
Mail box: Ross 206  
Class schedule: T & Th 12:40-2:00pm  
Classrooms: Pearson 2157, Lab: Ross 420

Required Materials
1. A e-mail account (Cy-mail)  
2. One portfolio folder  
3. One USB Flash Drive or other storage space

Course Description and Rationale
This course is a 16-week writing program designed to help speakers of other languages develop their language ability, rhetorical knowledge, and strategies that are essential for academic writing, such as narrating, defining, classifying, summarizing, explaining, evaluating, analyzing, synthesizing, comparing, arguing a point, paraphrasing, quoting, and citing published sources. The course is also designed to help these students deepen their awareness of the writing process and academic registers through hands on practice. In addition, it aims at preparing students to succeed in the ISUComm Foundation courses (English 150 and 250) at Iowa State University. Although most non-English speaking students admitted to ISU demonstrate good linguistic ability, they have great struggles as they begin to take English 150 and 250 because they lack the rhetorical knowledge, critical strategies, and multimodal competence that are required for success in these courses. The ISUComm is “a rhetoric-based multimodal program” (ISUCom instructor guide, 2011, p.7) and to succeed in this program, a student needs to possess:
1. linguistic knowledge of English  
2. rhetorical knowledge and ability to analyze, compose and reflect on texts using written, oral, visual, and electronic (WOVE) modes of communication.

The lack of knowledge and exposure to WOVE is one of the major problems that mitigate the success of most non-native English speakers in the English 150 and 250 classrooms. Lack of exposure to WOVE and the rhetorical knowledge needed to analyze, compose and reflect on multimodal texts compounds the struggle for the non-English speaking students who are already struggling to overcome the linguistic problems in English. This course is, therefore, designed as a rhetoric-based multimodal composition course to help students develop some basic linguistic and rhetorical knowledge that they need to succeed in English 150 and 250 at ISU.

Objectives
By the end of the course, you should be able to:

Written
- develop fluency and self-confidence in your writing  
- improve your understanding of the writing process  
- develop writing and revising strategies  
- develop your vocabulary  
- use published sources appropriately  
- increase your ability to recognize and improve problems areas in your writing  
- develop your critical thinking skills through writing
**Oral**
- give an oral presentation, either individually or as part of a team, using effective invention, organization, language, and delivery strategies
- develop basic oral presentation skills, focusing on meaningful information, clear organization, and engaging delivery

**Visual**
- rhetorically analyze and compose visual communication, such as a poster, brochure, etc.

**Electronic**
- rhetorically analyze electronic communication, such as emails or YouTube ads
- create an electronic composition (e.g. email, Wiki/blog posts)

**Major Assignments**
There will be **four major papers**, which will be spaced during the semester to allow you to focus on different writing strategies. By writing these papers, you will learn how to write to explore and inform, analyze, convince, synthesize, evaluate and argue your point of view. A detailed guide will be provided at the point of each assignment.

Revising is a crucial part of good writing; no one produces a great paper the first time through. You will have chances to revise drafts of your papers and you will get feedback from your classmates during "peer review" sessions before you hand in a paper. These sessions are a required part of the writing process, and you must bring a completed draft to get credit for participating in them. Keep all your papers in one folder for easy reference during the semester.

**Reading Response/ Mini Rhetorical Analysis**
In addition to the major assignments, there will be series of homework assignments, which may take the form of short reading responses and mini-rhetorical analyses. These assignments will be based on assigned readings from the required textbook and other reading materials that will be provided during the course of the semester.

**Conferences**
To receive additional help as you work on your assignments, you may arrange a meeting with me during my office hours. However, you will be required to attend individual conferences as you complete some of the assignments that require integration of written and other modes, such as visuals. Such conferences are meant to help you overcome any challenges that you may encounter in composing and analyzing multimodal texts.

**Class Attendance and Participation**
Classes are in a discussion/workshop format and depend on your active learning; therefore, regular attendance and productive, courteous participation with classmates and the instructor are important. Absences damage your grade in the class and create the necessity that you will need to drop the course.

**Assignments**

**Units and Grade Distribution**

| Assignment 1  Narrative: Role Models | 15% |
| Assignment 2  Exploring and providing information | 20% |
| Assignment 3  Analyzing place or artifact: Place & Landscape | 20% |
| Assignment 4  Mini-research report | 20% |
| Homework & Participation | 10% |
| Final Exam | 15% |
| **Total** | **100%** |
The grading scale for this course

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>94-100%</td>
</tr>
<tr>
<td>A-</td>
<td>90-93%</td>
</tr>
<tr>
<td>B+</td>
<td>87-89%</td>
</tr>
<tr>
<td>B</td>
<td>83-86%</td>
</tr>
<tr>
<td>B-</td>
<td>80-82%</td>
</tr>
<tr>
<td>C+</td>
<td>77-79%</td>
</tr>
<tr>
<td>C</td>
<td>73-76%</td>
</tr>
<tr>
<td>C-</td>
<td>70-72%</td>
</tr>
<tr>
<td>D+</td>
<td>67-69%</td>
</tr>
<tr>
<td>D</td>
<td>63-66%</td>
</tr>
<tr>
<td>D-</td>
<td>60-62%</td>
</tr>
<tr>
<td>F</td>
<td>59% and below</td>
</tr>
</tbody>
</table>

Academic Dishonesty

Plagiarism is a serious legal and ethical breach, and will be treated as such in this course. To learn more about how to avoid plagiarism, carefully read the article on plagiarism and use this link http://www.youtube.com/watch?v=9z3EHIoa9HI to watch the YouTube video on how to maintain honesty in academic writing.

Disability Accommodation

If you have a disability and require accommodations, please contact me early in the semester so that your learning needs may be appropriately met.

English 101C Tentative Schedule, Fall 2012 (T/TR)

NOTE: The syllabus is subject to change and does not list all readings and shorter assignments. Readings are to be completed before the class period for which they are listed. Please bring to class the text or texts from which you have a reading for the day. NB: EW2 (Engaging Writing 2, second ed.) refers to our textbook.

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic(s)</th>
<th>Reading (read before class)</th>
<th>Assignment/Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>WEEK 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T-08/21</td>
<td>Introduction to course</td>
<td></td>
<td>Overview of course: policy sheet, syllabus, and texts.</td>
</tr>
<tr>
<td>TR-08/23</td>
<td>Introductory writing on Google docs</td>
<td>-Read course policy</td>
<td>Diagnostic writing: In-Class writing.</td>
</tr>
<tr>
<td></td>
<td>Introduction to the Writing Process</td>
<td>-How to Be a Successful Language Learner by Wenden, (on course website.)</td>
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</tr>
<tr>
<td>WEEK 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T-08/28</td>
<td>Begin Assignment # 1, Narrative Recount: Role Model</td>
<td>-Read assignment sheet for assign, # 1</td>
<td>-Take an initial survey on Revision, technology use and, multimodal composition.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-Read “Kapwa-our shared identity and the influence of role models” (pp 4-7) for class and reading response #1</td>
<td>In-class activity: Practice Paragraph development Reading Response #1 Due</td>
</tr>
<tr>
<td>TR-08/30</td>
<td>Cont. work on Asg. # 1 (Topic sentences &amp; supporting ideas)</td>
<td>-Legacies by Portes and rumbaut (on course website).</td>
<td>-In-class activity: Topic sentences &amp; supporting ideas</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-Read pages 12-17 of EW2</td>
<td>-Form peer response groups (3 students in a group) and share drafts on Google docs with group members.</td>
</tr>
<tr>
<td>WEEK 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T-09/4</td>
<td>Peer Response for Assign. 1</td>
<td>-Read article on “College Writing” (on course website).</td>
<td>Draft for Assignment 1 Due</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-Read pages 34-41 of EW2</td>
<td>Have a complete draft to on Google docs to share with two classmates - three partners. Complete peer response sheet in class to be turned in with assignment. Assignment # 1 is due on 09/05</td>
</tr>
<tr>
<td>TR-09/6</td>
<td>Begin Assignment # 2, Exploring &amp; providing information</td>
<td>-Read assignment sheet for assign, # 2</td>
<td>-Practice writing effective Introductions</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>-Compose at least a two-paragraph draft of your paper in Google docs before class today</td>
</tr>
<tr>
<td>WEEK 4</td>
<td>Continue work on</td>
<td>Read article on “How to</td>
<td>-Practice turning your draft into a</td>
</tr>
<tr>
<td>Date</td>
<td>Assignment</td>
<td>Activity</td>
<td>Instructions</td>
</tr>
<tr>
<td>------------</td>
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<td>--------------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>T-09/11</td>
<td>Assgn. 2</td>
<td>Online poster activity</td>
<td>create effective posters” on course website. poster in order to develop your ideas. Complete online poster for assignment 2 before class on 09/18.</td>
</tr>
<tr>
<td>TR-09/13</td>
<td>Thesis Statements</td>
<td>-Read “To be American, Black, Catholic, and Creole” by A. Guillaume. Pages 44-47 of EW2. -Read pages 34-66 and 90-98 of EW2.</td>
<td>-Practice thesis statements and paragraph unity/coherence. Reading Response #2 Due (Read Pages 44-47 of EW2).</td>
</tr>
<tr>
<td>WEEK 5</td>
<td>Integrating visuals and texts</td>
<td>-Read article on “How to integrate visuals into texts” on course website. -Read pages 113-117 of EW2.</td>
<td>Reflection on poster due in class today. Home: Complete reflection on poster before class. Discuss integrating visuals and written texts. Integrate visuals into written texts.</td>
</tr>
<tr>
<td>T-09/18</td>
<td></td>
<td>-Read handout on citing sources using APA &amp; MLA styles. -Read pages 211-216 of EW2.</td>
<td>First Draft of Assignment 2 Due. Have a complete draft to share on Google docs. Bring the sources you are using for your assg. # 2 to class today.</td>
</tr>
<tr>
<td>TR-09/20</td>
<td>Continue work on Assgn # 2 Citing and Documenting Sources</td>
<td>-Read handout on citing sources using APA &amp; MLA styles. -Read pages 211-216 of EW2.</td>
<td>-Power Point presentation on writing for different purposes and audience. In groups of three, discuss the Rhetorical Triangle. Reading Response #3 Due.</td>
</tr>
<tr>
<td>WEEK 6</td>
<td>Final Peer Response (practice writing effective conclusions)</td>
<td>-Read pages 100-103 of EW2.</td>
<td>-Practice writing conclusions. Bring a complete draft to share with two classmates - three partners. Complete peer response sheet in class to be turned in with assignment.</td>
</tr>
<tr>
<td>T-09/25</td>
<td>Writing for different audience &amp; purposes -Introduce the rhetorical triangle.</td>
<td>Read handout on the rhetorical situation (on course website). -Read the article “Not Ignorant” on course website for Reading Response #3.</td>
<td>In-class discussion of the day’s reading. Use headphones to edit for grammar and punctuation before submission. Assignment #2 is Due today.</td>
</tr>
<tr>
<td>TR-09/27</td>
<td></td>
<td>-Power Point presentation on writing for different purposes and audience. -In groups of three, discuss the Rhetorical Triangle.</td>
<td>Reading Response #3 Due.</td>
</tr>
<tr>
<td>WEEK 7</td>
<td>Final-edit for grammar, spelling and punctuation issues in two partners’ papers.</td>
<td>-Read pages 74-79 of EW2.</td>
<td>In-class discussion of the day’s reading. Use headphones to edit for grammar and punctuation before submission. Assignment #2 is Due today.</td>
</tr>
<tr>
<td>T-10/2</td>
<td>Begin Assignment # 3 Analyzing place or artifact</td>
<td>-Read assignment sheet for assign. # 3 -Nonverbal Communication, Readings, Course Website</td>
<td>-In-class activity: Sample rhetorical analysis of a place or artifact. Prepare to do a 10 minute group presentation on your analysis in class on 10/9.</td>
</tr>
<tr>
<td>TR-10/4</td>
<td>Online poster for assignment 3</td>
<td>Read “The Singer’s Solution to Poverty” (on course website).</td>
<td>-Visit your proposed cite or artifact on campus before class today. Take pictures. Complete online poster for assignment in class today.</td>
</tr>
<tr>
<td>WEEK 8</td>
<td>Introduction to rhetorical appeals</td>
<td>-Read handout on rhetorical appeals.</td>
<td>Home: Complete reflection on poster before class on Tuesday 10/16.</td>
</tr>
<tr>
<td>T-10/9</td>
<td></td>
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<tr>
<td>TR-10/11</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>WEEK</td>
<td>Date</td>
<td>Activity</td>
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</tr>
</tbody>
</table>
| 9    | T-10/16 | Integrating visuals and texts  
*First Draft of Assignment 3 Due*  
Have a complete draft to on *Google docs.*  
- Read handout on “Verbal & Visual Relationships” on course website  
Integrate visuals into written texts.  
**Complete mid-term evaluations in class today** |
| 10   | T-10/23 | Edit for spelling and punctuation issues in two partners’ papers.  
Bring a complete draft to class to share with two classmates - three partners. Complete peer response sheet in class to be turned in with assignment  
-Use headphones to edit for grammar and punctuation before submission |
|      | TR-10/25 | Final Peer Response  
*A Global Analysis of Culture* by Thio A. (On course website)  
**In-class discussion of the day’s reading**  
**Assignment #3 is Due today**  
Group Project and Presentations |
| 11   | T-10/30 | Begin assignment 4:  
*Mini-Research Project*  
-Read assignment sheet for Assg. 4  
- Looking for sources for your mini-research project  
**Reading Response # 4 Due** (choose one of the sources you are using for your paper for this response) Send me the copy/link to the source |
|      | TR-11/1 | Continue work on assign. 4:  
*(Online poster for assign # 4)*  
**-Complete online poster for assignment in class** |
| 12   | T-11/6 | Continue work on assign. 4  
*Maintaining Consistent Point of View*  
-Read pages 140-145 of EW2  
-Discuss readings in class  
-Choose a topic, develop a thesis, write an intro etc. (Bring laptop)  
-Sign up for Conferences with me next week  
**Homework: Complete reflection on poster before you come and see me for your conferences next week. This will make our meeting more effective.** |
|      | TR-11/8 |  
**Student Conference**  
*For assignment # 4*  
Individual conferences in my office. Bring draft of #4 to conference, and discuss work you have done on your paper. **Missing a scheduled conference counts as an absence.**  
**Reading Response # 5 Due 11/15** |
<p>| 13   | T-11/13 | Reading Response # 5 Due (choose one of the sources you are using for your paper for this response) Send me the copy/link to the source |
|      | TR-11/15 | Thanksgiving Break |</p>
<table>
<thead>
<tr>
<th>WEEK 15</th>
<th></th>
<th>First Draft of Assignment 4 Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>T-11/27</td>
<td>- Edit for, grammar, spelling and punctuation</td>
<td>- Use headphones to edit for grammar and punctuation before submission</td>
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<tr>
<td>TR-11/29</td>
<td>- Final Peer response on assignment # 4: Bring a complete draft to class to share with two classmates - three partners. Complete peer response sheet in class to be turned in with assignment</td>
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<td>Assignment # 4 Due</td>
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<tr>
<td>WEEK 16</td>
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<td>Revision Week</td>
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<td>12/ 4--6</td>
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<td>WEEK 17</td>
<td></td>
<td>Final Exam: See ISU final exam calendar for the exact time and location.</td>
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<td>12/ 10-14</td>
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</tbody>
</table>
REFERENCES


*Research Notes*, 43, 25-32


ThousandOaks: CA.

